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LAND AT NEWBARN LANE,
NORTH BERSTED,
WEST SUSSEX

**Ecological Assessment
[10 Unit Scheme]**

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1. INTRODUCTION

1.1. Background & Proposals

- 1.1.1. Ecology Solutions was commissioned by Landform Estates in June 2015 to undertake an Ecological Assessment of Land at Newbarn Lane, North Bersted, West Sussex. This application for outline planning permission was granted by Arun District Council on 24 February 2016 (planning ref: BE/142/15/OUT).
- 1.1.2. Following this, Ecology Solutions was further commissioned by Linden Homes South to discharge conditions of relevance to ecology matters, as part of a reserved matters application in 2017 (planning ref: BE/113/17/RES).
- 1.1.3. Further to this, Ecology Solutions was again instructed to update the previous assessment work to support a full planning application for part of the site (hereafter referred to as the application site).
- 1.1.4. The development proposals are for 10 new residential properties. An illustrative layout of the proposals has been produced by Urban Pulse Design and is included at Appendix 1.

1.2. Study Area and Application Site Characteristics

- 1.2.1. The study area is located to the west of the village of North Bersted, near Bognor Regis, in West Sussex (see Plan ECO1). Existing residential development is situated to the east of the study area, with Newbarn Lane forming the eastern boundary. To the north lies a caravan park, with farmland situated to the south and west of the study area.
- 1.2.2. The study area is approximately 3.72 hectares in size and comprises a pasture field, with some scattered scrub and ruderal vegetation in addition to a small strip of amenity grassland. Hedgerows are present along the southern and western boundaries of the field, whilst a treeline is situated beyond the northern boundary.
- 1.2.3. The application site itself is a small areas within the study area that consists of semi-improved grassland and small areas of ruderal vegetation.

1.3. Ecological Assessment

- 1.3.1. This document assesses the ecological interest of the application site and study area as a whole. The importance of the habitats present is evaluated with regard to current guidance

published by the Chartered Institute of Ecology and Environmental Management (CIEEM)¹.

- 1.3.2. The report also sets out the existing baseline conditions for the application site and study area, setting these in the correct planning policy and legal framework and assessing any potential impacts which could occur from the proposed development. Appropriate mitigation where necessary is identified such that it will offset any negative impacts and where possible provide for an ecological enhancement of the application site, in accordance with relevant planning policy.

¹ Chartered Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom* (version 7 July 2006). <http://www.cieem.net/ecia>

2. SURVEY METHODOLOGY

- 2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

- 2.2.1. In order to compile background information on the application site and its immediate surroundings, Ecology Solutions contacted Sussex Biological Record Centre (SxBRC) and the Badger Trust Sussex.
- 2.2.2. Information has been provided by both SxBRC and the Badger Trust Sussex, with the SxBRC desk study report included at Appendix 2 of this assessment. Due to the confidential nature of Badger records, the information returned from the Badger Trust Sussex has not been appended to this report. Reference is made to records returned by the data search where relevant throughout this assessment. Information regarding designated sites is also shown where appropriate on Plan ECO1.
- 2.2.3. Further information on designated sites from a wider search area was also obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)² database. This information is reproduced at Appendix 3 and where appropriate on Plan ECO1.
- 2.2.4. The National Biodiversity Network (NBN)³ database was also consulted for any relevant biological records of nature conservation interest within the local area of the application site.

2.3. Habitat Survey Methodology

- 2.3.1. A habitat survey was carried out in June 2015 to ascertain the general ecological value of the land contained within the boundaries of the study area and to identify the main habitats and associated plant species, with notes on fauna utilising the study area.
- 2.3.2. The study area was surveyed based around extended Phase 1 survey methodology⁴, as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

² <http://magic.defra.gov.uk>

³ <http://data.nbn.org.uk/>

⁴ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

2.3.3. Using the above method, the study area was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.4. All of the species that occur in each habitat would not necessarily be detected during survey work carried out at any given time of the year, since different species are apparent at different seasons. However the survey was undertaken during the optimal period for Phase 1 surveys it is considered that an accurate and robust assessment has been made.

2.4. Faunal Survey

2.4.1. General faunal activity observed during the course of the survey was recorded, whether visually or by call. Specific attention was paid to the potential presence of any protected, rare, notable or Priority species. In addition, specific survey work in respect of bats, Badgers *Meles meles*, Great Crested Newts *Triturus cristatus* and reptiles was undertaken.

2.4.2. **Bats.** Specific bat surveys were undertaken in June 2015 to assess the potential for roosting bats within any trees within or adjacent to the study area. The work was undertaken by an experienced bat worker and aimed to establish the likelihood of presence / absence of bats.

2.4.3. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004⁵), the Joint Nature Conservation Committee (2004⁶) and the Bat Conservation Trust (2007⁷).

2.4.4. All trees within and immediately adjacent to the study area were assessed for their potential to support roosting bats. For a tree to be classed as having some potential for roosting bats it must usually have one or more of the following characteristics:

- obvious holes, e.g. rot holes and old woodpecker holes;
- dark staining on the tree below a hole;
- tiny scratch marks around a hole from bats' claws;
- cavities, splits and/or loose bark from broken or fallen branches, lightning strikes etc.; and
- very dense covering of mature Ivy *Hedera helix* over trunk.

2.4.5. In order to ascertain the value of the study area by foraging and commuting bats, automated bat detector surveys were undertaken in July 2015.

2.4.6. SongMeter 2 (SM2) bat detectors were deployed at a number of locations situated adjacent to features of potential value for

⁵ Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.

⁶ Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.

⁷ Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

foraging and commuting bats (specifically the hedgerows and treelines present along the northern, western and southern boundaries of the study area). Detectors were left out for a number of subsequent nights to collect data. This data was subsequently analysed using bat sound analysis software, in order to identify the species present and level of use of the study area by bat species.

2.4.7. Surveys were undertaken over two sessions, with a total of six nights of bat data recorded and subsequently analysed.

2.4.8. **Badgers.** Surveys were undertaken to search for evidence of Badgers in June 2015, and comprised two main elements. The first of these was a thorough search for evidence of Badger setts. For any setts encountered each sett entrance would be recorded and plotted, even if the entrance appeared disused. The following information was recorded if appropriate:

- i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.
- ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.
- iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be and the remains of the spoil heap.

2.4.9. Secondly, Badger activity such as well-worn paths and run-throughs, snagged hair, footprints, latrines and foraging signs were also searched for in order to build up a picture of the use of the study area by Badgers.

2.4.10. **Great Crested Newts.** Given the presence of a waterbody situated immediately adjacent to the north-western corner of the study area, specific assessment and survey work was undertaken in order to consider the suitability of this waterbody (and habitats present within the study area) to support amphibians, including Great Crested Newts.

2.4.11. Initially a Habitat Suitability Index (HSI) assessment⁸ was undertaken in order to identify the likelihood of this feature supporting Great Crested Newts. This assessment is based on a number of factors (such as water quality, shading, presence of

⁸ Amphibian and Reptile Groups of the United Kingdom (May 2010). *Great Crested Newt Habitat Suitability Index*. ARG UK Advice Note 5

fish and terrestrial habitat) to calculate an overall suitability score.

- 2.4.12. In addition, an environmental DNA (eDNA) sample survey was undertaken of this waterbody on 25 June 2015, based on methodology set out by the Freshwater Habitats Trust, which is endorsed by Natural England.
- 2.4.13. The eDNA survey involved collecting 20 samples of 40ml of water at equally spaced locations around the perimeter of the waterbody (where access was available). These 20 samples were then mixed together in a plastic sample bag to form a single amalgamated sample of the water in the pond. The amalgamated sample was mixed thoroughly to ensure any DNA present does not collect at the base of the sample bag.
- 2.4.14. 15ml of water was taken from the amalgamated sample and added to 35ml of ethanol within a sample tube, to preserve any DNA present. The sample tubes were then shaken vigorously to mix the water sample and ethanol thoroughly and prevent degradation of any DNA. This technique was repeated six times, using water from the amalgamated sample, such that six sample tubes are filled.
- 2.4.15. The six sample tubes were then sent to SureScreen Scientifics to be analysed using Polymerase Chain Reaction (PCR) amplification techniques. The analysis involves producing DNA sequences that verify the taxonomic assignment of amplified DNA signals.
- 2.4.16. Each sample is run in 12 replicates. The results are reported as the proportion of these 12 replicate samples that are successfully amplified, indicating whether Great Crested Newt DNA is present (e.g. 1/12, 8/12).
- 2.4.17. Natural England have stated that they will accept eDNA test results as evidence of presence and absence for Great Crested Newts and that the research carried out by the Freshwater Habitats Trust show that eDNA testing can be more effective in confirming the presence or absence of Great Crested Newts than a combination of conventional survey techniques. However, Natural England continue by stating that conventional aquatic surveys will still be required where there is a need to obtain an estimate of how large a population is during any licensing stage⁹.
- 2.4.18. In addition, an eft survey was undertaken on 23 July 2015 in order to search for any Great Crested Newt larve / young (efts). The survey entailed a detailed search of the waterbody using nets.

⁹<http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/ourwork/regulation/wildlife/gcn-eDNA-feature.aspx>

- 2.4.19. An assessment was also undertaken of other waterbodies situated in the local area of the study area.
- 2.4.20. **Reptiles.** Specific survey work to identify the presence or absence of reptiles in the study area was undertaken in July 2015.
- 2.4.21. Following an initial assessment to identify areas of suitable reptile habitat within the study area, refugia surveys were undertaken. A total of 42 artificial refugia, also known as 'tins' (0.5 x 0.5m squares of heavy roofing felt which are often used as refuges by reptiles) were distributed over the suitable reptile habitat within the study area.
- 2.4.22. These tins were left in place for two weeks to 'bed in' and subsequently surveyed for reptiles beneath or upon the tins during suitable weather conditions.
- 2.4.23. Suitable weather conditions to carry out surveys are when the air temperature is between 9 and 18°C. Heavy rain and windy conditions should be avoided.
- 2.4.24. The tins provide shelter and heat up quicker than the surroundings in the morning, and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask and raise their body temperature which allows them to forage earlier and later in the day.
- 2.4.25. In addition, an assessment of the potential of the study area to support other protected or notable species was undertaken as part of the habitat survey.

3. ECOLOGICAL FEATURES

3.1. The study area was subject to an ecological survey in June 2015. The vegetation present enabled the habitat types to be satisfactorily identified and an accurate assessment of the ecological interest of the habitats to be undertaken.

3.2. The following main habitat / vegetation types were identified within the study area:

- Semi-improved Grassland;
- Ruderal Vegetation;
- Hedgerows;
- Amenity Grassland;
- Trees and Scrub; and
- Treeline (off-site).

3.3. The locations of these habitats are shown on Plan ECO2.

3.4. Each habitat present is described below with an account of their representative plant species.

3.5. **Semi-improved Grassland**

3.5.1. The majority of the study area comprises a pasture field which is currently used for growing hay. At the time of survey the field supported a long sward (approximately 0.5m in height).

3.5.2. The species composition of the grassland sward varies across the field, with more ruderal species recorded along the boundaries of the field, areas dominated by Perennial Rye-grass *Lolium perenne* suggesting a more improved character, and other patches of more semi-improved nature.

3.5.3. The sward supports a range of grasses, including Yorkshire-fog *Holcus lanatus* (dominant in large areas), Cock's-foot *Dactylis glomerata*, Meadowgrasses *Poa* spp., Timothy *Phleum pratense*, Meadow Barley *Hordeum secalinum*, Black-grass *Alopecurus myosuroides* and Downy Oat-grass *Helictotrichon pubescens*. Herb species present within the sward include White Clover *Trifolium repens*, Yarrow *Achillea millefolium*, Common Nettle *Urtica dioica*, Wavy Bittercress *Cardamine flexuosa*, Redshank *Persicaria maculosa*, Dandelion *Taraxacum officinale* agg., Scented Mayweed *Matricaria recutita*, Broadleaved Dock *Rumex obtusifolius*, Creeping Buttercup *Ranunculus repens*, Creeping Thistle *Cirsium arvense*, Lesser Stitchwort *Stellaria graminea*, Cut-leaved Crane's-bill, Hogweed *Heracleum sphondylium*, Common Vetch *Vicia sativa*, Spear Thistle *Cirsium vulgare* and Common Bird's-foot Trefoil *Lotus corniculatus*.

3.6. Ruderal Vegetation

- 3.6.1. Areas of ruderal vegetation are present along the margins of the field and also in a number of locations in the west of the study area. These areas are typically dominated by Common Nettle, with other species present including Hogweed, Bittersweet *Solanum dulcamara* and Cleavers *Galium aparine*.

3.7. Hedgerows

- 3.7.1. There are two hedgerows present along the boundaries of the study area. These are shown on Plan ECO2 and are described below.
- 3.7.2. H1 is a mature hedgerow with trees situated along the southern boundary of the study area. The hedgerow is approximately 2 to 4 metres in height, and is associated with a dry ditch. The dominant species in this hedgerow is Field Maple *Acer campestre*, with other species present including Hazel *Corylus avellana*, Hawthorn *Crataegus monogyna*, Dog Rose *Rosa canina*, Sallow *Salix cinerea*, Elder *Sambucus nigra* and Bramble *Rubus fruticosus* agg.. This hedgerow supports a number of Oak *Quercus robur* and Ash *Fraxinus excelsior* standards.
- 3.7.3. H2 is a much gappier and sparser hedgerow situated along the western boundary of the study area. This hedgerow is approximately 2-4 metres in height. The hedgerow is dominated by Sallow, with other species present including Hazel, Hawthorn, Butterfly-bush *Buddleja davidii*, Elder, Ash and Bramble.

3.8. Amenity Grassland

- 3.8.1. A small strip of amenity grassland is present along the eastern boundary of the study area. This is regularly mown and comprises a number of common and widespread species including Cocksfoot, Yorkshire Fog, Perennial Rye-grass *Lolium perenne*, Annual Meadow Grass *Poa annua*, Daisy *Bellis perennis*, Dandelion, Creeping Buttercup, Meadow Buttercup *Ranunculus acris*, Black Medic *Medicago lupulina* and Daffodil *Narcissus pseudonarcissus*.

3.9. Trees and Scrub

- 3.9.1. Areas of dense scrub are present in a few patches within the study area, notably in the south and in the north-eastern corner. Species present include Elder, Hawthorn and Blackthorn *Prunus spinosa*.
- 3.9.2. A number of immature scattered Sycamore *Acer pseudoplatanus* trees are present within the eastern area of the study area, on areas of amenity grassland subject to regular mowing.

3.10. Treeline (off-site)

- 3.10.1. The northern boundary of the study area comprises a post and wire fence, beyond which lies a treeline associated with a ditch. This feature predominantly comprises Crack Willow *Salix fragilis*, in addition to Oak and Ash trees, and scrub in the form of Hazel, Elder, Sallow and Bramble. The ground layer is dominated by dense Common Nettle and Cleavers.

3.11. Background Records

- 3.11.1. The desk study undertaken with SxBRC identified a number of records of notable plant species from within the surrounding area. The closest record was of Annual Beard-grass *Polypogon monspeliensis* which was returned from a location approximately 0.4km to the south-east of the study area at its closest point in 2004. The next closest records were of Chamomile *Chamaemelum nobile* and Musk Stork's-bill *Erodium moschatum*, which were returned from a location approximately 1.3km to the south of the study area at its closest point in 2009 and 1999 respectively.
- 3.11.2. None of these species were recorded within the study area during the Phase 1 survey and it is considered that they are not present within the study area.

4. WILDLIFE USE OF THE STUDY AREA

4.1. During the survey general observations were made of any faunal use of the study area with specific attention paid to the potential presence of protected or notable species. Specific surveys were undertaken with regard to bats, Badgers, Great Crested Newts and reptiles.

4.2. Bats

4.2.1. There are no existing buildings present within the study area, and none of the trees situated within or immediately adjacent to the study area support features of potential value for roosting bats, such as flaking bark, holes, cracks or splits. As such it is considered that the study area does not support roosting bats.

4.2.2. The habitats present within the study area offer some potential foraging and commuting opportunities for bat species, with the hedgerows and treeline providing linear features. As such specific bat survey work was undertaken in June 2015 to ascertain the value of these features for foraging and commuting bats.

4.2.3. Automated bat detectors were deployed for two sessions, each of which lasted three subsequent nights (i.e. the survey work covered six nights in total). The locations where detectors were deployed are shown on Plan ECO3.

Session 1

4.2.4. Bat detectors were deployed at locations A1 and A2 (as shown on Plan ECO3) on 17 July 2015, and remained in place in these locations over three consecutive nights (17 -19 July inclusive). The findings of the survey are summarised in Table 1 below.

Date	Location	Bat species	Total number of registrations
17.07.15	A1	Common Pipistrelle	80
		Soprano Pipistrelle	14
		Serotine	4
	A2	Common Pipistrelle	2
18.07.15	A1	Common Pipistrelle	149
		Soprano Pipistrelle	73
		Serotine	4
		<i>Myotis</i> species	1
	A2	Common Pipistrelle	7
		Soprano Pipistrelle	1
19.07.15	A1	Common Pipistrelle	192
		Soprano Pipistrelle	113
		Serotine	25
		Brown Long-eared	2
	A2	Common Pipistrelle	16
		Soprano Pipistrelle	3
		Brown Long-eared	1

Table 1: Automated Bat Survey Results (Session 1)

4.2.5. The automated detector surveys identified that the study area is utilised by a number of bat species. The vast majority of

registrations were of Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*, with occasional registrations of Serotine *Eptesicus serotinus* and Brown Long-eared bat *Plectotus auritus*, and a single registration of a *Myotis* species.

- 4.2.6. The detector deployed in location A1 (along the southern boundary of the study area) recorded much greater activity than the detector deployed at location A2 (in the north-western corner of the study area). Activity was recorded throughout the night.

Session 2

- 4.2.7. Bat detectors were deployed at locations A3 and A4 (as shown on Plan ECO3) on 24 July 2015, and again remained in place in these locations over three consecutive nights (24 – 26 July inclusive). The findings of the survey are summarised in Table 2 below.

Date	Location	Bat species	Total number of registrations
24.07.15	A3	Common Pipistrelle	3
	A4	Common Pipistrelle	497
		Soprano Pipistrelle	7
25.07.15	A3	Common Pipistrelle	588
		Soprano Pipistrelle	176
		Nathusius Pipistrelle	4
		Serotine	29
		<i>Myotis</i> species	2
	A4	Common Pipistrelle	118
		Soprano Pipistrelle	18
		Serotine	13
		Brown Long-eared	7
		<i>Myotis</i> species	4
26.07.15	A3	Common Pipistrelle	345
		Soprano Pipistrelle	222
		Brown Long-eared	3
		Serotine	5
		<i>Myotis</i> species	2
	A4	Common Pipistrelle	512
		Soprano Pipistrelle	223
		Serotine	7

Table 2: Automated Bat Survey Results (Session 2)

- 4.2.8. The automated detectors again recorded that the vast majority of registrations were of Common Pipistrelle and Soprano Pipistrelle, with occasional registrations of Serotine, Brown Long-eared bats, *Myotis* species and four registrations (during one survey night) of Nathusius' Pipistrelle *Pipistrellus nathusii*.
- 4.2.9. The levels of bat activity recorded in session 2 was higher than session 1, and identified that both locations A3 and A4 are utilised by foraging bats. Activity was again recorded throughout the night.

- 4.2.10. **Background records.** The desk study, which incorporates data from the Sussex Bat Group, identified a number of records of bat within the vicinity of the study area. The nearest record was of a Brown Long-eared bat located approximately 0.4km to the south-east of the study area at its closest point in 2010. The desk study also identified records of Common Pipistrelle, Soprano Pipistrelle, Daubenton's *Myotis daubentonii*, Whiskered *Myotis mystacinus*, Serotine, *Plecotus* sp. and *Nyctalus* sp. from the surrounding area.

4.3. Badgers

- 4.3.1. No evidence of Badgers, such as the presence of any setts, latrines, foraging signs, well used pathways, hairs or prints, was recorded within the study area during the survey undertaken in June 2015, or during any of the subsequent site visits.
- 4.3.2. Whilst the study area provides some potential foraging and sett building opportunities for Badgers, given the absence of any evidence of activity it is considered that the study area is not utilised by Badgers, and therefore no further consideration has been given to this species within this Ecological Assessment.
- 4.3.3. **Background records.** The desk study did not return any records of Badger from the study area or surrounding area.

4.4. Dormice

- 4.4.1. The hedgerows present along the boundaries of the study area support a range of native species, including species of value to Hazel Dormice *Muscardinus avellanarius*.
- 4.4.2. However given the paucity of woodland and scrub habitats within the local area (comprising predominantly arable land and existing development), limited connectivity via hedgerows and that the desk study exercise (undertaken with SxBRC) did not return any records of Hazel Dormice from the study area or local area, it is considered highly unlikely that this species would be present, and as such this species no further consideration has been given to this species in this Ecological Assessment.
- 4.4.3. Notwithstanding the above, in any event it is noted that the majority of the hedgerows and treelines situated along the boundaries of the study area are to fully be retained and enhanced under the development proposals. New areas of native tree and scrub planting will be provided as part of the development, which will more than offset any minor losses to these habitats.
- 4.4.4. **Background records.** The desk study exercise did not identify any records of Dormice from the study area or local area.

4.5. Amphibians

- 4.5.1. There are no waterbodies situated within the study area boundary; however an area of standing water was identified adjacent to the north-western boundary (labelled D1 on Plan ECO2). In order to identify whether this feature supports breeding amphibians, detailed survey and assessment work was undertaken by Ecology Solutions in 2015, in line with the methodology set out in Section 2 above.
- 4.5.2. The HSI assessment of D1 identified the waterbody to have a score of 0.59, which corresponds to 'Below Average'. The assessment is shown below in Table 3.

Factor	Score
SI1 Location	1.00
SI2 Pond Area	0.80
SI3 Pond Drying	0.50
SI4 Water Quality	0.33
SI5 Shade	0.40
SI6 Fowl	1.00
SI7 Fish	0.33
SI8 Ponds	0.60
SI9 Terrestrial Habitat	0.67
SI10 Macrophytes	0.70
Overall Score	0.59

Table 3: HSI Assessment score of off-site waterbody D1

- 4.5.3. The waterbody is subject to significant levels of overshadowing from the adjacent treeline and hedgerow, and supported a low level of water when surveyed in early June, 2015. By late-July however, this waterbody was observed to support very little water indeed, with a very small area of remaining water. As such it is considered likely that the pond dries on an annual basis.
- 4.5.4. With the exception of waterbody D1, it was noted that the study area is separated from other waterbodies in the local area, with the ditches along the remainder of the northern, western and southern boundaries of the study area recorded to be dry during the survey periods. Other waterbodies in the local area are significantly separated from the study area (and ditch D1) by regularly managed arable fields (to the south and west) and significant areas of existing development (to the north and east).
- 4.5.5. An eDNA sample survey was undertaken on 25 June 2015, following the methodology outlined in Section 2 above. The findings of the assessment are included in the report produced by SureScreen Scientifics at Appendix 4.
- 4.5.6. The analysis of the eDNA sample found that whilst eleven of the twelve replicates tested as negative (i.e. no evidence of GCN DNA), one of the twelve replicates tested positive. Where such a low quantity of GCN eDNA is identified (1 out of 12 replicates),

the findings could represent a 'false positive' arising as a result of contamination; and indeed this is recognised in the SureScreen report (on Page 3).

- 4.5.7. Such 'contamination' could occur for example through the introduction of DNA on clothing at the time of sampling, disturbance of sediment in the waterbody that could liberate historical DNA for GCN (i.e. the species being no longer present), or contamination of the sample at the laboratory.
- 4.5.8. Given the lack of clarity regarding the findings of the eDNA assessment, a further water sample was taken from the waterbody and submitted to the laboratory for analysis. The methodology followed (both in terms of obtaining the water sample and processing at the laboratory) was identical to that previously adopted. The second report produced by SureScreen Scientifics is included at Appendix 5.
- 4.5.9. The analysis of the second eDNA sample found that all twelve of the replicates tested as negative – i.e. no evidence of GCN DNA was recorded. As such (and given the findings of the other assessment work undertaken) it is considered most likely that the first eDNA analysis represented a 'false positive'.
- 4.5.10. Further survey work in the form of an eft search was also undertaken on 23 July 2015 in order to search for any Great Crested Newt larvae. No efts or adult newts were recorded during this survey, and it was noted that the ditch supported very little water at the time of survey (approximately 1 square metre of water).
- 4.5.11. Checks of refugia within and adjacent to the study area (including the 42 artificial refugia used as part of the reptile survey, which were checked on seven occasions) did not identify any Great Crested Newts.
- 4.5.12. It is also noted that specific survey work in respect of Great Crested Newts was undertaken in support of a strategic parcel of land in close proximity to the study area for Berkeley Homes (Southern) Limited (planning reference BE/122/10). No Great Crested Newts were recorded during this specific survey work.
- 4.5.13. **Background records.** The desk study did not identify any records of Great Crested Newts from the study area or local area. The only amphibian record returned was of Common Toad *Bufo bufo* which was from allocation approximately 1.7km to the south-east of the study area at its closest point in 2006.

4.6. Reptiles

- 4.6.1. Whilst the agricultural management of the study area ensures that a tussocky, rank sward is absent from the field, areas of longer vegetation present along the boundaries of the study area support potential habitat for reptiles. As such reptile

surveys were undertaken in 2015 in order to ascertain the presence or absence of this group.

- 4.6.2. A total of seven survey visits were undertaken in line with the methodology set out in Section 2 above, with all visits undertaken during suitable weather conditions. Surveyors checked both the 42 artificial refugia deployed as part of the survey. The results of the survey are presented in Table 4 below.

Survey Visit	Date	Weather Conditions	Reptiles Recorded
1	17.07.15	18C, 50% cloud cover	None
2	20.07.15	18C, 100% cloud cover	None
3	22.07.15	17C, 50% cloud cover	None
4	24.07.15	13C, 100% cloud cover	None
5	27.07.15	15C, 60% cloud cover	None
6	29.07.15	15C, 30% cloud cover	None
7	31.07.15	14C, 0% cloud cover	None

Table 4: Reptile Survey Results (Ecology Solutions, 2015)

- 4.6.3. No reptiles were recorded during the survey work undertaken in 2015. It is therefore considered that the study area does not support reptiles and no further consideration has been given to this group in this Ecological Assessment.
- 4.6.4. **Background records.** The desk study identified a number of records of reptile species from the local area, including Slow-worm *Anguis fragilis*, Grass Snake *Natrix natrix*, Common Lizard *Zootoca vivipara* and Adder *Vipera berus*. The closest records were of Adder and Common Lizard, both of which were returned from a location approximately 0.6km to the south-east of the study area in 2011.

4.7. Birds

- 4.7.1. The habitats present within the study area provide some suitable foraging and nesting habitats for common bird species.
- 4.7.2. Bird species recorded within and adjacent to the study area during the habitat survey were House Sparrow *Passer domesticus*, Carrion Crow *Corvus corone*, Chiffchaff *Phylloscopus collybita*, Robin *Erithacus rubecula*, Wren *Troglodytes troglodytes*, Woodpigeon *Columba palumbus*, Great Tit *Parus major* and Yellowhammer *Emberiza citrinella* (in the field to the west).
- 4.7.3. **Background records.** Information received from the NBRC, which incorporates data collected by the Sussex Ornithological Society, identified a number of records of notable bird species from the surrounding area. This included records of a number of species listed on Schedule 1 of the Wildlife and Countryside Act, on the Red List of Species of Conservation Concern and UK Priority Species. The closest record was of Barn Owl *Tyto alba* which was returned from within a 4 digit grid reference (SU9101)

which included the study area.

- 4.7.4. Other notable species returned were from locations within grid square SU9201 which is located approximately 0.4km to the east of the study area at its closest point. Species returned from this location include Mediterranean Gull *Larus melanocephalus* (2005), Curlew *Numenius arquata* (2005), Kingfisher *Alcedo atthis* (2005), Red Kite *Milvus milvus* (2012), Grey Partridge *Perdix perdix* (2005), Cetti's Warbler *Cettia cetti* (2012), Corn Bunting *Emberiza citronella* (2005), and Firecrest *Regulus ignicapilla* (2005).
- 4.7.5. None of these species were recorded during the surveys undertaken and it is considered that these species would not be reliant on the study area for either nesting or foraging.

4.8. Invertebrates

- 4.8.1. The habitats within the study area are considered likely to support a range of common invertebrate species, although there is nothing to suggest that the study area supports any protected or notable species.
- 4.8.2. **Background records.** Information returned as part of the desk study exercise identified a limited number of records of protected or notable invertebrate species. The closest record was of Wall Butterfly *Lasiommata megera* which was returned from a 4 digit grid reference located approximately 1km to the north-east of the study area at its closest point in 1998. The only other record of invertebrate species returned was of Stag Beetle *Lucanus cervus* returned from a location approximately 2km to the south-west of the study area at its closest point in 2010.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Site Evaluation

- 5.1.1. The latest guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.
- 5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe¹⁰. These are broadly used across the United Kingdom to rank sites, so priorities for nature conservation can be attained. For example, current Site of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.
- 5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.
- 5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.
- 5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with comparatively poor species diversity, common in the south of England may be of importance at its northern limits, say in the border country.
- 5.1.6. In addition, habitats and species of local importance are often highlighted in a Local Biodiversity Action Plan (BAP). The Sussex BAP highlights a number of priority habitats and species. These are referred to below where relevant.
- 5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the International level.
- 5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

5.2. Habitat Evaluation

Designated sites

¹⁰ Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of sites of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

- 5.2.1. **Statutory sites.** There are no statutory designated sites of nature conservation interest within or immediately adjacent to the study area boundary. The nearest statutory designated sites are The Brooks Local Nature Reserve (LNR), situated approximately 1.3km to the east of the study area at its closest point, and Bognor Reef Site of Special Scientific Interest (SSSI), situated approximately 2.5km to the south of the study area boundary at its closest point (see Plan ECO1).
- 5.2.2. The Brooks LNR comprises meadows, wet woodland and wetland habitats situated to the east of North Bersted, whilst Bognor Reef SSSI is designated on account of the vegetated shingle and sand dune habitats that the site supports (in addition to the geological value of the site).
- 5.2.3. The study area is separated from both of these statutory designated sites by significant areas of existing development at North Bersted and Bognor Regis. As such, and given the size of the proposed development, it is considered that the development proposals would not result in adverse effects to these designated sites.
- 5.2.4. The nearest European / internationally designated site of nature conservation interest is Pagham Harbour Special Protection Area (SPA) / Ramsar site, which is situated approximately 4.4km to the south-west of the study area at its closest point (see Plan ECO1).
- 5.2.5. Pagham Harbour SPA qualifies under Article 4.1 of the Birds Directive on account of it supporting breeding populations of Little Tern *Sterna albifrons*, Common Tern *Sterna hirundo*, together with over-wintering Ruff *Philomachus pugnax*. The SPA further qualifies under Article 4.2 of the Birds Directive on account of it supporting important populations of over-wintering Dark-bellied Brent Goose *Branta bernicla bernicla*. The Natura 2000 Standard Data Form for the SPA is included at Appendix 6.
- 5.2.6. Pagham Harbour Ramsar site qualifies under Ramsar criterion 6 on account of it supporting important populations of wintering Dark-bellied Brent Goose. Black-tailed godwit *Limosa limosa islandica*, are cited on the Ramsar Information Sheet as being identified subsequent to designation for possible future consideration under Criterion 6. The Ramsar Information Sheet for the Ramsar site is included at Appendix 7.
- 5.2.7. The study area is separated from the SPA / Ramsar site by extensive areas of intensively managed agricultural land, in addition to existing development. Given the limited scale of the development proposals, it is considered that there would be no significant effects on these designated sites from lighting, air quality or noise impacts during the construction and operational phases of the proposed development.

- 5.2.8. Whilst there are a number of ditches along the boundaries, there is no direct hydrological link between the study area and the SPA/Ramsar site. Other watercourses in the vicinity of the study area flow towards the Aldingbourne Rife, which flows to the south and east (i.e. away from the SPA / Ramsar site).
- 5.2.9. Notwithstanding the above, the surface water drainage strategy for the scheme will utilise a SuDS based system, including appropriately designed attenuation features. As such there will be no direct discharge of surface water into the local drainage network and natural infiltration levels would not be above the current 'green field' run off rate.
- 5.2.10. Regarding the treatment of foul and storm water, it is understood that this would either be discharged to Ford Aerodrome Waste Water Treatment Works (WwTW), situated to the east (and therefore not connected to the SPA / Ramsar site), or Pagham Water WwTW. Whilst clarity is being sought from Southern Water, it is considered likely that Pagham WwTW has sufficient capacity and that ('clean' water) discharge rates from the WwTW would not be adversely affected by the development proposals.
- 5.2.11. Consideration has also been given to the extent to which the land associated with the development proposals could be classed as 'supporting habitat' to the SPA / Ramsar site (i.e. land which falls outside of the designation boundary but which plays an important role in the maintenance of populations of qualifying species).
- 5.2.12. Of the listed qualifying bird interest features for the SPA / Ramsar site, the only species which requires more detailed consideration is Dark-bellied Brent Goose. This species is known to utilise arable land in the local area of the designated site for foraging. Other qualifying bird interest features (Tern species and Ruff) would not be reliant upon the land in question given the habitats present and the specific requirements of these species.
- 5.2.13. The study area is separated from the SPA / Ramsar site by extensive areas of open arable land, which provide potential opportunities for foraging Dark-bellied Brent Geese. In contrast, the study area itself comprises an enclosed grassland field, with boundary features including a treeline and hedgerows, and is bounded to the north and east by existing residential development. Noting the preference for this species for large areas of open habitat, and that the desk study only returned a single record of Dark-bellied Brent Geese from the entire search area, it is considered that the study area does not include any land which could be classed as important supporting habitat for the SPA / Ramsar site.
- 5.2.14. It is considered that there is potential for new residents associated with the proposed development to access areas of the SPA / Ramsar site (e.g. for recreational purposes), thereby

increasing visitor pressure on the site and potentially disturbing birds, including those listed as designating features of the site.

- 5.2.15. The development proposals are for the construction of 100 new residential units. Taking a figure for the average number of residents per household to be 2.4, the new development could give rise to a population of 240 additional people. It is considered that a proportion of these new residents may visit the SPA / Ramsar site.
- 5.2.16. Given the above, as well as the significant distance between the study area and the SPA / Ramsar site, it is considered that the development proposals would not be likely to result in a significant effect on the SPA / Ramsar site when considered alone. However in the absence of mitigation there is potential for effects to occur in combination with other plans and projects.
- 5.2.17. An agreed strategic approach to deliver mitigation for recreational disturbance resulting from new residential development around Pagham Harbour has been identified by Arun and Chichester District Councils, in consultation with Natural England. This mitigation includes a package of on-site and off-site measures including in-perpetuity wardening, access management provision and monitoring. Provided that new development falls within the agreed strategic approach, and that adequate contributions are secured towards the strategy, it should be possible to deliver an acceptable and effective package of avoidance mitigation measures that will allow the Competent Authority to draw a conclusion of no likely significant effect on Pagham Harbour SPA / Ramsar site.
- 5.2.18. Mitigation is proposed as part of the development proposals which incorporates both of these key elements; the provision of on-site open space for recreational activities, and providing contributions towards a package of measures aimed at alleviating existing and future pressures from visitor numbers at the SPA / Ramsar site itself.
- 5.2.19. Informal open space is to be provided in the eastern part of the study area, located immediately adjacent to the new properties. This open space totals 1 hectare and will comprise SuDS attenuation features, existing hedgerows, grassland and scrub planting. This area will provide opportunities for informal recreation, such as daily dog walking, in the immediate vicinity of new properties, and will also provide new opportunities for existing residents in the local area.
- 5.2.20. Furthermore, as part of the development proposals an appropriate contribution will be made towards off-site mitigation measures, such as the provision of wardening, access management, education and interpretation measures, signage and monitoring. Whilst the level of contributions remain to be finalised by Arun District Council, it is envisaged that this will be secured by way of a section 106 agreement and will be agreed with Arun District Council.

- 5.2.21. In the event that the final interim strategy is not in place at the point of determination, it is considered that an appropriately worded condition could be attached to any permission granted such that the fine detail of the mitigation package (i.e. the sum to be paid) is finalised (in agreement with Natural England and Arun District Council), and that any payment is made prior to first occupation. In this way the Competent Authority can be assured (i.e. no doubt remains) that appropriate mitigation / avoidance measures will be delivered ahead of any potential significant effect arising in relation to the development proposals.
- 5.2.22. Having considered all of the potential significant effects that could arise from the development proposals, in light of the avoidance and mitigation measures which form an integral part of the application, it is concluded that the proposals would not be likely to give rise to a significant effect on the SPA / Ramsar site when the Development Proposals are considered either alone or in combination with other plans or projects. No additional adverse impacts have been identified in relation to Pagham Harbour SSSI and no additional mitigation would be required.
- 5.2.23. As such, subject to the implementation of mitigation as outlined above, it is considered that the development proposals would not be likely to result in any adverse impacts on statutory designated sites.
- 5.2.24. **Non-statutory sites / Ancient Woodland.** The desk study did not identify any non-statutory designated sites or parcels of ancient woodland from the vicinity of the study area. As such no adverse impacts will arise as a result of the proposed development and no mitigation is necessary.

Habitats within the Application Site

- 5.2.25. The habitats present within the study area boundary consist of semi-improved grassland with ruderal vegetation, scrub, amenity grassland and hedgerows. Within the application site itself, habitats present are limited to semi-improved grassland and small areas of ruderal vegetation. The habitats within the application site are considered to be of very limited ecological value.
- 5.2.26. Whilst some areas of grassland are of comparatively greater value, in the main the semi-improved grassland is considered to be of low ecological value, comprising a fairly limited complement of widespread and common species. As such it is considered that losses to this habitat which are necessary to facilitate the development proposals are of low ecological significance. Areas of ruderal vegetation are of very low ecological value and losses to this habitat are of negligible significance.

- 5.2.27. An Ecology Enhancement Scheme (EES) has been produced (see Appendix 8) by Ecology Solutions that includes the application site and wider study area. Enhancement measures detailed within the EES include a species-rich wet grassland mixture to be sown in the proposed attenuation features in order to enhance their ecological value. With the implementation of an appropriate management regime, it is considered that the value of these habitats will be significantly greater than existing grassland present at the site, and will provide enhanced opportunities for foraging birds, bats and invertebrates.
- 5.2.28. The hedgerows and treelines along the boundaries of the study area are considered to be of comparatively greater ecological value at the site level. The development proposals will not impact on these features. However, in order to protect retained hedgerows and treelines, temporary protective fencing shall be installed and will remain in place throughout the construction period. This fencing shall be installed in line with the relevant British Standard and will prevent any potential encroachment of machinery and personnel.
- 5.2.29. In order to maximise benefits for biodiversity, it is recommended any new planting should utilise native species of local provenance, or wildlife-beneficial species, where possible.

5.3. Faunal Evaluation

Bats

- 5.3.1. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 ("the Habitats Regulations"; as amended). These include provisions making it an offence:
- Deliberately to kill, injure or take (capture) bats;
 - Deliberately to disturb bats in such a way as to:-
 - (i) be likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate or migrate; or
 - (ii) affect significantly the local distribution or abundance of the species to which they belong;
 - To damage or destroy any breeding or resting place used by bats;
 - Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection.
- 5.3.2. While the legislation is deemed to apply even when bats are not in residence, Natural England guidance suggests that certain activities such as re-roofing can be completed outside sensitive periods when bats are not in residence provided these do not damage or destroy the roost.
- 5.3.3. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken

would almost inevitably result in an offence, even if that was not the primary purpose of the act.

- 5.3.4. The offence of damaging or destroying a breeding site or resting place (which can be interpreted as making it worse for the bat) is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.
- 5.3.5. European Protected Species licences are available from Natural England in certain circumstances, and permit activities that would otherwise be considered an offence.
- 5.3.6. Licences can usually only be granted if the development is in receipt of full planning permission and it is considered that:
- (i) The activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
 - (ii) There is no satisfactory alternative; and
 - (ii) The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 5.3.7. **Application Site Evaluation.** No trees are present within the application site and those within the wider study area do not support features of potential value for roosting bats.
- 5.3.8. Specific bat survey work undertaken in 2015 identified that the hedgerows and treelines adjacent to the study area are utilised by foraging and commuting bats. The vast majority of registrations recorded were of Pipistrelle species, which are common and widespread, although Nathusius' Pipistrelle was recorded during one night in the second survey session (4 registrations in total). The application site itself does contain any features of value to commuting bats such as hedgerows or treelines.
- 5.3.9. **Mitigation and Enhancements.** As no features of significant value to bats are present within the application site it is considered no impacts will arise from the development on these species and that opportunities for foraging bats in the wider study area will be retained.
- 5.3.10. In order to ensure that these areas remain suitable for bats, care will be taken to minimise lightspill, through the use of hoods and cowls to direct lighting away from features in the wider area. This will ensure that dark corridors are retained in these areas and that the development proposals would not result in any potential effects to bat populations in the local area.
- 5.3.11. Additional enhancements for this species in the wider study area are detailed within the EES (Appendix 8).

Great Crested Newts

- 5.3.12. **Legislation.** All British amphibian species receive a degree of protection under the 1981 Wildlife and Countryside Act (as amended). The level of protection varies from protection from sale or trade only, as is the case with species such as Smooth Newt *Lissotriton vulgaris* and Common Toad *Bufo bufo*, to the more rigorous protection afforded to Great Crested Newts, which are protected at the European level.
- 5.3.13. Although Great Crested Newts are regularly encountered locally and throughout much of England, the UK holds a large percentage of the world population of the species. As such the UK has an international obligation to conserve the species and they receive full protection under domestic and European legislation and are a material consideration.
- 5.3.14. Great Crested Newts are also listed in Annex IV(a) of the European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, more commonly known as the Habitats Directive. The Habitats Directive was transposed into UK law by the Habitats Regulations (as amended), which list Great Crested Newts under Schedule 2.
- 5.3.15. Great Crested Newts are thus protected from deliberate or reckless killing, injury or capture with their habitat, including a breeding site, resting place or any structure or place used for 'shelter or protection' also protected against damage or destruction. It is also illegal to deliberately or recklessly disturb Great Crested Newts and their eggs are protected from taking or destroying.
- 5.3.16. **Application Site Evaluation, Mitigation and Enhancements.** The application site does not support any waterbodies that could be utilised by Great Crested Newts for breeding. However surveys and assessment were undertaken of the waterbody situated immediately adjacent to the application site (D1).
- 5.3.17. It should be noted from the outset that this waterbody is to be fully retained and protected under the development proposals (as it sits beyond the application site boundary).
- 5.3.18. The habitats present within the application site are considered, in general, to represent sub-optimal terrestrial opportunities for Great Crested Newts.
- 5.3.19. A suite of survey and assessment work has been undertaken in respect of Great Crested Newts, including desk studies, HSI assessment, environmental DNA sampling and eft searches, as well as terrestrial surveys (undertaken as part of the reptile survey). Based on the findings of this detailed assessment, in addition to the fact that waterbody D1 dries out regularly, is heavily shaded and is separated from other waterbodies in the local area, it is considered highly unlikely that Great Crested Newts would be present within the waterbody. As such it is

therefore considered that they would not be present within the application site.

- 5.3.20. In any event, the development proposals will not impact the most suitable terrestrial habitats for amphibian species (in the form of hedgerows in the wider area).

6. PLANNING POLICY CONTEXT

- 6.1. The planning policy framework that relates to nature conservation at the application site is issued at two main administrative levels – nationally through the National Planning Policy Framework and locally through saved policies within the Arun District Local Plan 2003 and emerging Local Plan. Any proposed development will be judged in relation to the policies contained within these documents.

6.2. National Policy

National Planning Policy Framework

- 6.2.1. The National Planning Policy Framework (NPPF) sets out the Government's requirements for the planning system and was adopted on 27 March 2012. It replaces previous national planning policy, including Planning Policy Statement 9 (Biodiversity and Geological Conservation) [PPS9] which was published in 2005.
- 6.2.2. The key element of the NPPF is that there should be '*a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking*' (paragraph 14). It is important to note that this presumption '*does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined*' (paragraph 119).
- 6.2.3. The NPPF also considers the strategic approach which Local Authorities should adopt with regard to the protection, enhancement and management of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.
- 6.2.4. Paragraph 118 of the NPPF comprises a number of principles which Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments; provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for; applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites; and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats-unless the need for, and benefits of, the development in that location clearly outweigh the loss.
- 6.2.5. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.3. Local Policy

Arun District Local Plan 2003

- 6.3.1. The Arun District Local Plan was adopted in April 2003 and contains a number of saved policies which remain material considerations for the determination of planning applications.
- 6.3.2. There are three saved policies within the Local Plan 2003 that relate to nature conservation.
- 6.3.3. Policy GEN28 refers to Trees and Woodlands and states that a development will not be permitted if it would destroy one or more trees protected under a tree preservation order, identified as ancient woodland or in a conservation area unless the removal of such features would be in the interests of good practice in arboricultural terms or that the benefits of such a development outweigh the value of the trees in question.
- 6.3.4. Policy GEN29 refers to Nature Conservation across the District. It states that development will only be permitted on sites containing semi-natural habitats, features of nature conservation interest or wildlife corridors where such features are largely retained and sympathetically incorporated into the scheme. Legal agreements may be used to offset the losses of, or impact on such features.
- 6.3.5. Policy GEN30 refers to the Protection of Species and states that development will not be permitted where it is likely to affect animal or plant species protected by law, both directly and indirectly. Where development is permitted the developer is required to take steps to secure the protection of such species of animal and plant.

Arun Local Plan 2011-2031

- 6.3.6. The Arun Local Plan 2011 – 2031 sets out the Council's vision for the development of Arun up to 2031. It contains strategic and development management planning policies which will shape the future of the area and should be used in the consideration of planning applications.
- 6.3.7. Although this document has not been formally adopted, it should still be considered. The latest version of the Development Plan dates from January 2018.
- 6.3.8. Policy ENV SP1 refers to the Natural Environment and states that the District will 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, the creation of new areas of habitats will also be promoted.
- 6.3.9. Policy ENV DM1 refers to designated sites of biodiversity or geological importance. It states that a proposed development likely to have an adverse effect on any such designated sites will not normally be permitted. Consideration will be given to the

designated features present on site and their scarcity, while their protections will be recognised. The policy also states that in determining planning applications affecting sites of biodiversity importance the Council must ensure that the intrinsic value of the sites are safeguarded or enhanced having regard to the following; the European, National or Local status and designation of the site; the nature and quality of the site's features, including rarity value; the extent of any adverse impacts on the notified features of interest; the need for compensatory measures in order to re-create remaining features of habitats on or off site. The policy states that where appropriate the Council will ensure the effective management of designated sites through the imposition of planning conditions or Section 106 agreements as appropriate.

- 6.3.10. Policy ENV DM3 refers to Biodiversity Opportunity Areas (BOAs). It states that within BOAs development shall retain and sympathetically incorporate locally valued and important habitats including wildlife corridors and stepping stones. Development shall also be designed in order to minimise disturbance to habitats. Development proposals will not be permitted unless they reasonably address opportunities for enhancing BOAs. Where a scheme results in habitat loss, mitigation measures must be included in the proposals. Within BOAs, or where likely to impact the species or habitats within them, any planning application must include appropriate surveys of these features.
- 6.3.11. Policy ENV DM4 refers to the protection of trees. Much of the policy is congruent with that of Policy GEN28 within the Arum District Local Plan 2003. It also states that where trees are removed an equivalent number of similar species and age (where practical) should be provided, at least, and that appropriate protective measures should be adopted during construction.
- 6.3.12. Policy ENV DM5 refers to development and biodiversity and states that development should seek to achieve a net gain in biodiversity while protecting existing habitats. The policy states that development should incorporate features that would benefit biodiversity such as green walls, green roofs, bat and bird boxes and landscape features. Links should also be provided with surrounding habitats where possible to facilitate species movement across the landscape as a whole. Where evidence of protected species within a development site is identified, surveys must be undertaken and if impacts identified, mitigation provided.

6.4. Discussion

- 6.4.1. Recommendations have been put forward in this report and other supporting documentation that would fully safeguard the existing ecological interest of the application site and wider study area, and wherever possible, measures to enhance ecological and biodiversity value have been set out. Based on

surveys undertaken and assessment, the presence and potential presence of protected species has been given due regard and measures to enhance the site for such species have been put forward.

- 6.4.2. In conclusion, implementation of the measures set out in this report enable the development proposals to fully accord with planning policy for ecology and nature conservation at all administrative levels.

7. SUMMARY AND CONCLUSIONS

- 7.1. Ecology Solutions was commissioned by Landform Estates in June 2015 to undertake an Ecological Assessment of Land at Newbarn Lane, North Bersted, West Sussex. This application for outline planning permission was granted by Arun District Council on 24 February 2016 (planning ref: BE/142/15/OUT).
- 7.2. Following this, Ecology Solutions was further commissioned by Linden Homes South to discharge conditions of relevance to ecology matters as part of a reserved matters application in 2017 (planning ref: BE/113/17/RES). The relevant condition was discharged through the creation of an Ecological Enhancement Scheme that details habitat and species enhancements for the application site and wider study area.
- 7.3. Further to this, Ecology Solutions was again instructed to update the previous assessment work to support a full planning application for part of the site (hereafter referred to as the 'application site').
- 7.4. The development proposals are for 10 new residential properties.

Designated Sites

- 7.5. There are no statutory or non-statutory designated sites of nature conservation interest within or immediately adjacent to the application site boundary. The nearest statutory designated site is The Brooks LNR, situated approximately 1.3km to the east, whilst the nearest European / internationally designated site is Pagham Harbour SPA / Ramsar site, situated approximately 4.4km to the south-west at its closest point.
- 7.6. The application site is significantly separated from Pagham Harbour SPA / Ramsar site, is not linked to the SPA / Ramsar site by any hydrological pathways, and does not include potential supporting habitat for the bird species associated with the site. In line with the agreed strategic approach, mitigation is proposed in respect of any potential increase in informal recreational pressure which could arise, in the form of the provision of on-site open space, and also contributions towards off-site mitigation measures (at the SPA / Ramsar site). Taking the mitigation measures into consideration, it is concluded that the development proposals would not be likely to give rise to a significant effect on the SPA / Ramsar site either when considered alone or in combination with other plans or projects.

Habitats

- 7.7. The habitats present within the application site boundary are considered to be of limited ecological value, comprising semi-improved grassland with small areas of ruderal vegetation.
- 7.8. Proposals for the wider development of the study area include the provision of species-rich wildflower grassland as part of the informal open space, it is considered that losses which are required to facilitate the development proposals will be more than mitigated, resulting in an overall enhancement in terms of the ecological value of the site. In order to maximise benefits for biodiversity, it is recommended that any new

planting should utilise native species of local provenance, or wildlife-beneficial species, where possible.

Protected Species

- 7.9. Bats. No trees are present within the application site or study area support features of potential value for roosting bats. However specific bat survey work undertaken in 2015 identified that the hedgerows and treelines along the boundaries of the study area are utilised by foraging and commuting bats.
- 7.10. Existing treelines and hedgerows present along the boundaries of the study area are not to be impacted as part of the development proposals.
- 7.11. In order to ensure that these areas remain suitable for bats, care will be taken to minimise lightspill, through the use of hoods and cowls to direct lighting away from features in the wider area. This will ensure that dark corridors are retained in these areas and that the development proposals would not result in any potential effects to bat populations in the local area.
- 7.12. The provision of new bat boxes on suitable mature trees within the application site will also provide an enhancement for local bat populations.
- 7.13. Great Crested Newts. A suite of survey and assessment work has been undertaken in respect of Great Crested Newts, including desk studies, HSI assessment, environmental DNA sampling and eft searches, as well as terrestrial surveys (undertaken as part of the reptile survey). Based on the findings of this detailed assessment, in addition to the fact that the waterbody adjacent to the application site boundary dries out regularly, is heavily shaded and is separated from other waterbodies in the local area, it is considered highly unlikely that Great Crested Newts would be present within the waterbody. As such it is therefore considered that they would not be present within the application site.

Conclusions

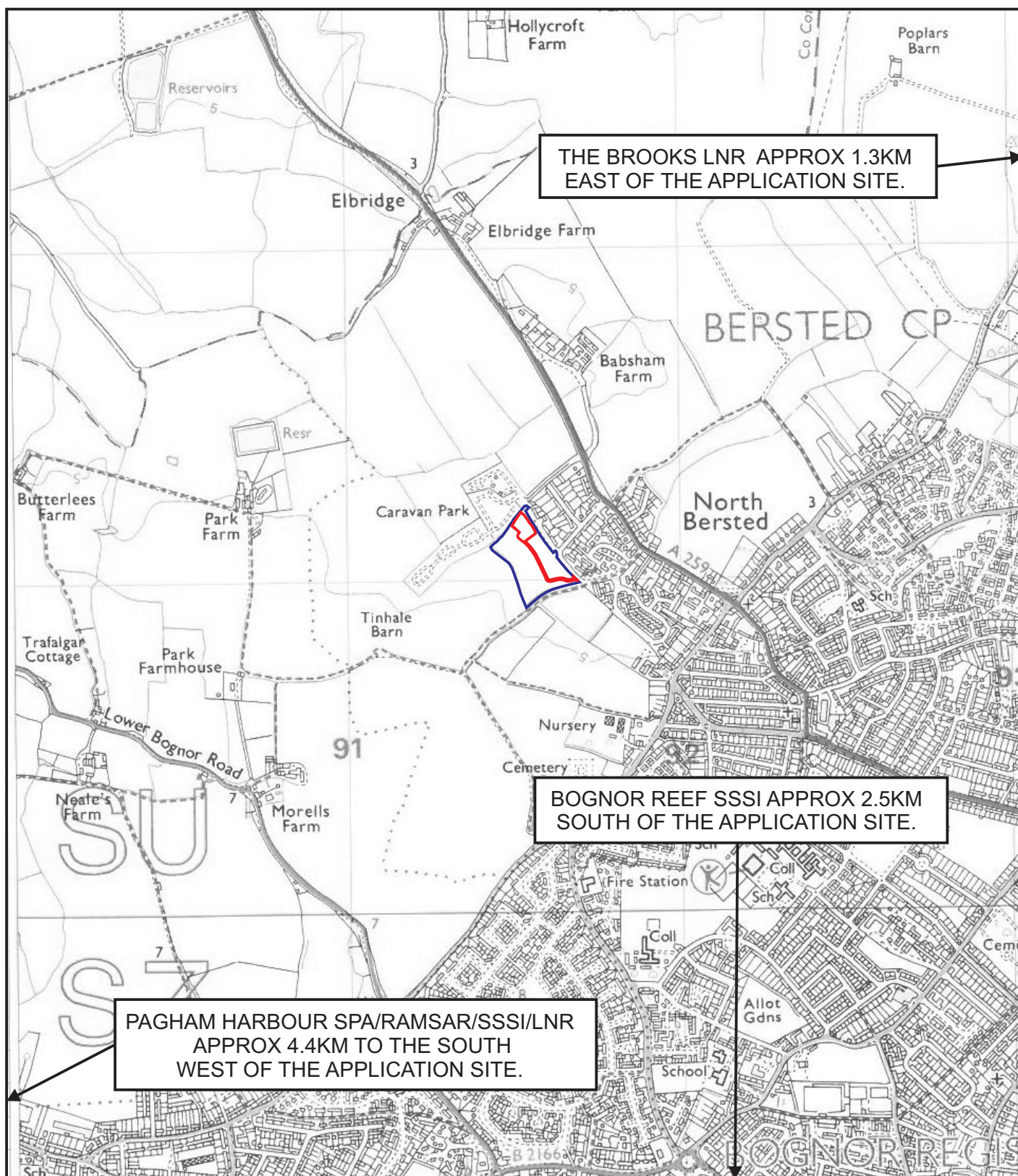
- 7.14. In conclusion, the application site is considered to be of limited value from an ecology and nature conservation perspective, both in terms of the habitats present and the species which it supports. As such, any impacts are considered to be insignificant.
- 7.15. Moreover it is considered that the related development of the wider study area includes a range of enhancements for biodiversity over the existing situation, therefore fully accord with current legislation and policy pertinent to ecology and nature conservation.

PLANS AND APPENDICES

PLANS

PLAN ECO1

Application Site Location and Ecological Designations



6767: LAND AT NEWBARN LANE,
NORTH BERSTED

PLAN ECO1:
APPLICATION SITE LOCATION AND
ECOLOGICAL DESIGNATIONS

PLAN ECO2

Ecological Features



- KEY:**
- APPLICATION SITE BOUNDARY
 - STUDY AREA BOUNDARY
 - TREE LINE (OFF-SITE)
 - TREE
 - HEDGEROW
 - SEMI-IMPROVED GRASSLAND
 - AMENITY GRASSLAND
 - RUDERAL VEGETATION
 - SCRUB
 - WET DITCH
 - POST AND WIRE FENCE



6767: LAND AT NEWBARN LANE,
NORTH BERSTED

PLAN ECO2:
ECOLOGICAL FEATURES

PLAN ECO3

Protected Species



KEY:

- APPLICATION SITE BOUNDARY
- STUDY AREA BOUNDARY
- TREE LINE (OFF-SITE)
- TREE
- HEDGEROW
- SEMI-IMPROVED GRASSLAND
- RUDERAL VEGETATION
- SCRUB
- WET DITCH
- POST AND WIRE FENCE
- LOCATION OF DEPLOYED AUTOMATED BAT DETECTOR (WITH REFERENCE)



6767: LAND AT NEWBARN LANE,
NORTH BERSTED

PLAN ECO3:
PROTECTED SPECIES

APPENDICES

APPENDIX 1

**Land to the West of New Barn Lane, North Bersted – Site Plan
Planning Layout produced by Urban Pulse Design (drawing ref: 18-
1055-006-1st)**



APPENDIX 2

Land at Bognor Regis – Desktop Survey Report (Sussex Biodiversity Record Centre)



Desktop Biodiversity Report

Land at Bognor Regis

ESD/15/490

Prepared for Tom Booth (Ecology Solutions)

16th July 2015



Sussex Biodiversity Record Centre
report regarding
land at Bognor Regis
16/07/2015

Prepared for Tom Booth
Ecology Solutions
ESD/15/490

The following information was requested:

Maps	☒
Sussex Protected Species Register	☒
Sussex Bat Inventory	☒
Sussex Bird Inventory	☒
UK BAP Species Inventory	☒
Sussex Rare Species Inventory	☒
Sussex Invasive Alien Species	☐
Full Species List	☐
Environmental Survey Directory	☐

SNCI

None

SSSI

Bognor Reef.

Other Designations/Ownership

Environmental Stewardship Agreement; Local Geological Site; Local Nature Reserve; National Trust Property.

Habitats

Ancient woodland; Black poplar; Chalk stream; Coastal and floodplain grazing marsh; Coastal vegetated shingle; Intertidal mudflat; Traditional orchard.

Important information regarding this report

It must not be assumed that this report contains the definitive species information for the site concerned.

The species data held by the Sussex Biodiversity Record Centre (SxBRC) is collated from the biological recording community in Sussex. However, there are many areas of Sussex where the records held are limited, either spatially or taxonomically.

A desktop biodiversity report from SxBRC will give the user a clear indication of what biological recording has taken place within the area of their enquiry. The information provided is a useful tool for making an assessment of the site, but should be used in conjunction with site visits and appropriate surveys before further judgements on the presence or absence of key species or habitats can be made. It may be that the content of this report guides the reader as to which surveys should be carried out on the site.

This report was compiled using data held at SxBRC at the time of production. SxBRC takes data validation very seriously, but cannot be held responsible for the accuracy of data included in this report.

Copyright

The Sussex Biodiversity Record Centre must be acknowledged in all documents containing any part of the information contained in this report. You can also use the whole of a SxBRC report (unedited) as an appendix in your own report.

The SxBRC operates as agent to the individuals and groups who provide their records free of charge. The data suppliers retain copyright on their data, while SxBRC retains copyright on its desktop biodiversity reports.

Data usage

The data contained within this report is for use in the project for which the data was requested. It is not to be shared with third parties for use in other projects, unless permission is granted from SxBRC.

The data may be used for 12 months, after which a replacement SxBRC report must be requested. This ensures the most up-to-date information is being used.

Ordnance Survey maps

Members of the public wishing to reproduce maps made by SxBRC under East and West Sussex County Council or Brighton and Hove City Council licences must use copying facilities that have been authorised by Ordnance Survey (OS). Further information can be found on the [OS website](#).

Impartiality

SxBRC functions as custodian of biological data. Our role is to collect, manage and disseminate wildlife and habitat data. As such, we have to remain impartial and cannot offer opinions on the biodiversity value of a given site. Similarly, we cannot put forward objections to planning applications or be involved in campaigns.

Supplying records

Our desktop biodiversity reports are only as good as the data we hold. We rely on the continuous submission of records to keep our database up-to-date. We are always grateful to receive records from ecological consultants and members of the public alike. We accept records in many different formats – please see our [website](#) for more details.

Confidential Records

The following species are not included in desktop biodiversity reports

Badgers

Badgers are one of our most recognisable native British mammals. They are not considered rare but are protected along with their setts under The Protection of Badgers Act 1992 and schedule 6 of the Wildlife and Countryside Act (1981, as amended).

It is an offence to kill, injure, or take a badger or interfere with a badger sett.

“Interference” is defined by section 3 of The Protection of Badgers Act and includes damaging or destroying a badger sett, obstructing any entrance to a sett and also disturbing a badger when it is occupying a sett. If you need to do any work near to a sett (within 30m) you must contact Natural England for guidance as your activities may require a licence.

With continued persecution of badgers, often for the most cruel and barbaric ‘sport’, badger records are not included in our species inventory reports, as it has been requested that they remain confidential.

If you need further information about badgers in your enquiry area please contact the Badger Trust Sussex. Contact details can be found on their website: www.badgertrust-sussex.org.uk



Otters

Otters are slowly making a return to Sussex after becoming extinct in the 1960s, but are nowhere near their former numbers and remain very vulnerable.

If there is a river or tributary within 1km of your enquiry area please be aware of the potential for otters in the vicinity, especially if you are undertaking operations that may impact potential otter habitat.

Otters are protected by European and UK law. It is an offence under the Wildlife and Countryside Act 1981 to kill, injure or take an otter from the wild without a licence; to damage or obstruct a holt; or disturb an otter in its resting place. Licences are required for checking holts or for carrying out work that may disturb otters, such as the management of trees that are known to be used as resting sites. Natural England are responsible for issuing these licences in England.

If you need to find out if otters have been recorded in your enquiry area, please get in touch with the Record Centre.



Wood White and Duke of Burgundy butterflies

These two rare butterfly species have a very restricted range in Sussex and records have been made confidential based on advice given from Butterfly Conservation Sussex Branch.

Other confidential records

SxBRC holds records of other species that are confidential. Confidentiality can be for a variety of reasons but is usually to benefit the site or the species. If you need to know if any confidential records have been recorded in your enquiry area, please get in touch with the Record Centre.

MAPS

There are three maps included in a standard desktop biodiversity report which show designated sites (statutory and non-statutory); habitats and natural features; and ownership and management.

The key on a map only shows those layers which are located within the enquiry area or immediate area. Below is a list of all layers which we currently show on our maps, with details of the data source. Citation sheets and further information on each layer can be found towards the back of the pdf report.

Designated sites	
Statutory	
Area of Outstanding Natural Beauty (AONB)	Downloaded from NE website.
Country Park	Downloaded from NE website.
Local Nature Reserve (LNR)	Downloaded from NE website.
Marine Conservation Zone (MCZ)	Downloaded from NE website.
Marine Site of Nature Conservation Importance (MSNCI)	Supplied by ESCC in 2005.
National Nature Reserve (NNR)	Downloaded from NE website.
National Park	Downloaded from NE website.
Ramsar	Downloaded from NE website.
Site of Special Scientific Interest (SSSI)	Downloaded from NE website.
Special Area of Conservation (SAC)	Downloaded from NE website.
Special Protection Area (SPA)	Downloaded from NE website.
Non-Statutory	
Local Geological Site (LGS)	Originally supplied as hand drawn maps by the Booth Museum (Brighton) in 2009, LGS boundaries were digitised by SxBRC. Site boundaries are now administered by SxBRC and the Sussex Geodiversity Partnership and have been further improved as a result of ground surveys between 2010 to 2012.
Notable Road Verge	Owned and provided by ESCC and WSCC.
Site of Nature Conservation Importance (SNCI)	Supplied by WSCC, ESCC & BHCC.
Habitats and natural features	
Ancient/veteran tree	Merged dataset created in July 2009. Data from Ancient Tree Hunt (national survey carried out in 2007/2008) and Tree Register of the British Isles (a charity which collates and updates data on notable trees).
Ancient woodland	Downloaded from NE website.
Black poplar	Created by SxBRC based upon species records arising from Sussex Wetland Landscapes Project.
Chalk stream	Created and owned by SWLP and SxBRC.
Coastal & floodplain grazing marsh	Downloaded from NE website.
Coastal saltmarsh	Supplied by EA, based on data from the SRCMP Habitat Mapping Project.
Coastal sand dune	Supplied by EA, based on data from the SRCMP Habitat Mapping Project.
Coastal vegetated shingle	Downloaded from NE website.
Ghyll woodland	Boundaries drawn on paper maps by Dr Francis Rose which were then digitised by SxBRC. Not ground-truthed.
Intertidal chalk	Supplied by EA, based on data from the SRCMP Habitat Mapping Project.

Intertidal mudflat	Supplied by EA, based on data from the SRCMP Habitat Mapping Project.
Lowland calcareous grassland	Merged dataset from NE and SDJC sources, created in 2005. Administered by SxBRC.
Lowland fen	Created by SxBRC in June 2011. Layer is an amalgamation of all the fen data currently available to SxBRC.
Lowland heathland	High Weald Heathland data created by the High Weald Unit in 2006. The rest of Sussex Heathland data was created by SxBRC, with funding from WSCC and RSPB in 2007.
Lowland meadow	Downloaded from NE website.
Maritime cliff and slope	Supplied by EA, based on data from the SRCMP Habitat Mapping Project.
Open water	Derived from OS mapping. This includes inland and tidal, running and standing water.
Reedbed	Created by SxBRC in June 2011. Layer is an amalgamation of all the reedbed data currently available to SxBRC.
Saline lagoon	Created by SxBRC.
Traditional orchard	Downloaded from NE website.
Wood-pasture & parkland	Downloaded from NE website.
Ownership and management	
Environmental Stewardship Agreement	Downloaded from NE website.
National Trust property	Owned and provided by National Trust.
RSPB reserve	Owned and provided by RSPB. Downloadable from their website.
Sussex Wildlife Trust reserve	Created and maintained by SxBRC on behalf of SWT.
Woodland Trust site	Owned and provided by the Woodland Trust.

Abbreviations

BHCC	Brighton and Hove City Council
EA	Environment Agency
ESCC	East Sussex County Council
NE	Natural England
PTES	People's Trust for Endangered Species
RSPB	Royal Society for the Protection of Birds
SDJC	South Downs Joint Committee
SRCMP	Strategic Regional Coastal Monitoring Programme
SxBRC	Sussex Biodiversity Record Centre
SWLP	Sussex Wetland Landscapes Project
SWT	Sussex Wildlife Trust
WSCC	West Sussex County Council

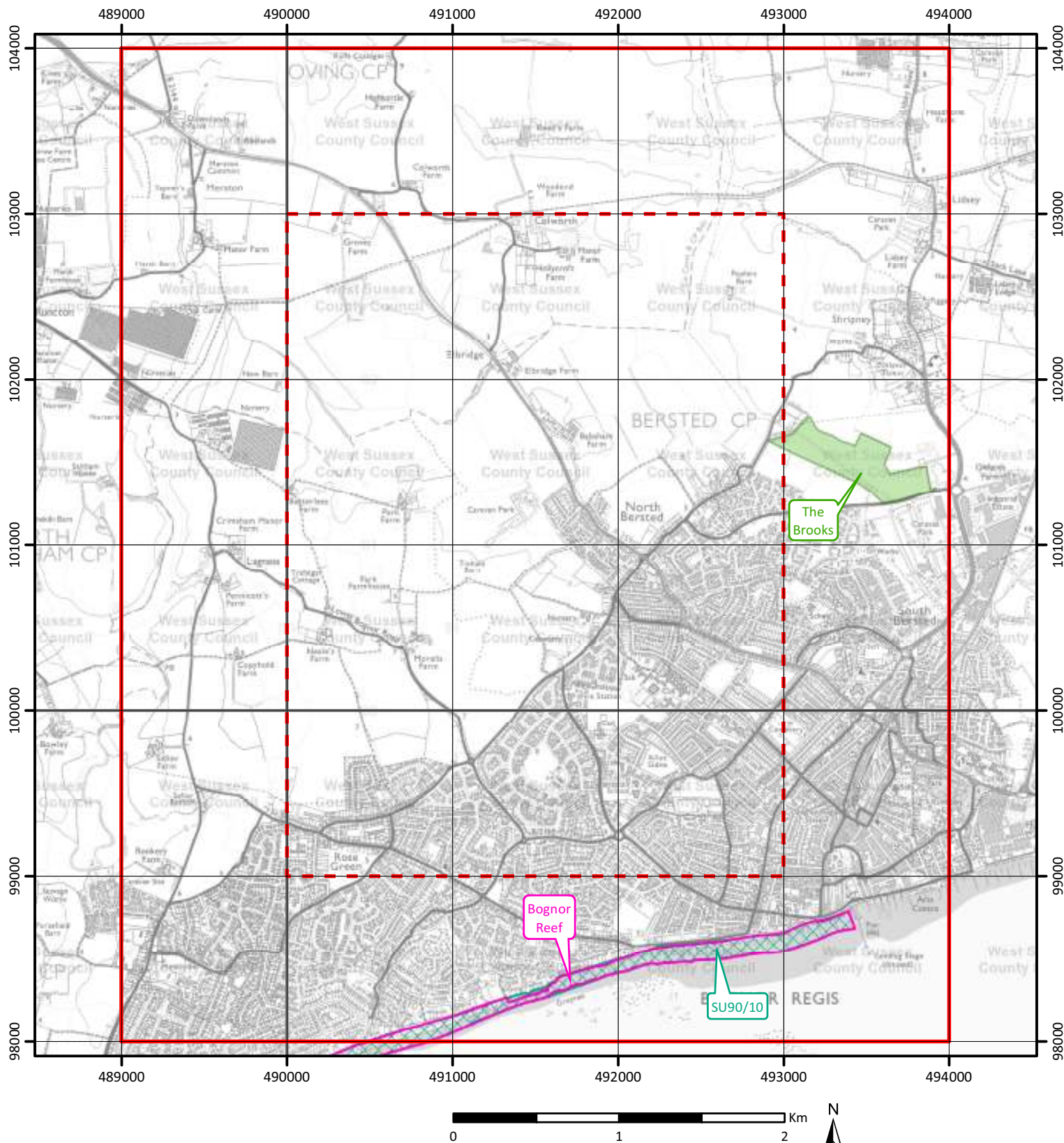
Natural England datasets

These are available for anyone to download and use in their own Geographical Information System (GIS). Visit www.gis.naturalengland.org.uk for more information and register as a user.

Designated Site Map (ESD/15/490)

Land at Bognor Regis

Prepared for Tom Booth (Ecology Solutions) - 16/07/2015



Key to Map:

- Enquiry area
- Species search area
- SSSI
- LNR
- LGS

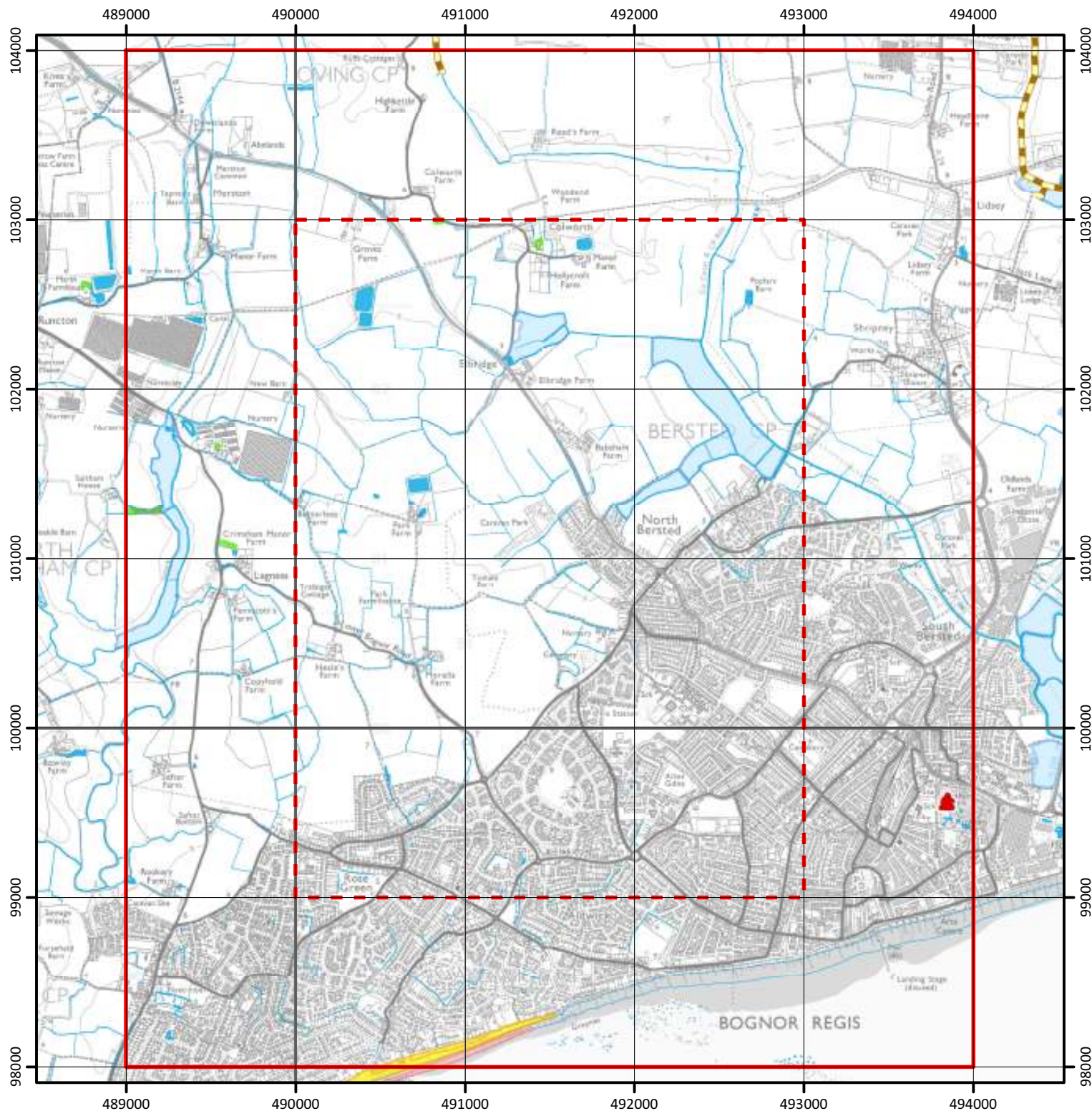
© Crown copyright and database rights 2015 Ordnance Survey. West Sussex County Council 100023447. East Sussex County Council 100019601. Natural England 100046223. Sussex Wildlife Trust 100025883.

RAMSAR, 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 Country 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. Notable Road Verge data supplied by East and West Sussex County Councils. Local Geological Site (LGS) data created by Sxbrc in partnership with Sussex Geodiversity Group. © Crown Copyright. All rights reserved 2015.

Habitat & Natural Features Map (ESD/15/490)

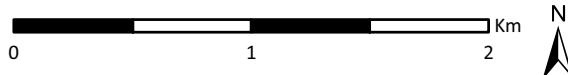
Land at Bognor Regis

Prepared for Tom Booth (Ecology Solutions) - 16/07/2015



Key to Map:

- Enquiry area
- Species search area
- Black poplar
- Chalk stream
- Intertidal mudflat
- Coastal vegetated shingle
- Open Water
- Traditional orchard
- Ancient woodland
- Coastal & floodplain grazing marsh



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Ancient woodland, traditional orchards, woodpasture and parkland, vegetated shingle and saline lagoon data reproduced with permission of Natural England. Revised coastal and floodplain grazing marsh data remains provisional and is also reproduced with permission of Natural England. Chalk grassland data supplied by Natural England and South Downs Conservation Board. Black Poplar data supplied by Sussex Wetland Landscapes Project. Ghyll woodland data supplied by Dr Francis Rose. Reedbed data funded by Environment Agency and West Sussex County Council is provided by Sussex Biodiversity Record Centre and maintained by RSPB. Heathland data funded by West Sussex County Council, RSPB and High Weald AONB Unit. Ancient/veteran tree data derived from results of the Ancient Tree Hunt Project and the Tree Register of the British Isles (TROBI). South East Coastal Habitat Mapping data reproduced with permission of Environment Agency. © Crown Copyright. All rights reserved 2015.

Habitat data held by Sussex Biodiversity Record Centre (SxBRCC) are created in-house or obtained from a variety of dataset providers. SxBRCC continually 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.

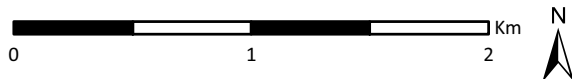
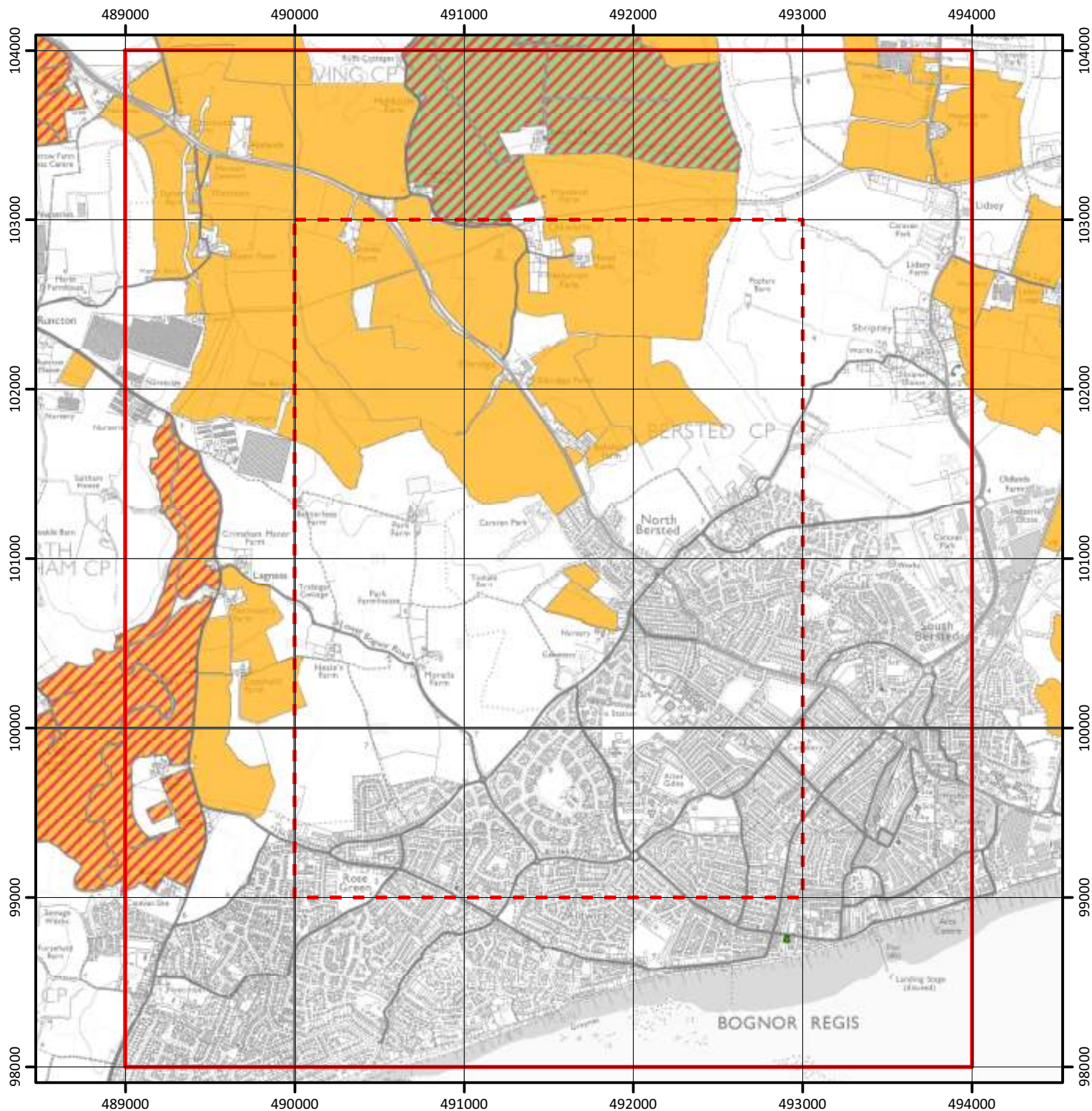
Ownership & Management Map (ESD/15/490)

Land at Bognor Regis

Prepared for Tom Booth (Ecology Solutions) - 16/07/2015



Woods Mill, Henfield,
West Sussex BN5 9SD
sxbrc@sussexwt.org.uk
01273 497 558
www.sxbrc.org.uk



Key to Map:

- Enquiry area
- Species search area
- National Trust property

Environmental Stewardship Agreements:

- Higher Level Stewardship (HLS)
- Entry Level Stewardship (ELS)
- Organic ELS
- Organic ELS plus HLS
- ELS plus HLS

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Environmental Stewardship Agreement data reproduced with permission of Natural England. Other datasets reproduced respectively with permission of the Woodland Trust, National Trust, Sussex Wildlife Trust and Royal Society for the Protection of Birds. © Crown Copyright. All rights reserved 2015.

SUMMARY REPORT

Land at Bognor Regis

16 July 2015 ESD/15/490 Search Area: SZ9099 to SU9202
Tom Booth (Ecology Solutions)

Protected Species Register (not including bats, badgers, otters or birds)

Number of species recorded	5
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European Protected Species

Number of species recorded	10
----------------------------	----

Bats

Number of species recorded	10
----------------------------	----

Birds

Number of species recorded	116
Number of BoCC Red list species recorded	18
Number of BoCC Amber list species recorded	46
Number of W&CA Schedule 1 species recorded	16
Number of significant breeding bird records	12

BAP species (not including bats or birds)

Number of species recorded	11
----------------------------	----

Rare Species (not including bats, birds or otters)

Number of species recorded	8
----------------------------	---

Invasive Alien Species

Number of species recorded	13
----------------------------	----

SUSSEX PROTECTED SPECIES REGISTER

The Protected Species Register does not include bat, bird, badger or otter records.
Bat and bird records are included in separate inventories, while badger and otter records are not included in SxBRC reports.

The Sussex Protected Species Register (PSR) consists of species of plants, fungi and animals that are protected under Schedules 5, 6 and 8 of the Wildlife and Countryside Act 1981 and other legislation.

Please note the following limitations to the PSR:

- PSR records are labelled so that only one record per species per grid reference is included in a SxBRC report. This will usually be the most up to date record.
- If a protected species record appears in a SxBRC biodiversity report it does not mean that the species is still present. It means that the protected species was recorded last at that time and place by the recorder listed. The implications of the record should be further evaluated, and a survey to establish the current status of the species may be required.
- If there is no record of any particular protected species, this does not confirm that the species is absent from the site in question. It may mean that it has not been recorded, that the site has not been surveyed for this species, or that the Record Centre has not been informed of its presence.
- Some sites are part of the National Dormouse Monitoring Programme (NDMP) and therefore we are likely to hold historic records/more detailed information. If NDMP is mentioned in the location name of a record and you would like the historic dormouse data for that site, please contact the SxBRC.

Wildlife Protection Legislation in England

Legislation that protects wildlife in England exists at the European and national level.

European law

Legislation produced at a European level is an EU Directive, produced to have an effect at national level as regulations. The most relevant regulation for biodiversity is the 'Conservation of Habitats & Species Regulations 2010 (informally known as 'The Habitats Directive'). Further information can be found here: www.naturenet.net/law/habsregs.html

National law

The Wildlife and Countryside Act (WCA) 1981 (as amended), strengthened by the Countryside and Rights of Way Act 2000, are together the most important legislation aimed at protecting wildlife in England. The Wildlife and Countryside Act is divided into four parts, details of which are available from: www.naturenet.net/law/wcagen.html

Species protection is provided under Schedules 1, 5, 6 and 8 of the WCA:

Schedule 1: Birds – Please refer to the Sussex Bird Inventory results and explanation sheet in your SxBRC biodiversity report.

Schedule 5: Protected animals (other than birds)

Intentional or reckless killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives) as well as damaging, destroying or obstructing access to any structure or place of refuge etc. are prohibited. N.B. Protection of some species is limited to certain sections of the Act, which are indicated in the lists as follows:

Section 9(1) Protection limited to intentional killing, injury or taking.

Section 9(2) Protection limited to possessing and controlling.

- Section 9(4a)** Protection limited to damaging, destroying or obstructing access to any structure or place used by the animal for shelter or protection.
- Section 9(4b)** Protection limited to disturbing the animal while it is occupying any structure or place which it uses for shelter or protection.
- Section 9(5a)** Protection limited to selling, offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative).
- Section 9(5b)** Protection limited to advertising for buying or selling such things.

Schedule 6: Animals which may not be killed or taken by certain methods

Methods include traps and nets, poisons, automatic weapons, electrical devices, smokes/gases and various others. Even humane trapping for research requires a licence.

Schedule 8: Protected plants and fungi

Intentional picking, uprooting, destroying, trading (including parts and derivatives) etc. are prohibited. Under the Wildlife and Countryside Act, all wild plants in Britain are protected from intentional uprooting by an unauthorised person. Land owners, land occupiers, persons authorised by either of these, or persons authorised in writing by the Local Authority for the area are however exempt from this, except for Schedule 8 species which you can see on this website: www.naturenet.net/law/sched8.html

Legislation protecting bats

Please refer to the explanation sheet of the Sussex Bat Inventory within your SxBRC biodiversity report, or visit the [SxBRC website](#).

Legislation protecting badgers and otters

Please refer to the 'Confidential Records' sheet at the start of the report for information on badger and otter records in Sussex.

SUSSEX PROTECTED SPECIES REGISTER REPORT

Please note that bat, bird, badger and otter records are not included in this report.

Land at Bognor Regis

16 July 2015 ESD/15/490 Search Area: SZ9099 to SU9202
Tom Booth (Ecology Solutions)

Arvicola amphibius

European Water Vole

Terrestrial mammal

The fastest declining native British mammal, the water vole was 'Ratty' in Wind in the Willows. Water voles prefer slow flowing streams, rivers and dykes with steep earth banks and luxuriant emergent vegetation. They have been in decline for over a century mainly due to loss of habitat while the presence of American mink has greatly hastened this decline. In many areas of mainland Britain water voles are already extinct but there are still some strong populations in Sussex. A legally protected species, listed on the Sussex Rare Species Inventory and the subject of a Sussex Species Action Programme.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec; Sussex Biodiversity Action Plan; Sussex Protected Species Register; Sussex Rare Species Inventory; UK Biodiversity Action Plan priority species; Wildlife and Countryside Act 1981 Schedule 5 Sections (9.1 killing/injuring; 9.1 taking; 9.2; 9.4; subdivision a; 9.4b; 9.5a; 9.5b; Schedule 5)

Grid Reference	Recorder	Date	Locality
SU900024	Recorder @ MWHG	29/10/2009	Groves Farm, WVS Site 37, Merston
SU9004502489	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU9013002251	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU903029	Oscar Wittert	22/07/2007	Groves Farm, Chichester, Chichester CP
SU9035302386	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU905023	Recorder @ MWHG	18/10/2008	Groves Farm, Merston nr Chichester
SU9056902371	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU9081602240	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU910029	Recorder @ WildCall	12/03/2013	Glencroft, Colworth, West Sussex (VC13)
SU9105002561	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU9160202442	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bersted Brooks, Bognor North Bersted
SU9202	Anon	1997	Aldingbourne Rife, West Sussex (VC13)
SU924025	Recorder @ MWHG	22/04/2009	Aldingbourne Rife, Colworth, WVS Site 49, Sidlesham Common
SU925029	Recorder @ MWHG	23/04/2009	Aldingbourne Rife, Colworth, WVS Site 50, Sidlesham Common
SU926009	Stephen English	2012	82 Markfield, North Bersted

Anguis fragilis

Slow-worm

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 (sec; Sussex Biodiversity Action Plan; Sussex Protected Species Register; UK Biodiversity Action Plan priority species; Wildlife and Countryside Act 1981 Schedule 5 Sections (9.1 killing/injuring; 9.5a; 9.5b)

Grid Reference	Recorder	Date	Locality
SU924002	SARG Sussex Amphibian & Reptile Grp; Dennis Dey	10/08/1995	23, Hatherleigh Close, Bognor, West Sussex (VC13)
SU926006	Recorder @ WildCall	12/05/2012	Garden of 32 Sherwood Road, Bognor Regis, West Sussex (VC13)
SU928000	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SZ927997	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)

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 (sec; Sussex Biodiversity Action Plan; Sussex Protected Species Register; UK Biodiversity Action Plan priority species; Wildlife and Countryside Act 1981 Schedule 5 Sections (9.1 killing/injuring; 9.5a; 9.5b)

Grid Reference	Recorder	Date	Locality
SU906014	Paul Whitby	May 2011	Park Farm, Lagness nr Bognor
SZ927997	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)

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 (sec; Sussex Biodiversity Action Plan; Sussex Protected Species Register; UK Biodiversity Action Plan priority species; Wildlife and Countryside Act 1981 Schedule 5 Sections (9.1 killing/injuring; 9.5a; 9.5b)

Grid Reference	Recorder	Date	Locality
SU9197700464	Phil Price	09/04/2011	Black Down, West Sussex (VC13)

Vipera berus

Adder

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 (sec; Sussex Biodiversity Action Plan; Sussex Protected Species Register; UK Biodiversity Action Plan priority species; Wildlife and Countryside Act 1981 Schedule 5 Sections (9.1 killing/injuring; 9.5a; 9.5b)

Grid Reference	Recorder	Date	Locality
SU9201900491	Phil Price	09/04/2011	Black Down, West Sussex (VC13)

Bat species

There are 18 species of bat which are resident in the UK (17 of which are known to be breeding here), all of which have been recorded in Sussex:

Barbastella barbastellus **Barbastelle**

Eptesicus serotinus **Serotine**

Myotis alcathoe **Alcathoe**

Myotis bechsteinii **Bechstein's**

Myotis brandtii **Brandt's**

Myotis daubentonii **Daubenton's**

Myotis myotis **Greater mouse-eared**

Myotis mystacinus **Whiskered**

Myotis nattereri **Natterer's**

Nyctalus leisleri **Leisler's**

Nyctalus noctula **Noctule**

Pipistrellus nathusii **Nathusius's pipistrelle**

Pipistrellus pipistrellus **Common pipistrelle**

Pipistrellus pygmaeus **Soprano pipistrelle**

Plecotus auritus **Brown long-eared**

Plecotus austriacus **Grey long-eared**

Rhinolophus ferrumequinum **Greater horseshoe**

Rhinolophus hipposideros **Lesser horseshoe**

Four other bat species have been recorded in Sussex as vagrants: Savi's pipistrelle (*Hypsugo savii*), Kuhl's pipistrelle (*Pipistrellus kuhlii*), parti-coloured bat (*Vespertilio murinus*) and Geoffroy's bat (*Myotis emarginatus*).

Five species are included in Annex II of the EU Habitats Directive: Barbastelle, Bechstein's, greater mouse-eared, greater horseshoe and lesser horseshoe. All 18 species are included in Annex IV.

Seven species are included in the UK Biodiversity Action Plan: Barbastelle, Bechstein's, brown long-eared, greater horseshoe, lesser horseshoe, noctule and soprano pipistrelle.

Background

Bats are the only mammals capable of true flight. Those found in the UK feed exclusively on insects and use a sophisticated form of sonar to navigate and catch their prey at night. In late spring and summer, female bats form maternity colonies to raise their young. This is when they are most obvious to us, as they leave the roost at or after sunset in search of food. Bats hibernate during the winter when insects are scarce, usually at a different site to the maternity roost where a constant cool temperature can be found i.e. in underground sites or within deep crevices in trees or buildings. **Bats return to the same roost sites every year, so even if the animals themselves are not present, the roost is still legally protected.**

Unfortunately there are many misconceptions about bats. They are in fact sociable, intelligent, clean animals that rarely come into contact with humans. They do not build nests and very rarely cause structural damage to buildings.

Current status and threats

Bat populations have suffered huge declines in the last century. The common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) remain the most abundant and widespread species of bat, but are thought to have suffered from a huge reduction in numbers. Estimates from a National Bat Colony Survey suggest a population decline of around 70% between 1978 and 1993.

This reduction in bat numbers is largely due to their roosts being disturbed or destroyed, a loss of suitable feeding and flightline habitat (e.g. hedgerows) and a reduction in insect numbers (e.g. through farming intensification and the use of pesticides). A number of species are now included in the National Bat Monitoring Programme (NBMP), run by the Bat Conservation Trust (BCT), which gives up-to-date information on population trends.

Bats are also particularly vulnerable to human interference for the following reasons:

- They have a low reproductive rate; generally one pup a year.
- They require specific conditions for each of their roost types.
- They are very secretive and often go unnoticed until discovered by building works or home improvements.

Consequently, bats and their roosts receive some of the highest levels of legal protection.

Bats and the law

All species of bat and their roosts are protected by UK and European law. Bats and their roosts may also be protected by site designations, for example if their roost site or feeding grounds are notified as a 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 its 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

It is not illegal to:

Tend/care for a bat solely for the purpose of restoring it to health and subsequent release. (This should always be done by an experienced bat handler, contact details of which can be found through the Sussex Bat Group.)

Licensing

If you have a bat roost in your property, it does not necessarily mean that building work cannot take place. Work can be planned so as not to interfere with the roost and at a time that bats may be absent. If you are planning any sort of work that may interfere with bats, advice must be sought first from Natural England (see contact details below). Similarly, if you discover bats after work has begun, you must stop and contact Natural England for their advice before continuing.

Licences to permit illegal activities relating to bats and their roost sites can be issued for specific purposes. It is an offence not to comply with the terms and conditions of such a licence. If you carry out work affecting bats or roosts without a licence, you will be breaking the law.

Further advice and information:

Bat Conservation Trust

The national charity working for bat conservation.

Website: www.bats.org.uk

Bat helpline: 0845 1300 228

Email: enquiries@bats.org.uk

Natural England

The government body responsible for issuing licences for work that may affect bats or their roosts.

Website: www.naturalengland.org.uk/ourwork/regulation/wildlife/species/bats.aspx

General and licensing enquiries. Tel: 0845 601 4523 (local rate).

Sussex Bat Group

A local voluntary group working for the conservation of bats in Sussex.

Website: www.sussexbatgroup.org.uk

Email: contact@sussexbatgroup.org.uk

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 Bognor Regis

16 July 2015

ESD/15/490

Search Area: SZ9099 to SU9202

Tom Booth (Ecology Solutions)

Common Name	Latin Name	No of Records	M/S	H	FR	MR	UR	D
Bat sp.	<i>Chiroptera</i>	3	☐	☐	☐	☐	☒	☐
Brown Long-eared Bat	<i>Plecotus auritus</i>	2	☐	☐	☐	☐	☐	☐
Common Pipistrelle (45 kHz)	<i>Pipistrellus pipistrellus</i>	6	☐	☐	☐	☐	☒	☐
Daubenton's Bat	<i>Myotis daubentonii</i>	1	☐	☐	☐	☐	☐	☐
Long-eared sp.	<i>Plecotus</i>	1	☐	☐	☐	☐	☐	☐
Nyctalus Bat species	<i>Nyctalus</i>	1	☐	☐	☐	☐	☐	☐
Pipistrelle sp.	<i>Pipistrellus</i>	5	☐	☐	☐	☐	☒	☒
Serotine	<i>Eptesicus serotinus</i>	1	☐	☐	☐	☐	☐	☐
Soprano Pipistrelle (55 kHz)	<i>Pipistrellus pygmaeus</i>	2	☐	☐	☐	☐	☒	☐
Whiskered Bat	<i>Myotis mystacinus</i>	1	☐	☐	☐	☐	☐	☐

SUSSEX BAT INVENTORY REPORT

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 Bognor Regis

16 July 2015 ESD/15/490

Search Area: SZ9099 to SU9202

Tom Booth (Ecology Solutions)

Chiroptera

Bat sp.

Chiroptera (from the ancient Greek for 'wing hand') is the natural group, or order, that covers all the bats. In Britain we have 18 bat species and all have the highest level of legal protection. Many people simply record bats in general when they are not able to assign them to a particular species and these are then included under Chiroptera in our reports.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
20/07/2012	Pinehurst Park, Bognor Regis	SZ9086299621	Recorder Big Bat Map (BCT)	Visual	☐	☐	☐	☐	☒	☐	100+ Bat(s)	Looks like a roost with 100+ on a neighbours property.
July 2005	Bersted Brooks, Bognor North Bersted	SU920013	Dennis Robbins;Marja Kivisaari	Field Observation	☐	☐	☐	☐	☐	☐	Taxon Present	Sighted in the area up to July 2005.
28/06/1988	14 Pinehurst Road, Aldwick, Bognor Regis, West Sussex (VC13)	SU919007	NE Bat Worker	Building Inspection	☐	☐	☐	☐	☒	☐	50 Present	

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Eptesicus serotinus

Serotine

A large bat that frequents pasture, parklands and gardens as well as the wider countryside. It forms summer roosts in buildings where it also probably hibernates. A widespread southern species in the UK, though often only present in small numbers. Its British strongholds are in the south east (widespread in Sussex) and parts of the West Country.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
01/01/2006 - 31/12/2006	Park Farm, Lagness, West Sussex (VC13)	SU905010	Recorder @ Chris Blandford Ass	Unspecified	☐	☐	☐	☐	☐	☐	taxon Present	Recorded during a protected species survey.

Myotis daubentonii

Daubenton's Bat

A medium-sized to small bat of woodland, usually near water (this species was sometimes known as the 'water bat'). It feeds largely on chironomid midges, caddis flies and mayflies. Summer roosts are in tree holes, semi-underground sites and occasionally buildings. During winter it hibernates in caves, mine tunnels, cellars and similar places. Widespread in Britain and apparently increasing in parts of its range and recorded throughout Sussex.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
01/01/2006 - 31/12/2006	Park Farm, Lagness, West Sussex (VC13)	SU905010	Recorder @ Chris Blandford Ass	Unspecified	☐	☐	☐	☐	☐	☐	taxon Present	Recorded during a protected species survey.

Myotis mystacinus

Whiskered Bat

Very similar to Brandt's bat (*Myotis brandtii*) and only separated from that species in 1970. On average slightly smaller and with small anatomical differences. Summer roosts are mainly in buildings and trees, while winter roosts are often in tunnels and caves. Generally more common and widespread than Brandt's bat, the whiskered bat is found throughout the British Isles to the southern parts of Scotland. Widely distributed in both West Sussex and East Sussex.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
01/01/2006 - 31/12/2006	Park Farm, Lagness, West Sussex (VC13)	SU905010	Recorder @ Chris Blandford Ass	Unspecified	☐	☐	☐	☐	☐	☐	taxon Present	Recorded during a protected species survey.

Nyctalus

Nyctalus Bat species

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
01/01/2006 - 31/12/2006	Park Farm, Lagness, West Sussex (VC13)	SU905010	Recorder @ Chris Blandford Ass	Unspecified	☐	☐	☐	☐	☐	☐	taxon Present	Recorded during a protected species survey.

Pipistrellus

Pipstrelle sp.

There are three species of Pipistrelle bat found in the UK; common (*Pipistrellus pipistrellus*), soprano (*P. pygmaeus*) and Nathusius (*P. Nathusii*). Common and soprano pipistrelles were previously recorded as one species, but they are now recognised as separate species, with a peak frequency echolocation at 45 kHz and 55 kHz respectively. The following records refer to an aggregate of the two species, where the audio frequency or specific species is undetermined. Little is known about the Nathusius pipistrelle, but the other two species are found in all types of countryside (except very exposed areas) as well as in towns and suburbs. Summer roosts are usually in buildings, though tree holes and bat boxes are also used. Hibernation sites are in buildings and tree holes. Both common and soprano pipistrelles are widespread in Sussex, while Nathusius' is much rarer.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
27/07/2012	Private property, Pinehurst Park	SZ908996	NE Bat Worker	Building Inspection	☐	☐	☐	☐	☒	☒		
26/05/2008	Bognor Regis Community College, West Sussex (VC13)	SU921001	Recorder @ ECOSA	Visual	☐	☐	☐	☐	☐	☐	4 Present	Recorded without a bat detector during a great crested newt survey.
23/08/1998	The Rookery, North Bersted, nr. Bognor, West Sussex (VC13)	SU928013	Recorder @ Sussex Bat Group	Grounded Bat	☐	☐	☐	☐	☐	☐	1 Injured male	Injured then died.
21/09/1988	27 Birdham Close, North Bersted, Bognor, West Sussex (VC13)	SU920004	NE Bat Worker	Grounded Bat	☐	☐	☐	☐	☐	☐	1 Present	An injured bat, with a broken wing.
1965	Aldwick Bay, Pagham, West Sussex (VC13)	SZ9199	Unknown	Unspecified	☐	☐	☐	☐	☐	☐	Present Several	

Pipistrellus pipistrellus

Common Pipistrelle (45 kHz)

The common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*P. pygmaeus*) were previously recorded as one species. They are now recognised as separate species, with a peak frequency echolocation at 45 kHz and 55 kHz respectively. Pipistrelles are the most common bat in the British Isles and are found in all types of countryside (except very exposed areas) as well as in towns and suburbs. Summer roosts are usually in buildings, though tree holes and bat boxes are also used. Winter roosts are in buildings and tree holes.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
27/04/2011	St Michael's Church, Aldwick, West Sussex (VC13)	SZ916996	Nick Deykin;David King;Sheila Wright	Aural bat detector	☐	☐	☐	☐	☒	☐	1 Bat(s)	Pass
13/08/2010	Butterlees Farm, Pagham Road, Lagness	SU90020131	S. Murphy	Aural bat detector	☐	☐	☐	☐	☐	☐	4 Bat(s)	Flying around site
16/06/2010	Butterlees Farm, Pagham Road, Lagness	SU90020131	S. Murphy	Aural bat detector	☐	☐	☐	☐	☐	☐	2 Bat(s)	Heard but not seen
29/04/2008	Aldwick End, Hawthorn Road, Bognor Regis	SZ920993	S. Murphy	Aural bat detector	☐	☐	☐	☐	☐	☐	2 Bat(s)	Distant recording
2006	Hawthorn Road, Bognor Regis	SZ921993	Recorder @ RPS	Field Observation	☐	☐	☐	☐	☐	☐	4 Bat(s)	At least 4 bats recorded feeding
01/01/2006 - 31/12/2006	Park Farm, Lagness, West Sussex (VC13)	SU905010	Recorder @ Chris Blandford Ass	Unspecified	☐	☐	☐	☐	☐	☐	taxon Present	Recorded during a protected species survey.

Pipistrellus pygmaeus

Soprano Pipistrelle (55 kHz)

BAP

For a while considered as a variant of the common pipistrelle, the soprano pipistrelle is now recognised as a separate species. Pipistrelles are the most common bat in the British Isles and are found in all types of countryside (except very exposed areas) as well as in towns and suburbs. This species has a stronger association with water than common pipistrelle. Summer roosts are usually in buildings, though tree holes and bat boxes are also used. Winter roosts are in buildings and tree holes.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
27/04/2011	St Michael's Church, Aldwick, West Sussex (VC13)	SZ916996	Nick Deykin;David King;Sheila Wright	Aural bat detector	☐	☐	☐	☐	☒	☐	1 Bat(s)	Pass
01/01/2006 - 31/12/2006	Park Farm, Lagness, West Sussex (VC13)	SU905010	Recorder @ Chris Blandford Ass	Unspecified	☐	☐	☐	☐	☐	☐	taxon Present	Recorded during a protected species survey.

*Plecotus***Long-eared sp.**

It is difficult to distinguish the rare grey long-eared bat from the much more common brown long-eared bat without studying in the hand. This also applies to identifying the species from their droppings.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
01/01/2006 - 31/12/2006	Park Farm, Lagness, West Sussex (VC13)	SU905010	Recorder @ Chris Blandford Ass	Unspecified	☐	☐	☐	☐	☐	☐	taxon Present	Recorded during a protected species survey.

*Plecotus auritus***Brown Long-eared Bat****BAP**

One of the more common British bat species, but difficult to distinguish from the much rarer grey long-eared bat (*Plecotus austriacus*), unless in the hand. It frequents woodland and orchards and has summer roosts in older buildings and trees. It often hibernates in caves, tunnels and mines. The brown long-eared has declined in the British Isles though it remains widespread.

Date	Location	Grid Reference	Recorder	Sampling Method	M/S	H	FR	MR	UR	D	Abundance	Notes
09/12/2010	Chalcroft Lane, North Berstead, Bognor Regis	SU919007	Amanda Millar	Grounded Bat	☐	☐	☐	☐	☐	☐	1 Adult Male	Taken from Sue Harris for overwintering
1953	Aldwick Grange, West Sussex (VC13)	SZ9299	Unknown	Unspecified	☐	☐	☐	☐	☐	☐	1 Male	

SUSSEX NOTABLE BIRD INVENTORY



The Sussex Notable Bird Inventory is based on a list of birds that are particularly scarce or vulnerable to development in Sussex. This report has been created with ecological consultants in mind, to help sort the more sensitive bird species from the more common. These records are only available to ecological consultants due to the sensitivity of the data. The Sussex Ornithological Society (SOS) has kindly shared this data with us, with the view that better planning decisions can be made with the availability of this data. Please see the appended list of species included in this report and the date ranges/criteria for each species' inclusion.

Icons used in the Notable Bird Inventory:



Schedule 1 birds

Schedule 1 of the Wildlife and Countryside Act 1981 provides an additional tier of protection so that rare species are specially protected by increased penalties and cannot be intentionally or recklessly disturbed when nesting. **Schedule 1 status also infers a right of arrest** by a police officer if someone is suspected of committing certain offences against one of these species.



Biodiversity Action Plan Species (UK BAP)

Twenty-six species of bird are identified as Priority Species in the UK Biodiversity Action Plan (UK BAP), each the subject of a dedicated action plan which seeks to reverse their declines and protect vulnerable populations. Any Priority Species recorded within your enquiry area will be indicated in the species information of the bird report. Further details of BAP bird species can be found on the [JNCC website](http://jncc.gov.uk).



Natural Environment & Rural Communities (NERC) Act

There are 49 bird species on the England Biodiversity List which was drawn up to meet the requirements of Section 41 of the Act. Further details of the NERC Act can be found on the [Natural England website](http://naturalengland.gov.uk).

Birds of Conservation Concern 3 (2009)

Every five years the leading governmental and non-governmental conservation organisations in the UK review the population status of the 247 species of bird that are regularly found in the UK. There are three lists – Red, Amber and Green – into which each of the species has been placed. 40 species are Red-listed, 121 are Amber-listed and 86 are Green-listed. The status decisions are based on several factors which include: the species' global and European conservation status; recent and historical decline; whether it is a rare breeder; if it is only confined to a few sites in the UK; and if the species is of international importance.



Red List species are those that are **Globally Threatened** according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.



Amber List species are those with **Unfavourable Conservation Status** in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.

Green List species are those that do not fulfil any of the above criteria. Some of these species are however protected by law and the list includes some Schedule 1 species which have the highest level of protection. A green icon will not appear in our reports.

This information has been obtained from '**Birds of Conservation Concern 3**' (BoCC3) which can be downloaded from the [RSPB website](http://rspb.org.uk).

Other bird legislation and conservation measures:

Wildlife and Countryside Act (WCA) 1981

All British birds, their nests and eggs are protected by UK law. It is an offence to take, kill or injure any wild bird or to take, damage, destroy any nest or egg of any wild bird under Part 1 of the Wildlife and Countryside Act 1981, Schedules 1-4.

Hedgerow removal and birds

It is advisable not to trim, cut or remove hedgerows during the bird nesting season. You will be violating the Wildlife and Countryside Act if there are birds nesting within it due to the disturbance or destruction of their habitat whilst nesting. The Hedgerows Regulations were introduced in 1997 to protect important hedgerows in the countryside. The regulations state that it is a criminal offence, unless an exception applies, to deliberately remove or otherwise destroy a hedgerow without permission. Please apply to your local planning authority for a Hedgerow Removal Application. Domestic hedges are not included in this regulation, however it is still illegal to cut or remove any hedges if birds are suspected to be nesting in it.

Birds in roofs

There are various species that may nest in roofs. Unless they are causing a health hazard, the nests, eggs and chicks are protected by law. The parent birds must not be prevented from gaining access to their nest. Many of the birds that use roof spaces are now species of conservation concern because of their population decline over the past 25 years. Starlings and House Sparrows are Red-listed, while Barn Owls, House Martins and Swallows are Amber-listed (see next page for details). Roofs are also important for Swifts.

Further information about birds and the law can be found on the [RSPB website](#).

Environmental Stewardship Target Species

Farmland birds are one of the key targets of which a landowner can be awarded points through the Higher Level Stewardship scheme. Each Joint Character Area (e.g. High Weald, South Downs, South Coast Plain etc.) has specific key bird species whose populations must be maintained or enhanced to gain points as part of the land owner's 'Farm Environment Plan'. This can be done through a combination of management practices which should provide year round habitat requirements, in locations where these birds are known to be present or within 2km of such sites. If a key farmland bird species appears in your report, it will show to which Joint Character Area it is linked.

Further information about agri-environment schemes can be found on the [RSPB website](#).

EU Birds Directive

The Birds Directive addresses the conservation of all wild birds throughout the European Union, including marine areas, and covers their protection, management, control and exploitation. It applies to the birds, their eggs, nests and habitats. It places a broad requirement on Member States to take necessary measures to maintain the populations of all wild birds at levels determined by ecological, scientific and cultural needs. In doing so, Member States must also consider economic and recreational needs.

The Directive divides into two main parts: **habitat conservation** and **species protection**. In summary, it requires Member States to preserve, maintain and re-establish sufficient diversity and area of habitats for all wild birds.

Annex 1:

Species listed in Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat to ensure their survival and reproduction. This includes the designation of areas as Special Protection Areas (SPAs).

Annex 2:

Annex 2 of the Birds Directive lists birds that can be hunted under the legislation of the Member States. The Directive bans certain non-selective methods of hunting and defines the limits within which Member States can set the hunting season.

Further information about the EU Birds Directive can be found on the [BirdLife website](#).

IUCN Red List

The World Conservation Union (IUCN) has been assessing the conservation status of species, subspecies, varieties and even selected sub-populations on a global scale in order to highlight taxa threatened with extinction, and therefore promote their conservation. The IUCN Red List (different from the previously mentioned Red List) is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.

Further information about the Red List can be found on the [IUCN website](#).

SUSSEX NOTABLE BIRD LIST

Species	Search criteria 1	Search criteria 2	Designations			
Eurasian Wigeon	Positive breeding status	Late May- early July records	A			
Gadwall	Positive breeding status	Late May- early July records	A			
Pintail	Positive breeding status	Late May- early July records	A			
Garganey	Positive breeding status	Late May- early July records	A	!		
Common Pochard	Positive breeding status	Late May- early July records	A			
Grey Partridge	Positive breeding status	March - August records	R		BAP	N
Common Quail	Positive breeding status	March - August records	A	!		
Eurasian Bittern	All records	March - August records	R	!	BAP	N
Little Egret	Confirmed breeding records + recognised roosts	May and June records	A			
Grey Heron	Confirmed breeding records	March - May records				
Honey-buzzard	March - August records		A	!		
Red Kite	Positive breeding status + recognised roosts	March -August records	A	!		
Marsh Harrier	Positive breeding status + recognised roosts	Mid May-July records	A	!		
Hen Harrier	Winter roosts	3 or more birds	R	!		N
Montagu's Harrier	Mid May-July records		A	!		
Goshawk	January - August records	All records		!		
Osprey	Mid May-July records		A	!		
Hobby	Positive breeding status	April - August records		!		
Peregrine Falcon	Positive breeding status	March - August records		!		
Spotted Crake	Positive breeding status	March - August records	A	!		
Avocet	Positive breeding status	April - July records	A	!		
Stone-curlew	March - August records		A	!	BAP	N
Little Ringed Plover	Positive breeding status	March - July records		!		
Northern Lapwing	Positive breeding status	April -June records	R		BAP	N
Common Snipe	Positive breeding status	April - July records	A			
Black-tailed Godwit	Positive breeding status	late May-June	R	!		
Eurasian Curlew	Positive breeding status	April - July records	A		BAP	N
Common Redshank	Positive breeding status	April -June records	A			
Kittiwake	Positive breeding status		A			
Mediterranean Gull	Positive breeding status	May-June records	A	!		
Little Tern	Positive breeding status		A	!		
Common Tern	Positive breeding status		A			
Turtle Dove	Positive breeding status		R		BAP	N
Barn Owl	All records		A	!		
Long-eared Owl	Positive breeding status + recognised roosts	March - August records				
Common Swift	Confirmed & probably breeding records		A			

Barn Swallow	Confirmed & probably breeding records		A			
House Martin	Confirmed & probably breeding records		A			
Common Kingfisher	Positive breeding status	March - August records	A	!		
Lesser Spotted Woodpecker	All records		R		BAP	N
Raven	Positive breeding status	February - July records				
Firecrest	Positive breeding status	March - August records	A	!		
Willow Tit	All records		R			
Bearded Tit	Positive breeding status	March - August records	A	!		
Wood Lark	Positive breeding status	March - August records	A	!	BAP	N
Cetti's Warbler	Positive breeding status	March - August records		!		
Wood Warbler	Positive breeding status	April - August records	R		BAP	N
Dartford Warbler	Positive breeding status	March - August records	A	!		
Savi's Warbler	Positive breeding status	April - August records	R	!	BAP	N
Marsh Warbler	Positive breeding status	April - August records	R	!	BAP	N
Black Redstart	May-July		A	!		
Tree Sparrow	All records		R		BAP	N
Yellow Wagtail	Positive breeding status + recognised roosts	May-June records	R		BAP	N
Common Crossbill	Positive breeding status	February - July records		!		
Hawfinch	All records				BAP	N
Corn Bunting	All records		R		BAP	N

Key to symbols (see main explanation sheet for detail on these designations):

- ! Schedule 1
- R BoCC Red List Species
- A BoCC Amber List Species
- BAP Biodiversity Action Plan Species
- N Natural Environment & Rural Communities (NERC) Act Species

Selection based on:

Positive Breeding = where a bird has been confirmed as breeding, or there are signs that there is probable breeding.

Date = a date range which represents each species' breeding season, this criteria will be used where breeding has not been confirmed. Please note that this criteria will also bring up non-breeding records which may not be relevant to the data user.

Roost = where a species has been recorded as being in a recognised roost or a winter roost.

All Records = where all records for a species are flagged up.

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 Bognor Regis

16 July 2015 ESD/15/490 Search Area: SZ9099 to SU9202
Tom Booth (Ecology Solutions)

Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Teal	<i>Anas crecca</i>	15/01/2009	01/01/2011	3	8	5
Mallard	<i>Anas platyrhynchos</i>	01/05/1990	29/06/2011	23	116	30
Gadwall	<i>Anas strepera</i>	24/04/2012	-	1	1	1
White-fronted Goose	<i>Anser albifrons</i>	01/02/1979	03/02/1979	2	240	140
Pink-footed Goose	<i>Anser brachyrhynchus</i>	02/02/1979	04/02/1979	2	153	100
Tufted Duck	<i>Aythya fuligula</i>	31/07/2005	29/06/2011	3	10	9
Brent Goose	<i>Branta bernicla</i>	31/07/2005	-	1	0	0
Canada Goose	<i>Branta canadensis</i>	31/07/2005	-	1	0	0
Whooper Swan	<i>Cygnus cygnus</i>	28/01/2011	-	1	5	5
Mute Swan	<i>Cygnus olor</i>	01/05/1990	13/11/2012	23	76	19
Common Shelduck	<i>Tadorna tadorna</i>	22/04/2009	29/04/2011	3	5	5
Swift	<i>Apus apus</i>	02/07/2000	25/05/2013	38	206	30
Oystercatcher	<i>Haematopus ostralegus</i>	31/07/2005	-	1	0	0
Lapwing	<i>Vanellus vanellus</i>	01/05/1990	20/01/2013	20	132	50
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	31/07/2005	25/12/2013	54	7561	1000
Herring Gull	<i>Larus argentatus</i>	01/06/2000	25/12/2013	94	3073	450
Common Gull	<i>Larus canus</i>	11/09/2004	25/12/2013	20	63	30
Lesser Black-backed Gull	<i>Larus fuscus</i>	19/11/2007	19/07/2011	10	79	20
Great Black-backed Gull	<i>Larus marinus</i>	08/02/2007	12/05/2013	15	478	250
Mediterranean Gull	<i>Larus melanocephalus</i>	16/06/2005	02/04/2012	2	2	1
Snipe	<i>Gallinago gallinago</i>	01/05/1990	22/12/2010	4	12	6
Black-tailed Godwit	<i>Limosa limosa</i>	15/01/2009	-	1	2	2
Curlew	<i>Numenius arquata</i>	31/07/2005	25/07/2011	4	17	11

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Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Woodcock	<i>Scolopax rusticola</i>	14/03/2010	-	1	1	1
Green Sandpiper	<i>Tringa ochropus</i>	02/01/2010	25/07/2011	6	5	2
Redshank	<i>Tringa totanus</i>	01/05/1990	31/07/2005	2	1	1
Common Tern	<i>Sterna hirundo</i>	30/06/2009	-	1	3	3
Grey Heron	<i>Ardea cinerea</i>	31/07/2005	09/04/2013	14	14	2
Little Egret	<i>Egretta garzetta</i>	13/06/2005	26/04/2012	7	7	3
White Stork	<i>Ciconia ciconia</i>	06/06/2005	-	2	2	1
Rock Dove	<i>Columba livia</i>	06/12/2008	29/06/2011	13	136	30
Stock Dove	<i>Columba oenas</i>	11/09/2004	25/12/2013	35	113	30
Woodpigeon	<i>Columba palumbus</i>	27/03/2004	25/12/2013	121	3551	280
Collared Dove	<i>Streptopelia decaocto</i>	04/04/2004	25/12/2013	92	363	24
Turtle Dove	<i>Streptopelia turtur</i>	31/07/2005	13/07/2011	5	4	2
Budgerigar	<i>Melopsittacus undulatus</i>	13/07/2013	-	1	1	1
Kingfisher	<i>Alcedo atthis</i>	14/09/1989	12/09/2010	5	4	1
Cuckoo	<i>Cuculus canorus</i>	31/07/2005	01/05/2011	3	1	1
Sparrowhawk	<i>Accipiter nisus</i>	28/02/2004	26/05/2013	48	45	2
Buzzard	<i>Buteo buteo</i>	31/07/2005	30/04/2013	38	39	4
Hen Harrier	<i>Circus cyaneus</i>	25/01/1989	-	1	2	2
Merlin	<i>Falco columbarius</i>	19/01/2013	-	1	1	1
Peregrine	<i>Falco peregrinus</i>	07/09/2009	25/10/2013	3	3	1
Kestrel	<i>Falco tinnunculus</i>	06/03/2000	27/04/2012	33	37	3
Red-legged Partridge	<i>Alectoris rufa</i>	28/01/2011	-	1	12	12
Grey Partridge	<i>Perdix perdix</i>	31/07/2005	16/05/2006	3	5	3
Pheasant	<i>Phasianus colchicus</i>	31/07/2005	29/06/2011	40	65	5
Coot	<i>Fulica atra</i>	01/05/1990	29/06/2011	24	65	12
Moorhen	<i>Gallinula chloropus</i>	15/01/1984	01/01/2011	53	202	30
Water Rail	<i>Rallus aquaticus</i>	31/07/2005	-	1	0	0
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	01/05/1990	26/04/2012	7	29	15
Reed Warbler	<i>Acrocephalus scirpaceus</i>	01/06/1990	29/06/2011	16	98	56
Long-tailed Tit	<i>Aegithalos caudatus</i>	08/04/2004	10/03/2013	61	213	10
Skylark	<i>Alauda arvensis</i>	31/07/2005	29/06/2011	40	130	12
Treecreeper	<i>Certhia familiaris</i>	31/07/2005	07/04/2013	5	4	1
Cetti's Warbler	<i>Cettia cetti</i>	03/04/2009	26/04/2012	8	6	1
Raven	<i>Corvus corax</i>	24/10/2013	-	1	1	1
Carriion Crow	<i>Corvus corone</i>	15/04/2004	25/12/2013	92	419	68
Rook	<i>Corvus frugilegus</i>	31/07/2005	03/04/2013	61	1576	300
Jackdaw	<i>Corvus monedula</i>	31/07/2005	01/01/2011	12	53	20
Jay	<i>Garrulus glandarius</i>	31/07/2005	14/10/2012	39	56	4
Magpie	<i>Pica pica</i>	08/04/2004	25/12/2013	91	319	29

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Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Corn Bunting	<i>Emberiza calandra</i>	01/06/1993	29/06/2011	14	23	5
Yellowhammer	<i>Emberiza citrinella</i>	08/03/2004	25/07/2011	36	83	17
Reed Bunting	<i>Emberiza schoeniclus</i>	01/05/1990	25/12/2013	28	119	38
Goldfinch	<i>Carduelis carduelis</i>	11/09/2004	25/12/2013	92	576	100
Greenfinch	<i>Carduelis chloris</i>	04/04/2004	25/12/2013	84	395	32
Greenfinch	<i>Chloris chloris</i>	01/01/2007	27/11/2009	23	135	32
Chaffinch	<i>Fringilla coelebs</i>	14/05/2004	25/12/2013	96	419	34
Brambling	<i>Fringilla montifringilla</i>	05/01/2006	02/01/2013	4	5	2
Linnet	<i>Linaria cannabina</i>	08/03/2004	25/07/2011	23	198	110
Bullfinch	<i>Pyrrhula pyrrhula</i>	31/07/2005	01/01/2011	26	46	6
Serin	<i>Serinus serinus</i>	03/04/2008	-	1	1	1
Siskin	<i>Spinus spinus</i>	31/07/2005	03/01/2013	6	19	15
House Martin	<i>Delichon urbicum</i>	17/11/1991	14/10/2012	12	199	100
Swallow	<i>Hirundo rustica</i>	16/11/2002	25/05/2013	24	117	25
Sand Martin	<i>Riparia riparia</i>	16/06/2009	-	1	0	0
Meadow Pipit	<i>Anthus pratensis</i>	31/07/2005	22/12/2010	13	40	17
Pied Wagtail	<i>Motacilla alba</i>	31/12/2005	13/11/2012	24	65	12
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	31/07/2005	25/12/2013	3	3	2
Grey Wagtail	<i>Motacilla cinerea</i>	31/07/2005	22/12/2010	6	6	2
Yellow Wagtail	<i>Motacilla flava</i>	31/07/2005	-	1	0	0
Robin	<i>Erithacus rubecula</i>	10/04/2004	25/12/2013	127	450	27
Nightingale	<i>Luscinia megarhynchos</i>	19/10/1943	01/06/1980	2	2	1
Spotted Flycatcher	<i>Muscicapa striata</i>	31/07/2005	15/09/2013	2	1	1
Wheatear	<i>Oenanthe oenanthe</i>	31/07/2005	26/04/2012	2	1	1
Black Redstart	<i>Phoenicurus ochruros</i>	19/03/2008	-	1	1	1
Redstart	<i>Phoenicurus phoenicurus</i>	31/07/2005	17/08/2010	2	1	1
Whinchat	<i>Saxicola rubetra</i>	31/07/2005	24/05/2010	2	1	1
Stonechat	<i>Saxicola rubicola</i>	31/07/2005	07/11/2009	3	2	1
Redwing	<i>Turdus iliacus</i>	31/07/2005	31/10/2013	30	180	27
Blackbird	<i>Turdus merula</i>	06/04/2004	25/12/2013	154	1012	49
Song Thrush	<i>Turdus philomelos</i>	31/07/2005	25/02/2015	88	157	14
Fieldfare	<i>Turdus pilaris</i>	21/02/1994	22/01/2013	20	445	180
Mistle Thrush	<i>Turdus viscivorus</i>	31/07/2005	16/11/2013	8	13	5
Blue Tit	<i>Cyanistes caeruleus</i>	21/03/2004	25/12/2013	141	470	24
Great Tit	<i>Parus major</i>	17/04/2004	25/12/2013	105	319	15
Coal Tit	<i>Parus ater</i>	04/04/2004	28/01/2013	24	22	2
House Sparrow	<i>Passer domesticus</i>	27/03/2004	27/05/2014	128	697	56
Chiffchaff	<i>Phylloscopus collybita</i>	31/07/2005	18/03/2015	52	94	9
Willow Warbler	<i>Phylloscopus trochilus</i>	31/07/2005	07/08/2013	16	17	3

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Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Dunnock	<i>Prunella modularis</i>	27/03/2004	25/12/2013	113	229	9
Firecrest	<i>Regulus ignicapilla</i>	31/07/2005	08/02/2013	4	2	1
Goldcrest	<i>Regulus regulus</i>	04/12/2005	04/02/2015	36	33	2
Starling	<i>Sturnus vulgaris</i>	03/05/2004	25/12/2013	101	2806	300
Blackcap	<i>Sylvia atricapilla</i>	19/03/1992	15/04/2013	103	155	6
Garden Warbler	<i>Sylvia borin</i>	29/06/2011	21/08/2012	2	3	2
Whitethroat	<i>Sylvia communis</i>	01/06/1990	31/08/2012	26	93	11
Lesser Whitethroat	<i>Sylvia curruca</i>	01/06/1990	05/05/2010	3	3	1
Wren	<i>Troglodytes troglodytes</i>	31/07/2005	25/12/2013	94	402	22
Cormorant	<i>Phalacrocorax carbo</i>	31/07/2005	25/12/2013	6	6	3
Great Spotted Woodpecker	<i>Dendrocopos major</i>	14/12/2005	18/03/2015	47	46	2
Green Woodpecker	<i>Picus viridis</i>	31/07/2005	16/07/2014	55	62	3
Little Grebe	<i>Tachybaptus ruficollis</i>	11/10/1989	15/09/2013	8	12	4
Tawny Owl	<i>Strix aluco</i>	31/07/2005	01/01/2010	2	1	1
Barn Owl	<i>Tyto alba</i>	21/02/1976	21/01/2012	4	4	1

SUSSEX NOTABLE BIRD REPORT

Land at Bognor Regis

16 July 2015 ESD/15/490 Search Area: SZ9099 to SU9202
Tom Booth (Ecology Solutions)

Apus apus

Swift

A well-known common summer visitor and passage migrant, widely distributed in Sussex. This sickle-shaped medium-sized dark aerial bird only stops flying when at the nest, it even sleeps on the wing! Many towns and villages have breeding populations. Very large migration movements are sometimes recorded with many thousands of birds involved. Can be seen in large screaming parties speeding around rooftops. They feed on flying insects and airborne spiders.

Bird Population Status - amber

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90A	Tetrad Atlas (2007-2011) TTV data	08/06/2009	Bognor Park Farm	6 Present	Positive Breeding
SU90G	Tetrad Atlas (2007-2011) TTV data	05/05/2008	Lidsey Old Canal & Tip	11 Present	Positive Breeding
SU9200	National Biodiversit (Gateway)	01/06/2009	Bognor Regis	1 Present	Positive Breeding
SU9200	BTO Birdtrack data	01/05/2012 - 28/05/2012	Bognor Regis	2 Present	Positive Breeding
SU920005	Sussex Ornithological Society	16/07/2004	Bognor Regis	8 Present	Positive Breeding
SZ926999	National Biodiversit (Gateway)	01/06/2009	Bognor Regis	1 Present	Positive Breeding
SZ9299	National Biodiversit (Gateway)	01/06/2009	Bognor Regis	1 Present	Positive Breeding

Vanellus vanellus

Lapwing

A large wader which is a familiar farmland and wetland bird; it is a scarce or fairly common, but declining, resident and very common winter visitor. The bird declined markedly in South East England at the end of the last century. The favoured breeding habitat is mixed farmland and suitable habitats have been in short supply. Its diet consists of worms and insects.

Bird Population Status - red; Birds Directive Annex 2.2; Convention on Migratory Species; Appendix 2; Environmental Stewardship Target Species (Pevensey Levels); Environmental Stewardship Target Species (Romney Marsh); Environmental Stewardship Target Species (South Downs); Environmental Stewardship Target Species (Wealden Greensand); Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec); UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90A	Tetrad Atlas (2007-2011) TTV data	08/06/2009	Bognor Park Farm	2 Present	Date
SU90G	BTO Birdtrack data	10/04/2007	Lidsey Old Canal & Tip	1 Present	Date
SU90G	BTO Birdtrack data	07/05/2007	Lidsey Old Canal & Tip	4 Present	Date
SU90G	BTO Birdtrack data	15/06/2007	Lidsey Old Canal & Tip	4 Present	Date
SU90G	Sussex Ornithological Society	17/05/2010	Lidsey Old Canal & Tip		Date
SU90G	Tetrad Atlas (Roving records)	13/07/2011	Lidsey Old Canal & Tip	Present Taxon	Positive Breeding
SU9202	Sussex Ornithological Society	01/05/1990	Aldingbourne Rife	3 Present	Positive Breeding
SU923024	Sussex Ornithological Society	17/04/2006	Bognor North Bersted	3 Present	Date
SU923024	Sussex Ornithological Society	02/05/2006	Bognor North Bersted	2 Present	Date
SU924021	Sussex Ornithological Society	16/05/2006	Bognor North Bersted	5 Present	Date
SU924025	Recorder @ MWHG	22/04/2009	Sidlesham Common	Taxon Present	Date
SU925029	Recorder @ MWHG	23/04/2009	Sidlesham Common	Taxon Present	Date

Larus melanocephalus

Mediterranean Gull

Fairly common throughout the year and increasing globally. Has bred annually since 1994, with an established breeding colony at Rye Harbour. This gull is slightly larger than a Black-headed Gull, with a bright red beak; it feeds on insects, fish, offal and carrion.

Bern Convention Appendix 2; Bird Population Status - amber; Birds Directive Annex 1; Convention on Migratory Species; Appendix 2; Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU9201	Anon @ SOS Website	16/06/2005	Deanlane End nr Rowlands Cstle	1 Present	Date

Gallinago gallinago

Snipe

Now a very scarce breeder and fairly common winter visitor favouring poorly drained pasture. The UK population of Snipe has undergone particularly steep declines in lowland wet grassland in the past twenty-five years. It is a plump medium-sized wader with short legs and a long bill used to probe for small invertebrates, including worms and insect larvae. Males display by flying high in the air and then dropping steeply producing a noise by vibrating their tail feathers.

Bird Population Status - amber; Birds Directive Annex 2.1; Convention on Migratory Species; Appendix 2

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU9202	Sussex Ornithological Society	01/05/1990	Aldingbourne Rife	1 Present	Positive Breeding

Numenius arquata

Curlew

Formerly a very scarce breeder; this large wader is a common passage migrant and winter visitor. Mainly recorded from marshes, mudflats and saltmarsh, but sometimes elsewhere. Easily recognisable by its long down-curved bill which it uses to catch worms, shellfish and shrimps, and its distinctive bubbling call.

Bird Population Status - amber; Birds Directive Annex 2.2; Convention on Migratory Species; Appendix 2; Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec; UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90B	Tetrad Atlas (Roving records)	25/07/2011	Colworth near Bognor	4 Present	Date
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bognor North Bersted	Taxon Present	Date

Tringa totanus

Redshank

A medium-sized wader with a long red bill and long red legs. It is a scarce resident in wetlands close to rivers, and a fairly common winter visitor and passage migrant. Its preferred habitats are wet grassland, estuaries and saltmarshes where it can feed on insects, earthworms, molluscs and crustaceans. Most breeding sites in Sussex are within protected areas, such as nature reserves, which employ specific management for breeding waders.

Bird Population Status - amber; Birds Directive Annex 2.2; Convention on Migratory Species; Appendix 2; Environmental Stewardship Target Species (Pevensy Levels); Environmental Stewardship Target Species (Romney Marsh); Environmental Stewardship Target Species (South Downs)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU9202	Sussex Ornithological Society	01/05/1990	Aldingbourne Rife	1 Present	Positive Breeding

Ardea cinerea

Grey Heron

A fairly common resident, the Grey Heron is increasing in numbers and can be found in most wetland areas standing silently at the water's edge waiting for fish prey. Breeds colonially in tall trees near to plentiful fish supplies.

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90A	Tetrad Atlas (2007-2011) TTV data	19/04/2009	Bognor Park Farm	1 Present	Date
SU90B	Tetrad Atlas (2007-2011) TTV data	29/04/2011	Colworth near Bognor	2 Present	Date
SU90F	Tetrad Atlas (2007-2011) TTV data	03/04/2009	Bognor North Bersted	2 Present	Date
SU9200	BTO Birdtrack data	09/04/2013	Bognor Regis	1 Present	Date
SU924025	Recorder @ MWHG	22/04/2009	Sidlesham Common	Taxon Present	Date

Egretta garzetta

Little Egret

A medium-sized white heron with characteristic bright yellow feet which was formerly rare but has bred since 2001 and is a scarce and increasing resident, and probably scarce autumn visitor. Its status as winter visitor is uncertain. It overwinters in Britain primarily on estuaries in the south and west and it has been breeding at a few southern sites since 1996. The Little Egret has been recorded from many places along Sussex coasts and estuaries and Chichester and Langstone Harbours are one of the best British locations. It feeds on fish.

Bern Convention Appendix 2; Bird Population Status - amber; Birds Directive Annex 1; EC CITES Annex A

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90B	Tetrad Atlas (2007-2011) TTV data	29/06/2011	Colworth near Bognor	1 Present	Date
SU920020	Anon @ SOS Website	13/06/2005	Aldingbourne Rife	1 Present	Date

Streptopelia turtur

Turtle Dove

A scarce and declining summer visitor and passage migrant that breeds at the northern edge of its range in the UK. It is confined largely to the south and east of England and is associated with fertile arable farmland in warm, dry situations where it feeds on seed. Nests in thick hedges, bushes and low trees in woodland edges, copses, commons, heaths and parkland. Easily identified by its evocative purring call.

Bird Population Status - red; Birds Directive Annex 2.2; EC CITES Annex A; Environmental Stewardship Target Species (High Weald); Environmental Stewardship Target Species (Low Weald); Environmental Stewardship Target Species (Romney Marsh); Environmental Stewardship Target Species (South Downs); Environmental Stewardship Target Species (Wealden Greensand); Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec; UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90G	BTO Birdtrack data	10/07/2009	Lidsey Old Canal & Tip	1 Present	Positive Breeding
SU90G	BTO Birdtrack data	07/08/2009	Lidsey Old Canal & Tip	1 Present	Positive Breeding

Alcedo atthis

Kingfisher

A scarce to fairly common resident, and possibly very scarce winter visitor, which is widespread across Sussex, but often declines following hard winters. A brilliantly coloured blue and orange bird which can be found in lowland freshwater areas such as rivers, ponds and streams, and during the winter on the coast and in estuarine areas. Nests in hole in riverbank or sandpit.

Bern Convention Appendix 2; Bird Population Status - amber; Birds Directive Annex 1; Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bognor North Bersted	Taxon Present	Date

Milvus milvus

Red Kite

This unmistakable large bird of prey is a very scarce breeding resident (first bred in 2004) and scarce but increasing visitor. Red kites were almost extinct in the UK by the early 1900s but in the last two decades, they have been re-introduced to England and Scotland, with magnificent results. It is easily recognised by its red colour and forked tail. It feeds on carrion, worms and small mammals.

Bird Population Status - amber; Birds Directive Annex 1; Convention on Migratory Species; Appendix 2; EC CITES Annex A; Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU919014	Recorder @ WildCall	30/03/2012	West Sussex (VC13)	7 Present	Date
SZ9299	BTO Birdtrack data	31/05/2009	Bognor Regis	5 Present	Date

Falco subbuteo

Hobby

Scarce breeding summer visitor and regular passage migrant. An agile species which feeds on insects and small birds, associated with heathlands that is now also found on farmland with pine clumps and woodland. Widely recorded in Sussex.

Bern Convention Appendix 2; Convention on Migratory Species; Appendix 2; EC CITES Annex A; Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90G	Tetrad Atlas (Roving records)	20/07/2009	Lidsey Old Canal & Tip	Present Taxon	Date

Perdix perdix

Grey Partridge

A medium-sized gamebird with a distinctive orange face, which is a scarce and decreasing resident species that has suffered a major decline nationally. It was formerly widespread on the South Downs but is now very scarce there. Found in arable areas where it feeds on leaves, seeds and insects. However, it continues to be recorded in larger numbers in the far East of the county around Rye Bay.

Bird Population Status - red; Birds Directive Annex 2.1; Environmental Stewardship Target Species (High Weald); Environmental Stewardship Target Species (Low Weald); Environmental Stewardship Target Species (Pevensey Levels); Environmental Stewardship Target Species (Romney Marsh); Environmental Stewardship Target Species (South Downs); Environmental Stewardship Target Species (Wealden Greensand); Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec); UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU910025	Sussex Ornithological Society	02/05/2006	Bognor North Bersted	3 Present	Date
SU913028	Sussex Ornithological Society	16/05/2006	Bognor North Bersted	2 Present	Date
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bognor North Bersted	Taxon Present	Date

Porzana porzana

Spotted Crake

Very scarce spring and autumn passage migrant and rare winter visitor. This starling-sized bird feeds on insects, snails, worms, small fish and plant materials. An easily overlooked species recorded from time to time in Sussex, mainly from coastal locations.

Bern Convention Appendix 2; Bird Population Status - amber; Birds Directive Annex 1; Convention on Migratory Species; Appendix 2; Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU9201	Sussex List (RJ Fair website)	11/08/1973	Aldingbourne Rife	1 Male	Date

Cettia cetti

Cetti's Warbler

A small, but loud, skulking bird that is a scarce but increasing resident; passage migrant and winter visitor. First recorded from Sussex in 1962 and slowly increasing. Most records are from coastal locations where it's favoured habitat of thick, damp overgrown vegetation is most common.

Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90F	Tetrad Atlas (2007-2011) TTV data	03/04/2009	Bognor North Bersted	1 Present	Positive Breeding
SU90F	Tetrad Atlas (2007-2011) TTV data	03/06/2009	Bognor North Bersted	1 Present	Date
SU90F	Tetrad Atlas (Roving records)	26/04/2011	Bognor North Bersted	Present Taxon	Positive Breeding
SU90G	Tetrad Atlas (Roving records)	19/04/2010	Lidsey Old Canal & Tip	1 Present	Positive Breeding
SU90G	BTO Birdtrack data	24/04/2010	Lidsey Old Canal & Tip	1 Present	Positive Breeding
SU90G	BTO Birdtrack data	08/05/2010 - 17/05/2010	Lidsey Old Canal & Tip		Date
SU9201	BTO Birdtrack data	26/04/2012	Bognor North Bersted	1 Present	Date

Corvus corax

Raven

This is a huge black bird with a large bill and diamond shape tail; it is a scarce and increasing breeding resident. It first bred in the modern era in 2001. It is usually recorded from the coast, especially where there are cliffs, but is sometimes seen inland too. It feeds on carrion.

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SZ9299	BTO Birdtrack data	11/03/2006	Bognor Regis	2 Present	Date

Emberiza calandra

Corn Bunting

A non-descript brown bunting that is a fairly common but decreasing resident with most records from the Downs and the east of East Sussex. One of the few UK bird species largely dependent on cropped land and it seems particularly to like barley. It feeds on seeds and insects. It can also be found on heathland and open countryside. Its has had a dramatic population decline in the UK.

Bird Population Status - red; Environmental Stewardship Target Species (Romney Marsh); Nerc Act 2006; UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU9000	Anon @ Corn Bunting Survey 93-94	01/06/1993	Bognor Chalcroft	1 Present	All records
SU909002	Sussex Ornithological Society	01/05/2001	Bognor Aldwick	1 Present	All records
SU90B	Tetrad Atlas (2007-2011) TTV data	29/04/2011	Colworth near Bognor	5 Present	All records
SU90B	Tetrad Atlas (2007-2011) TTV data	29/06/2011	Colworth near Bognor	4 Present	All records
SU90G	BTO Birdtrack data	08/05/2010	Lidsey Old Canal & Tip	1 Present	All records
SU918028	Sussex Ornithological Society	17/04/2006	Bognor North Bersted	2 Present	All records
SU918028	Sussex Ornithological Society	02/05/2006	Bognor North Bersted	1 Present	All records
SU918028	Sussex Ornithological Society	16/05/2006	Bognor North Bersted	1 Present	All records
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bognor North Bersted	Taxon Present	All records
SU924029	Sussex Ornithological Society	17/04/2006	Bognor North Bersted	1 Present	All records
SU925029	Sussex Ornithological Society	08/03/2004	Lidsey Old Canal & Tip	2 Present	All records
SZ9099	Anon @ Corn Bunting Survey 93-94	01/06/1993	Bognor Regis Rose Green	2 Present	All records
SZ9099	Sussex Ornithological Society	26/05/1995	Bognor Regis Rose Green	1 Present	All records
SZ910997	Sussex Ornithological Society	29/04/2000	Lagness nr Bognor	1 Present	All records

Delichon urbicum

House Martin

A distinctive hirundine with a forked tail and white rump, it is a common summer visitor and abundant passage migrant. It is more abundant in urban areas than in the countryside because of the availability of suitable nesting sites in the eaves of buildings, but it will feed on around insects that it finds on agricultural land and around water.

Bern Convention Appendix 2; Bird Population Status - amber

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90A	Tetrad Atlas (2007-2011) TTV data	19/04/2009	Bognor Park Farm	1 Present	Positive Breeding
SU90A	Tetrad Atlas (2007-2011) TTV data	08/06/2009	Bognor Park Farm	5 Present	Positive Breeding

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Hirundo rustica

Swallow

Our familiar swallow with long tail streamers is a common summer visitor and abundant passage migrant. They are agile in flight and spend most of their time on the wing hunting. They often breed in quiet farm buildings with nearby ponds and open pasture especially near cattle where they can feed on plentiful insects. Reedbeds are used as pre-migration roosts in late summer and early autumn.

Bern Convention Appendix 2; Bird Population Status - amber

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90A	Tetrad Atlas (2007-2011) TTV data	19/04/2009	Bognor Park Farm	9 Present	Positive Breeding
SU90G	Tetrad Atlas (2007-2011) TTV data	05/05/2008	Lidsey Old Canal & Tip	9 Present	Positive Breeding
SU90G	Tetrad Atlas (2007-2011) TTV data	14/06/2008	Lidsey Old Canal & Tip	3 Present	Positive Breeding

Regulus ignicapilla

Firecrest

A scarce or possibly fairly common breeding resident, passage migrant and winter visitor. A bird that shows a preference for the edges of mature spruce plantations where it feeds on insects and spiders. This tiny beautiful bird is recorded from only a few scattered locations in our area.

Bern Convention Appendix 2; Bird Population Status - amber; Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bognor North Bersted	Taxon Present	Date

Tyto alba

Barn Owl

A distinctive and much loved bird of the countryside, this scarce breeding resident declined substantially during the last century mainly due to loss of habitat, particularly areas of rough grassland where it hunts for mice, voles and shrews. The position has been improving recently with many nest boxes being erected, although the conversion of barns in Sussex has had a negative impact on potential breeding sites.

Bern Convention Appendix 2; Bird Population Status - amber; EC CITES Annex A; Wildlife and Countryside Act 1981 (Schedule 1 Part 1)

Grid Reference	Recorder	Date	Locality	Abundance	Selection Based On
SU90B	Tetrad Atlas (2007-2011) TTV data	29/04/2011	Colworth near Bognor	1 Present	All records
SU9101	BTO Birdtrack data	20/11/2009	Bognor North Bersted	1 Present	All records
SU9101	BTO Birdtrack data	15/02/2010	Bognor North Bersted	1 Present	All records
SU9101	BTO Birdtrack data	21/01/2012	Bognor North Bersted	1 Present	All records
SU9102	SOS Archived Records	21/02/1976	Elbridge nr Bognor	1 Present	All records

Ownership of this data remains with the original recorder whilst copyright of this material remains property of the Sussex Biodiversity Records Centre.

BIODIVERSITY ACTION PLAN SPECIES INVENTORY

The BAP Species Inventory does not include bat, bird or otter records.

Bat and bird records are included in separate inventories, while otter records are not included in SxBRC reports.

The UK Biodiversity Action Plan (BAP), published in 1994, was the UK Government's response to signing the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit. The new **UK post-2010 Biodiversity Framework** replaces the previous UK level BAP, though the lists of priority species agreed under the UK BAP still form the basis of much biodiversity work in the UK. The current strategy for England is '**Biodiversity 2020: A Strategy for England's wildlife and ecosystem services**'. Although the UK BAP has been succeeded, Species Action Plans (SAPs) developed under the UK BAP still remain important and valuable reference sources for background information on Priority Species under the UK Post-2010 Biodiversity Framework.

The new framework includes five internationally agreed strategic goals and supporting targets to be achieved by 2020. The five strategic goals agreed were:

- **Strategic Goal A:** Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- **Strategic Goal B:** Reduce the direct pressures on biodiversity and promote sustainable use
- **Strategic Goal C:** To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- **Strategic Goal D:** Enhance the benefits to all from biodiversity and ecosystem services
- **Strategic Goal E:** Enhance implementation through participatory planning, knowledge management and capacity building.

Further information on the UK BAP and details of the species and habitat action plans can be found on the [JNCC website](#).

BAP species within this report

- **BAP records are labelled so that only one record per species per grid reference is included in a SxBRC report. This will usually be the most up to date record.**
- **Species which appear in the 'England Biodiversity List' to meet the requirements of Section 41 of the NERC Act (2006)* are labelled with the symbol **N**.**

*** Natural Environment & Rural Communities (NERC) Act**

The NERC Act (2006) was established with the intention to help ensure that biodiversity becomes an integral consideration in the development of policies, and that decisions of public bodies work with nature and not against it.

The England Biodiversity List has been drawn up to meet the requirements of Section 41 of the Act. The S41 list consists of **943 species** and **56 habitats** of principal importance in England and will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act.

Further details of the NERC Act can be found on the [Natural England website](#).

UK BIODIVERSITY ACTION PLAN SPECIES INVENTORY REPORT

Please note that bat, bird and otter records are not included in this report

Land at Bognor Regis

16 July 2015 ESD/15/490 Search Area: SZ9099 to SU9202

Tom Booth (Ecology Solutions)

Lucanus cervus

Stag Beetle

N

Insect - beetle (Coleoptera)

A beetle of broadleaved woodland, parks, other pasture woodland and gardens. The larvae live in the decaying wood of deciduous trees, often in roots and stumps. Widely recorded from West Sussex but rare in East Sussex and apparently absent from much of the vice-county.

Designations

Habitats Directive Annex 2 - non-priority species, Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec, Sussex Biodiversity Action Plan, Sussex Rare Species Inventory, 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
SZ90759910	Bev Wadge	09/07/2010	Bognor Aldwick

Lasiommata megera

Wall

N

Insect - butterfly

A grassland butterfly that has undergone a severe decline and now is normally only found near the coast and on the eastern part of the South Downs.

Designations

IUCN (2001) - Lower risk - near threatened, Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec, Sussex Biodiversity Action Plan, UK Biodiversity Action Plan priority species)

Grid Reference	Recorder	Date	Locality
SU9202	P.R. Down	25/08/1998	Woodgate & Shripney Old Canal

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 (sec, 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
SZ921993	Recorder @ RPS	2006	Hawthorn Road, Bognor Regis

Erinaceus europaeus

West European Hedgehog

N

Terrestrial mammal

The hedgehog is one of our most familiar and endearing small mammals and it is still widespread in Sussex and Britain. However, hedgehog numbers have been adversely affected by changes in agriculture with less permanent pasture and fewer hedgerows. Climate change may also affect the availability of earthworms, one of their main foods, during hot, dry summers. There is some survey evidence that hedgehogs are most common where badgers are rarer and badgers do, of course, prey on them.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec, Sussex Biodiversity Action Plan, UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality
SU9100	P Goldsmith	1988	Hawthorne Road, Bognor Regis, West Sussex (VC13)
SZ9299	Sussex Mammal Recs. 1960 - 70	12/12/1957	VC13 West Sussex, West Sussex (VC13)

Lepus europaeus

Brown Hare

N

Terrestrial mammal

Widely distributed throughout England and Wales and probably an ancient introduction. Hares occur on a wide range of mainly open farmland and nationally the species is thought to be undergoing a steady decline. Much less common in Sussex than it used to be, but widely recorded.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec, Sussex Biodiversity Action Plan, UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality
SU924025	Recorder @ MWHG	22/04/2009	Aldingbourne Rife, Colworth, WVS Site 49, Sidlesham Common

Arvicola amphibius

European Water Vole

N

Terrestrial mammal

The fastest declining native British mammal, the water vole was 'Ratty' in Wind in the Willows. Water voles prefer slow flowing streams, rivers and dykes with steep earth banks and luxuriant emergent vegetation. They have been in decline for over a century mainly due to loss of habitat while the presence of American mink has greatly hastened this decline. In many areas of mainland Britain water voles are already extinct but there are still some strong populations in Sussex. A legally protected species, listed on the Sussex Rare Species Inventory and the subject of a Sussex Species Action Programme.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec, Sussex Biodiversity Action Plan, Sussex Protected Species Register, Sussex Rare Species Inventory, 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 9.1 (taking)), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.2), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4, subdivision a), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4b), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b), Wildlife and Countryside Act 1981 (Schedule 5)

Grid Reference	Recorder	Date	Locality
SU900024	Recorder @ MWHG	29/10/2009	Groves Farm, WVS Site 37, Merston
SU9004502489	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU9013002251	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU903029	Oscar Wittert	22/07/2007	Groves Farm, Chichester, Chichester CP
SU9035302386	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU905023	Recorder @ MWHG	18/10/2008	Groves Farm, Merston nr Chichester
SU9056902371	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU9081602240	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU910029	Recorder @ WildCall	12/03/2013	Glencroft, Colworth, West Sussex (VC13)
SU9105002561	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU9160202442	Frances Southgate	01/10/2007	Groves farm, Chichester, Chichester CP
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bersted Brooks, Bognor North Bersted
SU9202	Anon	1997	Aldingbourne Rife, West Sussex (VC13)
SU924025	Recorder @ MWHG	22/04/2009	Aldingbourne Rife, Colworth, WVS Site 49, Sidlesham Common
SU925029	Recorder @ MWHG	23/04/2009	Aldingbourne Rife, Colworth, WVS Site 50, Sidlesham Common
SU926009	Stephen English	2012	82 Markfield, North Bersted

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 (sec, 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
SU924002	SARG Sussex Amphibian & Reptile Grp;Dennis Dey	10/08/1995	23, Hatherleigh Close, Bognor, West Sussex (VC13)
SU926006	Recorder @ WildCall	12/05/2012	Garden of 32 Sherwood Road, Bognor Regis, West Sussex (VC13)
SU928000	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SZ927997	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)

Natrix natrix

Grass Snake

N

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 (sec, 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
SU906014	Paul Whitby	May 2011	Park Farm, Lagness nr Bognor
SZ927997	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)

Zootoca vivipara

Common Lizard

N

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 (sec, 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
SU9197700464	Phil Price	09/04/2011	Black Down, West Sussex (VC13)

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 (sec, 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
SU9201900491	Phil Price	09/04/2011	Black Down, West Sussex (VC13)

Chamaemelum nobile

Chamomile

N

Flowering plant

The decline in many parts of Britain of this species of heaths and commons became apparent towards the end of the last century. The plant still occurs in both East and West Sussex on greens, cricket fields and closely mown unimproved turf and may increase in response to pony grazing.

Designations

IUCN (2001) - Vulnerable, Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec, Sussex Biodiversity Action Plan, Sussex Rare Species Inventory, UK Biodiversity Action Plan priority species)

Grid Reference	Recorder	Date	Locality
SZ9167499659	Dawn Nelson	15/05/2009	Aldwick, Aldwick CP
SZ917996	Anon @ Sussex Bot. Rec. Soc.;J Wilson	1999	NW Bognor, West Sussex (VC13)

SUSSEX RARE SPECIES INVENTORY

The Rare Species Inventory does not include bat, bird or otter records.

Bat and bird records are included in separate inventories, while otter records are not included in SxBRC reports.

The Sussex Rare Species Inventory (RSI) contains over 3,400 species. These species are selected according to strict criteria of rarity associated with their occurrence in Sussex.

The criteria for selection of species are listed below:

- **All species in the British Red Data Books including all Notable fauna and Nationally Scarce flora and British endemic taxa which have ever occurred in Sussex whether extinct or not.**
- **Species included in the UK Biodiversity Action Plan (BAP species).**
- **Internationally rare taxa cited in the Bern Convention, IUCN Red Data lists, or EU Habitats Directive which are not covered by any of the above.**

The RSI has been designed to be comprehensive for species but representative for records. This is managed in several ways:

- RSI records are labelled so that only one record per species per grid reference gets flagged up. This will usually be the most up to date record.
- SxBRC does not hold marine information other than coastal species and cetaceans.
- The following species are relatively common in Sussex but are in the RSI because they are Notable or Nationally Scarce. Only *one* record of these species is labelled per 2km tetrad:

Round-headed Rampion	<i>Phyteuma orbiculare</i>
Frogbit	<i>Hydrocharis morus-ranae</i>
Adonis Blue	<i>Lysandra bellargus</i>
Long-winged Conehead	<i>Conocephalus discolor</i> (syn. <i>C. fuscus</i>)
Variable Damselfly	<i>Coenagrion pulchellum</i>
Downy Emerald	<i>Cordulea aenea</i>

For records of rare vascular plants, bryophytes and lichens the Record Centre recommends the Sussex Rare Plant Register, compiled by the Sussex Botanical Recording Society. This gives information on the distribution and status of over 400 Sussex Rare Plants, putting data from RSI reports into a Sussex-wide context. Please see [our website](#) for more information.

IUCN Categories of Rarity

The following is a summary of the IUCN categories of rarity. For further information visit the [IUCN website](#).

Extinct (EX)

A taxon is Extinct when there is no reasonable doubt that the last individual has died.

Extinct in the Wild (EW)

A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range.

Critically Endangered (CR)

A taxon is Critically Endangered when it is considered to be facing an extremely high risk of extinction in the wild.

Endangered (EN)

A taxon is Endangered when it is considered to be facing a very high risk of extinction in the wild.

Vulnerable (VU)

A taxon is Vulnerable when it is considered to be facing a high risk of extinction in the wild.

Near Threatened (NT)

A taxon is Near Threatened when it is close to qualifying for or is likely to qualify for a threatened category in the near future.

Least Concern (LC)

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened.

Data Deficient (DD)

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status.

Not Evaluated (NE)

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

Regionally Scarce (NR)

Occurs in 5 or fewer 10km squares in a particular region of Britain. Locally determined.

SUSSEX RARE SPECIES INVENTORY REPORT

Please note that bat, bird and otter records are not included in this report

Land at Bognor Regis

16 July 2015

ESD/15/490

Search Area: SZ9099 to SU9202

Tom Booth (Ecology Solutions)

Lucanus cervus

Stag Beetle

Insect - beetle (Coleoptera)

A beetle of broadleaved woodland, parks, other pasture woodland and gardens. The larvae live in the decaying wood of deciduous trees, often in roots and stumps. Widely recorded from West Sussex but rare in East Sussex and apparently absent from much of the vice-county.

Designations

Habitats Directive Annex 2 - non-priority species; Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec; Sussex Biodiversity Action Plan; Sussex Rare Species Inventory; UK Biodiversity Action Plan priority species; Wildlife and Countryside Act 1981 Schedule 5 Sections (9.5a; 9.5b)

Grid Reference	Recorder	Date	Locality
SZ90759910	Bev Wadge	09/07/2010	Bognor Aldwick

Arvicola amphibius

European Water Vole

Terrestrial mammal

The fastest declining native British mammal, the water vole was 'Ratty' in Wind in the Willows. Water voles prefer slow flowing streams, rivers and dykes with steep earth banks and luxuriant emergent vegetation. They have been in decline for over a century mainly due to loss of habitat while the presence of American mink has greatly hastened this decline. In many areas of mainland Britain water voles are already extinct but there are still some strong populations in Sussex. A legally protected species, listed on the Sussex Rare Species Inventory and the subject of a Sussex Species Action Programme.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec; Sussex Biodiversity Action Plan; Sussex Protected Species Register; Sussex Rare Species Inventory; UK Biodiversity Action Plan priority species; Wildlife and Countryside Act 1981 Schedule 5 Sections (9.1 killing/injuring; 9.1 taking; 9.2; 9.4; subdivision a; 9.4b; 9.5a; 9.5b; Schedule 5)

Grid Reference	Recorder	Date	Locality
SU900024	Recorder @ MWHG	29/10/2009	Merston
SU9004502489	Frances Southgate	01/10/2007	Chichester CP
SU9013002251	Frances Southgate	01/10/2007	Chichester CP
SU903029	Oscar Wittert	22/07/2007	Chichester CP
SU9035302386	Frances Southgate	01/10/2007	Chichester CP
SU905023	Recorder @ MWHG	18/10/2008	Merston nr Chichester
SU9056902371	Frances Southgate	01/10/2007	Chichester CP
SU9081602240	Frances Southgate	01/10/2007	Chichester CP
SU910029	Recorder @ WildCall	12/03/2013	West Sussex (VC13)
SU9105002561	Frances Southgate	01/10/2007	Chichester CP
SU9160202442	Frances Southgate	01/10/2007	Chichester CP
SU920013	Dennis Robbins;Marja Kivisaari	July 2005	Bognor North Bersted
SU9202	Anon	1997	West Sussex (VC13)
SU924025	Recorder @ MWHG	22/04/2009	Sidlesham Common
SU925029	Recorder @ MWHG	23/04/2009	Sidlesham Common
SU926009	Stephen English	2012	82 Markfield, North Bersted

Petroselinum segetum

Corn Parsley

Flowering plant

Designations

Farm Environment Plan Guidance 007- Table 3; Sussex Rare Species Inventory

Grid Reference	Recorder	Date	Locality
SZ917997	Anon @ Sussex Bot. Rec. Soc.;J Wilson	1999	West Sussex (VC13)

Chamaemelum nobile

Chamomile

Flowering plant

The decline in many parts of Britain of this species of heaths and commons became apparent towards the end of the last century. The plant still occurs in both East and West Sussex on greens, cricket fields and closely mown unimproved turf and may increase in response to pony grazing.

Designations

IUCN (2001) - Vulnerable; Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec; Sussex Biodiversity Action Plan; Sussex Rare Species Inventory; UK Biodiversity Action Plan priority species

Grid Reference	Recorder	Date	Locality
SZ9167499659	Dawn Nelson	15/05/2009	Aldwick CP
SZ917996	Anon @ Sussex Bot. Rec. Soc.;J Wilson	1999	West Sussex (VC13)

Erodium moschatum

Musk Stork's-bill

Flowering plant

An introduced plant of grassy places, usually near the sea, at one time considered to be very rare. It has been found in recent years in several urban locations in West Sussex. Long extinct in East Sussex.

Designations

Farm Environment Plan Guidance 007- Table 3; Sussex Rare Species Inventory

Grid Reference	Recorder	Date	Locality
SZ916996	Anon @ Sussex Bot. Rec. Soc.; J Wilson	1999	West Sussex (VC13)

Arum italicum subsp. neglectum

Arum

Flowering plant**Designations**

IUCN (2001) - Lower risk - near threatened; Sussex Rare Species Inventory

Grid Reference	Recorder	Date	Locality
SU90F	SPASU	1978	West Sussex (VC13)

Potamogeton trichoides

Hairlike Pondweed

Flowering plant**Designations**

Sussex Rare Species Inventory

Grid Reference	Recorder	Date	Locality
SU92980159	Frances Abraham	31/05/2009	Aldingbourne Rife

Polypogon monspeliensis

Annual Beard-grass

Flowering plant

An annual grass of barish places by the sea, in damp, cattle-trodden grazing marshes, at the edges of dried-up brackish pools and ditches, and in the uppermost parts of saltmarshes. Also around docks and inland as a casual. Widespread but scarce in East and West Sussex, mostly near the coast.

Designations

Sussex Rare Species Inventory

Grid Reference	Recorder	Date	Locality
SU918006	M M Shaw	09/07/2004	West Sussex (VC13)

MAP CITATION SHEETS

SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)

Sites of Special Scientific Interest (SSSIs) are areas notified under the Wildlife and Countryside Act 1981, as being of special interest for nature conservation. They represent the finest sites for wildlife and natural features supporting many characteristic, rare and endangered species, habitats and natural features. Notification as a SSSI is primarily a legal mechanism organised by Natural England and selected according to specific scientific criteria. *The Guidelines for the Selection of Biological SSSIs*, published in 1989 by the Joint Nature Conservation Council, set down the selection criteria for both biological and geological SSSIs.

Biological SSSIs form a national network of wildlife sites. Sites are selected in such a way that the protection of each site, and hence the network, aims to conserve the minimum area of wildlife habitat necessary to maintain the natural diversity and distribution of Britain's native flora and fauna and the communities they comprise. Each site, therefore, is of national significance for its nature conservation value.

Geological SSSIs are sites chosen for their research value, the criterion being that they are of national or international importance. Geological conservation is concerned with the maintenance of our geological and geomorphological heritage.

There are over 4,000 SSSIs in England of which just under 150 are in Sussex. Natural England is responsible for identifying and protecting these sites. This is achieved, primarily, in partnership with SSSI owners and managers, and as a result the majority are in good condition and well managed.

Ever growing pressures on our landscape and countryside mean that SSSIs are an increasingly precious part of our natural heritage. Damaging SSSIs is unacceptable, either in the short or long term, and must be avoided if they are to remain the finest wildlife and natural heritage sites in England. Once lost, the special interest of a site may be difficult or impossible to restore or recreate. Owners and occupiers (i.e. landowners, tenants and commoners) of SSSIs must give Natural England written notice before initiating any operations likely to damage the site, or allowing someone else to carry out these activities. None of the operations listed in the notification documents may proceed without Natural England's consent.

Under the Countryside and Rights of Way Act 2000 (CROW) anyone who intentionally or recklessly destroys or damages any of the flora, fauna or geological or physiological features of an SSSI is guilty of an offence. They are liable, on summary conviction, of a fine of up to £20,000.

For more information on SSSIs visit the [Natural England website](#).

SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)

Site Name:	Bognor Reef		
County:	West Sussex		
District:	Arun		
Local Planning Authority:	Arun District Council		
Size:	64.4 hectares (159.1 acres)		
National Grid Ref:	SZ912982		
Date Notified (Under 1949 Act):	1980	Date of last revision:	-
Date Notified (Under 1981 Act):	1988	Date of last revision:	-
Other Information:	This site will be listed in 'A Geological Conservation Review'.		

Reason for Notification

This site comprises a long stretch of foreshore of great geological interest and an extensive area of vegetated shingle, a habitat type which is rare in Britain. At the western end is a small area of old sand dune with an interesting flora including a specially protected species listed on Schedule 8 of the Wildlife and Countryside Act 1981.

Biological Interest

The shingle strip which runs along the beach at Bognor develops into an extensive shingle beach west of SZ915982. In the shelter of the main bank shingle plant communities have developed, typically with yellow horned poppy *Glaucium flavum*, sea beet *Beta vulgaris*, and the uncommon sea kale *Crambe maritima*. Small grassy patches occur infrequently, with false oat-grass *Arrhenatherum elatius* and red fescue *Festuca rubra*.

The small outlying area of sand dune at The Green is all that remains of a once much more extensive dune system. The grassland, scrub and small marsh support a number of interesting plants and invertebrates including the long-winged conehead grasshopper *Conocephalus discolor* and the nationally endangered childing pink *Petrorhagia nanteulii*.

Geological Interest

The foreshore here is one of the few places where the whole thickness of the London Clay can be studied in sequence, although favourable tides occur infrequently and some exposures remain constantly under water. Most of the rocks are clays or sands but there are two sequences of more resistant rocks: calcareous sandstones which form the main Bognor Reef and glauconitic sandstones which comprise the less substantial Barn Rocks to the west. The fossil flora and fauna of these beds is outstanding.

The site is a key site for plant fossils from the London Clay (divisions B1 and B2) and is of great importance to the study of Tertiary floras. It is the only locality in the Hampshire Basin to yield abundant London Clay plants and the only site known to have yielded plants from the B2 division of this formation. The site has yielded examples of some one hundred and thirty species (representing seventy families), including numerous type specimens. Dominant families include the Vitaceae, Menispermaceae and Burseraceae. The genera *Bognoria* and *Aldwichia* are found only here, as are some thirty species. An outstanding palaeobotanical site of great importance to studies of Tertiary floras.

The eastern foreshore is a valuable site which has yielded a diverse Lower Eocene avifauna, including a significant number of small species which are only rarely preserved. Seven species (representing seven orders) have been recorded from the site. For five species this is the type locality. Three orders, the Charadriiformes, Columbiformes and Apodiformes, are unique to Great Britain at this time.

Finally the most important site in the world for pyritised fossil insects (especially beetles) is on the foreshore at Aldwick. This mode of fossilisation preserves insects uncrushed and they can be extracted simply by sieving. The insects are allochthonous, being derived from the land and associated with a marine fauna (of Lower Eocene age) after death. One species of beetle belongs to a genus, *Pactopus*, now confined to western North America, and otherwise unknown in a fossil state. Other beetles include representatives of modern tropical genera, as well as the earliest known members of the families Eucnemidae and Anobiidae.

SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)

Operations likely to damage the special interest

Site name: Bognor Reef (OLD1004068)

Ref. No. Type of operation

1. Cultivation, including ploughing, rotovating, harrowing, and re-seeding.
2. Grazing and changes in the grazing regime (including type of stock or intensity or seasonal pattern of grazing and cessation of grazing).
3. Stock feeding and changes in stock feeding practice.
4. Mowing or other methods of cutting vegetation and changes in the mowing or cutting regime (including hay making to silage and cessation).
5. Application of manure, fertilisers and lime.
6. Application of pesticides, including herbicides (weedkillers).
7. Dumping, spreading or discharge of any materials.
8. Burning.
9. The release into the site of any wild, feral or domestic animal*, plant or seed.
10. The killing or removal of any wild animal*, including pest control.
11. The destruction, displacement, removal or cutting of any plant or plant remains, including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould, turf.
12. Tree and/or woodland management+ and changes in tree and/or woodland management+.
- 13a. Drainage (including the use of mole, tile, tunnel or other artificial drains).
14. The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes).
15. Infilling of ditches, dykes, drains, ponds, pools, marshes or pits.
- 16b. Coastal fishing or fisheries management and seafood or marine life collection, including the use of traps or fish cages.
17. Reclamation of land from sea, estuary or marsh.
18. Bait digging in intertidal areas.
19. Erection of sea defences or coast protection works, including cliff or landslip drainage or stabilisation measures.
20. Extraction of minerals, including shingle, sand and gravel, topsoil, subsoil, shells and spoil.
21. Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.
22. Storage of materials.
23. Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.
24. Modification of natural or man-made features, clearance of loose rock, scree or spoil and battering, buttressing, grading or seeding rock-faces, outcrops or cuttings, infilling of pits and quarries.
26. Use of vehicles or craft likely to damage or disturb features of interest.
27. Recreational or other activities likely to damage or disturb features of interest.
28. Game and waterfowl management and hunting practice.

* 'Animal' includes any mammal, reptile, amphibian, bird, fish or invertebrate.

+ Including afforestation, planting, clear and selective felling, thinning, coppicing, modification of the stand or underwood, changes in species composition, cessation of management.

KEY NATIONAL AND INTERNATIONAL SITE DESIGNATIONS

National Nature Reserve (NNR)

National Nature Reserves are statutory reserves established under the Wildlife and Countryside Act 1981. NNRs may be owned by the relevant national body (e.g. Natural England in England) or established by agreement. A few are owned and managed by non-statutory bodies, for example the Sussex Wildlife Trust. NNRs cover a selection of the most important sites for nature conservation in the UK. There are six NNRs in Sussex.

Special Area of Conservation (SAC)

Special Areas of Conservation are sites designated by Member States under the EC Habitats Directive. The aim is to establish a European network of important high quality conservation sites that will make a significant contribution to conserving habitats and species considered to be most in need of conservation at a European level. There are 12 SAC sites in Sussex.

Special Protection Area (SPA)

Special Protection Areas are designated under the EC Birds Directive, to conserve the habitat of certain rare or vulnerable birds and regularly occurring migratory birds. Any significant pollution or disturbance to or deterioration of these sites has to be avoided. All SPAs are also designated as SSSIs. There are six SPA sites in Sussex.

Ramsar

Ramsar sites are designated under the Convention on Wetlands of International Importance. Under the Convention, each government must select its best wetlands according to very clear criteria, which include: a wetland that regularly supports 20,000 or more waterbirds; a wetland that regularly supports 1% of the individuals in a population of one species or subspecies of waterbird. Wetlands are broadly defined to include marsh, fen, peatland and water. All designated Ramsar sites are also designated as SSSIs. There are four Ramsar sites in Sussex.

National Park

National Parks are beautiful, spectacular and often dramatic expanses of countryside. In the UK people live and work in the National Parks and the farms, villages and towns are protected along with the landscape and wildlife. They differ from Areas of Outstanding Natural Beauty (AONBs) in that each National Park has its own authority for planning control and other services.

The creation of the South Downs National Park (SDNP) was confirmed on 12th November 2009 and came into being on 1st April 2010.

Further information can be found on the [SDNP Authority website](#).

Area of Outstanding Natural Beauty (AONB)

Areas of Outstanding Natural Beauty are areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes. They differ from National Parks in their more limited opportunities for extensive outdoor recreation and by the way they are managed. AONBs are designated by Natural England under the Countryside and Rights of Way Act 2000.

There are two AONBs in Sussex covering approx. 114,000 hectares; Chichester Harbour and High Weald. Each has an associated body concerned with the area's conservation:

Chichester Harbour Conservancy www.conservancy.co.uk

High Weald AONB Unit www.highweald.org

Marine Conservation Zone (MCZ)

MCZs protect a range of nationally important marine wildlife, habitats, geology and geomorphology. In November 2013 27 MCZs were designated in English inshore and English and Welsh offshore waters in the first tranche of sites. Three of these sites were designated off Sussex; Kingmere, Beachy Head West and Pagham Harbour. More MCZs will be designated in future rounds or 'tranches', although it is uncertain how many.

Further information can be found on the [JNCC website](#).

Local Nature Reserve (LNR)

Local Nature Reserves are for both people and wildlife. All district and county councils have powers to acquire, declare and manage LNRs. To qualify for LNR status, a site must be of importance for wildlife, geology, education or public enjoyment. Some are also SSSIs. There are 36 LNRs in Sussex.

Country Park

Country Parks were established as a result of the 1968 Countryside Act to provide a wide range of opportunities for recreation, health, education and improve the quality of life for local communities. Natural England recognises Country Parks as significant places that contribute to England's accessible natural green space. There are 11 Country Parks in Sussex, the details of which can be obtained from the local authorities.

Local Geological Site (LGS)

Previously known as Regionally Important Geological/Geomorphological Sites (RIGGS), LGS are non-statutory designations that have been identified by local geodiversity groups as being of importance. There are over 120 LGS in Sussex which have been assessed by the Sussex Geodiversity Partnership. The features identified as being important become a material consideration in any future development, and should be taken into account by the relevant local authority.

A selection of LGS with public access in Sussex can be viewed on the [Sussex Geodiversity Partnership's website](#).

Marine Site of Nature Conservation Importance (MSNCI)

Marine Sites of Nature Conservation Importance are non-statutory sites identified on account of the special interest of their marine habitats, the fauna and flora, or for unusual geological and geomorphological features. They are an extension of the series of terrestrial SNCIs. The identification of these sites is to highlight their importance for marine wildlife and to emphasise the risks of certain operations damaging their interest. There are 23 MSNCIs off the Sussex coast.

Environmental Stewardship

Environmental Stewardship is an agri-environment scheme managed by Natural England that provides funding to farmers and other land managers to deliver effective environmental management.

There are four elements to Environmental Stewardship, three of which are relevant in Sussex:

Entry Level Stewardship (ELS) goes beyond the Single Payment Scheme requirement to maintain land in good agricultural and environmental condition.

Organic Entry Level Stewardship (OELS) is the organic strand of ELS. It is geared to organic and organic/conventional mixed farming systems and is open to all farmers not receiving Organic Farming Scheme aid.

Higher Level Stewardship (HLS) involves more complex types of management where agreements are tailored to local circumstances.

Further information can be found on the [Natural England website](#).

Further information on many of the designations listed above can be found on the [Natural England website](#).

West Sussex Local Geological Site (LGS) Survey 2010

Condition Monitoring Form for NI 197 Reporting



Woods Mill, Henfield, West Sussex BN5 9SD. Tel: 01273 497521
Email: sxbrcl@sussexwt.org.uk Website: www.sxbrcl.org.uk

1. Site Information									
Site Name & LGS ID		Bognor Foreshore SU90/10							
Site Type		EC		Grid Reference		SZ897976 to SU934987			
Date of Visit		06/10/2010		Local Authority					
Surveyor		Peter Anderton		Landowner					
1:50,000 BGS Sheet no.		317/332		1:25,000 OS Sheet no.		121			
LGS designation		Scientific		X		Educational		X	
						Aesthetic			
								Historical	
Interest Feature(s): Foreshore exposures of London Clay including sandstones forming the well known Bognor Rock Reef and visible offshore as the Bognor Rocks and Barn Rocks. Extremely important site for early Eocene fossils. Stratigraphy: London Clay Division A including Bognor Sand member, Division B including Barn Rock member, Division C, Thames Group, Early Eocene in age. Sedimentology: grey silty and sandy clay with interbedded seams of septarian concretions. Bognor Sand member comprises massive concretions of hard calcareous sandstone in a matrix of glauconitic sand. Barn Rock member is similar with smaller concretions. Deposited in a shallow marine environment with successive cycles of marine transgression and shallowing. Palaeontology: extremely important site for early Eocene fossils, notably plants, insects and birds. Also yields a diverse marine fauna including fish and molluscs. The Aldwick Beds are of international importance for their insect fauna particularly beetles.									
Previous management and dates (if any)									

2. Primary Factors						
Bedrock feature	Is (are) the feature(s) exposed?		Y	If No, can it (they) practically be re-exposed?		
	Is (are) the feature(s) being affected by the following factors?					
	Factor		Y/N	Comments		
	Vegetation		N			
	Scree/Mass Movement		N			
	Flooding		N			
	Dumping/Landfill		N			
	Quarrying/Engineering Works		N			
	Development (housing/industrial)		N			
	Others (please define) - Coastal erosion		Y	The shingle beach is being managed for coastal protection so the exposures on the foreshore are being gradually eroded and are usually covered by sand and water. However, shallow digging could reveal exposures where necessary. Fossils are continually eroded from the sediments and can be found in the beach deposits.		
Superficial deposit feature	Is (are) the feature(s) exposed?		N/A	If No, can it (they) practically be re-exposed?		
	Is (are) the feature(s) being affected by the following factors?					
	Vegetation (Trees or crop planting)					
	Agricultural practices (deep ploughing)					
	Quarrying/Engineering Works					
	Development (housing/industrial)					
	Others (please define) -					

Geomorphology feature	Is (are) the geomorphological feature(s) being allowed to evolve naturally?		N/A
	Is (are) the feature(s) being affected by the following factors?		
	Vegetation	N	
	Sea Defences	N	
	River Management	N	
	Ground Stabilisation (slopes/sand dunes)	N	
	Water level change	N	
	Development (housing/industrial)	N	
	Others (please define) –	N	

3. Secondary Factors			
<i>Factors that do not directly affect the feature(s) but may need to be managed in order for feature(s) to maintain a desirable condition</i>			
	Factor	Y/N	Comments
Site access	Are any of the following causing difficulties in accessing the site?		
	Physical obstacles	N	
	Landowner permissions	N	
	Protected species/habitats	N	
	Other (please define) Tides	Y	The foreshore exposures are only visible at very low tides and their full extent is only seen at extreme low tides (0.2 m). Even then an onshore wind can raise sea level enough to restrict access. Exposures are mainly visible between Bognor Pier and Aldwick.
Furniture	Are any of the following in an undesirable condition?		
	Interpretation Boards	N	
	Benches/Fences/Gates	N	
	Earthworks	N/A	
	Other (please define)		
Other features	Are there any other features of interest that should be considered?		
	Biodiversity	Y	Bognor reef is an SSSI designated for its biological as well as its geological value. Shingle and sand dune habitats are important.
	Historic Environment	N	
	Other (please define)		

4. Site Status

Overall, is the site in a desirable condition for use(s) of the feature(s) identified?

Yes / No / Uncertain

If Yes - what management is required (if any) for the feature(s) to maintain a desirable condition:

At present the site is still accessible and frequently visited by fossil collectors. However, coastal erosion will continue and sea level will probably rise, gradually reducing visibility. Management is not practical. Any coastal defence works which cover the exposures would be detrimental,

For the above, is the management: *Being undertaken / Going to be undertaken / Not going to be undertaken / Not possible*

If Uncertain or No - what management is required for the feature(s) to reach and maintain a desirable condition:

For the above, is the management: *Being undertaken / Going to be undertaken / Not going to be undertaken / Not possible*

Are there any secondary factors that need further management?

Yes / No / Not applicable

Suggested management in order for the feature(s) to reach/maintain a desirable condition:

5. Supplementary Information – Natural England

Bognor Reef is designated as an SSSI by Natural England.

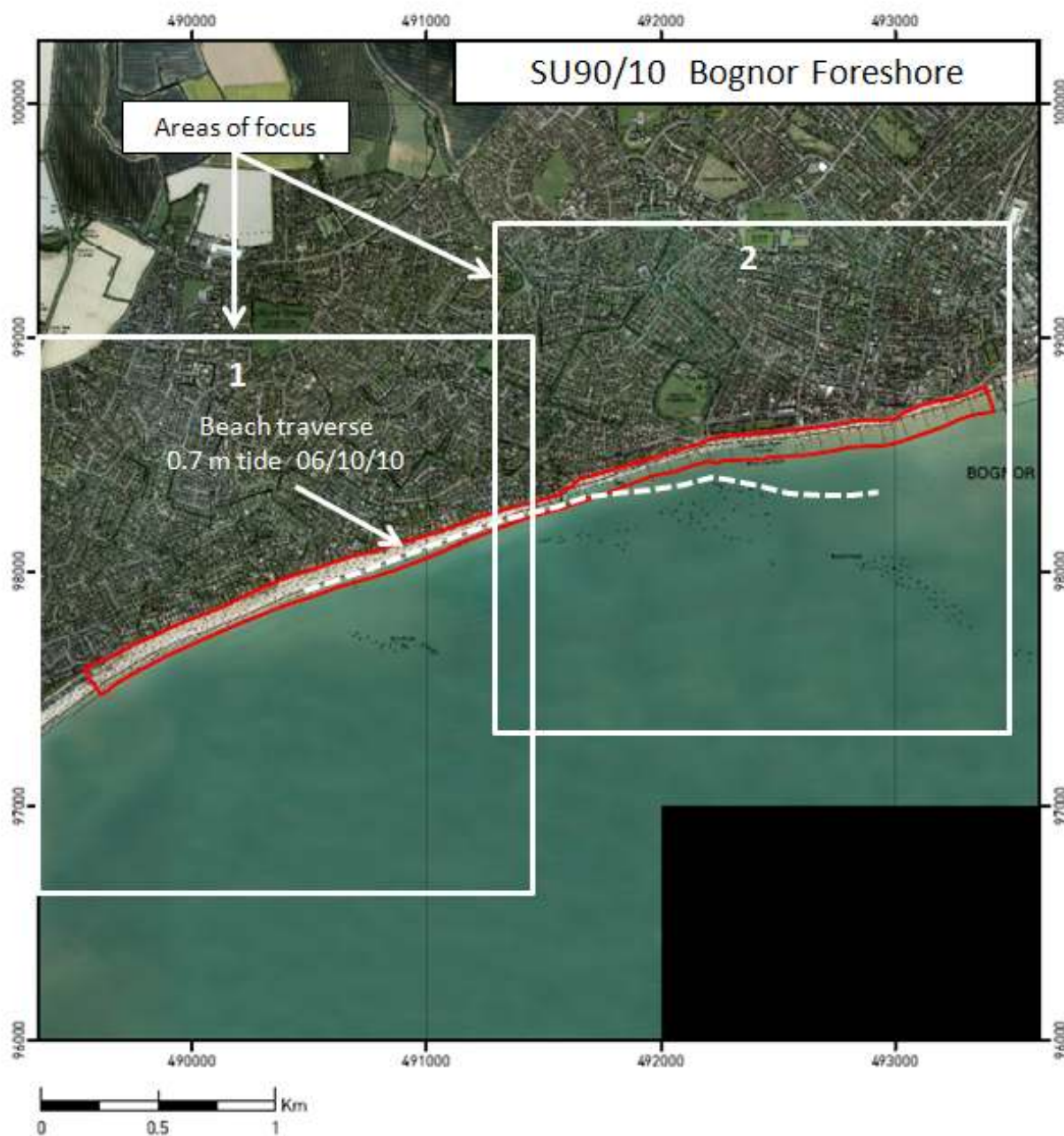
The citation is for its biological and geological value and it is classified by Natural England as a geological site.

Unit 3 of the SSSI corresponds to the foreshore.

The latest condition assessment was in 2008 and a summary is shown below.

Team - South East - Eastern Area - **SSSI name** - Bognor Reef - **Staff member responsible for site** - Elaine Webster

County	District	Main habitat	Staff member responsible for unit	Unit no	Unit ID	Unit area (ha)	Latest assessment date	Assessment description	Condition assessment comment
West Sussex	Arun	Earth heritage	Elaine Webster	3	1019289	25.81	12 Sep 2008	Favourable	Foreshore exposures are only fully visible on lowest tides but there has been no recent obscurance or other activities which would



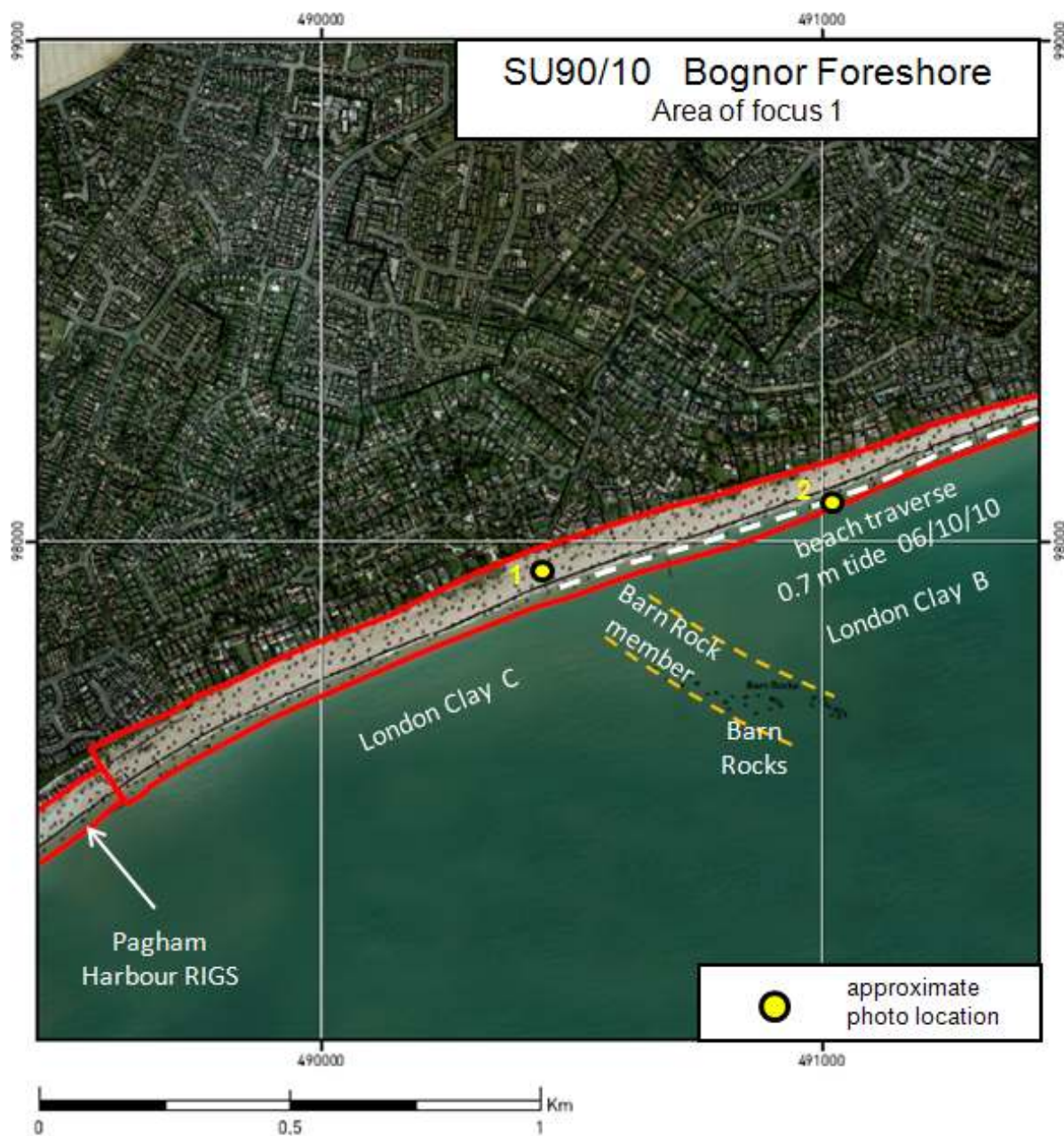
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Key to Map:

 RIGS Site





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Key to Map:

 RIGS Site



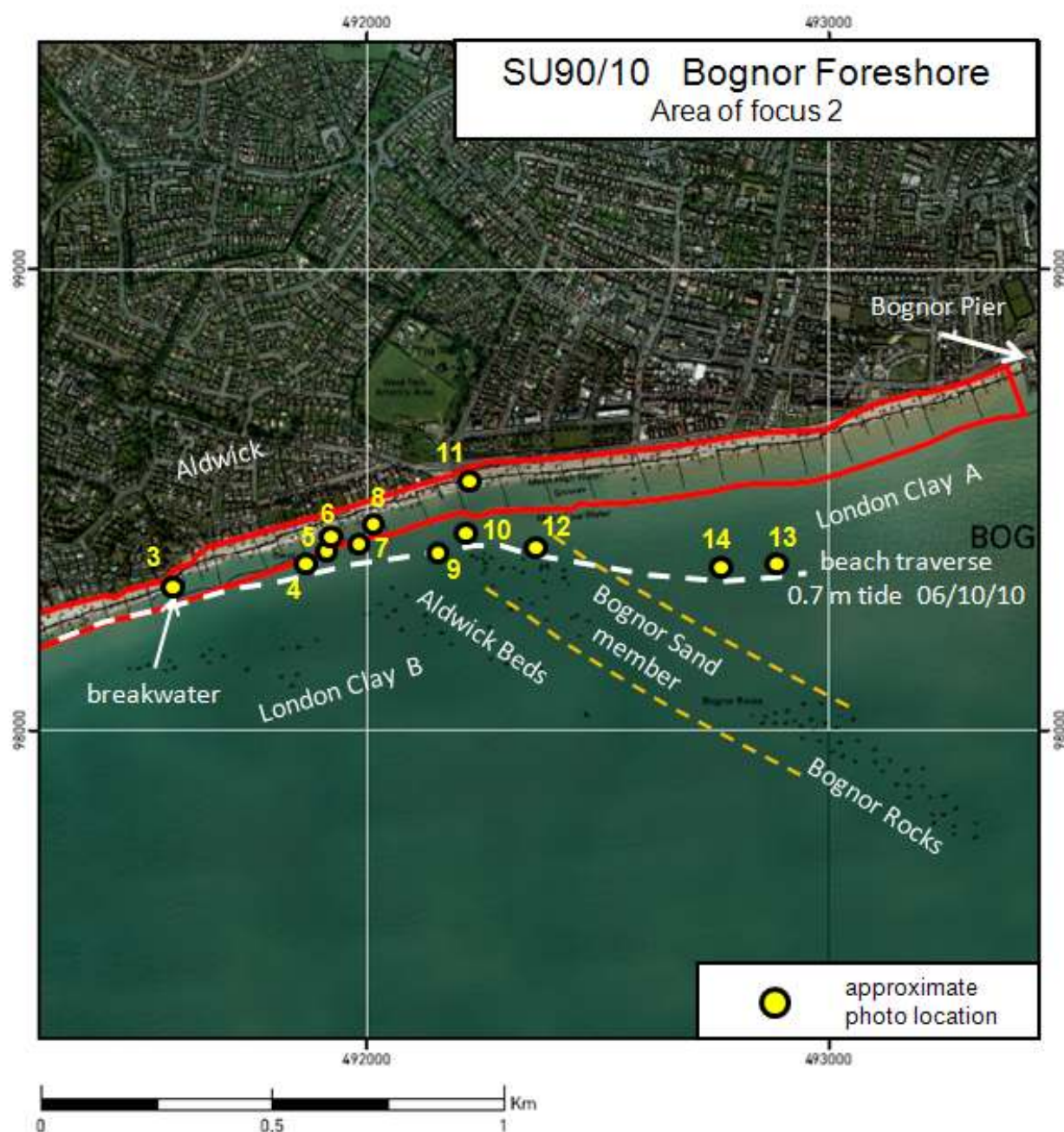
Photos – Eight figure grid references, landmark, direction of photo (bearing)



1. Foreshore at Coastguard Parade opposite Barn Rocks one hour before a low 0.5m tide on 07/10/10. No exposures are visible on the foreshore. The Barn Rocks themselves were also submerged although they are still visible on the lowest tides. Grid ref. SU90459795. Direction ENE.



2. Typical view of the foreshore between Coastguard Parade and the breakwater at Aldwick within one hour before a low 0.7m tide. No exposures are visible. Grid ref. SU91019808. Direction ENE.



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Key to Map:

RIGS Site



Photos



3. Foreshore viewed from Aldwick breakwater within one hour of low 0.7m tide. Rocks first appear on the foreshore west of this point. Grid ref. SU91589831. Direction ENE.



4. Foreshore between Aldwick breakwater and West Park showing first occurrence of large sandstone rocks characteristic of the Bognor Rock Reef. Grid ref. SU91879836. Direction ENE.



5. Sandstone rocks on the foreshore. The rocks higher on the foreshore are relatively clean but seaward they are encrusted with seaweed. Grid ref. SU91919838. Direction NE.



6. Detail of block of calcareous sandstone with bivalve shell fossils visible. Digging tool for scale 23cm. Grid ref. SU91929842.



7. This is in the vicinity of the Aldwick Beds but apart from the sandstone rocks and scattered septarian nodules the beds here are covered by sand. Grid ref. SU91989841. Direction NE.



8. Split fragments of septarian nodules on the upper foreshore. Digging tool for scale 23cm. Grid ref. SU92019845.



9. The sandstone rocks of the main Bognor Rock Reef exposed close to low 0.7m tide. Grid ref. SU92159838. Direction SE.



10. Large sandstone concretion elongated parallel to the bedding strike. Grid ref. SU92219843. Direction ENE.



11. Bognor Rock Reef from the top of the beach with the offshore Bognor Rocks just visible on a low 0.7m tide. Grid ref. SU92229854. Direction SE.



12. Outcrop of softer sandstone to the west of the main reef. Elongated parallel to bedding strike. Grid ref. SU92369839. Direction E.



13. Grey clays of London Clay Division A exposed east of Bognor Pier just after a low 0.7m tide. Grid ref. SU92889836. Direction NW.



14. Detail of clay outcrop east of Bognor Pier. 1m pole for scale. Grid ref. SU92769836. Direction S.

ANCIENT WOODLAND

Ancient woodland is defined by Natural England as an area that has had a continuous woodland cover since at least 1600 AD.

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



Bluebell

The habitat can be split into two broad categories:-

Ancient semi-natural woodland - is composed predominantly of trees and shrubs native to the site that do not obviously originate from planting. However, woodlands with small planting of trees native to the site would still be included in this category. The stands may have been managed by coppicing or pollarding in the past or the tree and shrub layer may have grown up by natural regeneration.

Plantations on ancient woodland sites - are areas of ancient woodland where the former native tree cover has been felled and replaced by planted trees, predominantly of species not native to the site. These will include conifers such as Norway spruce or Corsican pine, and also non-native broadleaves such as sweet chestnut. These sites often retain some ancient woodland features such as soils, ground flora, fungi, and woodland archaeology and as such they can respond well to restoration management.

The importance of ancient woodland

Ancient woodland is of prime ecological and landscape importance, providing a vital part of a rich and diverse countryside. In particular, ancient woodland:

- is exceptionally rich in wildlife, and supports many rare and threatened species
- may contain surviving descendants and features from the original natural forests
- acts as reservoirs from which wildlife can spread into new woodlands
- has valuable soils due to their undisturbed nature
- is an integral part of England's historic landscapes and the biological and visual functioning of a landscape
- contains a wealth of features of historical and archaeological importance little altered by modern cultivation or disturbance

Ancient Woodland Inventory

The Ancient Woodland Inventory was set up in 1981 by the Nature Conservancy Council (now Natural England). It originally only included sites over two hectares in size. Advances in digital mapping techniques mean it is now possible to map woodlands under two hectares with greater accuracy. This has led to a revision of the Ancient Woodland Inventory within the South East. The surveys for the revision of the inventory for Sussex were completed in 2010 and have been adopted by Natural England. However, the inventory will always be classed as "provisional" because it is reviewed and updated as new information comes to light.

Further information about the Ancient Woodland Inventory can be found on the [Natural England website](#).

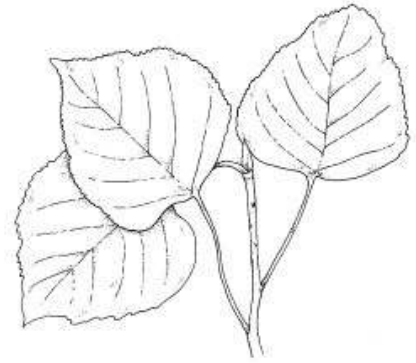
(Illustration courtesy of Natural England.)

BLACK POPLAR

The black poplar (*Populus nigra ssp. betulifolia*) is an occasional tree of field, hedgerow and bankside.

Where are they found?

The black poplar is naturally a tree of wet woodland and forested floodplain. It was also planted for timber until the mid 19th Century, when more productive species were introduced from abroad. It is a robust tree, growing to a height of around 30 metres with mature trees often leaning at an angle. The black poplar is dioecious (separate male and female trees) and in order to reproduce, males and females need to be within five miles of one another.



Black poplar

Black poplar in Sussex

Much black poplar habitat has been drained and cleared in the past, and there are now only 35 known individuals remaining in Sussex. Although this is relatively low, the population here is important as it contains an unusually high female to male ratio of approximately 1:1

What are the threats?

- Habitat loss from agricultural improvement, development and wetland drainage.
- The majority of surviving native black poplar are approaching the end of their life spans.
- Difficulties in distinguishing native from hybrid trees have caused problems in establishing the exact status of the black poplar.
- Lack of genetic diversity makes the species particularly vulnerable.
- Seedlings are uncommon due to germination conditions rarely being suitable.

Further information

- Sussex Wetland Landscapes Project: <http://www.sussexotters.org/>

(Illustration courtesy of Natural England.)

CHALK STREAM

A chalk river or stream is a watercourse which flows across chalk bedrock, and/or is influenced by local chalk geology. Chalk rivers are usually fed by underground or seasonal springs and often have 'winterbourne' stretches in their headwaters which run dry, or partially dry in late summer because of lack of rainfall recharging the spring. Sites are generally considered to be streams rather than rivers if they are no further than 5km from their source, nor greater than 5m wide (unless they have been artificially widened.)

Why are they important?

All chalk rivers are fed from groundwater aquifers which means they have clean, clear water and relatively stable water temperatures. These unique conditions along with their chalk geology, support a rich diversity of wildlife including important fish populations such as brown trout, native crayfish and many other specialist species. Their rarity means that chalk rivers are recognised as a priority habitat under the UK BAP and many have been designated as SSSI's.

Chalk streams in Sussex

Sussex chalk streams often occur in small gulleys which are much more wooded than most other headwater chalk streams. This results in unusual features including:

- Mini chalk waterfalls which form when chalk water upwellings 'calcify' in the air;
- Dense shade which means that there is naturally less vegetation cover;
- Typical chalk river plants like water crowfoot are often absent – which is more natural;
- Stream channels are diverse because of natural flow restrictions such as tree roots;
- Woody debris is common in the channel and it influences the stream flow;
- The substrate (stream bed) is less frequently made up of flints and mobile gravels.

What are the threats?

- Ditching and removal of natural features
- Weirs and man-made obstructions to flow
- Urbanisation of streams
- Non-native invasive species
- Abstraction of water from groundwater aquifers and streams
- Pollution
- Lack of recognition

Some associated species

- Fool's water-cress *Apium nodiflorum*
- Blunt-fruited water-starwort *Callitriche obtusangula*
- Brook water crowfoot *Ranunculus peltatus*
- Lesser water-parsnip *Berula erecta*
- Brown trout *Salmo trutta*
- White-clawed crayfish *Austropotamobius pallipes*
- Southern damselfly *Coenagrion mercuriale*

Further information can be found on the [Sussex Wildlife Trust website](#).

COASTAL & FLOODPLAIN GRAZING MARSH

Grazing marsh is periodically inundated pasture, or meadow with ditches that maintain the water levels, containing standing brackish or fresh water. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities.

Why is it important?

- Wading birds such as redshank feed on invertebrates forced close to the surface by the high water table and shallow surface floods.
- Around 500 species of vascular plant have been recorded from grazing marsh including rare species such as narrow-leaved water-dropwort.
- It supports large numbers of invertebrates including over a thousand nationally notable species.
- Drainage channels and open water associated with grazing marsh support a number of fish species and can provide important spawning areas.
- Water filled ditches are often used by otter, water vole, and various dragonflies.



Coastal and floodplain grazing marsh in Sussex

Sussex has around 14,000 hectares of grazing marsh, with the rivers Arun, Adur, Ouse and Cuckmere all having important areas. Just under half of Sussex's floodplains consist of wet grassland, however much of this has been agriculturally improved decreasing its value for wildlife. Pevensy Levels is one of only three sites in Britain where the large fen raft spider is found, and two rare species of ramshorn snail can also be found in Sussex.

What are the threats?

- Conversion to agriculture through drainage and fertilizer application.
- Drainage and flood defences can disrupt the hydrology of sites.
- Overgrazing, neglect or early grazing, can affect breeding birds.
- Water pollution, which can be exacerbated if concentrated by over-abstraction.
- Floodplain development, aggregate extraction and recreational pressure.
- Isolation and fragmentation of sites reduces dispersal opportunities making species more susceptible to extinction.

Some associated species

- Lapwing *Vanellus vanellus*
- Merlin *Falco columbarius*
- Marsh mallow moth *Hydraecia osseola*
- Desmoulin's whorl snail *Vertigo moulinsiana*
- Greater water parsnip *Sium latifolium*
- Star sedge *Carex echinata*

Further information

- Floodplain Meadows Partnership: www.floodplainmeadows.org.uk
- Sussex Wetland Landscapes Project: www.sussexotters.org

(Illustration courtesy of Natural England.)

COASTAL VEGETATED SHINGLE

Shingle is an accumulation of pebbles with a diameter between 2-200mm. In Sussex the shingle is composed mainly of flint pebbles derived by marine or glacial erosion of Cretaceous chalk and Tertiary deposits.

Why is it important?

- Vegetated shingle is a rare habitat and some of the plants and animals found here are very restricted in their distribution.
- Shingle is important for breeding birds, in particular gulls and terns.
- Many rare species are found including species of moth and spider.

Coastal vegetated shingle in Sussex

A significant area of vegetated shingle exists in Sussex, accounting for almost a fifth of the total resource in England. Areas of vegetated shingle can be found in both East and West Sussex, with the most extensive area being in the Rye and Dungeness area.



Sea Holly

What are the threats?

- Coastal defence work can interrupt natural sediment movement which affects coastal habitats including vegetated shingle.
- Sea level rise and increased storms could destroy vegetated shingle areas.
- Recreation impacts including trampling, disturbance of animals and introduction of non-native plant species.

Some associated species

- Lesser black-backed gull *Larus fuscus*
- Little tern *Sternula albifrons*
- Toadflax brocade *Calophasia lunula*
- Brown-banded carder bee *Bombus humilis*
- Yellow horned poppy *Glaucium flavum*
- Sea holly *Eryngium maritimum*

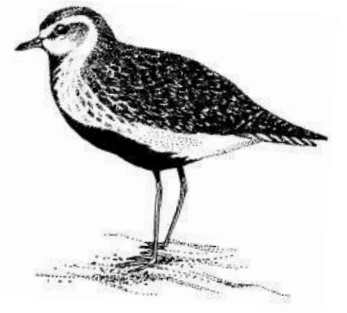
(Illustration courtesy of Natural England.)

INTERTIDAL MUDFLAT

Mudflats are sedimentary intertidal habitats created by deposition in low energy coastal environments particularly estuaries and other sheltered areas.

Why are they important?

- Mudflats are part of a habitat sequence between open water and saltmarsh, and have an important role in reducing the impact of waves upon saltmarshes, damage to coastal defences and flooding of low-lying land.
- A wide range of invertebrates is supported including molluscs, annelids and lugworms.
- Mudflats are highly productive, making them important feeding areas for birds. They support internationally important populations of migrant and wintering waders.
- Due to their sheltered nature mudflats are important areas for fish, in particular flatfish, which use them as nursery areas.



Golden plover

Intertidal mudflats in Sussex

Sussex has just over 1,100 hectares of intertidal mudflats. Much of this occurs in a mosaic with saltmarsh and seagrass beds.

What are the threats?

- Sea level rise is expected to result in the loss of up to 10,000 hectares of intertidal mudflat by 2013, with much of this in southern England.
- Land claim for development, and industry including hard flood defences.
- Pollution from agricultural, industrial and urban sources.
- Human disturbance from fishing and bait digging can have adverse impacts.
- Introduction of invasive species such as cord grass.

Some associated species

- Golden plover *Pluvialis apricaria*
- Atlantic salmon *Salmo salar*
- Lugworm *Arenicola marina*
- Mud shrimp *Corophium volutator*
- Glasswort *Salicornia europaea*
- Spiral wrack *Fucus spiralis*

(Illustrations courtesy of Natural England.)

TRADITIONAL ORCHARDS

Traditional orchards are areas of land on which a range of fruit and nut trees are cultivated that are managed in a low intensity way. Permanent grassland beneath the trees was traditionally grazed by livestock.



Why are they important?

- The mosaic of habitats such as hedgerows, dead wood and fruit trees make traditional orchards important for a wide range of species.
- Traditional orchards provide the conditions needed for many bryophytes and lichens.
- Holes and crevices in old trees provide habitat for bats and nest sites for birds such as redstart and bullfinch.
- Dead and decaying wood makes traditional orchards hugely important for invertebrates, lichens and fungi.

Traditional orchards in Sussex

The traditional orchards inventory* lists over 900 sites in Sussex covering an area of approximately 300 hectares. It is estimated that around half of these orchards are currently in a poor condition.

What are the threats?

- Changes in farming policy and markets has led to a decline in income from traditional orchard produce.
- A decline in the skills and knowledge to manage traditional orchards can lead to neglect.
- Loss of orchards can occur as fruit trees dying of old age are not replaced.
- Lack of protection under the current planning system.

Some associated species

- Lesser spotted woodpecker *Picoides minor*
- Noctule *Nyctalus noctula*
- Lichen running-spider *Philodromus margaritatus*
- Noble chafer *Gnorimus nobilis*
- Mistletoe *Viscum album*
- A lichen *Ramonia chrysophaea*

**** The Traditional Orchard Inventory for England***

The traditional orchard data used in Sussex Biodiversity Record Centre reports are the result of a project run by the People's Trust for Endangered Species (PTES) on behalf of Natural England. The resulting inventory is based on combining existing survey data with aerial photograph interpretation, together with ground-truthing survey work by local volunteers. The inventory is provisional, and is still being refined and updated as new data becomes available. The project was completed in March 2011.

For the purpose of the inventory, traditional orchards are defined as sites where at least five fruit trees must be present with no more than 20m between their crown edges.

Further information

Orchard Network: www.orchardnetwork.org.uk

Sussex Biodiversity Record Centre

Woods Mill
Henfield
West Sussex
BN5 9SD

Tel: 01273 497521

Email: info@sxbrc.org.uk

Website: www.sxbrc.org.uk

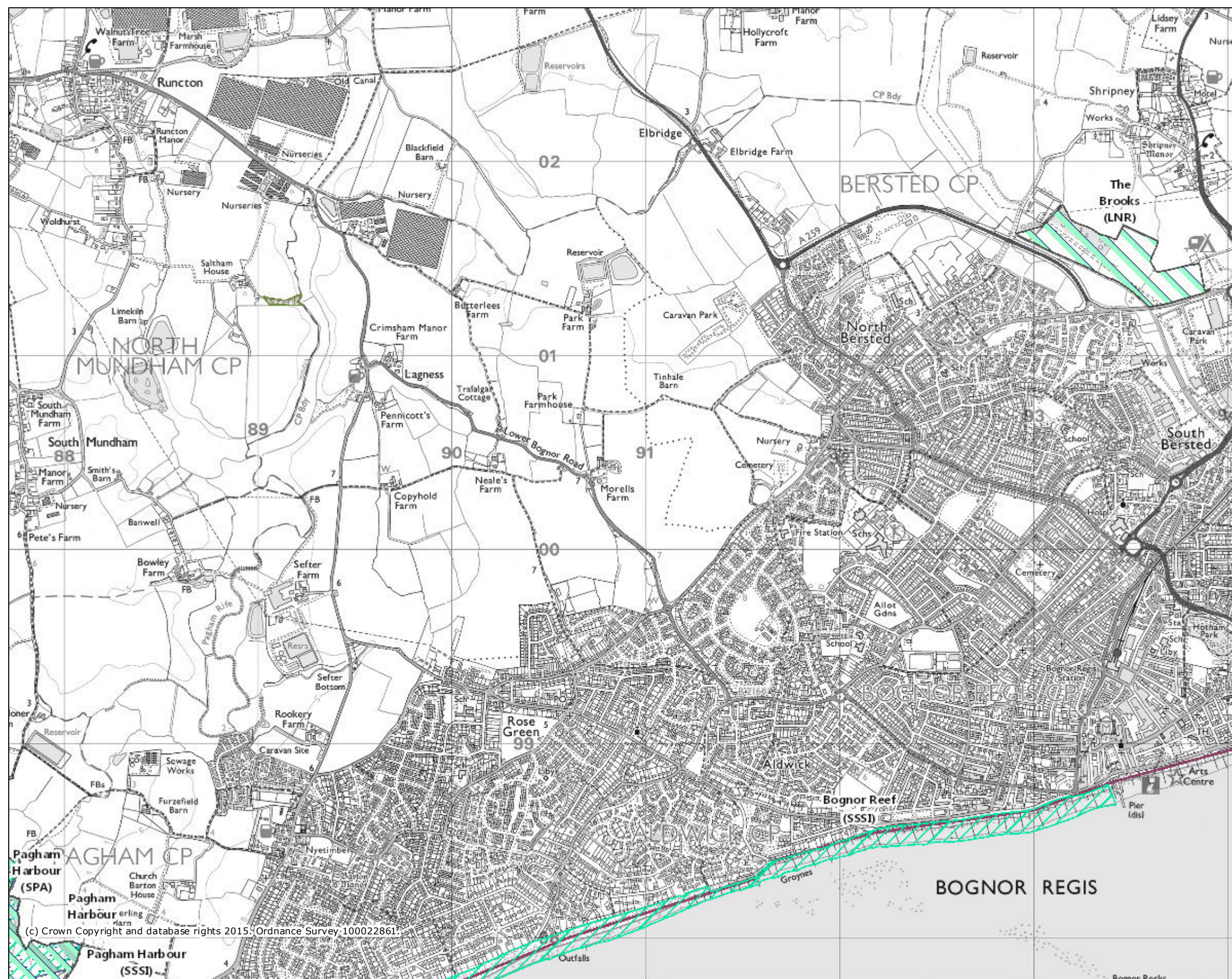
The Sussex Biodiversity Record Centre is managed by the Sussex Wildlife Trust as a partnership project.
A list of our current funding partners can be found on our website: www.sxbrc.org.uk/about/partners

Sussex Wildlife Trust is a company limited by guarantee under the Companies Act.
Registered in England. Company No. 698851. Registered Charity No. 207005.
VAT Registration No. 191 3059 69. Registered Office: Woods Mill, Henfield, West Sussex BN5 9SD.



APPENDIX 3

Information obtained from MAGIC



Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)
- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland

Projection = OSGB36

xmin = 485800

ymin = 97940

xmax = 496000

ymax = 102600

Map produced by MAGIC on 4 August, 2015.

Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

APPENDIX 4

**Technical Report – Examination of Environmental DNA in Pond
Water for the Detection of Great Crested Newts (SureScreen
Scientifics, 13 July 2015)**

Technical Report
Confidential

Folio No: D1015-D
Report No: 1
Client: ECOLOGY SOLUTIONS
Order No:-
Attn: SIMON TABER

Date: 13/07/2015

TECHNICAL REPORT

EXAMINATION OF ENVIRONMENTAL DNA **IN POND WATER FOR THE DETECTION OF** **GREAT CRESTED NEWTS**

A.Stodolna



Forensic Scientists and Consultant Engineers
SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE, UK
Tel: +44 (0)1332 292003 Email: scientifics@surescreen.com
Company Registration No. 2733607

Sample overview

Sample	Co-Ordinates	Result
D1015-5	SU 9101	Positive

Methodology

When Great Crested Newts (GCN) inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water we can analyse these small environmental traces to detect GCN inhabitation.

The laboratory testing is conducted in two phases. The sample first goes through an extraction process where all 6 tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (or q-PCR). This process amplifies select part of DNA allowing it to be detected and measured.

qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signal during the exponential phase of the reaction is measured for fast and objective data analysis.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no other DNA is amplified.

Samples are tested in a clean room and the different phases of testing are kept separate to reduce any risk of cross contamination.

Each pooled sample is replicated 12 times to ensure results are accurate. If one of the twelve replicates tests positive the sample is declared positive. The sample is only declared negative if no replicates show amplification.



Results

Sample	Co-Ordinates	Positive Replicates	Negative Replicates	Result
D1015-5	SU 9101	1	11	Positive

Advice

Negative results may not indicate the absence of GCN just the absence of eDNA above the detection limits of the method. It is still advised to survey a pond using traditional methods within 2km of a positive result or a known habitat for GCN.

Positive results may be true positives but also may be due to contamination of samples from another pond or improper sampling technique. Please ensure traditional surveys are performed on positive ponds.

The number of positive replicates does not correspond to the size of the GCN population.

Reported By: **Agata Stodolna BSc (hons) Biology**



Analysed By: **Thomas Wood BSc (hons) LIBMS**



APPENDIX 5

**Technical Report – Examination of Environmental DNA in Pond
Water for the Detection of Great Crested Newts (SureScreen
Scientifics, 28 July 2015)**

Technical Report
Confidential

Folio No: D1070
Report No: 1
Client: ECOLOGY SOLUTIONS
Order No:-
Attn: ADAM RADAGE

Date: 28/07/2015

TECHNICAL REPORT

EXAMINATION OF ENVIRONMENTAL DNA **IN POND WATER FOR THE DETECTION OF** **GREAT CRESTED NEWTS**

A.Stodolna



Forensic Scientists and Consultant Engineers
SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE, UK
Tel: +44 (0)1332 292003 Email: scientifics@surescreen.com
Company Registration No. 2733607

Sample overview

Sample	Co-Ordinates	Result
D1070	50.801722 -0.701817	Negative

Methodology

When Great Crested Newts (GCN) inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water we can analyse these small environmental traces to detect GCN inhabitation.

The laboratory testing is conducted in two phases. The sample first goes through an extraction process where all 6 tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (or q-PCR). This process amplifies select part of DNA allowing it to be detected and measured.

qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signal during the exponential phase of the reaction is measured for fast and objective data analysis.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no other DNA is amplified.

Samples are tested in a clean room and the different phases of testing are kept separate to reduce any risk of cross contamination.

Each pooled sample is replicated 12 times to ensure results are accurate. If one of the twelve replicates tests positive the sample is declared positive. The sample is only declared negative if no replicates show amplification.



Results

Sample	Co-Ordinates	Positive Replicates	Negative Replicates	Result
D1070	50.801722 -0.701817	0	12	Negative

Advice

Negative results may not indicate the absence of GCN just the absence of eDNA above the detection limits of the method. It is still advised to survey a pond using traditional methods within 2km of a positive result or a known habitat for GCN.

Positive results may be true positives but also may be due to contamination of samples from another pond or improper sampling technique. Please ensure traditional surveys are performed on positive ponds.

The number of positive replicates does not correspond to the size of the GCN population.

Reported By: **Agata Stodolna BSc (hons) Biology**



Analysed By: **Thomas Wood BSc (hons) LIBMS**



APPENDIX 6

Pagham Harbour SPA Natura 2000 Standard Data Form

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type 1.2 Site code

1.3 Compilation date 1.4 Update

1.5 Relationship with other Natura 2000 sites

☐	☐	☐	☐	☐	☐	☐	☐
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1.6 Respondent(s)

1.7 Site name

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	198803
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	latitude
00 45 38 W	50 45 48 N

2.2 Site area (ha) 2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UK533	West Sussex	100.00%

2.6 Biogeographic region

☐
Alpine

☒
Atlantic

☐
Boreal

☐
Continental

☐
Macaronesia

☐
Mediterranean

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A046a	<i>Branta bernicla bernicla</i>			1794 I		C		C	
A151	<i>Philomachus pugnax</i>			10 I		C		C	
A195	<i>Sterna albifrons</i>		7 P			C		C	
A193	<i>Sterna hirundo</i>		0 P			C		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	0.6
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	39.2
Salt marshes. Salt pastures. Salt steppes	5.2
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	20.2
Inland water bodies (standing water, running water)	1.0
Bogs. Marshes. Water fringed vegetation. Fens	2.8
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	30.3
Other arable land	
Broad-leaved deciduous woodland	0.7
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Scree. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	100%

4.1 Other site characteristics

Soil & geology:

Alluvium, Clay, Gravel, Mud, Neutral, Nutrient-rich, Sand, Sedimentary, Shingle

Geomorphology & landscape:

Coastal, Estuary, Floodplain, Intertidal sediments (including sandflat/mudflat), Islands, Lagoon, Lowland, Open coast (including bay), Pools, Shingle bar, Subtidal sediments (including sandbank/mudbank)

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Sterna albifrons 0.3% of the GB breeding population
(Eastern Atlantic - breeding) 5 year mean, 1992-1996

Sterna hirundo % of the GB breeding population
(Northern/Eastern Europe - breeding) Count, as at 1996

Over winter the area regularly supports:

Philomachus pugnax
(Western Africa - wintering)

1.4% of the GB population
5 year mean, 1995-1999

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

Over winter the area regularly supports:

Branta bernicla bernicla
(Western Siberia/Western Europe)

0.6% of the population
5 year peak mean 1991/92-1995/96

4.3 Vulnerability

Pagham Harbour comprises an extensive central area of salt marsh and tidal mudflats, with surrounding habitats including lagoons, shingle, open water, reed swamp and wet permanent grassland.

The majority of the site is a Local Nature Reserve managed by West Sussex County Council. Historical land drainage for agricultural purposes is being addressed through the Local Nature Reserve Management Plan and Management Agreements, while pollution from inadequate treatment of sewage discharges will be reviewed by the Environmental Agency.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK04 (SSSI/ASSI)	100.0

APPENDIX 7

Pagham Harbour Ramsar site Ramsar Information Sheet

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

FOR OFFICE USE ONLY.

DD MM YY

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Designation date

--	--	--	--	--	--

Site Reference Number

2. Date this sheet was completed/updated:

Designated: 30 March 1988

3. Country:

UK (England)

4. Name of the Ramsar site:

Pagham Harbour

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. **For RIS updates only**, changes to the site since its designation or earlier update:

a) Site boundary and area:

**** Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): yes ✓ -or- no ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** yes ✓ -or- no ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

50 45 48 N 00 45 38 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Chichester

10 km south-east of Chichester.

Administrative region: West Sussex

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 636.68

Min. -1

Max. 5

Mean 1

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Pagham Harbour comprises an extensive central area of saltmarsh and tidal mudflats with surrounding habitats including lagoons, shingle, open water, reed swamp and wet permanent grassland.

The intertidal mudflats are rich in invertebrate and algae, and provide important feeding areas for birds. The lower saltmarsh is dominated by common cord-grass but also includes patches of glasswort. At higher levels sea-purslane is abundant. The area supports internationally important numbers of wintering pintail and nationally important numbers of dark-bellied brent goose, grey plover and black-tailed godwit.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

Dark-bellied brent goose, *Branta bernicla* 2512 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in winter:

Black-tailed godwit, *Limosa limosa islandica*, 377 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	neutral, shingle, sand, mud, clay, alluvium, nutrient-rich, sedimentary, gravel
Geomorphology and landscape	lowland, coastal, floodplain, shingle bar, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), open coast (including bay), enclosed coast (including embayment), estuary, islands, lagoon, pools
Nutrient status	mesotrophic
pH	circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent

Summary of main climatic features	Annual averages (Bognor Regis, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/bognor_regis.html) Max. daily temperature: 13.7° C Min. daily temperature: 7.7° C Days of air frost: 24.0 Rainfall: 717.4 mm Hrs. of sunshine: 1902.9
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General description of the Physical Features:

Pagham Harbour is an estuarine basin that comprises an extensive central area of saltmarsh and intertidal mudflats, surrounded by lagoons, shingle, open water, reed swamp and wet permanent grassland.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Pagham Harbour is an estuarine basin that comprises an extensive central area of saltmarsh and intertidal mudflats, surrounded by lagoons, shingle, open water, reed swamp and wet permanent grassland.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
G	Tidal flats	33.3
Other	Other	31
E	Sand / shingle shores (including dune systems)	20.1
H	Salt marshes	5.2
F	Estuarine waters	3.3
J	Coastal brackish / saline lagoons	2.4
Sp	Saline / brackish marshes: permanent	2.2
Tp	Freshwater marshes / pools: permanent	0.8
W	Shrub-dominated wetlands	0.6
A	Shallow marine waters	0.6
M	Rivers / streams / creeks: permanent	0.3
9	Canals and drainage channels	0.2

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

This site comprises an extensive central area of saltmarsh and tidal mudflats with surrounding habitats including shingles, open water, reed swamp and wet permanent grassland. Pagham Harbour is of national importance for wintering, wildfowl and waders and also for breeding birds both within the Harbour and the surrounding grazing pasture. The site supports nationally important communities of plants and invertebrates.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.**Higher Plants.**

Petrorhagia nanteuillii

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds**Species currently occurring at levels of national importance:****Species with peak counts in spring/autumn:**

Little egret , <i>Egretta garzetta</i> , West Mediterranean	60 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)
Whimbrel , <i>Numenius phaeopus</i> , Europe/Western Africa	104 individuals, representing an average of 3.4% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)
Common greenshank , <i>Tringa nebularia</i> , Europe/W Africa	20 individuals, representing an average of 3.3% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Slavonian grebe , <i>Podiceps auritus</i> , Northwest Europe	14 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)
Northern pintail , <i>Anas acuta</i> , NW Europe	462 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Grey plover , <i>Pluvialis squatarola</i> , E Atlantic/W Africa -wintering	704 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , <i>Tringa erythropus</i> , Europe/W Africa	5 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information**Nationally important species occurring on the site.****Invertebrates.**

Nematostella vectensis

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic

Aquatic vegetation (e.g. reeds, willows, seaweed)

Archaeological/historical site

Environmental education/ interpretation

Fisheries production
 Livestock grazing
 Non-consumptive recreation
 Scientific research
 Sport fishing
 Sport hunting
 Tourism

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? **No**

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Bait collection	+	+
Arable agriculture (unspecified)		+
Permanent arable agriculture		+
Livestock watering hole/pond	+	+
Permanent pastoral agriculture	+	+
Hunting: recreational/sport	+	+
Sewage treatment/disposal	+	+
Flood control	+	+
Irrigation (incl. agricultural water supply)		+
Transport route		+

Urban development		+
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26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	
Site management statement/plan implemented	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Contemporary.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Completed.

Environment, Flora and Fauna.

Extensive research and surveys into tidal regimes, sediment movement and the distribution of all major animal and plant groups has been carried out in Pagham Harbour.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

There is an interpretative centre for the Local Nature Reserve.

A full time Education Officer is employed, the programme being particularly directed at schoolchildren.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

Land based recreation:

Walking including dog walking - all year.

Bird watching - all year.

Sea bathing - mostly summer.

Wildfowling: Only in agreed areas - 1 September to 20 February

Adjacent seasonal caravan parks - mainly summer.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs,
European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol,
BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House,
Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

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APPENDIX 8

Ecological Enhancement Scheme (Ecology Solutions, 2017)



Linden Homes South

LAND WEST OF
NEW BARN LANE,
NORTH BERSTED,
WEST SUSSEX

Ecological Enhancement Scheme

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PLANS

PLAN ECO1	Location of Bat and Bird boxes
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APPENDICES

APPENDIX 1	Bat box specifications
APPENDIX 2	Examples of Bird boxes

1. INTRODUCTION

- 1.1 This Ecological Enhancement Scheme (EES) has been prepared by Ecology Solutions Ltd on behalf of Linden Homes South in respect to Land at New Barn Lane, North Bersted, West Sussex, hereafter referred to as the Site.
- 1.2 This EES has been produced with reference to the Development Proposals relating to new residential properties together with access, landscaping and open space. The outline application, with some matters reserved (BE/142/15/OUT) was approved, subject to conditions and Section 106 Agreement in February 2016. Variation of conditions 3 and 23 (BE/18/17/PL) was approved subject to conditions and Section 106 Agreement, in May 2017.

Condition 15 of the Decision Notice regarding BE/18/17/PL states:

Prior to the commencement of construction works on each phase of the development of any preparatory works a detailed ecological enhancement scheme (which shall include the installation of bat boxes throughout the site) shall be submitted to the LPA for approval and will be based on the recommendations within the supporting ecological statement and as appropriate. All approved details shall then be implemented in full and in accordance with the agreed timings and details.

- 1.3 This EES has been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and in accordance with Natural England and relevant third party guidelines in relation to protected species.
- 1.4 Other technical reports have also been referenced including the landscape strategy produced by ACD environmental (drawing no. LIN21257) and lighting strategy layout produced by MJA consulting (drawing no. 5529:P05).
- 1.5 This EES is set out as follows:
 - Summary ecological baseline;
 - Summary of impacts to species / habitat;
 - Specific mitigation / enhancement strategies; and
 - Monitoring prescriptions.

2. SUMMARY ECOLOGICAL BASELINE

- 2.1 An initial habitat survey was undertaken by Ecology Solutions in June 2015 to ascertain the general ecological value of the land contained within the boundaries of the site and to identify the main habitats and associated plant species. Notes on fauna utilising the site were also made during the course of these surveys. Additional notes on habitat features were made during the course of further detailed, species-specific survey work undertaken during the course of June and July 2015.
- 2.2 Habitat surveys were based upon an extended Phase 1 survey technique as recommended by Natural England. The habitats and dominant plant species were recorded and presented within the Ecological Assessment produced by Ecology Solutions in August 2015 (6767.EcoAss.vf) and later updated (6767.EcoAss.updated).
- 2.3 The habitats identified are listed below:
- Semi-improved grassland;
 - Ruderal vegetation;
 - Hedgerows;
 - Amenity grassland;
 - Trees and scrub; and
 - Treeline (off-site).
- 2.4 During the course of the habitat survey conspicuous faunal activity, evidence of the presence or potential presence, of protected species was noted. In addition, detailed surveys were undertaken for the following:
- Bats;
 - Badgers; and
 - Reptiles.
- 2.5 The surveys and assessment identified the need for specific mitigation strategies for the following habitats and species / groups:
- Semi-improved grassland;
 - Ruderal vegetation;
 - Hedgerows;
 - Trees and scrub;
 - Treeline (off-site)
 - Bats; and
 - Birds.
- 2.6 The following section details the mitigation / enhancement measures relevant to each of the above.

3. MITIGATION AND ENHANCEMENT STRATEGIES

- 3.1 The Development Proposals will affect the habitats and species / groups within the Site. Suitable mitigation and enhancement strategies will be employed to safeguard the ecological value of the Site. These strategies are outlined below.

Habitat Mitigation Strategies

3.2 Semi-improved grassland

- 3.3 Semi-improved grassland is present across the Site. This habitat will be lost to the Development Proposals.

Impacts: The existing area of grassland will be removed during site preparation works ahead of the construction phase of the Development Proposals.

Mitigation / Enhancement: Species-rich wildflower grassland will be sown (including WFG5 seed mix supplied by Germinal seeds and Emorsgate EM5F seed mix or similar) within the open space to be provided in the east of the Site. This will provide an enhancement in terms of the species composition of the grassland habitat.

Swales will be created within the open space that will provide new species-rich habitats. These areas will be sown with a species-rich wet grassland mixture (Emorsgate EM8 seed mix or similar), providing further botanical diversity within the Site.

- 3.4 It is considered the above provisions will compensate for the losses to semi-improved grassland and provide an enhancement over the current situation due to the proposed species composition and diversity of substrates.

3.5 Ruderal vegetation

- 3.6 Areas of ruderal vegetation are present along the margins of the field and exist in patches in the west and north of the Site. Ruderal vegetation along the hedgerows will be retained, with other patches lost to the Development Proposals.

Impacts: Some of the ruderal vegetation will be lost during site preparation works ahead of the construction phase of the Development Proposals.

Mitigation / Enhancement: No specific mitigation is considered necessary in relation to the losses described above.

3.7 Hedgerow

- 3.8 Hedgerows are present along the southern and western boundaries of the field. They are to be fully retained and enhanced as part of the Development Proposals.

Impacts: Potential dust suppression impacts during the construction phase on retained hedgerow habitat.

Potential encroachment of machinery and personnel during the construction phase.

*Mitigation /
Enhancement:*

Potential dust impacts would be temporary and reversible over time. However, standard construction site mitigation measures such as damping down techniques and wheel washes will be employed during construction operations.

Temporary protective fencing will be installed and remain in place throughout the construction period to prevent any potential encroachment.

*The ecological value and structure of the hedgerow running along the western boundary of the site will be enhanced through bolster planting. Native species will be used such as Hornbeams (*Carpinus Betulus*) will be planted in the southern section of the hedgerow.*

- 3.9 It is considered the above provisions will maintain and enhance hedgerow habitat within the Site.

3.10 Trees and scrub

- 3.11 Areas of dense scrub are present in a number of areas within the Site, notably in the north east and towards the southern boundary of the Site. The east of the Site contains multiple immature scattered Sycamore *Acer pseudoplatanus* trees.

Impacts: The areas of scrub will be lost during site preparation works ahead of the construction phase of the Development Proposals.

A single tree on the eastern boundary will be lost.

*Mitigation /
Enhancement:*

No specific mitigation is considered necessary in relation to the minor losses described above.

However, the baseline situation will be enhanced through new tree and shrub planting after the construction phase of the Development

Proposals, including in the northern area and along the eastern boundary of the Site. The shrub planting will mitigate for any losses of scrub habitat within the Site.

- 3.12 It is considered the above provisions will more than offset any impact on biodiversity within the Site associated with the loss of trees and scrub.

3.13 **Treeline (off-site)**

- 3.14 A tree-line is located adjacent to the northern boundary of the Site.

Impacts: Potential encroachment of machinery and personnel during the construction phase.

Mitigation / Enhancement: Temporary protective fencing shall be installed outside the root protection area of each tree and will remain in place throughout the construction period.

It is considered the above provisions will prevent any impacts to the treeline located adjacent to the Site.

Species / group mitigation strategy

- 3.15 The mitigation strategies for each species / group accord with current legislative requirements and relevant guidance.

3.16 **Bats**

- 3.17 The Site is considered to be of some limited value to foraging / navigating bats. The level of activity is consistent with regular use by a low number of individual bats of common and widespread species.

Impacts The Development Proposals will not result in any impacts to bat roosting sites.

The most valuable features for bats within the context of the site are the treelines and hedgerows alongside the southern and western boundaries. These are to be retained and enhanced as part of the Development Proposals.

Mitigation / Enhancement Mitigation will be focussed upon the avoidance of increased lighting on the hedgerows and treelines wherever possible.

Within the development proposals low pressure sodium lamps (or equivalent) should be used in preference to high pressure sodium or mercury lamps for external lighting. The brightness of the lights should be as low as practicable, with the times during which the lighting is used limited to

provide some dark periods. The lighting should be directed to where it is needed thereby avoiding light spillage onto nearby habitat features. Where necessary hoods and cowls should be fitted to lights, directing the light below the horizontal plane to where it is required, thus reducing the potential for light spill into adjacent ecologically sensitive features.

Bolster planting will enhance the hedgerow along the western boundary of the Site, while new species-rich grassland and wet grassland habitats are to be created in the eastern part of the Site. Both measures will help create additional foraging opportunities for bats.

The Development Proposals also provide the opportunity to incorporate new roosting provisions for bats in the form of bat boxes located on mature trees. Schwegler 1FF bat boxes (see Appendix 1) will be utilised, as these are suitable for a range of bat species, including those species recorded within the Site. Six bat boxes will be provided within suitable retained trees along the Site's southern boundary. The proposed indicative locations of these bat boxes are illustrated in PLAN ECO1.

- 3.18 It is considered the above provisions will maintain the status of the bat population within the local area and potentially result in a net benefit for this faunal group, providing an enhancement over the current situation and contributing towards the conservation aims for this group within the UK.

3.19 **Birds**

- 3.20 The Site provides some limited opportunities for foraging and nesting birds in the form of hedgerows/treelines and scrub.

Impacts

The Development Proposals may result in impacts on birds, through the removal of suitable nesting habitat.

Features of value to foraging and nesting birds within the site are the hedgerows, treelines and scrub. Of which, the hedgerow and treelines are to be retained within the Development Proposals.

Mitigation

All species of birds receive general protection whilst nesting, it is recommended that in order to avoid a possible offence, vegetation clearance (if required) be undertaken outside of the main breeding season (March – July inclusive). However, should this not be possible, it is

recommended that any vegetation scheduled to be cleared be checked for the presence of nesting birds immediately prior to removal by a suitably qualified ecologist.

New planting associated with the Development Proposals will help address losses to existing scrub habitat and the provision of nest boxes on retained trees or other features would provide further nesting opportunities. A variety of bird boxes will be utilised to encourage a variety of species. Examples are provided in Appendix 2. Six bird boxes will be provided. The proposed indicative locations of these bird boxes is illustrated in PLAN ECO1.

- 3.21 It is considered that the above provisions will maintain the status of birds within the local area and potentially result in a net benefit for this faunal group, providing an enhancement over the current situation and contributing towards the conservation aims for this group locally and nationally.

4. MANAGEMENT AND MONITORING PRESCRIPTIONS

- 4.1 The aims and objectives of the mitigation and enhancement strategies put forward are to maintain and enhance habitats of ecological interest retained within the Site in addition to conserving populations of protected species, while providing for biodiversity enhancements wherever possible. In order to maintain these features it is necessary to set out suitable management and monitoring prescriptions.
- 4.2 The following objectives have been identified:
- Objective 1: Maintain and enhance retained and newly created habitats within the Site;
 - Objective 2: Maintain and where possible enhance populations of protected / notable species identified within the Site;
 - Objective 3: Biological recording to monitor efficacy of the Management Plan.
- 4.3 Management prescriptions and monitoring requirements have been described below, in relation to each of the above objectives.

Objective 1: Maintain and Enhance Retained and Created Habitats

- 4.4 The ecological aims for the Site are to improve the diversity of habitats present and improve the quality / species diversity of these habitats.
- 4.5 The Development Proposals provide the opportunity to deliver a net gain in the ecological value of the Site. Habitats to be provided within the completed development include:
- Species-rich grassland;
 - Swale / species-rich wet grassland;
 - Hedgerows; and
 - Trees and shrub.

Species-rich Grassland

- 4.6 Areas seeded with wildflower grassland mixes should be managed in line with the supplier's recommendations. Where appropriate, areas of grassland within the site should be cut on a rotational basis to enhance the variation and diversity of meadow habitats, which will maximise the biodiversity value of the habitat. Cuttings should be left on site to dry for approximately seven days prior to removal in order to allow for flower seeds to disperse.

Swale / Species-rich Wet Grassland

- 4.7 Attenuation features planted with a wet wildflower grassland mixture will be managed, in line with other species-rich grassland, wherever possible, to provide an increase in biodiversity value of the site whilst retaining their primary function of providing drainage to the new

development. Any areas of standing water will provide new opportunities for fauna species including amphibians and reptiles.

Hedgerows

- 4.8 Management will be undertaken to achieve a dense, tall structure with structural complexity, and to avoid any gaps from being present. Any required cutting of these features will be undertaken with due regard for constraints associated with protected species, primarily breeding birds, as outlined below.

Shrub

- 4.9 Management of newly planted shrubs will initially aim to ensure the successful establishment of these habitats and the provision of an appropriate structure.
- 4.10 Whilst some minor trimming may be undertaken at the boundaries of the shrub planting, it is not envisaged that any specific management would be required within these areas for the first 5 years, beyond monitoring of new planting and replacement where necessary.
- 4.11 Following this, any further management including cutting or thinning of this vegetation will be undertaken with due regard for constraints associated with protected species, primarily breeding birds, as outlined below.

Objective 2: Maintain populations of protected / notable species identified within the Site

- 4.12 The implementation of an appropriate management regime, in association with the proposals, will secure significant ecological enhancement of the habitats present and will furthermore provide increased opportunities for a range of protected species within the Site.
- 4.13 Specific management requirements in respect of each of these identified species/groups is detailed below.

Badgers

- 4.14 No specific management measures are required beyond the habitat management strategies discussed above.
- 4.15 Immediately ahead of any management works the area should be checked for the presence of Badger setts. This would include a walkover survey of grassland to be mown (for example). In the event that a sett or suspected sett is recorded, a 20m buffer to the sett entrances should be adhered to within which no machinery should be used, until advice has been sought from a suitably experienced ecologist.
- 4.16 Management proposed in relation to retained habitats will ensure connectivity through the Site and wider area providing foraging and shelter resources for the local Badger population.

Bats

- 4.17 Habitat management principles in relation to bats will ensure that foraging and commuting resources are maintained within the Site.
- 4.18 The hedgerows and treelines will be managed to maintain a tall and unbroken structure. This will ensure flight lines within the Site and wider vicinity are connected, allowing bats to navigate throughout the area. Any works to trees will be limited to works required on health and safety grounds.

Birds

- 4.19 All British birds are legally protected whilst actively nesting (typically March to July inclusive). Management of shrubs and trees should therefore (in preference) be undertaken outside of the bird-breeding season, or under the guidance of an appropriately experienced ecologist to avoid an offence being committed.
- 4.20 Management of fruit bearing trees and shrubs, such as hedge trimming, within the Site will be undertaken after fruiting to ensure this food resource is made available for foraging birds, as well as other wildlife.

Objective 3: Monitor efficacy of the Management Plan

- 4.21 Habitat condition surveys will be undertaken in respect of all retained and newly created habitats within the Site as part of ongoing management at the Site.
- 4.22 While new planting is being established, a health monitoring assessment will be implemented with any failed specimens removed and replaced. During periods of dry weather newly planted hedgerow shrubs will be checked for effects from drought. This monitoring would be linked to a defects liability period associated with the provision of the new planting and health checks will be undertaken for a minimum of one year following planting.
- 4.23 Artificial bat and bird boxes will be monitored on an annual basis to ensure they remain in good condition. Any boxes noted as damaged or out of working order will be replaced or repaired as necessary.

PLANS AND APPENDICES

PLANS

PLAN ECO1

Location of Bat and Bird Boxes

Based upon the preliminary site layout plan. Ecology Solutions Ltd, Farncombe house, Farncombe Estate, Worcestershire, WR12 7LJ.



- KEY:**
-  SITE BOUNDARY
 -  BIRD BOX
 -  BAT BOX



6767: LAND WEST OF NEW BARN LANE, NORTH BERSTED

PLAN ECO1: LOCATION OF BAT AND BIRD BOXES

APPENDICES

APPENDIX 1

Bat Box Specification

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.



1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 27cm

Height: 43cm

Weight: 8.3kg



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APPENDIX 2

Examples of Bird Boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and **black redstarts**.

Best sited on the walls of buildings with the entrance on one side.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.



2M Bird Box

A free-hanging box offering greater protection from predators.

Supplied complete with hanger which loops and fastens around a branch.

With standard general-purpose 32mm diameter entrance hole.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.



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