



Preliminary Ecological Assessment

**Garden Cottage
Dungeness
Kent**

**A report to:
Mrs T Colaianni**

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1	SUMMARY	2
2	INTRODUCTION.....	3
2.1	BACKGROUND.....	3
2.2	THE PROPERTY	3
2.3	ECOLOGICAL CONTEXT.....	4
2.3.1	<i>Introduction.....</i>	<i>4</i>
2.3.2	<i>Vegetation.....</i>	<i>4</i>
2.3.3	<i>Invertebrates.....</i>	<i>5</i>
2.3.4	<i>Birds</i>	<i>5</i>
2.3.5	<i>Protected species.....</i>	<i>5</i>
3	METHODS.....	7
3.1	DATA.....	7
3.2	HABITAT SURVEY	7
3.3	BAT SURVEY	7
3.4	LIMITATIONS OF SURVEY	8
4	RESULTS.....	9
4.1	DATA SEARCH.....	9
4.1.1	<i>Designations.....</i>	<i>9</i>
4.1.2	<i>Protected species.....</i>	<i>9</i>
4.2	HABITAT SURVEY	10
4.2.1	<i>Geomorphology.....</i>	<i>10</i>
4.2.2	<i>Vegetation.....</i>	<i>10</i>
4.3	PROTECTED SPECIES.....	11
4.3.1	<i>Bats.....</i>	<i>11</i>
4.3.2	<i>Badger.....</i>	<i>11</i>
4.3.3	<i>Nesting birds.....</i>	<i>11</i>
4.3.4	<i>Reptiles.....</i>	<i>12</i>
5	MITIGATION	13
5.1	IMPACT OF THE DEVELOPMENT WITHOUT MITIGATION	13
5.1.1	<i>Habitats and geomorphology.....</i>	<i>13</i>
5.1.2	<i>Shingle habitats.....</i>	<i>13</i>
5.1.3	<i>Bats.....</i>	<i>13</i>
5.1.4	<i>Reptiles.....</i>	<i>14</i>
5.2	MITIGATION.....	14
5.3	OTHER RECOMMENDATIONS	15
6	INFORMATION TO INFORM AN APPROPRIATE ASSESSMENT	17
6.1	CONSIDERATION OF LIKELY SIGNIFICANT EFFECT	17
6.2	INFORMATION TO INFORM THE APPROPRIATE ASSESSMENT	17
7	RELEVANT PUBLICATIONS.....	18
	APPENDIX 1 LEGISLATION.....	20
	APPENDIX 2 PHOTOGRAPHS.....	23
	APPENDIX 3 FIGURES AND TARGET NOTES.....	27

1 SUMMARY

- A Preliminary Ecological Appraisal was undertaken at Garden Cottage, Dungeness. It is proposed to demolish and rebuild this property.
- The cottage lies within the Dungeness Site of Special Scientific Interest (SSSI), and adjacent to the Dungeness Special Area of Conservation (SAC) and Dungeness National Nature Reserve (NNR).
- The property lies within an extensive area of vegetated shingle, but past land-use has extensively modified the habitats in the curtilage of the property, with excavations and importation of fine materials resulting in the development of a dense sward of mesotrophic vegetation. This community is of lower conservation quality than natural shingle vegetation, but is not entirely without value. It supports some shingle species such as viper's bugloss, and the dense sward provides cover from predators for viviparous lizard. There is a band of more species rich acid grassland to the east of the property, and extensive areas of such acid grassland and broom scrub grow on land surrounding the plot.
- Garden Cottage occupies 83.7 m², and is associated with a further 104.1 m² of hardstanding and ancillary buildings. The new dwelling and associated hardstanding will have a combined footprint of 161 m², resulting in a net gain of 26.8 m² of open grassland resulting from the removal of two greenhouses.
- Heras fencing will be used to restrict the activities of demolition and construction workers to a zone within 3 m of the property and hard standing areas/former parking areas.
- Garden trees and shrubs could be felled to form a branch-pile to provide cover for reptiles. These will be displaced by the strimming of grassland within the fenced areas prior to the start of construction work.
- Measures are proposed to provide enhancement opportunities for roosting bats and roosting house sparrow.

2 INTRODUCTION

2.1 *Background*

A Preliminary Ecological Appraisal was undertaken at Garden Cottage, Dungeness (Grid Reference TR0905 1840). This property lies within the Dungeness, Romney Marsh and Rye Bay Site of Special Scientific Interest (SSSI) and adjacent to the Dungeness Special Area of Conservation (SAC), and the Dungeness National Nature Reserve. There are proposals to demolish and rebuild the buildings at this property and the purpose of the survey was as follows:

- To describe and map the vegetation and other designated features.
- To make suggestions to the Competent Authority (Shepway District Council) and Natural England so that the impact of the proposed development can be considered under the Habitats Regulations (2010).
- To search for evidence of bats, which are protected species, using the building.
- To identify any impact on other legally protected species also using the site.

The Appraisal was carried out on 8th May 2016 by Brian Banks of Flag Ecology Ltd, with Sean McMinn of Marsh Environmental, who holds a Natural England licence to survey for bats (2015-11447-CLS-CLS) and who undertook an initial bat survey.

2.2 *The property*

Beach cottage is a small two storey former fisherman's cottage on the shingle at Dungeness Estate. To the west of the property there is a strip of hardstanding with a garden shed to the north and two green houses to the south. It lies within an extensive area of vegetated shingle beach with a scatter of similar properties.

2.3 *Ecological context*

2.3.1 Introduction

Dungeness is a Cuspate Shingle Foreland, a very unusual coastal landform, and one of the best examples of its type in the world. The pattern of shingle ridges show how the beach was formed by the sea whilst deposits within them can be used to determine the dates over which it was formed.

2.3.2 Vegetation

Vegetated shingle is a globally rare habitat. Dungeness is the largest and most diverse example in the UK and Europe, and supports vegetation communities and species that are rare in Britain; indeed, some are found no-where else in the world.

The shingle vegetation is internationally important and is a feature qualifying the site as a Special Area of Conservation (SAC). Activities that might damage the SAC vegetation need to be considered under procedures set out in the Habitats Regulations.

The vegetation at Dungeness changes naturally, moving inland from the east coast, and the different vegetation communities have been described by Ferry, Lodge and Waters (1990):

- On the coastal ridges sea kale *Crambe maritima* is the most common species.
- From about the fourth ridge inland to ridge ten, false oat-grass *Arrhenatherum elatius* grassland replaces sea kale vegetation.
- Between ridges thirteen to thirty-two, vegetation becomes dominated by broom *Cytisus scoparius* scrub.
- On the older ridges broom dies out and is replaced by a mix of low growing acid grassland comprising a species-rich assemblage of lichens, mosses such as *Dicranum scoparium* and flowering plants. In some places there are unusual scrub communities such as low growing blackthorn and holly.

All of the communities mentioned above are natural, and are the most valuable habitats on the site. Once the shingle has been disturbed, by trampling, vehicles, excavation, or by adding fine materials such as humus, sand or soil, a different range of species can replace the natural communities. This can range from;

- mild damage (benefitting some species that depend on disturbance that are either rare themselves, such as red hemp nettle *Galeopsis angustifolia*, or commoner species such as viper's bugloss *Echium vulgare* that support rare insects), to
- More severe disturbance, including importation of soil and other fine substrates, causing the natural communities to be replaced by mesotrophic vegetation, frequently including species typical of disturbed ground and of lower ecological value or even bare gravel.
- Another anthropogenic factor is the presence of non-native species growing on the shingle such as red valerian *Centranthus ruber* and snow in summer *Cerastium tomentosum*. These alter the nature of the shingle beach and could influence its species composition.

2.3.3 Invertebrates

The different plant communities support varied and unusual communities of insects and spiders. Because shingle is an unusual and rare habitat, many of the specialist animals that live on it are also rare; furthermore, its location on the south-east coast of Britain allows species that are warmth-loving to survive here but not further north in Britain.

2.3.4 Birds

Dungeness is an important site for birds supporting a diverse assemblage of breeding species associated with shingle beaches and wetlands. It is also an important wintering site for large numbers of wintering waterfowl and hen harrier *Circus cyaneus*, as well as passage migrants.

2.3.5 Protected species

A number of protected species can be found at Dungeness. These include:

- Bats and the great crested newt *Triturus cristatus*, which are fully protected under Schedule 5 of the Wildlife and Countryside Act, and Schedule 2 of the Conservation (Natural Habitats etc.) (Amendment) Regulations 2007 (which implements the Habitats Directive 92/43/EEC in the United Kingdom) giving the species full protection under Regulation 39. The great crested newt is also an SSSI and SAC notification feature and therefore developments that affect it need to be considered under the Habitats Regulations.

- The Sussex emerald moth *Thalera fimbrialis*, medicinal leech *Hirudo medicinalis* and water vole *Arvicola terrestris*, which are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981 as amended). These species are all SSSI notification features.
- The early spider orchid *Ophrys sphegodes*, Jersey cudweed *Gnaphalium luteoalbum* and the stinking hawksbeard *Crepis foetida* are fully protected under Schedule 8 of the Wildlife and Countryside Act (1981 as amended). These species are all SSSI notification features.
- The viviparous lizard *Zootoca vivipara* and the grass snake *Natrix natrix helvetica*. Both are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and protected under Section 9 (parts 1 and 5) from intentional killing and injury, and sale.
- The badger *Meles meles* is protected in Britain under the Protection of Badgers Act 1992 and Schedule 6 of The Wildlife and Countryside Act 1981 (as amended).

3 METHODS

3.1 *Data*

Biological Records and details of nature conservation designations were obtained from the Kent and Medway Biological Records Centre.

3.2 *Habitat survey*

The survey was undertaken by walking the plot and mapping distinctive vegetation communities. Evidence of protected species was noted at the same time (likely habitat features, signs, or food plants). These were highlighted with target notes on the habitat map.

The plot is on an area of dry shingle beach 670 m from the nearest open fresh water, therefore aquatic species such as great crested newt were considered to be unlikely to use the site.

3.3 *Bat survey*

The bat survey followed the survey guidelines recommended by the Bat Conservation Trust and The Joint Nature Conservation Committee in their Bat Workers Manual (3rd Edition 2004) and the Bat Conservation Trusts Bat Surveys For Professional Ecologists: Good Practice Guidelines (3rd Edition 2016). This involved looking for evidence of bats, or features likely to be used as access or roosting areas. Equipment used included one 1x10⁶cd (one-million candlepower) lamp, a 1m flexible fibre-optic endoscope, and 10x42 binoculars.

Signs of bat activity may include the following: -

- Faeces - these typically contain fragments of insect exoskeleton and crumble (unlike those of small rodents, which typically harden with time). Bat droppings will stick to surfaces including walls, windows and window ledges. They may also become caught in cobwebs below a roost site or feeding perch.
- Feeding remains - these include the discarded wings of flying invertebrates, which may accumulate under a well-used feeding perch. Some species, such as the brown long-eared bat, have a well-known penchant for moths of the noctuid family. Hence the accumulated wings of these moths assist in suggesting the presence of this bat.
- Oil staining - the fur of bats may leave an oily residue on surfaces close to occupied roost sites and access/egress points.

- Diurnal vocalisations - these are most pronounced at larger roost sites during periods of hot weather.

All levels of the building were surveyed where accessible both internally and externally looking for visual evidence of bats as outlined above and potential access points.

3.4 *Limitations of survey*

An invertebrate survey was not undertaken, given the small area of land affected by the planning application and the highly modified nature of the grassland. Such a survey was not requested by Natural England.

The bat survey fell just outside the optimal survey period for surveys to locate maternity roosts (Mitchell-Jones, 2004; Joint Nature Conservation Committee (JNCC) 2004).

4 RESULTS

4.1 Data search

4.1.1 Designations

Garden Cottage lies within the Dungeness Romney Marsh and Rye Bay Site of Special Scientific Interest (SSSI). The Dungeness Special Area of Conservation (SAC) and the Dungeness National Nature Reserve (NNR) lie immediately to the south of the plot. The Dungeness to Pett Level Ramsar site and Special Protection Area lie approximately 600 m and 1.4 km respectively to the west, and given their distance from this site they were not considered further.

4.1.2. Protected species

The following protected species are recorded within 1 km of the site.

Table 1. Protected species reported within 1 km of site.

Species	Status	Location	Year recorded
<i>Soprano pipistrelle Pipistrellus pygmaeus</i>	Habitats Directive W&C Act sch 5	Maternity roost TR079189	2014
<i>Serotine bat Eptesicus serotinus</i>	Habitats Directive W&C Act sch 5	TR08521725	2012
<i>Daubentons bat Myotis daubentonii</i>	Habitats Directive W&C Act sch 5	TR082168	2011
<i>Wiskered bat Myotis mystacinus</i>	Habitats Directive W&C Act sch 5	TR079189	2014
<i>Leislars bat Nyctalus leisleri</i>	Habitats Directive W&C Act sch 5	TR08521725	2012
<i>Noctule bat Nyctalus noctula</i>	Habitats Directive W&C Act sch 5	TR079189	2014
<i>Nathusius' pipistrelle Pipistrellus nathusii</i>	Habitats Directive W&C Act sch 5	TR07981876	2014
<i>Pipistrelle bat Pipistrellus pipistrellus</i>	Habitats Directive W&C Act sch 5	TR07981876	2015
<i>Viviparous lizard Zootoca vivipara</i>	W&C Act sch 5(p)	TR 0892 1848	2013
<i>Grass snake Natrix natrix</i>	W&C Act sch 5(p)	TR 08920 18441	2013
<i>Early spider orchid Ophrys sphegodes</i>	W&C Act sch 8	TR0917	2010
<i>Least lettuce</i>	W&C Act sch 8	TR080178	2001
<i>Stinking hawk's-beard Crepis foetida</i>	W&C Act sch 8	TR08801929	2015
<i>Sussex emerald moth Thalera fimbrialis</i>	W&C Act sch 5	TR087187	2012
<i>European badger Meles meles</i>	Badger Act	TR08 17	2014

The list in table 1 excludes species that are only protected from trade and, as the site is more than 600 m from fresh or brackish water, and over 300 m from the sea, species that are entirely aquatic or marine.

4.2 Habitat survey

4.2.1 Geomorphology

The proposed development is in an area with a history of occupation and the shingle ridges have been significantly modified by human activities. There are, however, intact shingle ridges beyond the confines of the garden that indicate how the beach was formed by the sea.

4.2.2 Vegetation

The survey site lies on a part of the beach where the natural vegetation comprises a mosaic of acid grassland and broom scrub with strips of bare exposed flint. Within the curtilage of Garden Cottage, the natural shingle vegetation was replaced by a dense sward of rough grassland, typical of more mesotrophic conditions, with abundant red fescue *Festuca rubra*, sweet vernal grass *Anthoxanthum odoratum* and ribwort plantain *Plantago lanceolata*. This latter species is typical of shingle that has had fine material added to it. Evidence of past cultivation persists in the form of garden plants, particularly to the west of the property. These included greater periwinkle *Vinca major*, Spanish bluebell *Hyacinthoides hispanica*, apple mint *Mentha suaveolens*, cultivated Narcissi, grape hyacinth *Muscari* sp. snow in summer *Cerastium tomentosum* and privet *Ligustrum vulgare*. Snow in summer was also locally abundant at target note 8.

In some areas, as around target notes 1 and 2 the shingle had been covered in excavated spoil, and at target notes 3 and 4 there were piles of imported material (ash and slate). Around target note 11, although the vegetation was mesotrophic in character, the sward was lower, and this area may have been used as a car parking space in the past. There was a buried septic tank at target note 5, no doubt the cause of the spoil mound at target note 5. Despite the artificial nature of this vegetation some shingle species persisted, including wood sage *Teucrium scorodonia* and viper's bugloss *Echium vulgare*.

The most natural shingle vegetation was found along the eastern boundary of the plot (target notes 6 and 7). Here the more mesotrophic grassland was gradually replaced by acid grassland with a prominent lichen component including *Cladonia ciliata*/*C. portentosa* (the two species were not distinguished), *C. rangiformis* and *C. foliacea*. Other species in the sward included the moss *Dicranum scoparium*, abundant slender-leaved sheep's-fescue *Festuca filiformis* and sweet vernal grass *Anthoxanthum odoratum*, common cat's-ear *Hypochaeris*

radicata, wood sage *Teucrium scorodonia* and localised patches of the nationally scarce shepherd's cress *Teesdalia nudicaulis*.

Beyond the boundaries of the plot there was a tarmac road to the north, with a typical fringe of modified grassland along its margin. To the east and west of the plot, the rough mesotrophic vegetation grades into patchy acid grassland. To the south of the plot mesotrophic vegetation extends across the shingle, though eventually it forms a mosaic with acid grassland and broom scrub. There appears to have been a rectangular plot to the south-west of Garden Cottage in the 1940s, perhaps the origin of the name of the property, and therefore the presence of mesotrophic vegetation is likely to be a long-term feature of the property.

4.3 Protected species

4.3.1 Bats

Garden Cottage is a single storey living space that is constructed of timber with slate style roof covering. The roof void is extensive, being approximately 2m in depth and the full length of the cottage, accessed by ladder from outside the building. The roof is a trussed style structure and lined with felt. The external parts of the building are formed by timber cladding on all sides.

External inspection found the building has some attributes for a potential bat roost as there are access points to the roof through dislodged roof tiles and between the walls and soffits and via the door to the roof space.

Close inspection of the external walls found no signs of bat droppings and a thorough inspection of the roof void found none of the obvious signs of bats being present such as droppings or discarded moth wings. The areas around the timber beams and the roof apex were covered in dense cobwebs, suggesting that there had been little recent movement within the roof space.

4.3.2 Badger

There was no evidence of badger setts or signs on the garden surrounding the buildings.

4.3.3 Nesting birds

The building was open to the elements in places and there was potential for use by nesting birds such as house sparrow, *Passer domesticus*. There was no evidence of nesting birds on 10 May 2016.

4.3.4 Reptiles

A reptile survey was not undertaken. However, the habitats were considered to be suitable for the viviparous lizard *Zootoca vivipara*. A medium population of this species was recorded in 2013 by the author, 140 m to the north-west on similarly enriched grassland at the entrance to Dungeness Estate. In 2013 Grass snake *Natrix natrix* were reported to occasionally forage across the area, although none were seen in the survey. They are probably occasional visitors to the plot, though they would use the taller grassland sward for cover. In the absence of a survey it is difficult to determine how large a reptile population the land would support, if they are present, although a medium population was found at the entrance to the Dungeness Estate three years ago.

5 MITIGATION

5.1 *Impact of the development without mitigation*

5.1.1 Habitats and geomorphology

The proposed development will result in the loss of approximately 26.8 m² of greenhouses. Demolition and redevelopment will focus on existing areas of building, ancillary buildings (shed and greenhouses) and hard standing. There is potential for damage to vegetation associated with the demolition and construction work, and the potential for this to stray onto more natural acid grassland on the eastern boundary of the plot, and beyond the plot boundaries to the east, west and south of the plot, as well as to the north of the Dungeness Road.

5.1.2 Shingle habitats

The proposed development results in no additional removal of exposed shingle as it is to take place on the footprint of an existing building, ancillary buildings and attached hardstanding. 26 m² of exposed shingle could be created by the removal of two greenhouses.

There is a risk of damage to shingle habitats however. Much of the land within the curtilage of the property supports mesotrophic vegetation, encouraged by the addition of fine material such as ash or soil, making the substrate damper and more nutrient rich. Such habitat is more resilient than natural shingle vegetation and will recover from damage resulting from demolition and construction works. However, the grassland to the east of the property and land around the development supports a more natural acid grassland sward and such habitats are more readily damaged by vehicle access and trampling, and can take a long time (decades) to recover from disturbance

5.1.3 Bats

A daytime bat assessment survey was undertaken of Garden Cottage on the 9th May 2016.

No obvious evidence of bats was apparent both externally and internally. There were however potential access points within the building through which bats could access the roof space. These were under the soffits and through the door frame, and open door to the roof and between dislodged tiles.

Overall the general area is considered to have low to moderate potential for bats, being mostly of an open landscape with limited foraging habitat, however bats are known to be in the general locality (8 species have been recorded within 1km of the site) with records of bats from the nearby area of open water to the north and a known bat roost in a property along the Coast Road. Dungeness also has records of bats during the migration periods during Spring and Autumn. It is considered possible that individual bats could use the property as a roost site on a temporary basis at some point during the year between Spring and Autumn.

It is therefore recommended that immediately prior to demolition the building should be checked both externally and internally to ensure no bats are present in line with current best practice and to avoid possible contravention of the Wildlife and Countryside Act 1981.

5.1.4 Reptiles

While the mesotrophic grassland is of lower value botanically than the acid grassland habitats it provides cover for protected reptile species. A reptile survey was not undertaken, however the presence of a "Medium" population of viviparous lizard at the entrance to Dungeness Estate in 2013, and an individual grass snake in the same year suggests that these species could be present. Although the habitat of these animals is not protected it is illegal to kill individual animals, and this is interpreted to include accidental mortality during construction work. Without a reptile survey it is impossible to quantify the impact, but the 2013 surveys would appear to be a reasonable indicator of the possible significance of this plot.

5.2 Mitigation

A number of measures will mitigate damage to the designated site. These are as follows:

- A clerk of works will be appointed to check that these works are carried out, and deal with ecological issues raised by neighbours.
- Construction activities will be restricted to a construction zone within 3 m of the completed building and hardstanding, the existing greenhouses and shed and an area previously used for car parking at the front of the building. Construction activities will be restricted to this area by the placing of Heras fencing.
- Vehicles will not park to the north of Dungeness Road.
- No building materials will be stored outside of the construction zone.

- All demolition/building materials will be stored on pallets, and any residual materials will be taken off site to a legal waste disposal area.

To protect bat species that might use the building as a temporary roost:

- Immediately prior to demolition the building will be checked both externally and internally to ensure no bats are present. This is in line with current best practice and to avoid possible contravention of the Wildlife and Countryside Act 1981. This should include a check for nesting birds.

To protect protected reptile species, which could use the site:

- Soil-enriched substrate from areas of mesotrophic vegetation will not be removed to encourage shingle vegetation recovery as this habitat is required by viviparous lizard.
- Vegetation in working areas will be managed prior to the commencement of development to reduce its suitability for reptiles and to encourage them to relocate to adjacent rough areas. The vegetation will be cut to a height of 10 cm and the cut vegetation raked up and removed from the site. A week later the vegetation will be strimmed to near ground level. This will be supervised by an ecologist. If building is to commence over the winter period (November to March) this will be undertaken in the first week of October.
- Existing trees and shrubs will be felled prior to development and a branch pile created outside of the working area to provide improved cover for viviparous lizard.

5.3 *Other recommendations*

1. The plot supports a number of non-native plant species. Some are known to be invasive in vegetated shingle habitats and these should be removed from the plot. They are red valerian *Centranthus ruber*, snow in summer *Cerastium tomentosum* and Spanish bluebell *Hyacinthoides hispanica*.
2. The land within the plot should be managed to favour native shingle vegetation, to comply with requirements of the Site of Special Scientific Interest.
3. A terraced (three hole) sparrow nest box should be attached to the building, on a north facing wall to encourage nesting house sparrow.

4. A bat box could be installed at the southern end of the building.

6 INFORMATION TO INFORM AN APPROPRIATE ASSESSMENT

The following observations are intended as an indication of the likely impact of the development on the adjacent Dungeness Special Area of Conservation in which this development is located.

6.1 Consideration of likely significant effect

The Dungeness Special Area of Conservation is designated on account of three features:

1. Annual vegetation of driftlines.
2. Coastal vegetation outside of the reach of waves.
3. The great crested newt.

When considering a planning application, the Competent Authority (in this case Shepway District Council) is required to consider under Reg 48(a) of the Habitats Regulations whether or not a plan or project is likely to have a significant effect on the SAC, either alone or combination with other plans or projects.

In this case the development area has no Annual vegetation of driftlines and no breeding habitat suitable for great crested newts within 500 m. For these features it is the author's opinion that there would be no likely significant effect.

Coastal vegetation outside of the reach of waves occurs to the south of the property, improving in quality as one travels away from the garden.

Construction work risks vehicular or other disturbance to this habitat.

As a result, Shepway District Council could conclude that there is a likely significant effect on this habitat and therefore that an Appropriate Assessment is required.

6.2 Information to inform the Appropriate Assessment

If the development is isolated from the surrounding land by Heras fencing there will be no damage to the SAC. If this is implemented it can be concluded that there will be no adverse effect on the SAC, and that shingle vegetation on the SSSI will also be protected.

7 RELEVANT PUBLICATIONS

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And on the internet:

http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf European Commission guidance on the protection of Natura 2000 sites (including SACs).

www.english-nature.org.uk/livingwiththesea/project_details/good_practice_guide/shingleCRR/shingleguide/TheHabitat/Index.htm English Nature. Guidance for the management of coastal vegetated shingle

www.kentbap.org.uk/habitats/view/?hap=144 Kent BAP Coastal Vegetated Shingle

www.ukbap.org.uk/ukplans.aspx?ID=29 UK Biodiversity Action Plan Coastal Vegetated shingle

http://www.bats.org.uk/pages/bat_boxes.html#Making Guidance on bat boxes such as the Greenwood Ecohabitats ecostyrocrete bat box.

Appendix 1 Legislation

1 Introduction

This section briefly describes legal protection applying to species mentioned in this report. It does not comprehensively reflect the text of the legislation and it should not be relied upon in place of it. The following items of legislation are relevant:

- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way (CROW) Act 2000 (in England and Wales);
- Conservation of Habitats and Species Regulations 2010 (which implements the EC Directive 92/43/EEC in the United Kingdom)
- The Local Government Act 1985;
- The Environmental Protection Act 1990; and
- The UK Biodiversity Action Plan (not itself a Statutory Instrument but referred to in SIs and planning guidance).

2 Protected habitats

2.1 Sites of Special Scientific Interest (SSSI)

SSSIs are designated areas that protect the best areas of wildlife habitat and geological features in the UK. They are protected under S. 28 of the Wildlife and Countryside Act 1981 (as amended). Management of SSSIs should not be carried out without a consent from Natural England, unless the works have planning permission, consent from another public body (if they have consulted Natural England) or are emergency works (as long as natural England are told about it as soon as possible afterwards).

2.2 Special Areas of Conservation (SACs)

SACs are areas that are given protection under the European Union's Habitats and Species Directive. Their protection is set out in the Conservation of Habitats and Species Regulations 2010. The Regulations require that a planning application should be subject to special scrutiny The Competent Authority (in this case the Local Planning Authority) must decide if the development is likely to have a "Likely significant effect" on the SAC and if so must undertake an Appropriate Assessment. They may only permit developments if this assessment concludes that there will be no adverse effect on the integrity of the SAC.

2.3 National Nature Reserves (NNRs)

Sections 16 to 29 of the National Parks and Access to the Countryside Act 1949 in England enabled the Nature Conservancy Council for England (NCCE), now Natural England, to establish nature reserves. These provisions were

strengthened by the Wildlife and Countryside Act 1981. Similar provisions are in force throughout the UK.

A National Nature Reserve is one of the finest sites for wildlife and/or geology in the UK and is managed to maintain this nature conservation value.

3 Protected vertebrates

3.1 All species of British bat

All species of British bat (Vespertilionidae and Rhinolophidae) are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receive full protection under Section 9. Protection was extended by the Countryside and Rights of Way Act 2000 (the CRoW Act). These species are also all listed as European Protected Species on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (which implements the EC Directive 92/43/EEC in the United Kingdom) which gives them full protection under Regulation 53. The legal implications of these two sets of legislation are largely compatible, making it an offence to:

- Intentionally or deliberately kill, injure or capture (take) bats
- Deliberately disturb bats (whether in a roost or not)
- Damage, destroy or obstruct access to bat roosts
- Possess or transport a bat or any part of a bat, unless acquired legally
- Sell, barter or exchange bats, or parts of bats.
- A bat roost is any structure or place which any wild animal uses for shelter or protection, because bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time.

Seven species of British bat are included as priority species in the UK Biodiversity Action Plan and as species of principal importance for the conservation of biological diversity in England under Section 74 of the Countryside and Rights of Way (CRoW) Act 2000.

3.2 Common reptiles

Viviparous lizard *Zootoca vivipara*, grass snake *Natrix natrix*, slow worm *Anguis fragilis*, and adder *Vipera berus* are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), in respect of Section 9(5) and part of Section 9(1). This protection was extended by the Countryside and Rights of Way (CRoW) Act 2000. Under the legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of these species;
or
- sell or attempt to sell any part of these species either alive or dead.

These species have recently been listed as priority species in the UK Biodiversity Action Plan and as species of principal importance for the conservation of biological diversity in England under Section 74 of the Countryside and Rights of Way (CRoW) Act 2000.

Appendix 2 Photographs



1. Garden Cottage from Dungeness Road, looking across mesotrophic grassland and former parking area.



2. *Garden Cottage from rear showing mesotrophic sward.*



3. Acid grassland at target note 7 with *Cladonia* rich sward and shepherd's cress *Teesdalia nudicaulis*.



4. Mesotrophic grassland west of hardstanding looking to acid grassland to west of property.



5. *Acid grassland west of property. Note less luxuriant sward, compared to mesotrophic vegetation*



6. *Cerastium tomentosum* (introduced garden plant) at target note 8



7. *Internal view at ground level.*



8. *Internal view of loft space.*

Appendix 3 Figures and target notes

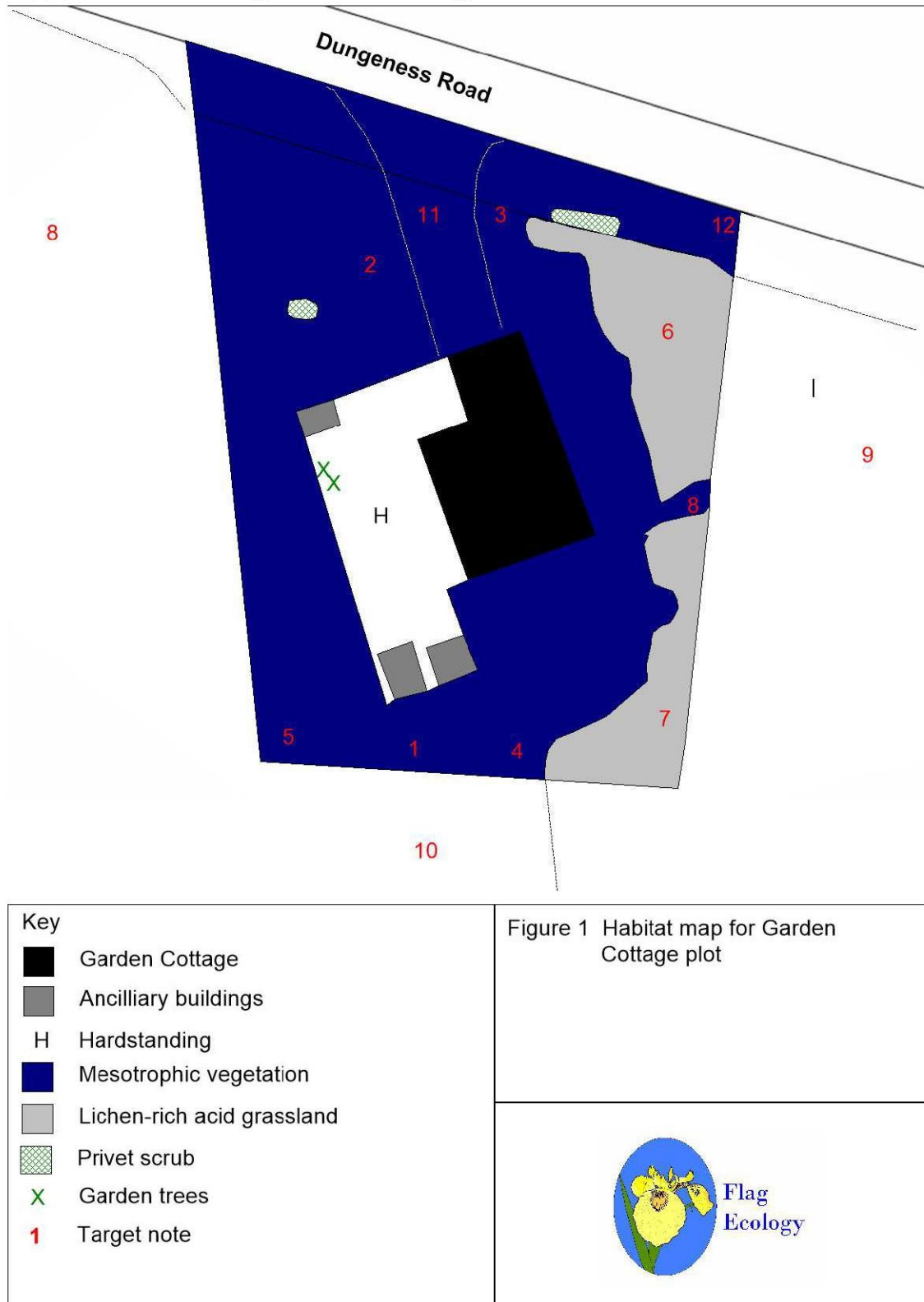


Figure 1 Target notes

1. Ground raised and enriched by the tipping of excavated material. Densely vegetated sward of *Anthoxanthum odoratum* and *Festuca rubra* with frequent *Plantago lanceolata*
2. Very rough grassland on raised area, like 1. *Hyacinthoides hispanica* present.
3. Pile of tipped ash.
4. Pile of tipped slate.
5. Septic tank.
6. Acid grassland with more species-rich sward. Sward included the lichens *Cladonia rangiformis*, *C. ciliata*/*C. portentosa*, and *C. foliacea*, the moss *Dicranum scoparium*, *Festuca filiformis*, *Echium vulgare* and the nationally scarce *Teesdalia nudicaulis*.
7. Acid grassland with abundant *Festuca filiformis*, *Anthoxanthum odoratum*, *Hieraceum pilosella*, and the nationally scarce *Teesdalia nudicaulis*. The lichen *Cladonia rangiformis* was frequent.
8. Hardstanding with small areas of former garden bed adjacent to the house. Young trees planted adjacent to hard standing
9. Less disturbed vegetated shingle with patches of acid grassland. *Cladonia ciliata*/*C. portentosa* abundant, *C. rangiformis* frequent, *C. foliacea* occasional. *Sedum sp.* abundant. *Festuca filiformis* frequent, *Dicranum scoparium* occasional, *Silene uniflora* occasional, *Echium vulgare* occasional, *Anthoxanthum odoratum* abundant, *Plantago lanceolata* Locally frequent.
10. Mosaic of previously disturbed mesotrophic vegetation, particularly adjacent to the plot, with recolonization of broom *Cytisus scoparius* scrub and in places acid grassland further to the south.
11. Similar to target note 9, with patches of acid grassland, but evidence of enriched mesotrophic vegetation largely along boundary of tarmac road and the railway line.
12. Localised stand of the invasive alien plant red valerian *Centranthus ruber*.

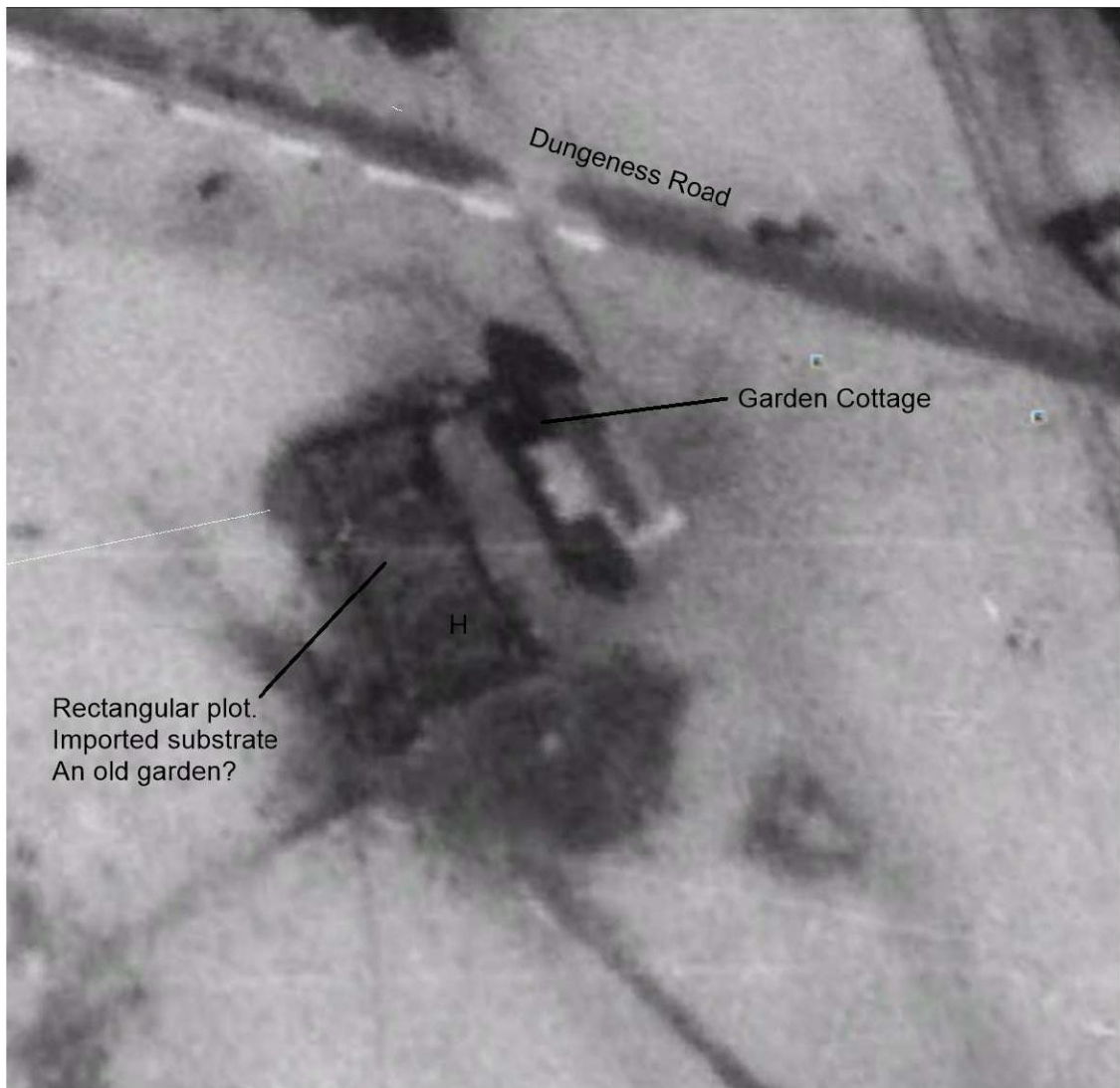


Figure 2 Aerial photo dated c. 1946

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