
British Energy Group PLC

Sizewell Reptile Survey Report 2008

1. Introduction

1.1 Background to development

British Energy (BE) are currently investigating the feasibility of building a new nuclear power station within their landholding at Sizewell, Suffolk. An area of land directly north of the Sizewell 'B' Power Station has been identified as having potential to accommodate nuclear new build. This area, which covers approximately 0.32km²/33ha and has an approximate central grid reference of TM473640, is referred to in this document as 'the preliminary works area'. The proposed position of the new power station, the indicative access road and construction compound (accounting for a potential further 0.35km²/35ha of land take) are shown in **Figure 1.1**. The position of the access road and the construction compounds in particular are potentially subject to change.

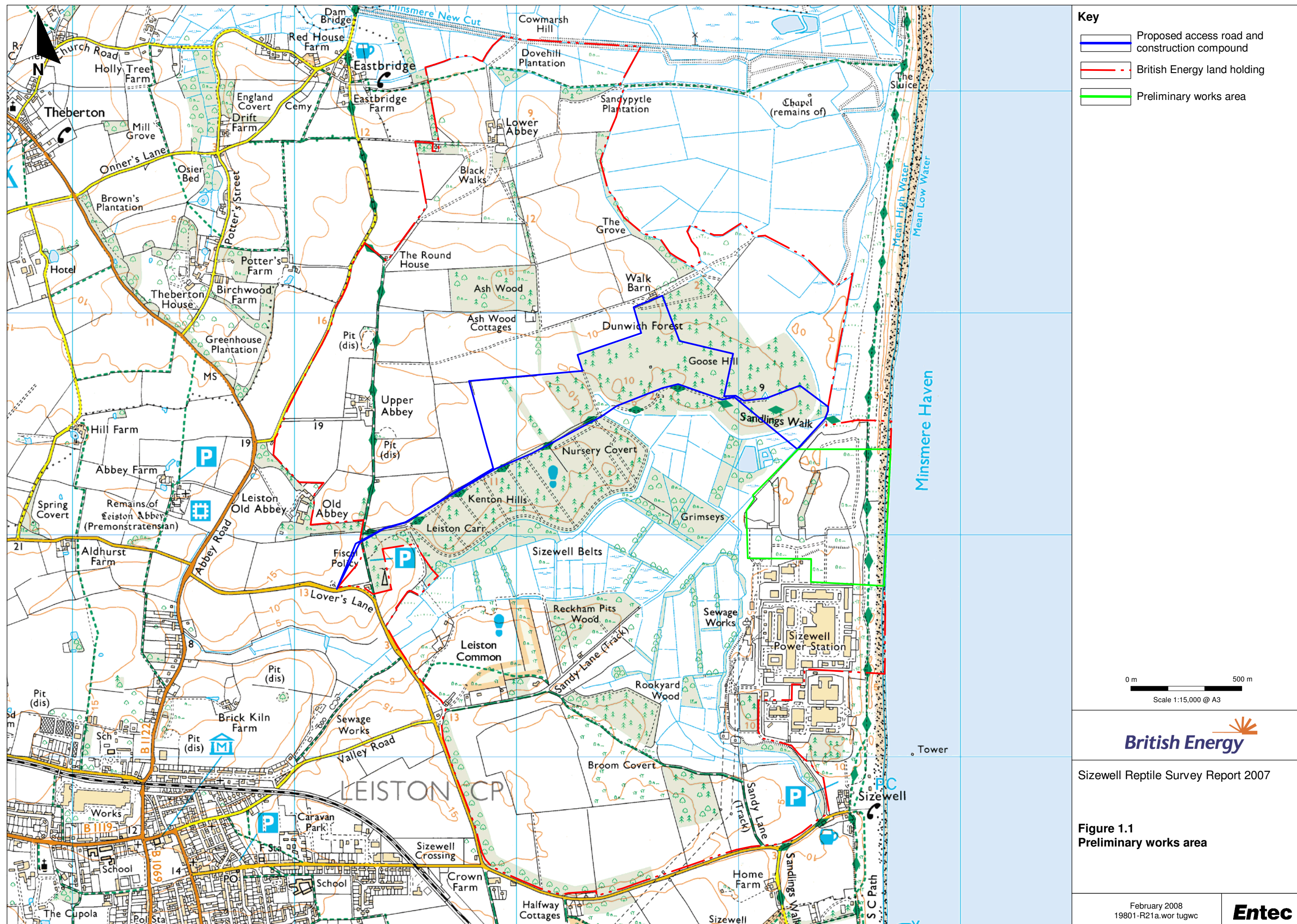
In July 2007 an extended Phase 1 habitat survey was conducted of the preliminary works area and the surrounding land up to 750m beyond the site boundary (Entec report reference 19081ca036). Existing data pertaining to the potential development was also collated during a desk study exercise, and the field survey and desk study data were used to inform the Sizewell Ecology Scoping Report (Entec report reference 19801cr050) issued to BE in June 2007. This report described the surveys proposed to collect further, more detailed information about the site and has been issued to consultees.

The field and desk based studies highlighted the presence of habitats that had the potential to support reptiles. It was therefore considered that further work was required to determine the status of reptiles in relation to the proposed development site and, it follows, to enable appropriate mitigation and compensation for the species to be incorporated within the scheme design should they be present.

1.2 Preliminary Works Area Description and Context

The preliminary works area comprises open sheep grazed pasture, fringed by reinstated coastal dune vegetation, parts of which have been planted with trees and scrub. The hydrology and pedology of the preliminary works area were irreversibly altered as a result of works associated with the building of the Sizewell 'A' and 'B' Stations (adjacent to its southern boundary), and as a result the area has lost much of its botanical merit. Habitats adjoining or in close proximity to the preliminary works area are of considerable ecological interest however. These include wet meadows (and associated wetland habitats and ditch systems), dune systems, shingle plant communities and wet semi-natural woodland. The quality of the shingle, grazing marsh and associated wetland habitats have led to substantial areas of these in close proximity to the preliminary works area being designated for their ecological interest.

The likely route of any new access associated with the new build would pass through or over the north-east corner of the Sizewell Marshes, then through the extensive conifer plantation at



- Key**
- Proposed access road and construction compound
 - British Energy land holding
 - Preliminary works area

0 m 500 m
Scale 1:15,000 @ A3

British Energy

Sizewell Reptile Survey Report 2007

Figure 1.1
Preliminary works area

February 2008
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Entec

Goose Hills/Dunwich Forest and along the northern edge of Kenton Hills before linking to the existing road network near the pocket of broad-leaved woodland known as Fiscal Policy. The location and extent of the construction compounds is less clear, but these are likely to take in areas of coniferous plantation and adjacent arable land.

The entire BE land holding at Sizewell, including the preliminary works area and the Sizewell 'B' Station (which occupies 0.36km²/36ha) extends to approximately 6.69km²/669ha. The dominant habitats are arable farmland and woodland/scrub, with each accounting for approximately 30% of the land area. A considerable area of coniferous and mixed woodland is present around Goose and Kenton Hills, and there are scattered blocks and linear belts of semi-natural deciduous woodland throughout. Grazing marsh and heathland/acid grassland are also well represented, with both habitats covering approximately 10% of the land holding, while fen/reedbed, foreshore and pasture each cover approximately 3% of the land within the estate.

1.3 Legislation

All six of the native reptile species of Britain are listed on Schedule 5 (Animals which are Protected) of the Wildlife and Countryside Act (1981), as amended. Under section 9 (parts 1 & 5) all species on Schedule 5 are protected from being intentionally killed, injured or taken or from being traded.

Entec has interpreted 'intentionally' as meaning 'not taking steps to avoid' in line with current interpretation of legal terminology (Simpson, 2007). It is therefore necessary for proposed developments to take account of potential effects on reptiles.

1.4 Purpose of survey work

The implication of the legislation is that proposed developments need to take account of potential effects on reptiles. In areas where suitable habitat exists, and in the absence of contemporary baseline data existing for the species (that is directly relevant to a proposed development site), survey work is necessary to establish whether reptiles are present, and if present to determine an indicative population size. This enables appropriate mitigation, translocation, habitat enhancement and creation initiatives to be planned and incorporated into the design of the development concerned, and ensures that there is no significant negative effect on the conservation status of the species at local level. During 2007 there were two main objectives of the reptile survey. These were: to establish the size of reptile populations within the preliminary works area and; to determine whether there was potential (through management) to translocate reptiles to currently unoccupied parts of the BE Estate, in particular parts of Dunwich Forest, Goose Hills and Kenton Hills.

2. Methods

2.1 Desk study

Existing information regarding reptiles within the preliminary works area and surrounding land was obtained from the following sources (further detail is provided in the Sizewell Desk Study report):

- The Suffolk Wildlife Trust (SWT)¹;
- Suffolk Biodiversity Records Centre (SBRC); and
- Cresswell Associates (2005). Sizewell A Power Station Decommissioning ES. Section 12: Ecology. Magnox Electric.

2.2 Field Surveys

The extended Phase 1 habitat survey (conducted in July 2007) highlighted that much of the land within the preliminary works area and surrounding habitats was likely to support native reptile species, including adder (*Vipera berus*), grass snake (*Natrix natrix*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*). The SWT reptile survey of Leiston Common, an area of semi-improved acid grassland approximately 1250m south east of the preliminary works area, detailed the presence of adder, grass snake and slow worm. This survey area is approximately 15ha in size and consists in the main of open areas of grassland with ruderal margins. Habitats within this survey area on Leiston common are well connected and ecologically continuous with habitats within the preliminary works area considered suitable to support reptile species. In addition, SWT staff, who undertake land management on the Sizewell Estate, indicated that reptiles were found throughout the area (See Box 3.1). This information, coupled with the presence of suitable reptile habitat within the preliminary works area, proposed access track and temporary works area determined the need to conduct further reptile survey work aimed at deriving population estimates for these species.

The preliminary works area is comprised of grazed improved grassland bordered by a longer unmanaged improved sward on an earth embankment that is also planted with native scrub species. There are also two belts of semi-natural broad-leaved woodland dissecting this grassland. Along the eastern boundary of the preliminary works area there is a strip of tussocky coastal grassland with scattered scrub which then meets a thin strip of vegetated shingle further towards the sea. Photographs illustrating the habitats within these areas have been provided in Appendix A.

The central improved grassland habitats are grazed annually and at the time of the survey were considered unsuitable to support reptiles due to the shortness of the sward and heavy trampling from sheep. However, the fenced off embankments of grassland and planted scrub to the north and eastern boundaries of the preliminary works area offer suitable foraging and sheltering opportunities for reptile species. This tussocky grassland phases into coastal grassland and then vegetated shingle further to the east and all of these habitats are also considered suitable to support these species. The interface between the relatively sparsely vegetated shingle and the scrubby areas provide good opportunities for basking, shelter and escape from predators. The two belts of broad-leaved woodland themselves are unlikely to support reptiles within the central areas due to limited light levels however, the woodland margins were considered to have the potential to support these species. As such, the reptile survey work within the preliminary works area was focused upon the longer improved grassland swards generally located at the field margins and on the earth embankment, the woodland edges, the coastal grassland and along the vegetated shingle habitats where appropriate.

¹ Information included a report [Gooch, M (2002). Reptile survey of Leiston Common, Sizewell, Suffolk. Report to Suffolk Wildlife Trust].

The grazed areas of grassland situated within the preliminary works area were omitted from the survey due in part to the poor suitability of the habitat for reptiles as a result of grazing in late spring and early summer. However, it should be noted that at some periods during the year the sward length may be greater due to a reduction in grazing intensity and as such, reptiles are likely to move into this area temporarily until grazing recommences. The placement of refugia during the survey was therefore restricted to outside of the fence line, to prevent any animal welfare issues relating to refugia being trampled by grazing stock.

The proposed construction compound and new access road are located within coniferous plantation woodland, bordered at some points by agricultural land. Some parts of the woodland have been planted with broad-leaved species and as such, a more mixed composition is present. The route of the access road largely runs along an existing agricultural track that passes over the edge of the Sizewell Belts dyke systems and through semi-improved grassland before meeting with the proposed power station site at its most eastern point. The proposed construction compound sites immediately to the north of this trackway within the plantation woodland and also covering some intensively farmed arable fields with limited margins. The habitats within the central areas of the plantation are considered to be unsuitable for reptiles, due to a lack of sunlight and in turn, a lack of ground cover in areas. However, there are a number of clearings and many rides present that dissect the woodland providing openings where sunlight can reach the woodland floor thereby providing suitable basking habitats adjacent to optimal foraging and sheltering habitats within the woodland itself. The survey within the woodland therefore focused on these areas where the canopy was more open. No refugia were laid within central areas where light levels were heavily restricted. The agricultural fields within the proposed construction compound area offered limited habitats for reptiles due to the intensive farming methods used and lack of ground cover for most of the year. However, some of the field margins were more developed with ruderal species including agricultural weeds as well as an albeit impoverished grassland sward. As such, these areas where suitable vegetation had established were also included within the survey for reptiles.

Land immediately adjacent to the western boundary of the preliminary works area was considered to support optimal reptile habitat and included rough areas of grassland and scrub lying adjacent to a wider network of dykes. Although outside the area to be directly affected by the works, these habitats were also included within the survey due to their close proximity to the developable area.

The survey methodology followed guidance provided in Froglife's Advice Sheet 10 – Reptile Survey, an introduction to planning, conducting and interpreting surveys for snake and lizard conservation (Froglife, 1999) and took into account additional guidance provided by the Herpetofauna Workers' Manual (JNCC, 1998) and Reptiles: guidelines for developers (EN, 2004).

2.2.1 Artificial refugia

Artificial refugia, comprising of 0.5m x 1m roofing felt and corrugated tin sheets, were laid out within the preliminary works area in locations considered to have the highest potential to support reptiles (although see constraints below) on the 4th June 2007.

When conducting survey work aimed at deriving indicative population sizes for reptiles, Froglife (1999)² recommend placing 5-10 refugia per hectare (ha) of suitable habitat. Please note that this does not refer to the entire developable area but the area of habitat considered to be suitable to support reptiles. A maximum of approximately 26ha of habitat within the preliminary works area, the proposed construction compound, access road and adjacent areas (up to 100m from these areas) was identified as being suitable for reptiles and as such, following Froglife survey guidance this would require between 130 and 260 refugia being placed within the survey area.

Taking into account the nature of the habitats on the ground cover and problems with access, a total of 162 refugia tiles were laid³ in order to undertake the survey, thereby meeting the requirements of the Froglife guidance. The location of each tile was recorded using a GPS (Global Positioning System). Tiles were located away from public and permissive footpaths where possible to limit the potential for interference or disturbance of reptiles. **Figure 2.1** illustrates the locations of these tiles in the field.

In addition to these tiles, the SWT were also conducting their own focussed reptile survey work throughout the plantation through the use of artificial refugia which had been laid.

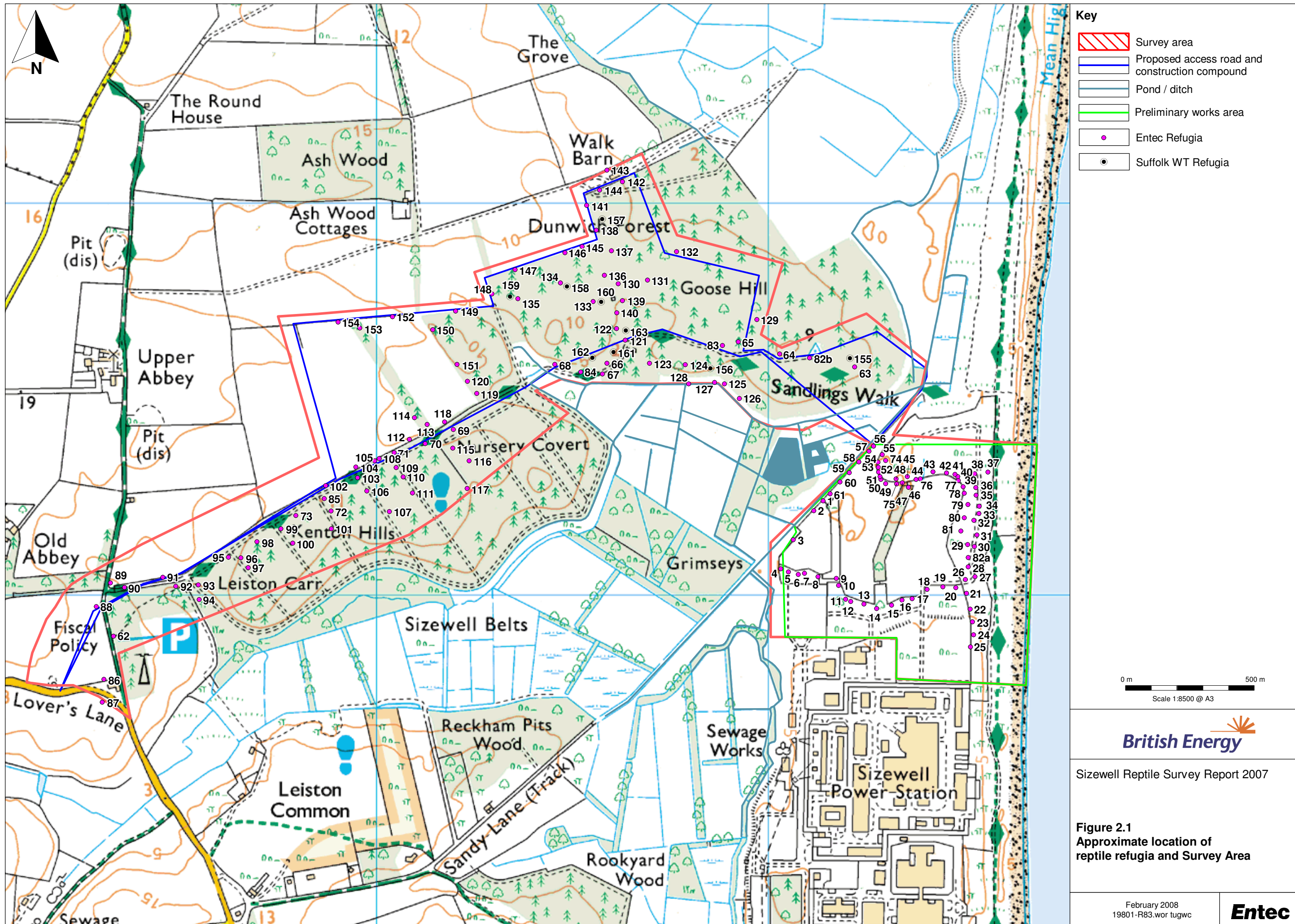
2.2.2 Timing of survey and weather conditions

Twenty six survey visits were made between June and October. Survey effort was concentrated towards September and October when the weather for surveying reptiles is identified to be optimal by Froglife (Froglife 1999) when temperatures are cooler compared with June, July and August, thereby making reptile sightings more frequent. Reptile activity is very dependent on the weather and time of year, therefore surveys were conducted as far as was practically possible in optimum conditions. As ectotherms, reptiles must bask in order to warm themselves and become active. April, May and September are key months for basking reptiles, as more continuous mid-summer heat means reptiles require less basking time to become active. Successful surveys may still be carried out from June to August however, if weather conditions are suitable. Optimum conditions occur under intermittent sunshine with little or no wind; particularly after a spell of cooler or wetter weather. Individual species have some specific preferences although generally it is preferable to survey when the temperature is between 10 and 17°C.

The weather conditions encountered during the survey period are considered to be suitable for surveying and accessing the reptile populations. Weather conditions were recorded in detail on each visit as were all reptile observations on site, including species, age class and sex of those found.

² Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

³ Initially, only 92 tiles were laid however, the density of refugia was increased following a few survey visits, to 162 in order to ensure that all potentially suitable areas were covered and an adequate density of was adopted. This increase in cover also followed consultation with Natural England (Alison Collins) who felt that the value of the plantation for reptiles needed to be more thoroughly investigated. The new tiles were focused on the field margins of the agricultural land within the proposed construction compound and also within the plantation woodland along ride edges.



2.2.3 Field notes

Approximately 10-15 refugia located along the access tracks within the plantation were destroyed as a result of forestry operations, which included the rotational felling of some forest compartments⁴. Subsequent to this incident, maps and information relating to the location of the reptile refugia were provided to the logging contractors to avoid further disturbance of the refugia and possible harm to reptiles.

2.2.4 Valuation

The value of habitat for reptiles within the survey area at Sizewell will be assessed based on both the findings of the survey results, and factors such as availability of suitable habitat and the land management regime as recommended by Beebee and Grayson (1998)⁵.

In terms of biodiversity conservation value, species' populations, habitats and sites have been valued using the following scale⁶:

- international;
- UK;
- national (i.e. England);
- regional (i.e. East of England);
- county (i.e. Suffolk);
- district;
- parish; and
- less than parish.

3. Results

3.1 Desk study

A reptile survey of Leiston Common in 2002 recorded adder (*Vipera berus*), grass snake (*Natrix natrix*) and slow-worm (*Anguis fragilis*). A further presence/likely absence survey was conducted on behalf of BE during 2006⁷ that focused on the plantation woodland habitats of

⁴ The forest is managed for mixed use. It is of primary importance from a landscape perspective, as it partially screens the built nuclear facility, and there are permissive paths that allow public access. The existing and potential ecological value of the forest is recognised by BE and in recent years the structural diversity of parts of the forest have been improved, while restocked areas features broadleaved trees as well as conifers.

⁵ Beebee, T. and Grayson, R. (1998) Site assessment and protection. *In*: Gent, A. H. and Gibson, S. D. eds. *Herpetofauna workers' manual*. Peterborough, Joint Nature Conservation Committee, pp95-106.

⁶ IEEM, 2007

⁷ ADAS & SWT (2007) Sizewell Land Management Report – Annual Review 2006-2007, ADAS, Sizewell

Kenton and Goose Hill (20 refugia were placed) that established frequent occurrences of grass snake with more occasional observations of slow worm and common lizard. Surprisingly, no adders were recorded during this survey work. The Sizewell Land Management Report for 1997 – 1998⁸ also acknowledges regular sightings of adders and common lizards.

Adder is a Suffolk BAP species, and is particularly common on the Sandlings heaths which represent a national stronghold for the species (ADAS, 2006).

Box 3.1 Personal comments from the Suffolk Wildlife Trust (Allan Miller and Carl Powell)

Discussions with Allan Miller and Carl Powell of the SWT were formally undertaken in January 2008. Allan and Carl are conservation managers of the Sizewell Estate and have considerable knowledge of the area. They have made the following observations over recent years:

Common lizard

Only one lizard was found during their recent reptile survey efforts (SWT, 2007) on Leiston Common (a continuation of the reptile survey conducted by Matt Gooch (2002)). The full results of this survey are yet to be provided. Regular sighting have been made of this species however along the beach (coastal grassland and vegetated shingle habitats).

Slow worm

Slow worms were confirmed during the SWT 2007 survey on Leiston Common. Observations of this species across the rest of the estate are uncommon.

Adder

A number of adders were noted during SWT 2007 survey on Leiston Common. Regular sightings of basking adders have also been made along the bund to the east of the power station and sandy areas along the coast. Observations of these species have also been made within the woodland along tracks within the plantation.

Grass snakes

A number of grass snake were noted during the SWT 2007 survey on Leiston Common. This species is regularly observed hunting in and around the dykes and marsh land found across the estate.

No formal reptile surveys have previously been conducted within the BE preliminary works area. Data from SBRC provided in 2007 indicates that all four common reptile species are widespread throughout the Sizewell Estate and beyond. All four species have been recoded within the estate within the last 9 years with many recent records for common lizard, adder and grass snake. However, only seven records exist for slow worms dating back to 1980. Extensive records of common lizard, adder and grass snake exist for the land surrounding the estate, with the majority of the observations being made by Robin Harvey at the Minsmere Birds reserve located to the north. The study of aerial photography indicates that there is connective habitat suitable for reptiles between Minsmere and the study area.

3.2 Field survey

A combination of early morning walkovers and artificial refugia surveys of the site identified the presence of common lizards, slow worms, adder and grass snake. Regular observations were made of all four species throughout the survey period, including adults, sub-adults and juveniles.

Common lizards were observed throughout the survey period. There is a clear concentration of this species in the habitats closer to the coastline, most notably the un-grazed improved

⁸ ADAS & SWT (1998) Sizewell Land Management Report – Annual Review 1997 – 1998, ADAS, Sizewell

grassland swards within the preliminary works area and within the coastal grassland habitats. Common lizards were observed in low numbers at isolated locations within the plantation woodland of Dunwich Forest and Goose Hill but records were absent further west. This distribution is illustrated in **Figure 4.1**.

In contrast to the common lizard distribution, high numbers of slow worms were recorded in greater densities and more frequently within the woodland habitats along ride edges. This distribution is fairly even across the plantation woodland habitats. An absence of records is apparent in more open habitats towards the coastline with only a few observations made within the un-grazed grassland within the preliminary works area. These observations were made primarily in areas close to dense scrub and/or woodland habitats that provided denser cover. This distribution is illustrated in **Figure 4.2**.

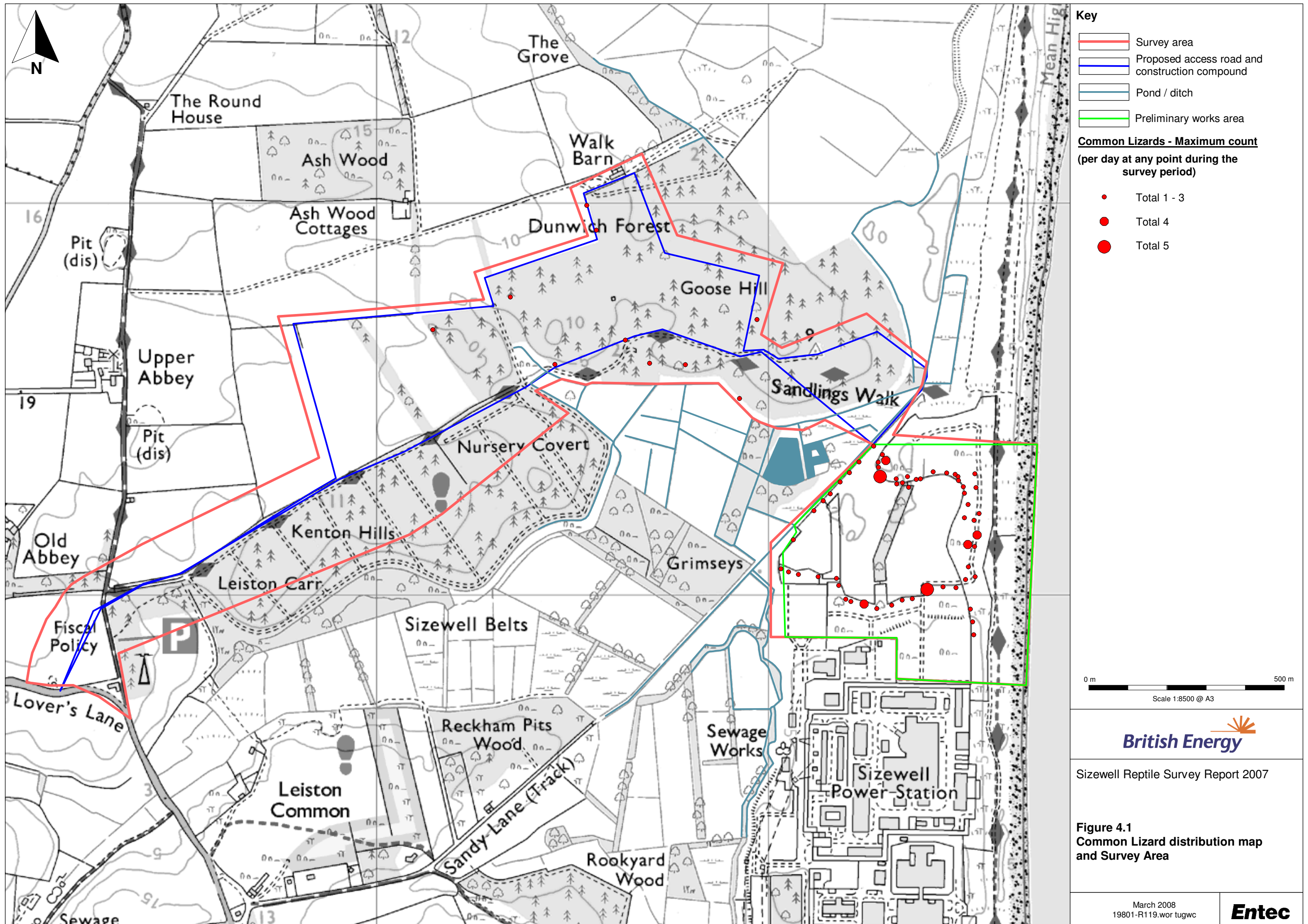
Adders have been observed in both the open grassland habitats to the east of the survey area and within the plantation woodland habitats with no clear distinction between the two. There appear to be hubs of greater densities of this species within Dunwich Forest with lower numbers elsewhere. This distribution is illustrated in **Figure 4.3**.

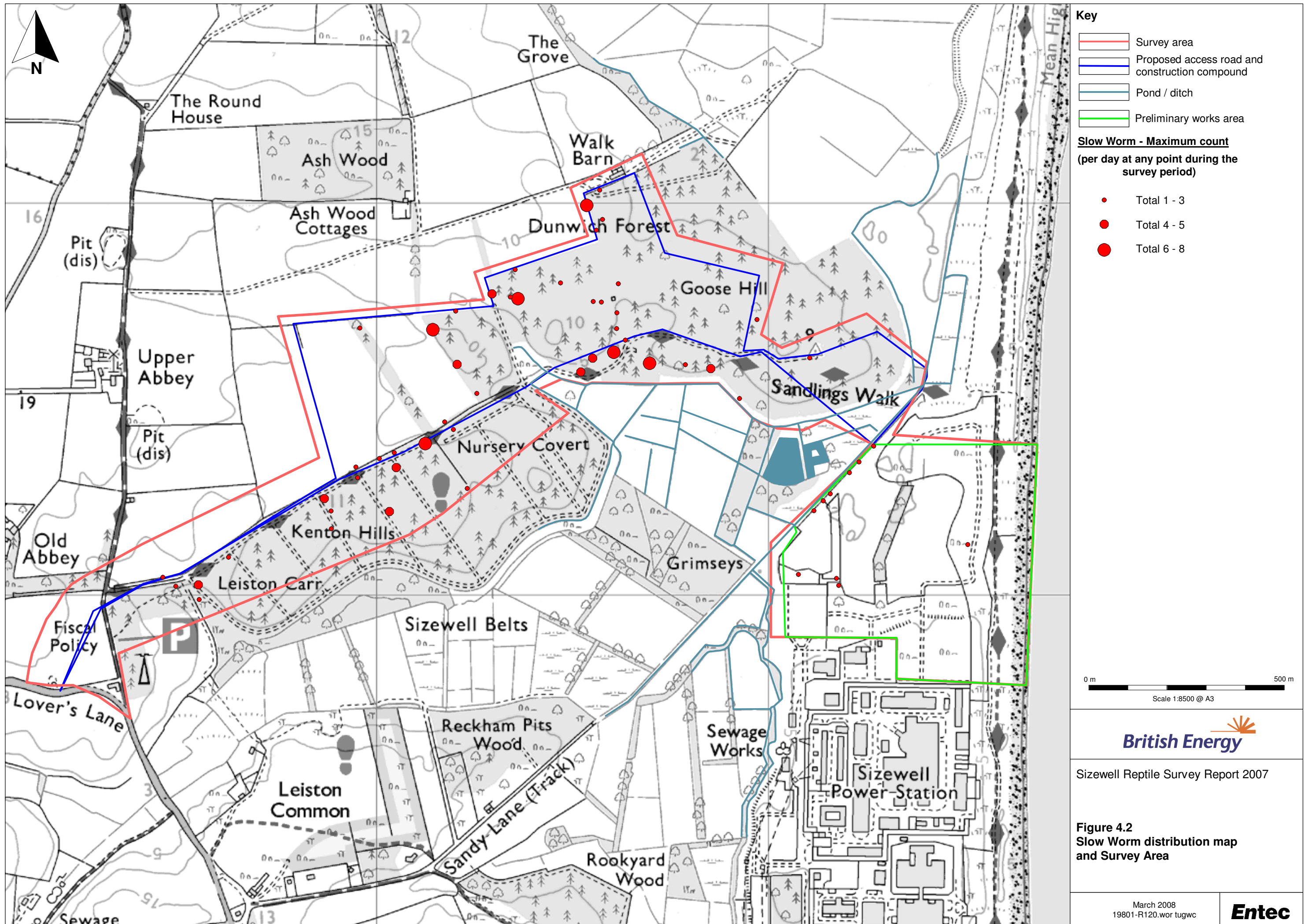
Grass snakes, although slightly more frequently recorded, exhibit a similar distribution to the adder population recorded within the survey. Grass snakes have been observed throughout the survey area with a relatively even distribution although, again, there is a greater density of records in Dunwich Forest. This distribution is illustrated in **Figure 4.4**.

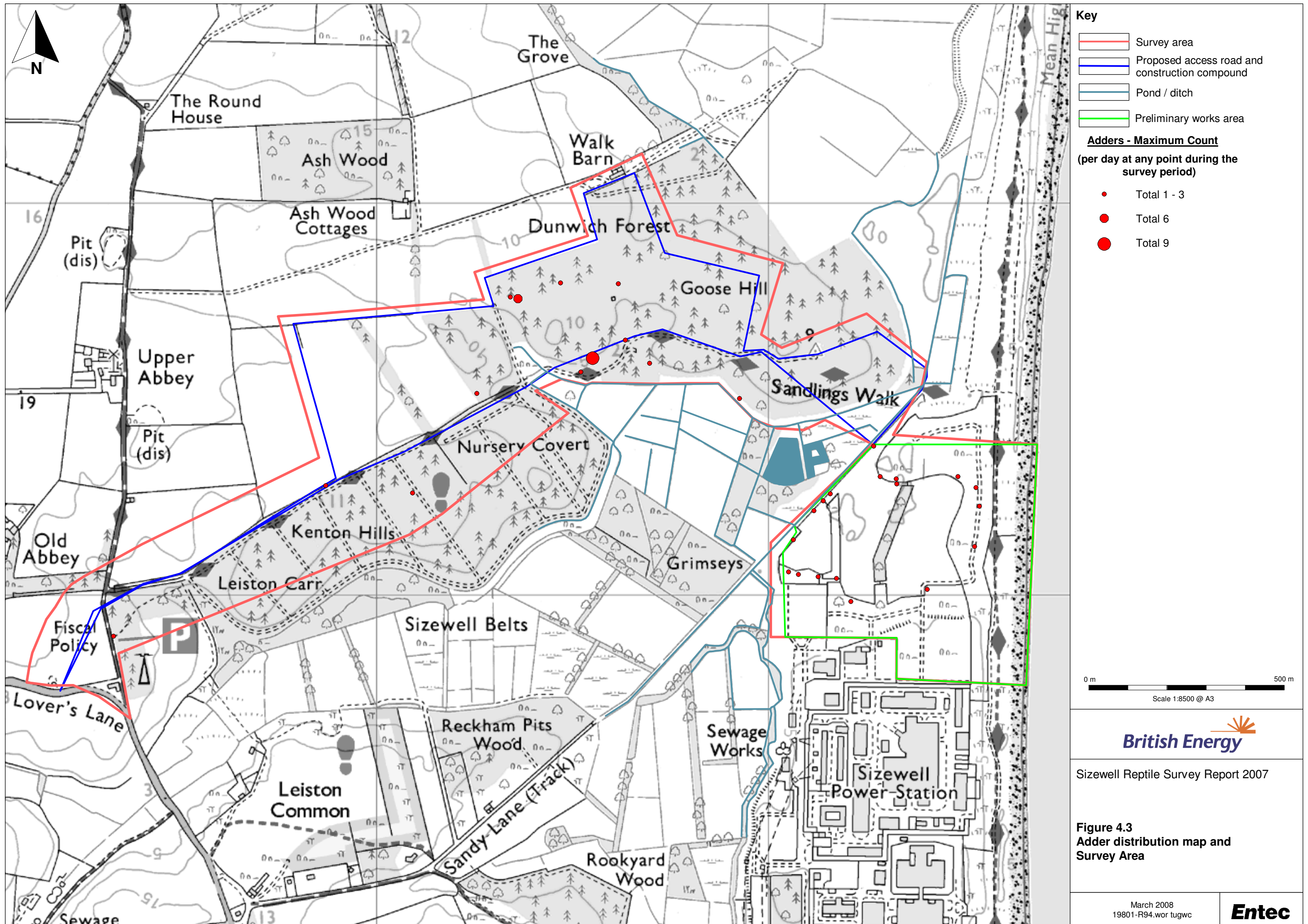
Table 3.1 below summarises the results of the survey across the whole survey area. Full reptile results are presented in **Appendix B**.

Table 3.1 Summary of Reptile survey data

Survey	Date	Weather conditions	Reptile observations			
			Common lizards	Slow worm	Adder	Grass snakes
1	16/06/07	Cloud cover: 50%. Wind speed: Light. Ground moisture: Rain: None Temperature. NR	2M 1F	1M 1F	1F	1(A)
2	18/06/07	Cloud cover: 100%. Wind speed: Light. Ground moisture: Damp. Rain: Light. Temperature. NR	5M 6F 1(A)	1F	1F	1(A)
3	05/07/07	Cloud cover: 50-95%. Wind speed: Light. Ground moisture: None. Rain: None. Temperature. 19°C-19°C.	1M 2F 1(A)	2M 2F	-	3(A) 2Juv
4	07/07/07	Cloud cover: 40%. Wind speed: Moderate. Ground moisture: Wet. Rain: Intermittent. Temperature. 22°C -19°C.	3M 3F 2Juv	3M 3F 2Juv	2M 1F 1 Juv	2(A)







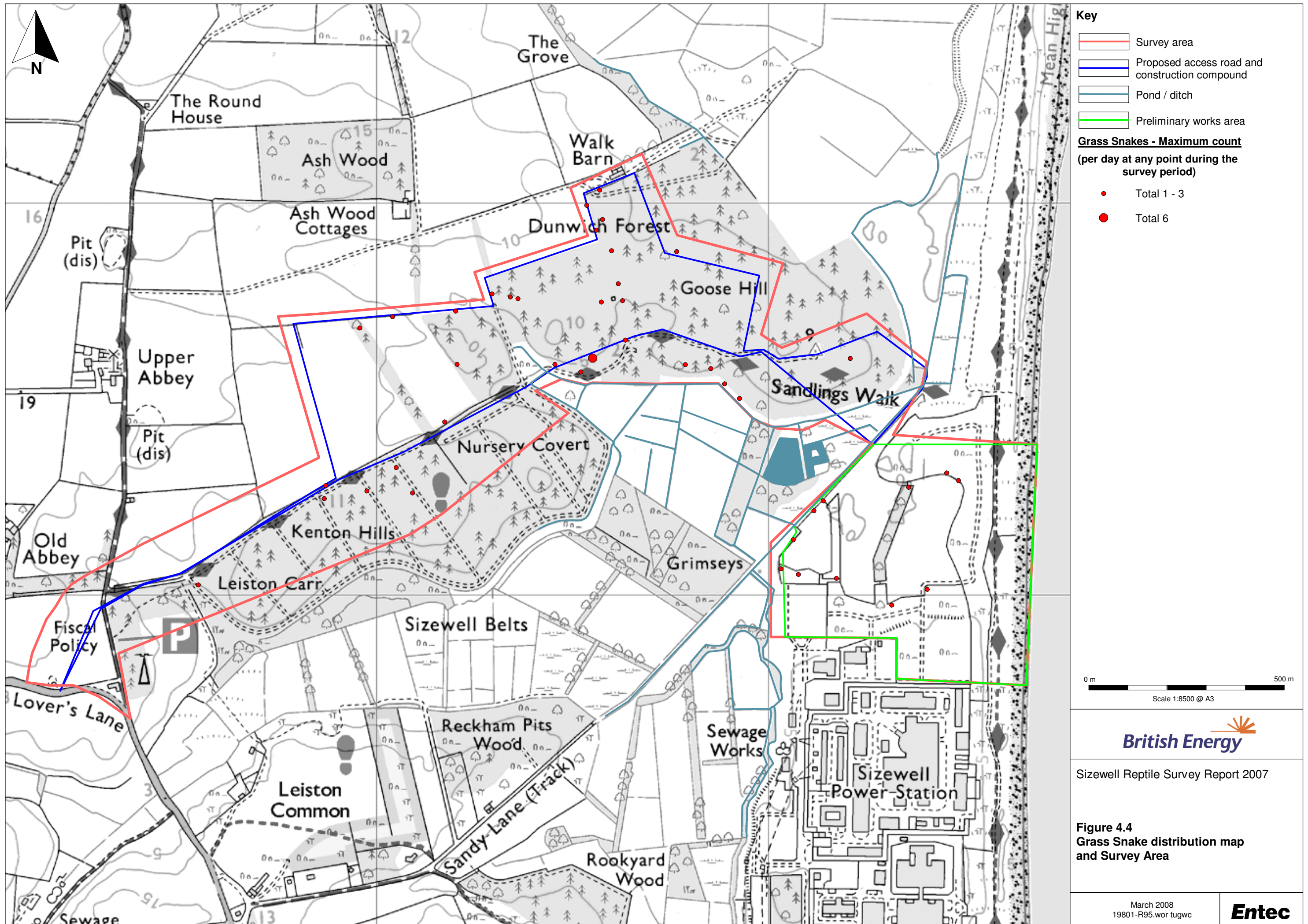


Table 3.1 (continued) Summary of Reptile survey data

Survey	Date	Weather conditions	Reptile observations			
			Common lizards	Slow worm	Adder	Grass snakes
5	08/07/07	Cloud cover: 10-20%. Wind speed: Light. Ground moisture: None. Rain: None. Temperature. 24°C-23°C.	2M 1F 2(A)	1M 8F	1M 1F	3(A)
6	10/07/07	Cloud cover: 100%. Wind speed: Light. Ground moisture: Slightly moist. Rain: None. Temperature. 18°C-18°C.	7M 4F	4M 2F	1F	-
7	17/07/07	Cloud cover: 20%. Wind speed: Moderate-Strong. Ground moisture: Dry. Rain: V. Light. Temperature. 20°C-21°C.	2M 3F 2(A)	3M 14F 3Juv	4F 7(assorted sizes & sexes) ⁹	2(A) 1 Juv
8	21/07/07	Cloud cover: 25%. Wind speed: Moderate. Ground moisture: None. Rain: None. Temperature. 15°C-21°C.	1M 1(A)	4M 8F	1F 2(A)	3(A)
9	22/07/07	Cloud cover: 25%. Wind speed: Light. Ground moisture: Slightly damp. Rain: None. Temperature. 17°C-20°C.	1F 5(A)	8M 15M 6Juv	8F 1Juv 9(A)	5(A) 4Juv
10	23/07/07	Cloud cover: 100%. Wind speed: Light. Ground moisture: Moist. Rain: None. Temperature. 11°C-13°C.	5M 2F	17M 12F 1Juv	5F 1(A)	9(A) 1 Juv
11	04/08/07	Cloud cover: 100%. Wind speed: Light. Ground moisture: None. Rain: None. Temperature. 21°C-27°C.	1M 2F 1Juv	10M 7F 6Juv 6(A)	1M 1F	2(A)
12	05/08/07	Cloud cover: 0%. Wind speed: Light. Ground moisture: Damp in shade. Rain: None. Temperature. 21°C-25°C.	1F	14M 5F 1Juv	1M 1F 3Ju	2(A)
13	16/08/07	Cloud cover: 0-100%. Wind speed: Ground moisture: Wet. Rain: Showers. Temperature. 21°C-20°C.	5F 7Juv 3(A)	11M 15F 13Juv	1M 3F 3Juv 8(A)	9(A) 1Juv
14	31/08/07	Cloud cover: 80%. Wind speed: Light. Ground moisture: None dew. Rain: None. Temperature. 18°C-21°C.	6M 4Juv 3(A)	15M 16F 5Juv	4M 1F 3Juv	11(A)

⁹ In instances where it was not possible to determine either sex or age class (e.g. large number of individuals grouped together), the total number of individuals was noted.

Table 3.1 (continued) Summary of Reptile survey data

Survey	Date	Weather conditions	Reptile observations			
			Common lizards	Slow worm	Adder	Grass snakes
15	05/09/07	Cloud cover: 60%. Wind speed: Light. Ground moisture: Dew. Rain: None. Temperature. NR°C-NR°C.	2F 7Juv	4M 8F 1Juv	2M 2Juv	5(A) 4Juv
16	06/09/07	Cloud cover: 75%. Wind speed: Light. Ground moisture: None. Rain: None. Temperature. NR°C-NR°C.	1M 10Juv	5M 8F 4Juv 4(A)	1M 2Juv	9(A) 6Juv
17	09/09/07	Cloud cover: 100-0%. Wind speed: Light. Ground moisture: Damp. Rain: None. Temperature. NR°C-NR°C.	5F 1Juv 8(A)	8F 6F 5Juv 2(A)	2F	4(A) 7Juv
18	14/09/07	Cloud cover: 100%. Wind speed: Light. Ground moisture: Damp. Rain: Light. Temperature. NR°C-NR°C.	1F 3Juv 2(A)	3M 10F 1Juv	-	4(A) 2Juv
19	15/09/07	Cloud cover: 35%. Wind speed: Moderate. Ground moisture: None. Rain: None. Temperature. 20°C-23°C.	1M 1(A)	2M 4F	1F	1(A)
20	18/09/07	Cloud cover: 75%. Wind speed: Moderate. Ground moisture: Wet. Rain: None. Temperature. 15°C-19°C.	3M 1(A)	2M 5F	-	1(A) 1Juv
21	22/09/07	Cloud cover: 25%. Wind speed: Still. Ground moisture: Moist. Rain: None. Temperature. 19°C-20°C.	2M 1F 7Juv 1(A)	1M 2F 3Juv	2F	2A
22	23/09/07	Cloud cover: 15%. Wind speed: Light. Ground moisture: Moist. Rain: None. Temperature. 20°C-22°C.	1M 3F 4Juv 1(A)	1M 1F 2Juv	2M 3F	3(A)
23	01/10/07	Cloud cover: 100%. Wind speed: Moderate. Ground moisture: None. Rain: None. Temperature. 16°C-16°C.	2M 7F 6Juv 6(A)	1M 4F 4Juv	2F	3Juv
24	02/10/07	Cloud cover: 40%. Wind speed: Moderate. Ground moisture: Damp. Rain: None. Temperature. 14°C-14°C.	4F 10Juv 3(A)	3F 6Juv	1F	3(A) 1Juv
25	05/10/07	Cloud cover: 0%. Wind speed: Still. Ground moisture: Moist. Rain: None. Temperature. 17°C-21°C.	1F 1Juv	2F 1 Juv	-	1(A)

Table 3.1 (continued) Summary of Reptile survey data

Survey	Date	Weather conditions	Reptile observations			
			Common lizards	Slow worm	Adder	Grass snakes
26	07/10/07	Cloud cover: 0%. Wind speed: Ground moisture: Moist. Rain: None. Temperature. 16°C-18°C.	2M 6F 6Juv	1M	1F	1(A) 1Juv

KEY: M = Male, F = Female, Juv = Juvenile, (A) = Adult but sex is unknown¹⁰, Temperature=(start temp.)°C-(Finish temp.)°C, NR=Not Recorded.

4. Preliminary Evaluation & Discussion

4.1 Population Classification

As per Froglife's guidelines¹¹, the classification of the relative size of common lizard, slow worm, adder and grass snake populations was assessed on the basis of maximum survey counts of adults seen by observation and/or under artificial refugia (placed at a density of up to 10 per hectare), by one person in one day. The criteria for population size, based on the Froglife guidelines are outlined in **Table 4.1** below.

Table 4.1 Classification of the Relative Size of Reptile Populations

Species	Low Population	Good Population	Exceptional Population
Common lizard	< 5	5 – 20	> 20
Slow worm	< 5	5 – 20	> 20
Adder	< 5	5 – 10	> 10
Grass snake	< 5	5 – 10	> 10

N.B. Figures in the table refer to maximum number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare), by one person in one day.

¹⁰ In instances where it was not possible to determine either sex (brief/unclear sighting), total number of individuals with a size class was noted.

¹¹ Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Based upon these criteria, the classification of the relative size of populations for each species within the survey area as a whole is summarised in **Table 4.2** below.

Figure 4.2 Reptile Population classification results for Survey area at Sizewell power station

Species	Maximum Adult Count	Population Classification
Common lizard	15	Good
Slow worm	31	Exceptional
Adder	17	Exceptional
Grass snake	9	Good

As noted in section 3.2 above, the distribution of each species across the different habitat types within the survey area is not homogenous and there are clearly areas where greater densities of certain species are apparent. Common lizards for example, have been observed in greater densities in the open habitats of the preliminary works area whereas they are almost absent from the plantation woodland to the west. In contrast, slow worms are less common within the open habitats and present in greater numbers within the woodland. Both snake species however, appear to be relatively evenly distributed. Bearing in mind these distributions, indicative population size classes have been established separately for the preliminary works area and the plantation woodland habitats in order to help inform any future mitigation strategy and gain a better understanding of the value different habitat types across the study area. The following population class sizes have therefore been established as summarised in **Tables 4.3 and 4.4**.

Table 4.3 Reptile Population classification results for preliminary works area at Sizewell power station

Species	Maximum Adult Count	Population Classification
Common lizard	15	Good
Slow worm	2	Low
Adder	5	Good
Grass snake	3	Low

Table 4.4 Reptile Population classification results for plantation woodland area at Sizewell power station

Species	Maximum Adult Count	Population Classification
Common lizard	3	Low
Slow worm	29	Exceptional
Adder	15	Exceptional
Grass snake	9	Good

4.2 Preliminary Assessment of the Value of the Survey Area to Reptiles

4.2.1 Reptile distribution within the survey area.

Records of common lizard, slow worm, grass snake and adder occurred throughout the survey area both within the plantation woodland habitats, agricultural field margins and open grassland and grassland/scrub habitats nearer to the coast. The distribution of different species within different habitat types did vary however and this has been discussed in more detail below.

Improved pasture

Within the preliminary works area, directly north of the existing power station there are a number of fields comprising improved pasture. These fields are grazed each year by approximately 100 head of Herbridean ewes and lambs. During the grazing period (during late Spring and early summer) the sward height is kept very low and is considered unsuitable for reptile species, particularly bearing in mind the heavy trampling of these areas by livestock. Over the past two years hay cuts have been also been made in late summer following a short period of no grazing.

As such, the improved pasture habitats are sub-optimal for reptile species for the most part of the year as the short sward does not provide adequate cover reptile species and disturbance levels are generally high as a result of heavy trampling and/or mowing (hay cut). However, it is likely that during the middle of the summer, prior to the hay cut when grazing has ceased and the sward has been left to grow for several weeks, reptiles will move into the area temporarily for shelter and foraging.

The improved pasture habitats are therefore considered to be of no more than Parish value for reptiles based on these circumstances. However, there is some potential for this area to support native reptiles during periods of the year when the grassland sward has been left to establish and as such, there may be a requirement to comply with the relevant wildlife legislation through mitigatory measures if works are programmed in this area when it is more suitable to support reptile species.

Semi-improved grassland (including coastal grassland) and scattered scrub

The semi-improved grassland/scrub habitats located around the perimeter of the preliminary works area (See Plates 3-6 in **Appendix A**) that also extend north and south along the coastline were found to support all four species of reptile, in particular common lizard. These habitats provide good vertical structure for reptiles with dense scrub for shelter, open sandy areas for

basking and tussocky grassland for foraging. The habitats are well connected across the survey area and to the wider landscape thereby providing good ecological continuity for migrating reptiles. The linear coastal habitats are likely to be of importance for reptile migration within the district.

Good populations of both common lizard and adder were recorded within these habitats. This is likely to be because of the abundance of basking areas and sandy ground conditions experienced closer to the coastline. Common lizards are active in amongst vegetation and frequently need to bask in the open¹² and as such, tend to be more successful in more open habitats as opposed to woodland edges.

Taking into consideration the population sizes recorded, the ecological continuity of the habitats present and the size of area that is thought to support native reptiles, these habitats are considered to be of district value for adders and common lizard and parish value for grass snake and slow worm.

Plantation Woodland

The indicative access route and construction compound for the proposed new build are located within a block of coniferous plantation woodland dominated by Corsican pine, with some deciduous species around the edges and in recently restocked areas. As noted previously, the areas of woodland with a well established dense canopy cover provide sub-optimal conditions for reptile species due to the lack of light on the woodland floor. However, the woodland is dissected by many rides and there are also some open glades within the canopy that provide good edge habitats that are less shaded (See Plates 1 & 2 in **Appendix A**). These areas tend to comprise of rough semi-improved grassland, dense patches of bramble and bracken. Log/brush piles resulting from forestry operations also occur frequently and have enhanced these areas for reptile species providing both cover and basking potential.

Exceptional populations of both slow worm and adder were recorded with these edge habitats throughout the woodland habitats surveyed. Slow worms are particularly suited to these woodland edge habitats as they bask in the open comparatively infrequently compared to common lizard and their behaviour is more associated with life 'below ground' or in thick vegetation such as that experienced on the woodland floor i.e. stands of bracken.

Adder populations are clearly well established within both the woodland and more coastal grassland habitats. It should be noted here that adders are often known to show seasonal movements, generally occupying drier areas between autumn and spring and spending summer months in wetter habitats¹³. These seasonal movements should therefore be taken into account when considering the mitigation strategy.

Grass snakes are an aquatic species and are usually closely associated with water. The combination of suitable terrestrial habitat and the network of dykes close to the survey area provide ideal conditions for this species. The population estimation for this species is good with the count (9) being at the top end of the range.

¹² Gent and Gibson, 1998

¹³ Gent and Gibson, 1998

Although the value of the plantation woodland for reptile species is generally restricted to the areas where there is an opening in the canopy and those habitats immediately surrounding these areas, the woodland as a whole should be considered to support reptiles when addressing the mitigation strategy requirements.

At present, those habitats suitable to support reptiles within the woodland are optimal for these species. They are ecologically continuous with suitable habitats within the wider landscape and provide all of the necessary habitat requirements. All four common species were recorded with exceptional populations of both adder and slow worm present. As such, these habitats are of County value for adders and slow worms, District value for grass snake and of Parish value for common lizard.

As noted above, there are some areas within the plantation that are considered to be sub-optimal for reptile species. Entec believe that there is scope to enhance these areas of the plantation woodland for reptiles and increase its carrying capacity. The creation of more glades and open areas by the removal of sections of trees in the areas of dense woodland cover would provide opportunities for habitat creation for slow worm, adders and grass snakes.

However, it should be noted that in terms of the overall mitigation strategy, these measures would be insufficient to firstly accommodate both the residual population of reptiles and all of the displaced animals from the effected areas. Furthermore, the populations of reptiles displaced will require a varied mosaic of replacement habitats that incorporate all of the habitat types that are to be lost as a result of the development proposals. For example, common lizards generally have a preference for more open grassland/scrub habitats and as such, relocation of these animals into the woodland edges will not be appropriate.

4.2.2 Valuation Summary

The survey area is located in a county known to support high and widespread populations of common lizard, slow worm, adder and grass snake where suitable habitat is present. However, taking into account the size of the area found to support reptiles, the mosaic of habitats present and their ecological continuity within the wider landscape, the survey area as a whole is assessed to be of County value¹⁴ for the four common reptile species.

The four species recorded are distributed unevenly across the study area and as such, the following assessment of value for the grassland and scrub habitats close to the coast and the woodland plantation habitats further inland have been considered separately and summarised in **Table 4.5** below.

¹⁴ On a scale international/UK/national (i.e. England)/regional/county/district/parish/less than parish

Table 4.5 Valuation of habitats for reptile species across the survey area

	Grassland and scrub habitats (including coastal grassland)	Woodland plantation habitats
Common lizard	District	Parish
Slow worm	Parish	County
Adder	District	County
Grass snake	Parish	District

5. Conclusion

Following an extended phase 1 habitat survey and desk study of land identified as the preliminary works area, access route and construction compound for a new power station on the Sizewell estate, reptile surveys of these areas and habitats surrounding these areas was undertaken.

A full population assessment survey was undertaken of the above noted areas and habitats surrounding these areas that were considered suitable to support native reptile species. This assessment was undertaken in accordance with best practice guidelines and techniques throughout the summer of 2007 (June to October).

All four common reptile species were recorded within the survey area including exceptional populations of adders and slow worms, a good population of common lizard and low population of grass snake. The common lizard populations were identified were primarily distributed in open grassland and scrub habitats within the preliminary works area and beyond whereas the slow worm population was focussed within woodland edge habitats along the proposed access route and within the construction compound area. The two snake species were fairly evenly distributed between the two habitat types.

Taking into consideration the numbers of reptiles recorded across the study area, the nature of the habitats present and their location within a geographical context, the study area as a whole is assessed as being of county value for native reptile species, taking into consideration the varied distribution of different species within different habitat types.

As such, in order to comply with the relevant wildlife legislation and national and local planning policy, an integrated mitigation strategy will be required for the proposed development.

6. Recommendations

- It is recommended that work is initiated in 2008 to identify potential sites for the translocation of reptiles from the footprint of the preliminary works area and associated infrastructure. This should be undertaken in consultation with NE. Potential sites identified should be visited to assess habitat quality and potential with a view to undertaking surveys in 2009 to determine whether reptiles are currently present. If reptiles were absent, the reasons for absence would need to be understood before any translocation could occur.

- As constraints to development are identified as part of the EIA process and the likely positions of the construction compounds and access track become clear, it is recommended that these are fed back to inform the reptile mitigation strategy. Mitigation works will need to begin at least two years before development takes place, and the mitigation plan will therefore need to be drawn up as soon as is feasible following the design of the development being finalised. Mitigation will involve the prevention of reptiles entering the development area through exclusion fencing, prior trapping and translocation of all reptiles within the development area, and, potentially, destructive searches of some areas of habitat.
- It is expected that given the likely significant effect on the local reptile population that will result from the development that BE should also look to identify an area within their landholding that can be managed to provide suitable reptile habitat in the medium and long term. With reference to the habitats within the land holding, the arable land provides the most obvious opportunity for compensatory work. The feasibility of heathland and wetland creation in such areas should be investigated. Experience indicates that consultees will expect an area of habitat at least equivalent to that being lost to be created.

7. References

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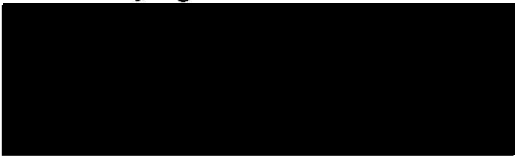
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Appendix A

Photographs illustrating habitats surveyed



Plate 1: Dense bramble on conifers woodland edge



Plate 2: Coniferous woodland edge.



Plate 3: Arable field margin



**Plate 4: Grass verge along
drainage channel**



Plate 5: Rough grassland situated on field margin



Plate 6: Patches of gorse on the edge of pastoral field margin

Appendix B

Full reptile survey results

REPTILE SURVEY RECORDING FORM (1)

Site name: Sizewell

Project code: 19801

Surveyor: Alein Shreeve & Tim Sykes

Date: 16/06/07

Weather

Start Temp: C

Finish Temp: C

Wind Speed: Light

Cloud cover: 50%

Rain: None

Ground Moisture: None

Other weather obs:

Observations

Refugia ID

Species

No. / Age / Sex

4

Viviparous lizard

1 Adult Male

6

Grass snake

1 Adult

37

Snake Spp.

58

Viviparous lizard

1 Adult Female

59

Slow worm

1 Adult Female

61

Adder

1 Adult Female

REPTILE SURVEY RECORDING FORM (2)

Site name: Sizewell

Project code: 19801

Surveyor: Tim Sykes

Date: 18/06/07

Weather

Start Temp: C Finish Temp: C

Wind Speed: Light

Cloud cover: 100%

Rain: Rain

Ground Moisture: Damp

Other weather obs:

Observations

Refugia ID	Species	No. / Age / Sex
6	Viviparous lizard	1 Adult Male
12	Viviparous lizard	1 Adult Male 1 Adult Female
14	Viviparous lizard	1 Adult
17	Viviparous lizard	1 Adult Female
23	Viviparous lizard	1 Adult
26	Viviparous lizard	1 Adult Female
30	Viviparous lizard	1 Adult Female
36	Adder	1 Adult Female
37	Grass snake	-
46	Viviparous lizard	1 Adult Male
47	Viviparous lizard	1 Adult Female
59	Slow worm	1 Female

REPTILE SURVEY RECORDING FORM (3)

Site name: Sizewell

Project code: 19801

Surveyor: Alein Shreeve & Tim Sykes

Date: 5/07/07

Weather

Start Temp: 19C

Finish Temp: 19C

Wind Speed: Light

Cloud cover: 50-95%

Rain: None

Ground Moisture: Dry

Other weather obs:

Observations

Refugia ID	Species	No. / Age / Sex
2	Grass snake	1 Adult
3	Grass snake	1 Adult
4	Grass snake	1 Juv.
15	Grass snake	1 Juv.
17	Viviparous lizard	1 Adult Male
29	Viviparous lizard	1 Adult Female
50	Viviparous lizard	1 Adult
66	Grass snake	1 Juv.
72	Slow worm	1 Adult Female

REPTILE SURVEY RECORDING FORM (4)

Site name: Sizewell

Project code: 19801

Surveyor: Alein Shreeve

Date: 7/07/07

Weather

Start Temp: 22C

Finish Temp: 19C

Wind Speed: Moderate

Cloud cover: 40%

Rain: Rain

Ground Moisture: Wet

Other weather obs: Two heavy survey showers during survey

Observations

Refugia ID	Species	No. / Age / Sex
5	Viviparous lizard	1 Adult Male
6	Adder	2 Sub-adult Male 1 Adult Female
9	Slow worm	1 Adult Male
	Grass snake	1 Adult
62	Adder	1 Juv.
70	Slow worm	1 Juv.
72	Slow worm	1 Adult Female

REPTILE SURVEY RECORDING FORM (5)

Site name: Sizewell

Project code: 19801

Surveyor: Tim Sykes

Date: 8/07/07

Weather

Start Temp: 24C

Finish Temp: 23C

Wind Speed: Light

Cloud cover: 10-20%

Rain: None

Ground Moisture: None

Other weather obs:

Observations

Refugia ID	Species	No. / Age / Sex
2	Grass snake	1 Adult
6	Adder	1 Adult Female
8	Viviparous lizard	1 Adult
11	Viviparous lizard	1 Adult
48	Adder	1 Sub-adult Male
51	Viviparous lizard	2 Adult Male 1 Adult Female
56	Slow worm	1 Adult Female
58	Slow worm	1 Adult Male
70	Slow worm	1 Adult Female

REPTILE SURVEY RECORDING FORM (6)

Site name: Sizewell

Project code: 19801

Surveyor: Alein Shreeve

Date: 10/07/07

Weather

Start Temp: 18C

Finish Temp: 18C

Wind Speed: Light

Cloud cover: 100%

Rain: None

Ground Moisture: Slightly moist

Other weather obs: Spots of rain

Observations

Refugia ID	Species	No. / Age / Sex
5	Adder	1 Adult Female
6	Viviparous lizard	1 Adult Male
11	Viviparous lizard	1 Large Female
24	Viviparous lizard	1 Adult Female
27	Viviparous lizard	2 Adult Male
41	Viviparous lizard	1 Adult Male
45	Viviparous lizard	1 Adult Female
55	Viviparous lizard	2 Adult Male
56	Viviparous lizard	1 Adult Male
	Slow worm	1 Adult Male
59	Viviparous lizard	1 Adult Female
70	Slow worm	1 Adult Male
84	Slow worm	2 Adult Male 2 Adult Female

REPTILE SURVEY RECORDING FORM (7)

Site name: Sizewell

Project code: 19801

Surveyor: Tim JS

Date: 17/07/07

Weather

Start Temp: 20C

Finish Temp: 21C

Wind Speed: Moderate -strong

Cloud cover: 20%

Rain: A few spots

Ground Moisture: Dry

Other weather obs: Blustery windy conditions

Observations

Additional mats distributed on site

Refugia ID	Species	No. / Age / Sex
6	Adder	1 Adult female
9	Viviparous lizard	1 Adult
12	Adder	1 Sub-adult Female
31	Viviparous lizard	1 Adult Male
45	Viviparous lizard	1 Adult Female
46	Grass snake	1 Juv.
59	Viviparous lizard	1 Adult Male
70	Slow worm	2 Adult Female
74	Viviparous lizard	1 Adult
75	Viviparous lizard	1 Adult Female
82	Slow worm	1 Sub-adult Male
84	Slow worm	2 Adult Female
93	Slow worm	1 Adult Female 1 Juv.
94	Slow worm	1 Adult Female
103	Slow worm	1 Sub-adult Female
118	Slow worm	1 Adult Female
119	Slow worm	1 Adult Female
123	Slow worm	1 Adult Female 1 Juv.
134	Adder	1 Adult Female
135	Slow worm	1 Adult Female
	Adder	1 Adult Female
138	Slow worm	1 Sub-adult Female 1 Juv.
149	Slow worm	1 Female
150	Slow worm	1 Sub-adult Female
161	Slow worm	2 Adult Male
162	Grass snake	2 Sub-adults
	Adder	7 Mixed Sizes

REPTILE SURVEY RECORDING FORM (8)**Site name: Sizewell****Project code: 19801****Surveyor: Alein Shreave****Date: 21/07/07****Weather****Start Temp: 15C****Finish Temp: 21C****Wind Speed: Moderate****Cloud cover: 25%****Rain: none****Ground Moisture: Dry****Other weather obs: Increasing cloud cover during the day****Observations**

Refugia ID	Species	No. / Age / Sex
2	Viviparous lizard	1 Adult Male
3	Grass snake	2 Adult
	Adder	1 Adult
43	Viviparous lizard	1 Adult
51	Adder	1 Adult Female
70	Slow worm	1 Adult Male
84	Slow worm	3 Adult Female
	Adder	1 Adult
85	Slow worm	2 Adult Female
93	Slow worm	1 Adult Male
109	Slow worm	1 Adult Male 1 Adult Female
121	Slow worm	1 Female
149	Slow worm	1 Adult male
	Grass snake	1
150	Slow worm	1 Adult female

REPTILE SURVEY RECORDING FORM (9)**Site name: Sizewell****Project code:19801****Surveyor: Tim JS****Date: 22/07/07****Weather****Start Temp: 17C****Finish Temp: 20C****Wind Speed: Light****Cloud cover: 25%****Rain: None****Ground Moisture: Slight dampness****Other weather obs: Occasional grey clouds passing over****Observations**

Refugia ID	Species	No. / Age / Sex
1	Grass snake	1 Adult 1 Juv.
3	Grass snake	1 Adult
10	Viviparous lizard	1 Adult
22	Viviparous lizard	1 Adult Female
40	Adder	1 Adult Female
46	Viviparous lizard	1 Adult
55	Viviparous lizard	1 Adult
68	Grass snake	1 Adult
70	Slow worm	1 Adult Female
75	Adder	1 Adult Female
84	Slow worm	4 Adult Female 1 Sub-adult Female
85	Slow worm	1 Juv.
	Grass snake	1 Sub-adult
91	Slow worm	1 Sub-adult male
92	Slow worm	1 Sub-adult female
93	Slow worm	1 Sub-adult male 1 Juv.
94	Slow worm	1 Adult male
104	Slow worm	1 Sub-adult Female
109	Slow worm	1 Sub-adult Male
118	Slow worm	1 Adult Male
119	Slow worm	1 Adult Female
	Adder	1 Sub-adult Female
121	Viviparous lizard	2 Adults
	Slow worm	1 Adult Female
	Adder	3 Adult Female 1 Juv.
123	Slow worm	1 Sub-adult Female
126	Grass snake	1 Juv.
132	Grass snake	1 Juv.
138	Slow worm	1 Adult Female
139	Grass snake	1 Juv.
141	Slow worm	1 Adult Female
142	Snake Spp.	1
147	Slow worm	1 Juv.
148	Slow worm	1 Adult Male 1 Sub-adult male

150	Slow worm	2 Juv.
156	Slow worm	2 Adult Female
159	Adder	2 Sub-adult Female
161	Slow worm	1 Adult Male 1 Juv
162	Adder	9 Adult 1 Juv.
	Grass snake	1 Adult

REPTILE SURVEY RECORDING FORM (10)**Site name: Sizewell****Project code: 19801****Surveyor: Alein Shreeve****Date: 23/07/07****Weather****Start Temp: 11C****Finish Temp: 13C****Wind Speed: Still****Cloud cover: 100%****Rain: None****Ground Moisture: Moist****Other weather obs: Spots of rain later / drizzle at times****Observations**

Refugia ID	Species	No. / Age / Sex
3	Grass snake	1 Adult
6	Adder	1 Adult Female
9	Grass snake	1 Adult
17	Viviparous lizard	1 Adult Male
26	Viviparous lizard	1 Adult Male
27	Viviparous lizard	1 Adult Male
32	Viviparous lizard	1 Adult Male
51	Viviparous lizard	1 Adult Female
70	Slow worm	1 Adult Male
80	Viviparous lizard	1 Adult Female
84	Slow worm	4 Adult Males
91	Slow worm	1 Adult Male 1 Adult Female
92	Slow worm	1 Adult Male
93	Slow worm	1 Adult Male
94	Slow worm	1 Adult Male
95	Slow worm	1 Adult Female
101	Slow worm	1 Sub-adult Female
107	Slow worm	1 Sub-adult Female
109	Slow worm	1 Adult Male
	Grass Snake	1 Adult
123	Slow worm	1 Adult male 2 Adult Female
124	Slow worm	1 Female
126	Grass snake	2 Adult
130	Grass snake	1 Adult
	Adder	1 Adult
132	Grass snake	1 Juv.
135	Slow worm	1 Sub-adult Female
	Grass snake	2 Adult
	Adder	4 Adult Female
138	Grass snake	1 Adult
141	Slow worm	1 Adult Male
147	Slow worm	1 Sub-adult Female
148	Slow worm	2 Adult Male 1 Adult Female
		1 Sub-adult Female
151	Slow worm	1 Juv.
156	Slow worm	1 Adult Male 1 Adult Female

160
162

Slow worm
Slow worm
Adder

1 Adult Male
1 Adult Male
1 Adult Female

REPTILE SURVEY RECORDING FORM (11)**Site name: Sizewell****Project code: 19801****Surveyor: Tim JS****Date: 04/08/07****Weather****Start Temp: 21C****Finish Temp: 27C****Wind Speed: Light****Cloud cover: 100-0%****Rain: None****Ground Moisture: None****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
2	Slow worm	1 Adult Male
	Adder	1 Adult Male
13	Viviparous lizard	1 Juv.
31	Viviparous lizard	1 Sub-Adult Male
32	Viviparous lizard	1 Adult Female
34	Adder	1 Adult Female
46	Viviparous lizard	1 Adult Female
69	Slow worm	1 Adult Female
70	Slow worm	1 Sub-adult male
71	Slow worm	1 Adult Male
77	Grass snake	1 Adult
84	Slow worm	5 Adult
85	Slow worm	1 Adult Male
93	Slow worm	1 Adult Male
	Grass snake	1 Adult
104	Slow worm	2 Sub-adult Female
107	Slow worm	1 Juv.
108	Slow worm	1 Juv.
117	Slow worm	1 Juv.
119	Slow worm	1 Adult 1 Juv.
121	Slow worm	1 Adult Female
124	Slow worm	1 Sub-adult Male
133	Slow worm	1 Adult Female
134	Slow worm	1 Juv.
135	Adder	1 Adult Female
	Grass snake	1 Adult
141	Slow worm	1 Juv.
148	Slow worm	1 Adult Male 1 Adult Female
155	Grass snake	1 Juv.
157	Slow worm	1 Adult Male
161	Slow worm	2 Adult Male 1 Sub-adult Female
162	Grass snake	1 Adult

REPTILE SURVEY RECORDING FORM (12)**Site name: Sizewell****Project code: 19801****Surveyor: Alein Shreeve****Date: 05/08/07****Weather****Start Temp: 21C****Finish Temp: 25C****Wind Speed: Light****Cloud cover: 0%****Rain: None****Ground Moisture: Damp in shade****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
50	Viviparous lizard	1 Adult Female
56	Slow worm	1 Adult Female
84	Slow worm	2 Adult Male
85	Slow worm	1 Adult Female
93	Slow worm	1 Adult Male
101	Slow worm	1 Sub-adult Female
104	Slow worm	1 Adult Male
108	Slow worm	2 Adult Male
109	Slow worm	1 Adult Male
117	Slow worm	1 Adult Male
119	Slow worm	1 Sub-adult Male
121	Slow worm	1 Adult Female
122	Slow worm	1 Juv.
124	Slow worm	1 Adult Male
141	Slow worm	1 Adult Male
148	Slow worm	1 Adult Male
157	Slow worm	1 Adult Male
159	Slow worm	1 Adult Male
	Grass snake	1 Adult
162	Adder	1 Adult Male 1 Adult Female
	Grass snake	1 Adult

REPTILE SURVEY RECORDING FORM (13)**Site name: Sizewell****Project code: 19801****Surveyor: Tim JS****Date: 16/08/07****Weather****Start Temp: 21C****Finish Temp: 20C****Wind Speed:****Cloud cover: 0-100%****Rain: brief shower****Ground Moisture: Wet after shower****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
1	Adder	1 Adult Male 1 Adult Female
2	Grass Snake	1 Adult
3	Adder	1 Juv.
	Grass snake	2 Adult
10	Viviparous lizard	1 Adult Female
	Slow worm	1 Juv.
18	Viviparous lizard	1 Adult Female 2 Juv.
29	Slow worm	1 Adult Female
39	Viviparous lizard	1 Juv.
44	Viviparous lizard	1 Juv.
50	Viviparous lizard	1 Adult Female
55	Viviparous lizard	1 Adult
59	Slow worm	1 Adult Male 1 Adult Female
60	Viviparous lizard	1 Sub-adult
61	Viviparous lizard	1 Sub Adult
70	Slow worm	1 Sub-adult Male 1 Sub-adult Female
75	Adder	1 Adult
77	Viviparous lizard	2 Juv.
78	Viviparous lizard	1 Adult Female
84	Slow worm	1 Adult Male 4 Adult Female
	Grass snake	1 Juv.
91	Slow worm	1 Adult Female
93	Slow worm	1 Adult Male 1 Sub-Adult Male
107	Slow worm	1 Adult Male
109	Slow worm	1 Juv.
110	Slow worm	1 Adult Female
119	Slow worm	1 Adult Female
123	Viviparous lizard	1 Adult Female
	Slow worm	3 Juv.
124	Slow worm	1 Adult male 1 Juv.
130	Slow worm	1 Adult Female
135	Slow worm	3 Adult Male
	Adder	2 Adult Female
138	Viviparous lizard	1 Juv.

141	Slow worm	1 Adult Female
144	Slow worm	4 Juv.
148	Slow worm	1 Adult Female
	Slow worm	1 Adult Female
	Grass snake	1 Adult
151	Slow worm	1 Sub-adult Female
152	Grass Snake	1 Adult
161	Slow worm	1 Adult Male 3 Juv.
162	Slow worm	1 Adult Male
	Adder	7 Adult 2 Juv.
	Grass snake	4 Adult

REPTILE SURVEY RECORDING FORM (14)**Site name: Sizewell****Project code: 19801****Surveyor: Alein Shreene****Date: 31/08/07****Weather****Start Temp: 18C****Finish Temp: 21.5C****Wind Speed: Light****Cloud cover: 80%****Rain: None****Ground Moisture: Dry****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
1	Viviparous lizard	1 Adult
2	Slow worm	2 Juv.
6	Slow worm	1 Adult Female
9	Grass snake	1 Adult
13	Viviparous lizard	1 Adult 1 Juv.
16	Viviparous lizard	1 Adult
18	Adder	1 Adult
20	Viviparous lizard	1 Juv.
24	Viviparous lizard	1 Adult Male
31	Viviparous lizard	2 Juv.
33	Viviparous lizard	1 Adult
34	Adder	1 Adult Male
42	Viviparous lizard	1 Adult Male
	Grass Snake	1 Adult
55	Viviparous lizard	1 Adult Male
74	Viviparous lizard	1 Adult Male
84	Slow worm	1 Adult Male
85	Slow worm	2 Adult Female
92	Slow worm	1 Adult Female
93	Slow worm	1 Adult Male
94	Slow worm	1 Adult Male
109	Slow worm	1 Adult Female
111	Adder	1 Adult Male
	Grass snake	1 Adult
123	Slow worm	1 Adult Male
	Adder	1 Juv.
126	Slow worm	2 Adult Female
130	Slow worm	1 Adult Male
134	Slow worm	1 Adult Female
135	Slow worm	1 Adult Female
	Adder	1 Adult Male 1 Adult Female
		1 Juv.
	Grass Snake	3 Adult
141	Slow worm	1 Adult Male
147	Slow worm	1 Adult Male
148	Slow worm	1 Adult Male 1 Adult Female

149	Slow worm	1 Adult Female 1 Juv.
150	Slow worm	1 Adult Male 1 Adult Female 1 Juv.
151	Slow worm	1 Adult Male
	Grass snake	1 Adult
153	Slow worm	1 Adult Female
156	Slow worm	2 Adult Male 1 Adult Female
	Grass snake	1 Adult
159	Viviparous lizard	1 Adult Male
	Slow worm	1 Adult Female
161	Slow worm	1 Adult Female 1 Juv.
162	Slow worm	3 Adult Male
	Adder	1 Juv.
	Grass snake	3 Adult

REPTILE SURVEY RECORDING FORM (15)**Site name: Sizewell****Project code: 19801****Surveyor: Tim JS****Date: 5/09/07****Weather****Start Temp: C****Finish Temp: C****Wind Speed: Light****Cloud cover: 60%****Rain: None****Ground Moisture: Dew****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
2	Grass Snake	2 Juv.
10	Viviparous lizard	1 Adult Female
19	Viviparous lizard	1 Sub-adult Female
29	Viviparous lizard	4 Juv.
30	Viviparous lizard	1 Juv.
85	Slow worm	1 Adult Male
92	Slow worm	1 Adult Male
93	Slow worm	2 Adult Female
111	Grass snake	2 Adults
126	Adder	1 Juv.
	Grass snake	1 Juv.
129	Slow worm	1 Adult Female
130	Slow worm	1 Adult Female
135	Slow worm	1 Adult Male
141	Grass snake	1 Adult
148	Slow worm	1 Adult Male
153	Slow worm	1 Sub-adult Female
	Grass snake	1 Adult
156	Slow worm	2 Adult Female
	Grass snake	1 Juv.
161	Slow worm	1 Juv.
162	Slow worm	1 Adult Female
	Adder	2 Adult Male 1 Juv
	Grass snake	1 Adult

REPTILE SURVEY RECORDING FORM (16)**Site name: Sizewell****Project code: 19801****Surveyor: Tim JS****Date: 6/09/07****Weather****Start Temp: C****Finish Temp: C****Wind Speed: Still****Cloud cover: 75%****Rain: None****Ground Moisture: Dry****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
2	Grass snake	2 Juv.
10	Viviparous lizard	1 Adult Male 1 Juv.
16	Viviparous lizard	2 Juv.
19	Viviparous lizard	1 Juv.
31	Viviparous lizard	1 Juv.
85	Slow worm	2 Adult Female
92	Slow worm	1 Adult male 1 juv.
93	Slow worm	1 Adult Male 1 Adult Female
109	Slow worm	1 Sub-adult Female
126	Adder	1 Juv.
	Grass snake	4 Adult 1 Juv.
130	Slow worm	1 Adult Female
135	Slow worm	2 Adult
	Grass snake	3 Adult
140	Slow worm	1 Juv.
141	Viviparous lizard	3 Juv.
	Slow worm	1 Adult Male 1 Adult Female
	Grass snake	1 Juv.
144	Grass snake	1 Juv.
148	Slow worm	1 Adult Male
	Grass snake	1 Adult
151	Slow worm	1 Juv.
156	Slow worm	1 Adult Male 2 Adult Female
	Grass snake	1 Juv.
159	Grass snake	1 Adult
161	Slow worm	1 Sub-adult 2 Juv.
162	Slow worm	2 Adult
	Adder	1 Adult Male 1 Juv.
	Grass snake	1 Adult

REPTILE SURVEY RECORDING FORM (17)**Site name: Sizewell****Project code: 19801****Surveyor: Tim JS****Date: 9/09/07****Weather****Start Temp: C****Finish Temp: C****Wind Speed:****Cloud cover: 100-0%****Rain: None****Ground Moisture: Damp****Other weather obs: Overcast to Hot and Sunny****Observations**

Refugia ID	Species	No. / Age / Sex
1	Grass snake	1 Adult 1 Juv.
2	Grass snake	1 Juv.
3	Viviparous lizard	1 Sub-adult
5	Viviparous lizard	1 Adult
9	Grass snake	1 Adult
13	Viviparous lizard	1 Juv.
18	Viviparous lizard	2 Sub-adult
19	Viviparous lizard	1 Adult
29	Viviparous lizard	1 Adult Female
39	Viviparous lizard	1 Adult
50	Viviparous lizard	1 Adult Female
53	Viviparous lizard	1 Adult Female
58	Slow worm	1 Juv.
84	Slow worm	1 Adult Female
92	Slow worm	1 Adult Female
93	Slow worm	1 Adult Female 1 Sub-adult Male
94	Slow worm	1 Adult
107	Slow worm	1 Sub-adult Male 1 Juv.
111	Grass snake	1 Adult
124	Viviparous lizard	1 Adult Female
125	Grass snake	1 Juv.
126	Viviparous lizard	1 Adult
	Grass snake	1 Juv.
129	Viviparous lizard	1 Sub-adult Female
130	Slow worm	1 Adult Male
134	Slow worm	1 Juv.
135	Slow worm	2 Adult Males
141	Slow worm	1 Sub-adult Female
148	Slow worm	1 Adult
150	Slow worm	1 Juv.
151	Grass snake	1 Juv.
153	Slow worm	1 Sub-adult Female
156	Slow worm	2 Adult Male
	Grass snake	2 Juv.
159	Slow worm	1 Adult Male

161
162

Slow worm
Slow worm
Adder
Grass snake

1 Juv.
1 Adult Female
2 Adult Female
1 Adult

REPTILE SURVEY RECORDING FORM (18)**Site name: Sizewell****Project code: 19801****Surveyor: Tim JS****Date: 14/09/2007****Weather****Start Temp: C****Finish Temp: C****Wind Speed: Light****Cloud cover: 100%****Rain: Light Rain****Ground Moisture: Damp****Other weather obs: ground wet, rain, started to rain****Observations**

Refugia ID	Species	No. / Age / Sex
2	Grass snake	1 Juv.
15	Viviparous lizard	1 Adult
16	Viviparous lizard	1 Adult Female 1 Juv.
18	Grass snake	1 Adult
32	Viviparous lizard	1 Juv.
40	Viviparous lizard	1 Juv.
59	Viviparous lizard	1 Adult
70	Slow worm	1 Adult Female
85	Slow worm	1 Adult Male
92	Slow worm	1 Juv.
93	Slow worm	1 Adult Male 1 Adult Female
102	Grass snake	1 Adult
121	Slow worm	1 Sub-adult Female
125	Grass snake	1 Juv.
130	Slow worm	1 Adult Female
135	Slow worm	2 Adult Females
141	Slow worm	2 Sub-adult Females
148	Slow worm	1 Adult Male
151	Slow worm	1 Juv.
157	Grass snake	1 Adult
161	Slow worm	1 Adult Female
162	Slow worm	1 Sub-adult Female
	Grass snake	1 Adult

REPTILE SURVEY RECORDING FORM (19)

Site name: Sizewell

Project code: 19801

Surveyor: Alein Shreeve

Date: 15/09/2007

Weather

Start Temp: 20C

Finish Temp: 23C

Wind Speed: Moderate

Cloud cover: 35%

Rain: None

Ground Moisture: None

Other weather obs: ground wet, rain, started to rain

Observations

Refugia ID	Species	No. / Age / Sex
2	Adder	1 Adult Female
5	Viviparous lizard	1 Adult Male
38	Viviparous lizard	1 Adult
70	Slow worm	1 Adult Female
121	Slow worm	1 Adult Male 1 Adult Female
141	Slow worm	1 Adult Male 1 Adult Female
161	Slow worm	1 Adult Female
162	Grass snake	1 Adult

REPTILE SURVEY RECORDING FORM (20)

Site name: Sizewell

Project code: 19801

Surveyor: Alein Shreeve

Date: 18/09/2007

Weather

Start Temp: 15C

Finish Temp: 19C

Wind Speed: Moderate

Cloud cover: 75%

Rain: None

Ground Moisture: Wet

Other weather obs: Some over night rain

Observations

Refugia ID	Species	No. / Age / Sex
3	Grass snake	1 Juv.
15	Viviparous lizard	1 Adult Male
19	Viviparous lizard	1 Adult
44	Viviparous lizard	1 Adult Male
68	Viviparous lizard	1 Adult Male
70	Slow worm	1 Adult Female
93	Slow worm	1 Adult Male
135	Slow worm	1 Adult Female
141	Slow worm	1 Adult Male 1 Adult Female
159	Grass snake	1 Adult
161	Slow worm	1 Sub-adult Female
162	Slow worm	1 Adult Female

REPTILE SURVEY RECORDING FORM (21)**Site name: Sizewell****Project code: 19801****Surveyor: Alein Shreeve****Date: 22/09/2007****Weather****Start Temp: 19C****Finish Temp: 20C****Wind Speed: Still****Cloud cover: 25%****Rain: None****Ground Moisture: Moist****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
2	Viviparous lizard	1 Juv.
6	Viviparous lizard	1 Juv.
9	Viviparous lizard	1 Juv.
	Adder	1 Adult Female
11	Viviparous lizard	1 Juv.
15	Viviparous lizard	1 Adult
22	Viviparous lizard	1 Adult Male
31	Viviparous lizard	1 Juv.
36	Viviparous lizard	2 Juv.
54	Viviparous lizard	1 Adult Male
55	Viviparous lizard	1 Adult Female
70	Slow worm	1 Adult Female
118	Grass snake	1 Adult
147	Slow worm	1 Juv.
148	Slow worm	1 Adult Female 1 Juv.
150	Slow worm	1 Sub-adult Male
151	Slow worm	1 Juv.
157	Grass snake	1 Adult
162	Adder	1 Adult Female

REPTILE SURVEY RECORDING FORM (22)**Site name: Sizewell****Project code: 19801****Surveyor: Alein Shreeve****Date: 23/09/2007****Weather****Start Temp: 20C****Finish Temp: 22C****Wind Speed: Light****Cloud cover: 15%****Rain: None****Ground Moisture: Moist****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
3	Viviparous lizard	1 Juv.
8	Adder	1 Adult Male
9	Viviparous lizard	1 Juv.
	Adder	1 Adult Female
10	Viviparous lizard	1 Adult Female
11	Viviparous lizard	1 Juv.
19	Viviparous lizard	1 Adult Female
22	Viviparous lizard	1 Adult
30	Viviparous lizard	1 Juv.
53	Viviparous lizard	1 Adult Male
55	Viviparous lizard	1 Adult Female
56	Adder	1 Adult Male
92	Slow worm	1 Juv.
102	Adder	1 Adult Female
	Grass snake	1 Adult
106	Grass snake	1 Adult
135	Adder	1 Adult Female
	Grass snake	1 Adult
141	Slow worm	1 Adult Male
148	Slow worm	1 Juv.
161	Slow worm	1 Adult Female

REPTILE SURVEY RECORDING FORM (23)**Site name: Sizewell****Project code: 19801****Surveyor: Tim Sykes****Date: 01/10/07****Weather****Start Temp: 16C****Finish Temp: 16C****Wind Speed: Moderate****Cloud cover: 100%****Rain: None****Ground Moisture: None****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
2	Viviparous lizard	1 Juv.
5	Viviparous lizard	1 Adult Male
9	Grass snake	1 Juv.
13	Viviparous lizard	3 Juv.
16	Viviparous lizard	2 Adult Female
18	Viviparous lizard	1 Sub-adult female
27	Viviparous lizard	1 Adult Female
28	Viviparous lizard	1 Sub-adult Female
30	Adder	1 Sub-adult Female
34	Adder	1 Sub-adult Female
44	Viviparous lizard	1 Adult Female 1 Juv.
50	Viviparous lizard	1 Adult Male 1 Sub-adult Female
51	Viviparous lizard	2 Sub-adult
54	Viviparous lizard	1 Juv.
55	Viviparous lizard	1 sub-adult
59	Slow worm	1 Adult Male
61	Slow worm	1 Sub-adult Female
74	Viviparous lizard	3 Sub-adult
85	Slow worm	1 Adult Male
135	Slow worm	1 Sub-adult Female
137	Grass snake	1 Juv.
141	Grass snake	1 Juv.
151	Slow worm	1 Sub-adult Female 4 Juv.
162	Slow worm	1 Sub-adult Female

REPTILE SURVEY RECORDING FORM (24)**Site name: Sizewell****Project code: 19801****Surveyor: Tim Sykes****Date: 02/10/07****Weather****Start Temp: 14C****Finish Temp: 14C****Wind Speed: Light - Moderate****Cloud cover: 100%****Rain: None****Ground Moisture: None****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
1	Slow worm	1 Sub-adult Female
2	Viviparous lizard	2 Juv.
9	Grass snake	1 Adult
33	Viviparous lizard	1 Juv.
34	Adder	1 Sub-adult Female
39	Viviparous lizard	1 Juv.
43	Viviparous lizard	1 Juv.
44	Viviparous lizard	1 Adult 1 Sub-adult Female
50	Viviparous lizard	1 Adult Female 1 Sub-adult Female 1 Juv.
51	Viviparous lizard	1 Sub-adult Female
54	Viviparous lizard	1 Juv.
61	Viviparous lizard	1 Juv.
74	Viviparous lizard	2 Sub-adult
76	Viviparous lizard	1 Juv.
79	Viviparous lizard	1 Juv.
85	Slow worm	1 Juv.
95	Slow worm	1 sub-adult Female
111	Grass snake	1 Adult
124	Grass snake	1 Juv.
135	Slow worm	1 Juv.
148	Slow worm	1 Juv.
151	Slow worm	2 Juv.
160	Grass snake	1 Adult
161	Slow worm	1 Juv.
162	Slow worm	1 Sub-adult Female

REPTILE SURVEY RECORDING FORM (25)

Site name: Sizewell

Project code: 19801

Surveyor: Alein Shreeve

Date: 5/10/07

Weather

Start Temp: 17C

Finish Temp: 21C

Wind Speed: Still

Cloud cover: 0%

Rain: None

Ground Moisture: Moist

Other weather obs:

Observations

Refugia ID

Species

No. / Age / Sex

28

Viviparous lizard

1 Adult Female

29

Viviparous lizard

1 Juv.

107

Slow worm

1 Adult Female

129

Snake Spp.

1 Adult

135

Slow worm

1 Adult Female

151

Slow worm

1 Juv.

159

Grass snake

1 Adult

REPTILE SURVEY RECORDING FORM (26)**Site name: Sizewell****Project code: 19801****Surveyor: Alein Shreeve****Date: 7/10/07****Weather****Start Temp: 16C****Finish Temp: 18C****Wind Speed:****Cloud cover: 0%****Rain: None****Ground Moisture: Moist****Other weather obs:****Observations**

Refugia ID	Species	No. / Age / Sex
2	Viviparous lizard	1 Juv.
5	Viviparous lizard	1 Adult Female
6	Viviparous lizard	1 Adult Female
9	Adder	1 Female Sub-adult
10	Viviparous lizard	2 Juv.
11	Viviparous lizard	1 Juv.
28	Viviparous lizard	2 Adult Male 1 Adult Female
31	Viviparous lizard	1 Juv.
32	Viviparous lizard	1 Juv.
48	Viviparous lizard	1 Juv.
50	Viviparous lizard	1 Adult Female 1 Juv.
55	Viviparous lizard	1 Adult Female
93	Slow worm	1 Adult Male
121	Grass snake	1 Juv.
129	Slow worm	1 Adult Female
135	Slow worm	1 Adult Female 1 Juv
138	Grass snake	1 Juv.
150	Viviparous lizard	1 Adult Female
151	Grass snake	1 Adult
155	Grass snake	2 Juv.
157	Grass snake	1 Juv.