

53 Hart Plain Avenue,
Cowplain, Hampshire,
PO8 8RG

Reptile Translocation Report

April 2016

Hampshire Ecological Services Ltd
Consultant Ecologists

91 Ethelburt Avenue, Southampton, Hants SO16 3DF

E: enquiries@hantsecology.co.uk

W: www.hantsecology.co.uk

T: 0771 456 8361

F: 0871 266 8127

Reptile Translocation Report
53 Hart Plain Avenue, Cowplain, Hampshire, PO8 8RG
for
C.Y. Developments Ltd

Reference: 53 Hart Plain Avenue, Cowplain	
Revision	Issue date:
0 (draft)	07/04/16
1 (final)	22/04/16

Prepared by:	Rev 0	Rev 1
 VICTORIA RUSSELL Senior Ecologist	06/04/16	
Review & Technical QA by:		
 JOHN POLAND Principal Ecologist		22/04/16

This report represents sound industry practice; reports and recommends correctly, truthfully and objectively; is appropriate given the local site conditions, scope of works proposed and resources allocated to us by the client; and avoids invalid, biased, and exaggerated statements.

The author disclaims any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and the author accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Contents

1	EXECUTIVE SUMMARY	4
2	INTRODUCTION.....	5
2.1	PURPOSE OF THIS REPORT	5
2.2	SITE DESCRIPTION.....	5
2.3	SPECIES KNOWN IN THE REGION	5
2.4	LEGAL PROTECTION.....	5
2.5	LIFE CYCLE & ECOLOGY	6
2.6	THE NEED FOR IN SITU TRANSLOCATION	6
2.7	OVERVIEW OF THE TRANSLOCATION SCHEME	6
2.8	STRUCTURE OF THIS REPORT	7
3	METHODOLOGY.....	8
3.1	GENERAL	8
3.2	DATE(S), TIMES AND WEATHER	8
3.3	PERSONNEL	8
3.4	HABITAT SUITABILITY.....	8
3.5	ARTIFICIAL REFUGIA	9
3.6	CAPTURE EFFORT.....	9
3.7	CAPTURE AND TRANSLOCATION PROGRAMME	10
3.7.1	<i>Reptile capture</i>	10
3.8	MONITORING PROGRESS OF THE TRANSLOCATION	10
3.8.1	<i>Data recording</i>	10
3.9	DESTRUCTIVE SEARCHING (VEGETATION CLEARANCE AND TOPSOIL STRIPPING).....	11
4	RESULTS	12
4.1	SUITABLE HABITAT.....	12
4.2	CAPTURE AND TRANSLOCATION PROGRAMME	12
5	INTERPRETATION AND EVALUATION	18
5.1	CONSTRAINTS.....	18
5.2	CONCLUSION	18
6	FIGURES.....	19
7	PHOTOGRAPHS.....	26
8	REFERENCES.....	27

EXECUTIVE SUMMARY

1. This report describes a reptile translocation carried out by Hampshire Ecological Services Ltd for C.Y. Developments Ltd in connection with a proposal to build new dwellings at 53 Hart Plain Avenue, Cowplain, Hampshire, PO8 8RG (approximate Ordnance Survey Grid Reference 468110). The location of the site is shown in *Figures 1* and *3* in *Section 6*.
2. The reptiles were translocated to a receptor site at Billy's Lake, Wecock Farm (approximate Ordnance Survey Grid Reference SU672110). The location of the site is shown in *Figures 2* and *4* in *Section 6*.
3. The location of the suitable habitat on the site is shown in *Figure 5* in *Section 6*. Because reptiles are legally protected from harm (killing or injury) and would be directly impacted by the development works a translocation programme and destructive search for reptiles was necessary to minimise the risk of reptiles being harmed prior to the development.
4. A total of 40 artificial refugia were laid on the 10th July 2014 in suitable reptile habitat and left for a settling period. A total of 22 visits were carried out between the 4th August and the 17th September 2014 by Claire Ford MSc GradIEM and Matthew Clarke to capture and translocate reptiles to the receptor site. The translocation continued until no reptiles were found in the trapping area for five consecutive suitable-weather days. The raw data is given in *Table 4.2.1* in *Section 4*.
5. A total of 76 slow-worms were captured and translocated to the receptor site. This included 10 juveniles, 31 sub-adults, 33 adults (7 adult males and 25 adult females) and two of unknown age. In addition, 13 adult slow-worms were seen but not captured (10 on the first visit, 2 on the second visit and 1 on the third visit). The maximum number of slow-worms captured in a single visit was 14. The number of slow-worms captured was consistent with the initial assessment that a high population of slow-worms was present.
6. A destructive search for reptiles involving vegetation clearance and topsoil stripping was conducted on the 1st October 2014 under strict ecological supervision by Adam Lewins BSc ACIEM.

INTRODUCTION

2.1 Purpose of this report

This report describes the reptile translocation carried out by Hampshire Ecological Services Ltd for C.Y. Developments Ltd in connection with a proposal to build new dwellings at 53 Hart Plain Avenue, Cowplain, Hampshire, PO8 8RG (approximate Ordnance Survey Grid Reference 468110). The location of the site is shown in *Figures 1 and 3 in Section 6*.

The translocation aimed to capture and translocate the reptiles to an alternative, suitable location. The reptiles were translocated to a receptor site at Billy's Lake, Wecock Farm (approximate Ordnance Survey Grid Reference SU672110). The location of the site is shown in *Figures 2 and 4 in Section 6*.

2.2 Site description

The site comprises a derelict bungalow together with an overgrown garden containing mature trees, ornamental shrubs, invasive scrub and unmanaged long grassland (former lawns). It is completely enclosed by domestic properties and their gardens in Cowplain. Access is via a narrow private driveway off Hart Plain Avenue to the east, but it is proposed that a new access be provided from the north off Wedgewood Way (a cul de sac).

The proposed receptor site at Billy's Lake, Wecock Farm is of good quality with dense, tussocky grassland interspersed with scattered scrub. Within the last couple of years, the site has benefited from wayleave clearance under the electricity power lines. This additional habitat is becoming suitable for reptiles, helped by piles of decomposing brash left over from the works. This area directly connects to the proposed receptor site and will further boost the reptile carrying capacity of the area.

2.3 Species known in the region

The UK's four most widespread reptile species are present throughout the region (Beebee & Griffiths, 2000); these are common lizard (*Lacerta vivipara*), adder (*Vipera berus*), grass snake (*Natrix natrix*), and slow-worm (*Anguis fragilis*). In addition, the UK's two rarer species of reptile sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*) are also known in the region, (mostly confined to heathland). It is the widespread species which are the subject of this report.

Previous surveys revealed the presence of a high population of slow-worms (*Anguis fragilis*) on the site that would be directly impacted by the development works.

2.4 Legal protection

The four widespread reptile species are listed under *Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)*, in respect of *section 9(5)* and part of *9(1)*. This protection was extended by the *Countryside and Rights of Way Act 2000*.

The legislation makes it an offence to:

- intentionally, or recklessly, kill or injure any of the above species, and/or;
- sell, or attempt to sell, any part of the species, alive or dead.

The two rarer species receive greater protection under both the *Wildlife and Countryside Act* and also from the *Conservation of Habitats & Species Regulations 2010* which gives them full protection under *Regulation 39*.

In addition to the above, *Section 40* of the *Natural Environment and Rural Communities Act* (2006) imposes a new duty on all public authorities to have regard for biodiversity.

2.5 *Life cycle & ecology*

Reptile activity is highly seasonal; they hibernate over the winter (October to March) and are active over the summer months. They become increasingly active as temperatures increase in spring, and in most years they are fully active by mid-April. Reproduction varies between species, but generally peaks in mid-summer when reptiles are at their most active. In late September/ October, activity begins to decrease as reptiles seek frost-free refuges for hibernation.

Reptiles rely on conditions that allow them to maintain their body temperature (they need to be able to bask and avoid extremes of temperature). Habitats need to provide a structure that allows reptiles to bask or otherwise warm up using the sun's energy, but also to avoid extremes of heat and cold. Features that help them achieve a stable body temperature include access to direct sunlight and shelter from the elements, such as wind and excessive heat. In addition, they require sufficiently large populations of prey species (*e.g.* soft-bodied invertebrates for slow-worms), cover to avoid predators and suitable hibernation sites.

2.6 *The need for in situ translocation*

All UK reptile species are legally protected against killing or injury by the *Wildlife and Countryside Act 1981* and *The Countryside and Rights of Way Act 2000*. Where development may cause harm to reptiles it is therefore common practice to remove them to safety – an exercise called ‘translocation’. As with reptile surveys, it is necessary to carry out translocations at times of year when reptiles are active, *i.e.* between March/ April and September.

2.7 *Overview of the translocation scheme*

To allow the site to be cleared for development without harm to reptiles (so as to comply with the law), a plan to translocate the reptiles was developed. The strategy follows slightly modified best practice guidelines issued by the former Herpetofauna Groups of Britain and Ireland (HGBI) in 1998 (as mentioned in Natural England’s *Standing Advice for Protected Species: Reptiles* (2011)) in anticipation of the forthcoming *Reptile Mitigation Guidelines* (Natural England, in prep).

The translocation scheme comprises the following elements:

- capture of slow-worms using artificial refugia and transfer to the receptor site; and
- vegetation clearance and topsoil stripping immediately after the termination of translocation (to render cleared areas unsuitable for reptiles).

The ecological survey of the site carried out by The Environmental Project Consulting Group (2013) states “A large population of slow-worms was recorded across the main lawn areas”. However, there was insufficient suitable habitat being retained on site. On this basis, an *ex situ* translocation scheme suitable for a high population of slow-worms was designed. The scheme involved the removal of captured reptiles to suitable habitat at Billy's Lake, Wecock Farm (see *Figure 2* in *Section 6*).

The receptor site will remain undeveloped and will be managed sympathetically for reptiles (*i.e.* management of scrub encroachment) to ensure a sustainable population.

2.8 Structure of this report

- This report is structured as follows:
- *Section 1* contains the executive summary;
- *Section 2* contains an introduction;
- *Section 3* describes the methodology;
- *Section 4* describes the results;
- *Section 5* gives evaluation and interpretation;
- *Section 6* provides figures including;
 - *Figure 1* gives aerial photographs showing the site location;
 - *Figure 2* gives aerial photographs showing the location of the receptor site;
 - *Figure 3* gives an Ordnance Survey map showing the location of the site;
 - *Figure 4* gives an Ordnance Survey map showing the location of the receptor site;
 - *Figure 5* gives a site plan showing the extent of suitable reptile habitat;
 - *Figure 6* shows the location of artificial refugia for the reptile translocation; and
 - *Figure 7* shows the extent of the receptor site at Billy's Lake.
- *Section 7* provides photographs of the sites; and
- *Section 8* provides references.

METHODOLOGY

3.1 General

Before any works on the site could begin, a translocation programme and destructive search for reptiles was necessary to minimise the risk of reptiles being harmed prior to the development.

3.2 Date(s), times and weather

A site visit was carried out on the 3rd June 2014 to confirm the site was still suitable for reptiles and to discuss the reptile mitigation strategy with the client.

Artificial refugia were set out during the daytime on the 10th July 2014 in suitable reptile habitat.

A total of 22 visits were carried out for the purpose of capturing and translocating the reptiles. These were carried out between the 4th August and the 17th September 2014. The weather conditions for each visit are given in *Table 4.2.1* in *Section 4*. Five days of no reptile captures in suitable weather conditions followed this.

A destructive search for reptiles was conducted on the 1st October 2014.

3.3 Personnel

The site visit to confirm the site was suitable for reptiles and to discuss the reptile mitigation strategy with the client was carried out by John Poland CEnv MCIEEM CBiol MRSB.

The artificial refugia were set out by Claire Ford MSc GradCIEEM and Robert Williams MSc ACIEEM. The reptile translocation was carried out by Claire Ford MSc GradCIEEM and Matthew Clarke who are experienced in carrying out reptile surveys, translocations and collecting biometric data.

The destructive search was supervised by Adam Lewins BSc ACIEEM who is experienced in carrying out reptile surveys and translocations.

All staff adhere to the Chartered Institute of Ecology and Environmental Management's *Code of Professional Conduct*.

3.4 Habitat Suitability

Different species of reptile have varying habitat preferences and requirements as outlined below (Beebee & Griffiths 2000).

- Common lizards use a variety of habitats from woodland glades to walls and pastures; although one of their favoured habitats is rough grassland.

- Slow-worms utilise similar habitats to common lizards, and are often found in rough grassland, gardens, and derelict land.
- Grass snakes have broadly similar requirements to common lizards, although they have a greater reliance on ponds and wetlands, where they prey on common frogs.
- Adders use a variety of fairly open habitats (with some cover available) but are most often found in dry heath and woodland edge.

An ecological survey carried out by The Environmental Project Consulting Group (2013) states “A large population of slow-worms was recorded across the main lawn areas”. The suitability of the site for widespread species of reptile was confirmed by Hampshire Ecological Services Ltd during a site visit on the 3rd June 2014.

3.5 *Artificial refugia*

Standard methods were used, which involves placing 100 x 60cm sheets of heavy-duty roofing felt (artificial refugia) in areas where they were most likely to be used by reptiles (*e.g.* at the edges of bramble scrub and in tussocky grassland, *etc*) so that all suitable habitat present was represented. So far as possible they were placed on slightly uneven ground so as not to lie completely flat (creating a varied microclimate). It is common practice to lay out artificial refugia some days or weeks prior to the commencement of a survey or translocation so that reptiles become habituated to their presence.

A total of 40 pieces of heavy-duty roofing felt were placed around the site on the 10th July 2014 and left for a settling period.

3.6 *Capture effort*

The results of the ecological survey carried out by The Environmental Project Consulting Group (2013) suggested that there is a high population of slow-worms. Capture effort was therefore based on the understanding that a high population of slow-worms need to be translocated.

Table 3.5.1.1. Guidelines for minimum capture-effort for slow-worms (HGBI 1998).

Adult population size (adult density)	Artificial refugia density/ha	Minimum number of trapping days in suitable conditions
High Population (>100/ha)	100	All suitable days between March and September or a full year (minimum of 90 suitable days)
Medium Population (>50/ha)	100	All suitable days between March and September or a full year (minimum of 70 suitable days)
Low Population (<50/ha)	50	A minimum of 60 suitable days

HGBI guidelines (1998) recommend minimum numbers of artificial refugia per unit area (*i.e.* minimum refugia densities) that vary according to the estimated population size. For a high population, a minimum of 100 refugia per hectare is recommended (*Table 3.5.1.1 above*). A total of 40 artificial refugia were laid out during the translocation.

It is possible to continue capturing animals in sub-optimal weather, provided that no conclusions about the number of animals remaining are drawn from a failure to capture animals in such

conditions.

Capture depletion curves are sometimes used as a way of judging that most reptiles have been removed. Care is needed in the interpretation of these curves, as reptile activity is seasonal and varies with weather conditions. Rates of capture would be expected to drop in hot summer weather and in autumn and at other times when weather conditions are unfavourable.

3.7 *Capture and translocation programme*

3.7.1 *Reptile capture*

The refugia were checked once or twice daily on suitable days between the 4th August and the 17th September 2014. A total of 22 visits were carried out (plus five visits with no reptiles). The translocation continued until no reptiles were found in the trapping area for five consecutive suitable-weather days, provided a minimum of 15 suitable trapping days has already taken place. This is lower than the 60 minimum days given in HGBI guidelines (1998) but provides an acceptable level of translocation effort providing five clear (reptile-free) days have been achieved and careful interpretation of the capture depletion curve (a curve visible when the data is plotted on a graph) demonstrates the majority of reptiles have been translocated.

Days with heavy rain are generally accepted as unsuitable, though sunny periods after rain may be ideal because reptiles may emerge from cover to bask. Slow-worms are less sensitive than the other species, and are known to use artificial refugia in a wider range of weather conditions.

The slow-worms were hand-captured by trained personnel using best-practice handling techniques (Gent & Gibson, 2003). Care was taken to avoid holding slow-worms behind the vent (which can cause them to shed their tails). Captured slow-worms were kept for the minimum practicable time in large cloth bags (pillow cases) allowing good ventilation during transport to the receptor site. Data was recorded for each individual and the reptiles were immediately released into an area of suitable reptile habitat at the receptor site.

3.8 *Monitoring progress of the translocation*

3.8.1 *Data recording*

In addition to date and time, details of environmental conditions and captured individuals were recorded as follows:

- Weather:
 - air temperature (°C);
 - cloud cover (%); and
 - a general description of conditions including wind (speed/ direction) and incidence of rain.
- Data for each individual:
 - species;
 - sex;
 - age class (adult, sub-adult or juvenile);

- biometrics (snout to vent and vent to tail measurements, in mm); and
- whether translocated or observed without capture.

Data for individuals sighted but not captured were also noted. Adults are taken to be sexually mature individuals (3-4 years old), typically more than 230mm long (Beebee & Griffiths 2000). Juveniles are small individuals born in the season of capture or the previous season. Sub-adults fall between these categories.

3.9 *Destructive searching (vegetation clearance and topsoil stripping)*

Works to render habitat unsuitable for reptiles were carried out upon the termination of capture and translocation programme. The works were supervised by an ecologist so that no reptiles were harmed; any found were captured and removed to the receptor site. This took a day to complete on the 1st October 2014. The works involved topsoil stripping under strict ecological supervision, making the area finally unsuitable for reptiles. The programme comprised the following:

- artificial refugia were initially laid out at high density;
- any remaining natural refugia was removed by hand;
- a hand search of artificial refugia and vegetation was carried out immediately before vegetation clearance;
- topsoil stripping under strict ecological supervision was undertaken as the final stage. The upper layer (15cm) of topsoil was stripped by a 360-excavator using a wide bucket with long tines (to minimise injury to reptiles). Uncovered reptiles could then be captured by hand.

RESULTS

4.1 Suitable habitat

The site is an overgrown garden containing mature trees, ornamental shrubs, invasive scrub and unmanaged long grassland, which is suitable habitat for widespread species of reptiles such as slow-worm.

The location of suitable reptile habitat is illustrated in *Figure 5* in *Section 6*.

The proposed receptor site at Billy's Lake, Wecock Farm has good quality reptile habitat with dense, tussocky grassland interspersed with scattered scrub. Within the last couple of years, there has been wayleave clearance under the electricity power lines. This additional habitat is becoming suitable for reptiles, helped by piles of decomposing brash left over from the works. This area directly connects to the proposed receptor site and will further boost the reptile carrying capacity of the area.

4.2 Capture and translocation programme

A total of 76 slow-worms were captured within suitable habitat across the site and translocated to the receptor site. This included 10 juveniles, 31 sub-adults, 33 adults (7 adult males and 25 adult females) and two of unknown age. In addition, 13 adult slow-worms were seen but not captured (10 on the first visit, 2 on the second visit and 1 on the third visit). The maximum number of slow-worms captured in a single visit was 14. *Table 4.2.1.* presents the results of the translocation.

The number of slow-worms captured was consistent with the initial assessment that a high population of slow-worms was present.

No other reptile species were found to be present.

Table 4.2.1. Results of capture under artificial refugia and translocation. S-w = Slow-worm.

Date	Time of check	Temp (°C)	Species	No.	Sex & Age	SV length (mm)	VT length (mm)	General weather
04/08/14	14:30:00	21	S-w	1	Adult Male	120	140	Sunny, clear and still
			S-w	1	Sub-adult	Not recorded		
			S-w	1	Adult	Seen only		
			S-w	1	Adult	Seen only		
			S-w	1	Adult female	120	90	
			S-w	1	Adult	Seen only		
			S-w	1	Adult	Seen only		
			S-w	1	Adult	Seen only		
			S-w	1	Adult	Seen only		
			S-w	1	Sub-adult	90	70	
			S-w	1	Adult female	140	70	
			S-w	1	Sub-adult	100	120	
			S-w	1	Adult	Seen only		
			S-w	1	Adult Male	Not recorded		
			S-w	1	Adult female	135	110	
			S-w	1	Adult female	Not recorded		
			S-w	1	Adult	Not recorded		
			S-w	1	Adult	Seen only		
			S-w	1	Adult	Seen only		
			S-w	1	Sub-adult	95	85	
			S-w	1	Sub-adult	Seen only		

			S-w	1	Adult Male	Not recorded		
			S-w	1	Adult female	110	190	
			S-w	1	Adult female	-	80	
06/08/14	15:45:00	23	S-w	1	Adult Male	160	180	Warm and still with light showers
			S-w	1	Adult Male	120	140	
			S-w	1	Adult female	210	220	
			S-w	1	Sub-adult	Seen only		
			S-w	1	Sub-adult	110	110	
			S-w	1	Sub-adult	Seen only		
			S-w	1	Adult female	210	230	
07/08/14	09:15:00	18	S-w	1	Sub-adult	Seen only		Sunny, clear and still
			S-w	1	Sub-adult	95	110	
			S-w	1	Adult female	160	100	
			S-w	1	Sub-adult	60	60	
			S-w	1	Sub-adult	Not recorded		
			S-w	1	Sub-adult	60	90	
08/08/14	09:00:00	16	S-w	1	Sub-adult	80	100	Warm, humid and still
			S-w	1	Sub-adult	84	100	
			S-w	1	Sub-adult	75	75	
			S-w	1	Adult female	75	145	
11/08/14	09:00:00	17	S-w	1	Sub-adult	72	80	Dry, overcast and still

			S-w	1	Adult female	110	90	
			S-w	1	Sub-adult	60	70	
13/08/14	09:00:00	16	S-w	1	Sub-adult	50	70	Dry, overcast and still
			S-w	1	Sub-adult	50	55	
			S-w	1	Adult Male	120	92	
14/08/14	09:00:00	16	S-w	1	Adult female	113	40	Dry, overcast and still
			S-w	1	Sub-adult	62	52	
			S-w	1	Sub-adult	74	90	
14/08/14	10:00:00	16	S-w	1	Adult female	110	110	Dry, warm, still, 50% cloud cover
			S-w	1	Sub-adult	90	100	
			S-w	1	Sub-adult	80	100	
			S-w	1	Adult female	130	150	
18/08/14	10:15:00	16	S-w	1	Adult female	110	110	Dry, warm and still
			S-w	1	Sub-adult	90	100	
			S-w	1	Sub-adult	80	100	
			S-w	1	Adult female	130	150	
28/08/14	14:30:00	18	S-w	1	Adult Male	Not recorded		Dry and sunny with a light air, 50% cloud cover
			S-w	1	Sub-adult	Not recorded		
			S-w	1	Sub-adult	Not recorded		
			S-w	1	Sub-adult	Not recorded		
			S-w	1	Juvenile	Not recorded		
			S-w	1	Juvenile	Not recorded		

29/08/14	10:00:00	17	S-w	1	Sub-adult	130	65	Rain, 90% cloud cover, light breeze
			S-w	1	Sub-adult	100	120	
			S-w	1	Juvenile	75	85	
30/08/14	14:00:00	20	S-w	1	Adult female	170	135	Dry and humid, 90% cloud cover, light air
			S-w	1	Sub-adult	120	130	
			S-w	1	Juvenile	90	100	
			S-w	1	Juvenile	70	95	
31/08/14	11:45:00	20	S-w	1	Adult female	130	50	Sunny and humid, 75% cloud cover, light air
			S-w	1	Adult female	120	130	
02/09/14	16:30:00	20	S-w	1	Adult female	135	105	Sunny and humid, 40% cloud cover, light air
			S-w	1	Juvenile	95	110	
			S-w	1	Adult female	125	135	
03/09/14	14:45:00	21	S-w	1	Juvenile	75	95	Sunny, 40% cloud cover, light breeze
			S-w	1	Adult female	210	55	
			S-w	1		140	80	
04/09/14	11:00:00	20	-	-	-	-	-	Sunny, 30% cloud cover, light air
05/09/14	14:00:00	19	-	-	-	-	-	Sunny, 20% cloud cover, light air
06/09/14	16:00:00	22	S-w	1	Juvenile	95	95	Warm, 50% cloud cover, no wind
07/09/14	14:00:00	22	S-w	1	Juvenile	40	40	Sunny, 5% cloud cover, light air
08/09/14	14:00:00	23	S-w	1	Not recorded			Sunny
			S-w	1	Sub-adult	90	110	
			S-w	1	Adult female	120	150	
17/09/14	10:00:00	21	S-w	1	Juvenile	110	115	Sunny

			S-w	1	Sub-adult	110	120	
			S-w	1	Adult female	140	160	
17/09/14	15:00:00	21	S-w	1	Sub-adult	11	12	Sunny
			S-w	1	Adult female	14	16	

5 **INTERPRETATION AND EVALUATION**

5.1 **Constraints**

The garden had become very overgrown. This meant when the excavator removed the topsoil it was difficult to inspect for reptiles and observe moving earth through the vegetation. Works then had to be undertaken with particular care.

The receptor site should be as close to the application site as possible. The distance between the site at 53 Hart Plain Avenue and Billy's Lake, Wecock Farm receptor site is a greater than ideal distance. However, due to the highly suitable habitat in the receptor site and the fact that it will be managed and maintained as suitable for reptiles it is deemed the best option to ensure the long-term survival of the slow-worms.

5.2 **Conclusion**

The site at 53 Hart Plain Avenue had suitable habitat for widespread species of reptile. A total of 76 slow-worms were captured within suitable habitat across the site and translocated to the receptor site. The receptor site at Billy's Lake, Wecock Farm is owned and managed by the Acorn Centre and is free of foreseeable threats such as future development.

FIGURES

Figure 1. Aerial photographs showing the location of the site.

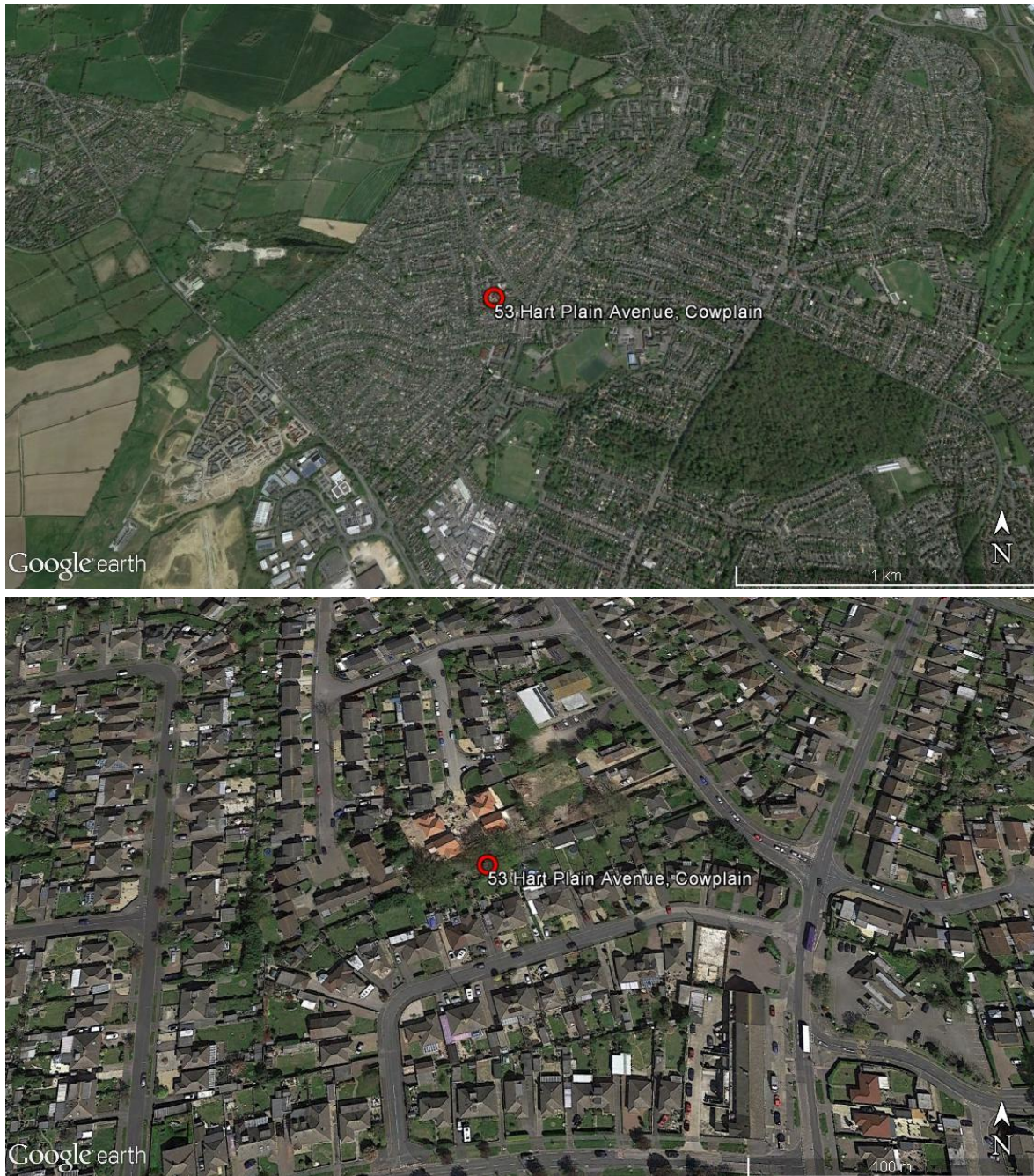


Figure 2. Aerial photographs showing the location of the receptor site at Billy's Lake.

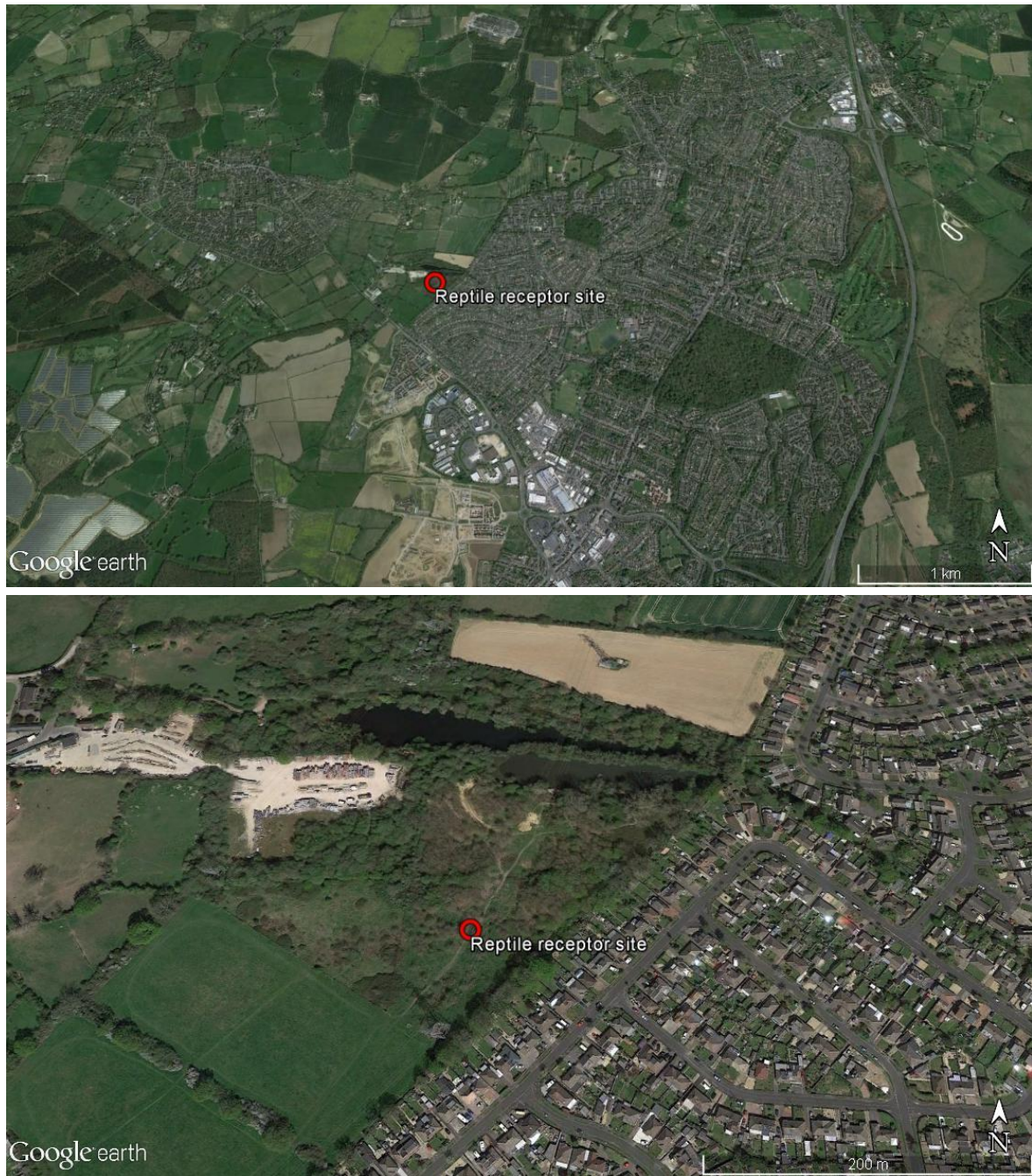
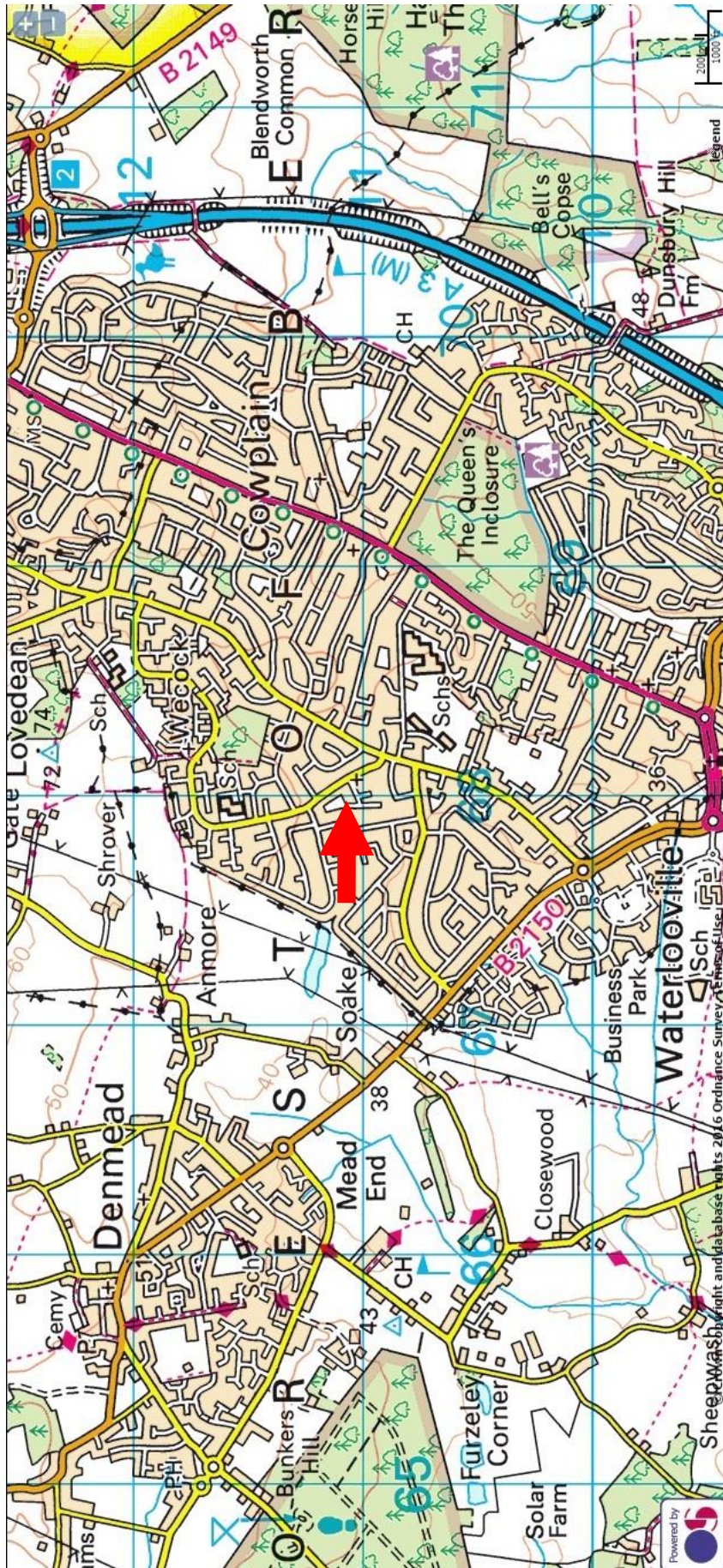
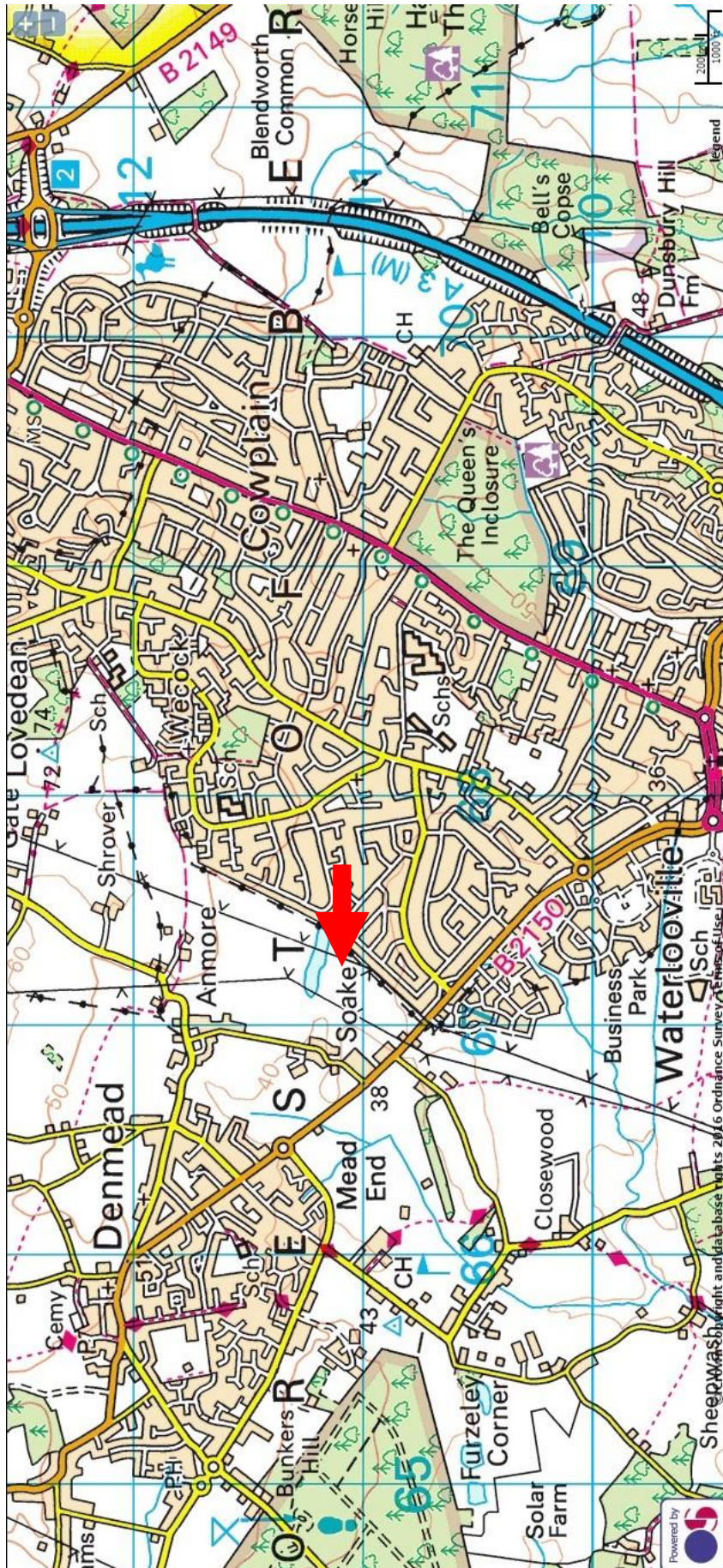


Figure 3. An Ordnance Survey map showing the location of the site, as indicated by the red arrow.



Reproduced with permission of Ordnance Survey under licence no. 100049977.

Figure 4. An Ordnance Survey map showing the location of the receptor site.



Reproduced with permission of Ordnance Survey under licence no. 100049977.

Figure 5. Site plan showing the extent of suitable reptile habitat on site (rough grassland, hedges & scrub).



Figure 6. Location of artificial refugia for reptile surveys (refugia with recorded reptiles highlighted).

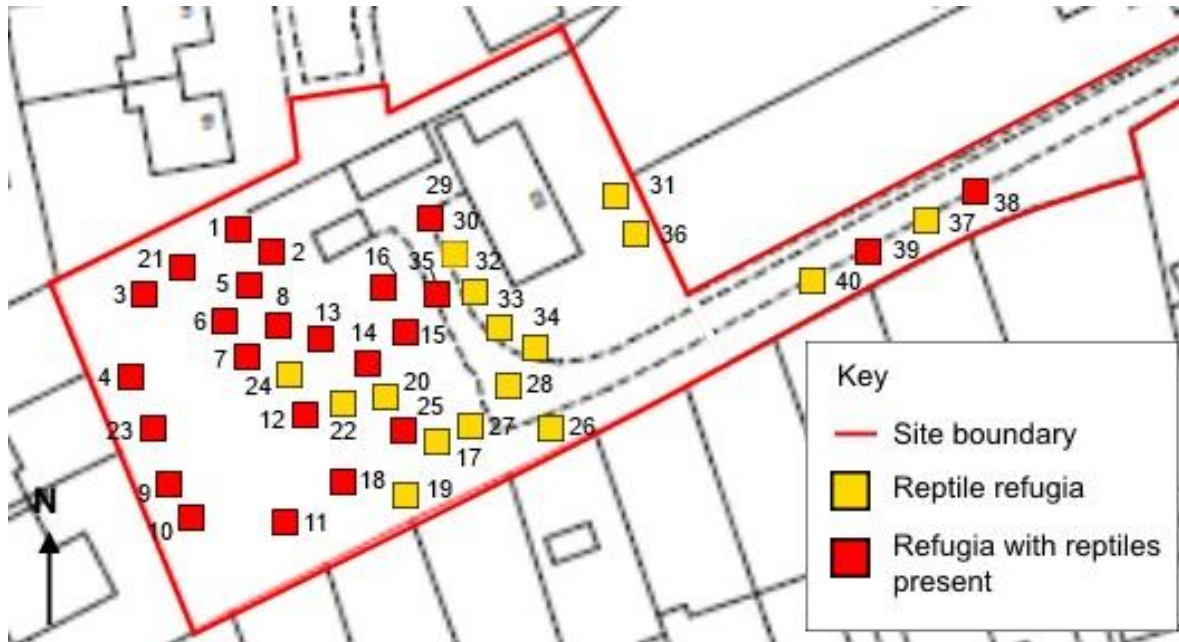


Figure 7. *Extent of the receptor site at Billy's Lake.*



PHOTOGRAPHS

Photo 1. Suitable reptile habitat at 53 Hart Plain Avenue.



Photo 2. Suitable reptile habitat at 53 Hart Plain Avenue.



Photo 3. Suitable reptile habitat at Billy's Lake receptor site.



Photo 4. Suitable reptile habitat at Billy's Lake receptor site.



Photo 5. Suitable reptile habitat under pylons at Billy's Lake.



Photo 6. Suitable reptile habitat under pylons at Billy's Lake.



REFERENCES

Beebee, T. & Griffith, R. (2000) *Amphibians and Reptiles*. HarperCollins, London.

Edgar, P, Foster J. & Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth.

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

Gent, T & Gibson, S. (1998) *The Herpetofauna Workers' Manual*. Joint Nature Conservation Committee, Peterborough.

Herpetofauna Groups of Britain and Ireland [HGBI] (1998). *Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards*. HGBI, c/o Froglife, Halesworth.

HMSO (1981). *Wildlife and Countryside Act 1981*. HMSO, London.

HMSO (2012). *The Conservation of Habitats and Species (Amendment) Regulations 2012*. HMSO, London.

HMSO (2000). *Countryside and Rights of Way Act*. HMSO, London.

Natural England (in prep.). *Reptile Mitigation Guidelines*. Natural England, Peterborough.

Natural England (2011). *Standing Advice for Protected Species: Reptiles*. Natural England, Peterborough.

The Environmental Project Consulting Group (2013). *Land at 53 Hart Plain Avenue Cowplain, Hampshire PO8 8RG: Ecological Impact Assessment: Addendum*. Unpublished.