

A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010041

6.7 Environmental Statement – Appendix 9.15 Reptile Survey Report

Part A

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

June 2020

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

**The A1 in Northumberland: Morpeth to Ellingham
Development Consent Order 20[xx]**

Environmental Statement - Appendix

Regulation Reference:	APFP Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010041
Application Document Reference	TR010041/APP/6.7
Author:	A1 in Northumberland: Morpeth to Ellingham Project Team, Highways England

Version	Date	Status of Version
Rev 0	June 2020	Application Issue

A1 in Northumberland

B2104701

Reptile Survey Report

Version 2

April 2018

Document Control

Document Title	B2104700/OD/331 - Reptile Survey Report
Author	Anatoli Togridou
Owner	Nannette Hoyle, Highways England
Distribution	
Document Status	Final

REVISION HISTORY

Version	Date	Description	Author
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EXECUTIVE SUMMARY

This technical report presents the findings of reptile surveys undertaken by Jacobs UK Ltd. (Jacobs) on behalf of Highways England to establish the presence/absence of reptiles within the survey area of the proposed upgrade of the A1 carriageway in Northumberland.

The report provides a summary of ecological information obtained from a desk study and the reptile surveys that were undertaken between April 2017 and October 2017. All reptile surveys were undertaken in accordance with the methodology detailed in the Design Manual for Roads and Bridges (DMRB) VOLUME 10 SECTION 4 - PART 7 HA 116/05¹, and the Froglife Advice Sheet 10: Reptile Survey (Froglife, 1999).

The desk study undertaken in May 2016 identified records of common lizard (*Zootoca vivipara*) and adder (*Vipera berus*).

A habitat suitability assessment of the survey area identified 16 areas of suitable reptile habitat (Low suitability – 5 areas; Moderate suitability – 8 areas and High suitability – 3 areas).

Reptile surveys were undertaken in suitable weather conditions between April and October 2017. No reptile activity was recorded in the survey area during the surveys.

As the behaviour of wildlife is seasonal and highly unpredictable, it is therefore considered good practice for the reptile surveys to be repeated if the development is deferred for over 12 months from the date of the initial survey.

¹ <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol10/section4/ha11605.pdf>

1 INTRODUCTION

1.1 Scheme Background

1.1.1 Following the outcomes of the 2014 A1 North of Newcastle Feasibility Study the Department of Transport confirmed, in its first Roads Investment Strategy, the intention to upgrade twenty-one kilometres of the existing A1 to a dual carriageway between Morpeth and Ellingham in Northumberland. This comprised two discreet sections:

- Section A - Morpeth to Felton, and;
- Section B - Alnwick to Ellingham.

1.1.2 At this stage of the project (PCF Stage 2) one option was under consideration for Section A, this is briefly described below:

Section A - Morpeth to Felton

- Offline Option – this option would be online at its north and south ends, but a large central section would form a new bypass to the west of the existing A1 between the Floodgate Burn crossing and Bockenfield Bridge. The existing A1 would be detrunked and form part of a local road network, which would separate local and strategic traffic.

1.2 Report Rationale

1.2.1 The aim of this report is to present baseline information in relation to reptiles. This includes desk study information and data from field surveys undertaken between April and October 2017 by Jacobs. The information presented will be used to identify the requirement if any for additional surveys to be completed at PCF Stage 3. The data will ultimately inform the Environmental Impact Assessment (EIA) for the preferred option.

1.3 Definitions

1.3.1 The study area relates to a 2 km buffer around the proposed options for Section A in which desk study information has been collated via online and third party sources.

1.3.2 The survey area refers to a 100 m buffer around the offline option for Section A.

1.4 Legislative and Regulatory/Policy Context

1.4.1 An assessment of the relevant legislative and regulatory framework covering reptiles in the UK has been undertaken. Due consideration has been given to the following statutory instruments and policy frameworks in the preparation of this report:

- Conservation of Habitats and Species Regulations 2017²(Habitat Regulations).
- Wildlife and Countryside Act 1981 (as amended)³(WCA);
- Nature Conservation Scotland Act 2004⁴; and

1.4.2 The UK supports four species of common widespread reptile species which are found throughout a number of habitat types such as: rough grassland, scrub, woodland edge and habitats associated with roadside verges. These species are: common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Vipera berus*).

² <https://www.legislation.gov.uk/ukxi/2017/1012/contents/made>

³ <http://www.legislation.gov.uk/ukpga/1981/69>

⁴ <https://www.legislation.gov.uk/asp/2004/6/contents>

- 1.4.3 All common reptile species receive partial legal protection in England and Wales, arising from the legislation listed in this section. Common reptile species are listed on Schedule 5 of the WCA this protection makes an offence to intentionally kill or injure these species.
- 1.4.4 The more threatened rarer species, Sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*) are fully protected in the UK under the combined measures of the Conservation of Habitats and Species Regulations 2017 (Habitat Regulations) and WCA. Northumberland is beyond the known range of these species, which is highly restricted the UK, therefore they will not be considered further in this report.
- 1.4.5 All six reptile species are listed as Species of Principal Importance (SoPI) under the NERC Act (2006).
- 1.4.6 The Northumberland BAP does not currently contain specific species action plans (SAPs) for reptile species.

2 METHODOLOGY

2.1 Objectives

2.1.1 The objectives of the reptile surveys were to:

- assess the survey area for reptile habitat suitability;
- identify reptile presence within the survey area;
- establish a baseline to determine the importance of the survey area for reptiles; and,
- provide sufficient field data for the development of an appropriate mitigation strategy.

2.2 Desk Study

2.2.1 A search of online resources was undertaken to obtain ecological information about the Study Area and surrounding landscape. At the time that the desktop study data there were three options for Section A were under consideration. The desktop study data refers to a 2 km buffer of the three combined options.

2.2.2 The following websites were also researched:

- Multi-Agency Geographic Information for the Countryside (MAGIC); and,
- Northumberland Biodiversity Action Plan.

2.2.3 In addition to online resources, species record data was requested from the Environmental Records Information Centre (ERIC) North East in May 2016.

2.2.4 Ordnance survey maps and aerial photographs were also studied to identify suitable reptile habitats within the study area.

2.3 Field Survey

Habitat Suitability

2.3.1 A qualitative assessment of the suitability of the habitats to support reptile populations within 100m of the proposed route was undertaken. Habitats that ostensibly appeared suitable for reptiles (i.e. rank tussocky grassland, riparian margins and woodland rides etc.) were assessed for reptile suitability using factors outlined in the Reptile Habitat Management Handbook (Edgar et al. 2010) and summarised below.

2.3.2 The factors considered to assess the suitability of a habitat for reptiles were:

- vegetation structure (and vegetation type);
- extent (small habitat patches or larger suitable areas);
- aspect (south facing or not);
- connectivity with other suitable reptile habitats;
- presence of suitable basking sites;
- shade; and
- likelihood of predation and disturbance.

2.3.3 These factors were identified using a number of sources such as aerial imagery and Phase 1 Habitat data (Jacobs 2018, OD-264 Extended Phase 1 Habitat Survey).

2.3.4 Based on a qualitative assessment of the criteria above, habitats were then classified in three different categories regarding their suitability to support reptiles, categories comprised:

- low suitability;
- moderate suitability; and
- high suitability.

2.3.5 This data was used to give an indication of habitats to support reptiles.

Presence / Absence Surveys

- 2.3.6 Reptile presence/absence surveys were broadly undertaken in accordance with good practice survey techniques guidance for reptiles (Design Manual for Roads and Bridges (DMRB) VOLUME 10 SECTION 4 - PART 7 HA 116/05⁵ and Froglife 1999). It should be noted that deviations from exact timings and survey period, from those quoted in the guidance, were required to ensure surveys were undertaken in suitable climatic conditions for basking reptiles – this potential limitation is addressed in Section 2.4.
- 2.3.7 A total of 16 areas (1-16) of habitat suitable to support reptiles were identified. Presence/absence surveys were conducted in each of these areas, which involved placing 0.5m x 0.5m and 0.5m x 1m artificial refugia (roofing felt) on top of flattened vegetation. Repeat visits were made to each area a minimum of seven occasions where limitation permitted (see section 2.4 for details of limitations).
- 2.3.8 A minimum of ten refugia per hectare of suitable reptile habitat were deployed in each area, allowing a minimum of one week to allow the refugia to embed into the vegetation before presence/absence surveys were begun.
- 2.3.9 The reptile surveys were undertaken in 2017 between April and October by experienced Jacobs' ecologists.
- 2.3.10 Each survey visit involved a visual search of each area of suitable reptile habitat, focusing on potential basking areas between vegetation and the artificial refugia checking. Artificial refugia were approached cautiously in order to view any reptiles basking. Artificial refugia were also checked under to record any reptiles taking refuge.
- 2.3.11 Refugia checks were undertaken during weather conditions suitable for basking reptiles. The optimum temperature range is between 9 °C and 18 °C, and sunny conditions are ideal, whereas rain and wind is less suitable (Froglife, 1999).

2.4 Survey Limitations

2.4.1 Limitations specific to certain survey areas are described in Table 1 below. These reduced the number of survey visits completed in each area.

Table 1: Survey limitations impacting specific survey areas.

Reptile survey area number	Limitations
1	Access limited as cattle present.
2	Access refused.
6	Access limited as cattle present.
10	Building works started in this area in September 2017; the majority of the refugia were destroyed.
14	Grass cutting; refugia were destroyed prior to the final two survey visits. Reducing the number of survey visits completed.

⁵ <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol10/section4/ha11605.pdf>

Reptile survey area number	Limitations
15	Refugia were moved or interfered with on three occasions prior to survey.
16	Access was intermittently refused by landowner on the basis of lambing and game bird rearing concerns.

- 2.4.2 Surveys of the A1 verges were not undertaken due to health and safety concerns over working next to a live carriageway. However, surveys were carried out on adjacent parcels of land up to A1 verge therefore it is assumed there would some overlap in reptile population and habitats.
- 2.4.3 Good practice guidelines (DMRB Volume 10, Section 4 and Froglife 1999) state that surveys should be undertaken between April and September⁶ and with timings between 08.30h - 11.00h and 16.00h to 18.30h. Deviations from exact timings and survey period, from those quoted in the guidance, were required to ensure surveys were undertaken in suitable climatic conditions for basking reptiles. Therefore, the survey period and timings was adjusted to adapt to the weather conditions for Northumberland to ensure surveys were undertaken when reptiles would be basking. Minor deviations from the recommended survey timings is not considered to be a significant limitation to the survey.
- 2.4.4 Although the limitations described in Table 1 above reduced the survey effort to some habitats in the survey area it is not considered that the limitation identified presented a significant limitation to identifying the presence of reptiles overall.
- 2.4.5 Surveys were undertaken at an optimal time of year so the results are considered appropriately robust. However, it should be noted that site conditions can change over time with the inward and outward movement of species so an absence of a species record should not be taken as an indication of an absence of that species from the survey area. Therefore, this report reflects the site conditions up to October 2017. The behaviour of wildlife is seasonal and highly unpredictable and as such, it is considered good practice for wildlife surveys to be repeated should the development be deferred for over 12 months from the date of the initial survey.
- 2.4.6 The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document. Should there be a delay in the proposed construction programme, it is considered prudent that the survey findings be reviewed and updated as required for subsequent planning application(s) to ensure that the assessment of ecological impacts is undertaken against an accurate baseline.

⁶ Optimal times are April - mid/late May and/or mid/late August - mid/late September

3 BASELINE

3.1 Desk Study

3.1.1 The data search provided by ERIC North East returned 31 records of common lizard and nine records of adder. None of the records were located within the survey area. The records are summarised in Appendix B.

3.2 Field Results

Habitat Suitability

3.2.1 The majority of the habitat within the scheme was dense farmed land which is sub-optimal to support reptile populations. In total 16 areas within the survey area were identified as having potential to support reptiles and were subject to presence/absence surveys. Appendix B describes reptile habitats in detail with illustrative pictures and habitat descriptions.

3.2.2 In brief the habitat suitability assessment identified the following areas of suitable reptile habitat:

- Low suitability – 5 areas;
- Moderate suitability – 8 areas; and,
- High suitability – 3 areas.

Reptile Survey Results

3.2.3 The reptile survey areas were visited by suitably qualified ecologists between April and October 2017. The locations of the survey areas and numbers of refugia within each survey area are presented in Figures 1.1 to 1.5, and the numbers of survey visits conducted within each survey area are shown in Table 2 below.

Table 2: Habitat suitability ranking and number of surveys for each survey area.

Reptile survey area number	Habitat suitability	Number of refugia	Total number of visits
1	Low	5	2
2	Moderate	10	4
3	Low	15	8
4	Low	10	9
5	Moderate	5	8
6	Moderate	20	2
7	High	15	8
8	Low	5	8
9	Moderate	10	9
10	Moderate	10	7
11	High	20	8
12	High	30	8
13	Moderate	10	8
14	Low	14	6
15	Moderate	10	3

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Reptile survey area number	Habitat suitability	Number of refugia	Total number of visits
16	Moderate	16	6

- 3.2.4 Although suitable reptile habitat was present in the survey area no reptiles were recorded during the survey.
- 3.2.5 Detailed results and survey weather conditions of the surveys are presented in Appendix C.

4 SUMMARY

- 4.1.1 No reptiles were found during the surveys. However, the survey area does contain suitable habitat for reptiles, although the likelihood for reptile presence is considered to be low.
- 4.1.2 Mitigation strategies are dependent upon the specific significance of the construction impact (i.e. loss of habitat or temporary damage to habitat). The Ecology Chapter Environmental Statement (ES) will present full details of the potential impacts on the species associated with the proposed scheme and suitable mitigation measures if required.

5 REFERENCES

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

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

Gent, T. and Gibson, S. (Eds.) 1998. Herpetofauna Workers' Manual. Joint Nature Conservation Committee, Peterborough.



Jacobs (2018) OD-264 - A1 in Northumberland Extended Phase 1 Habitat Survey

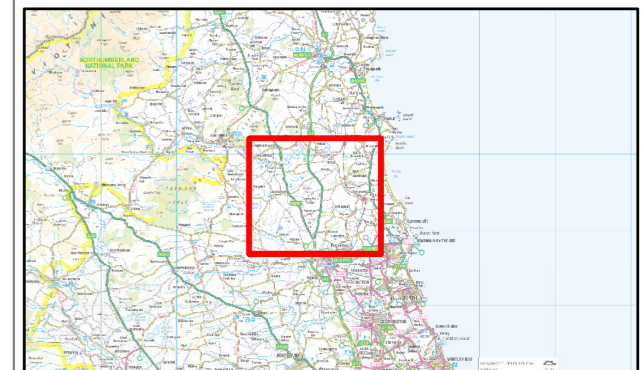
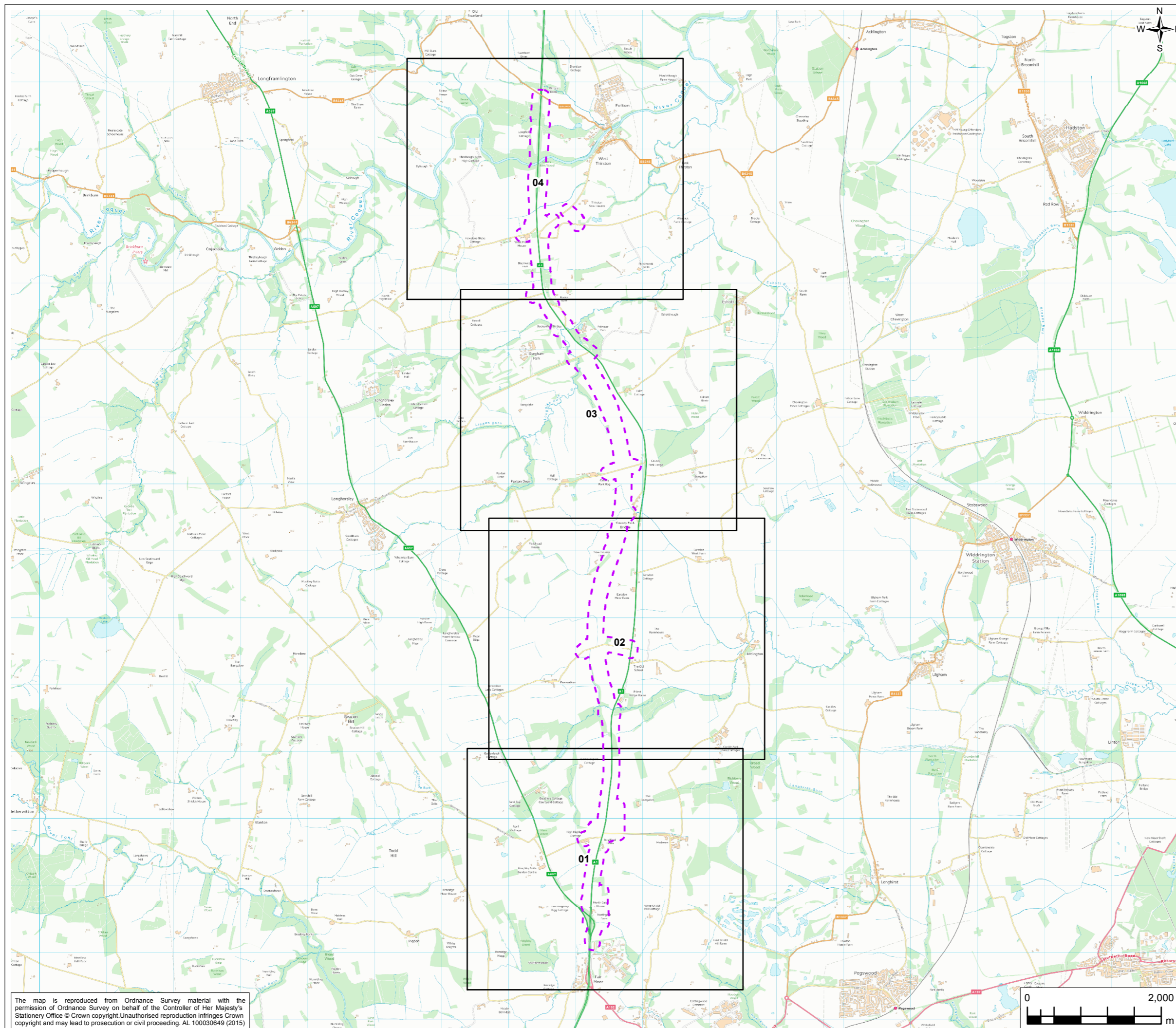
FIGURES

Figure 1.1 to 1.5: Section A – Reptile survey areas (Overview Map and Areas 1 to 16)

FIGURE 1.1

Legend

-  100m Survey Area
-  Sheet Extents (sheet number)



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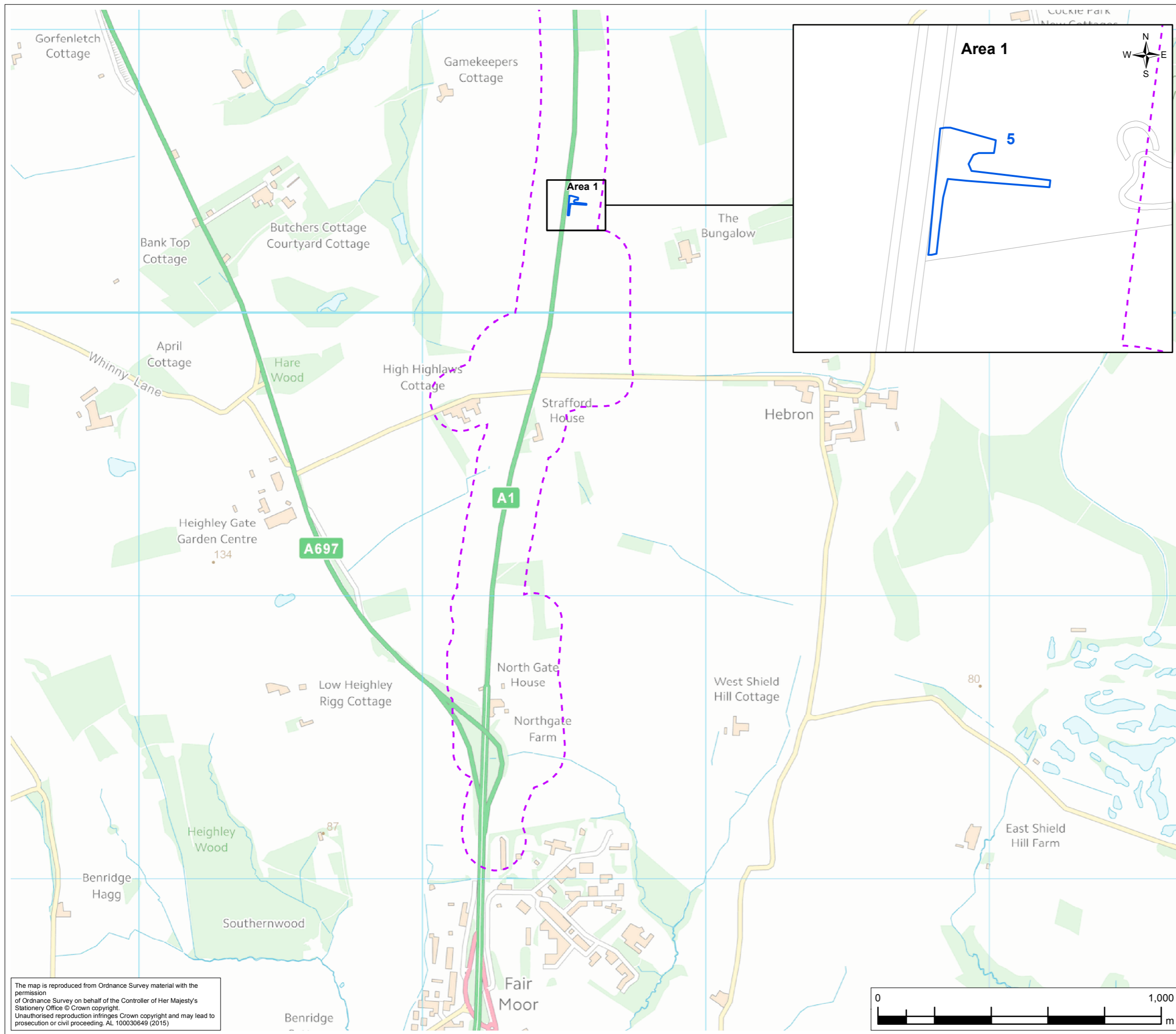
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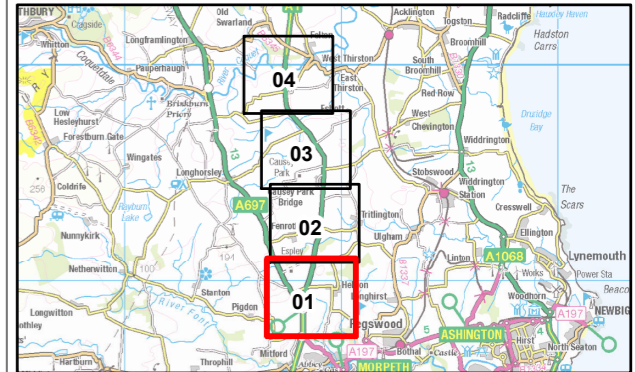
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FIGURE 1.2



- Legend**
- 100m Survey Area
 - Reptile Survey Area
 - xx Number of Refugia



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 REPTILE SURVEY AREAS

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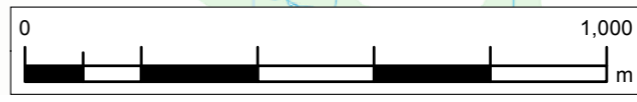



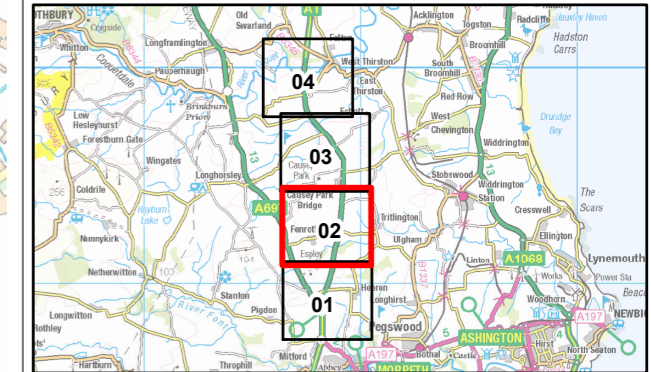
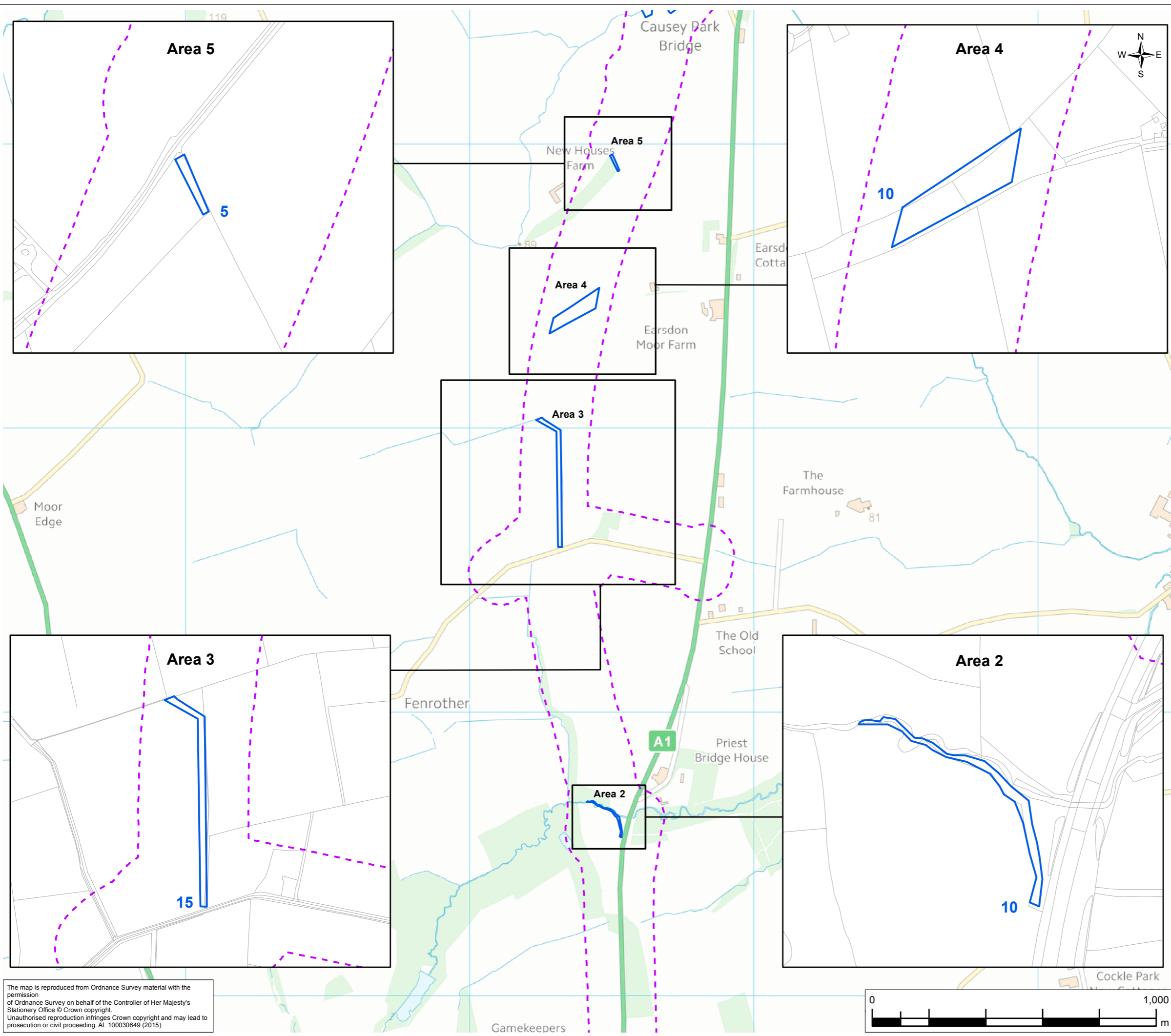


FIGURE 1.3

Legend

-  100m Survey Area
-  Reptile Survey Area
-  Number of Refugia



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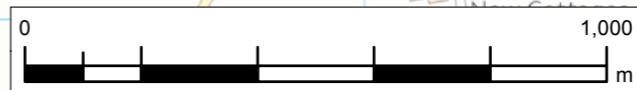



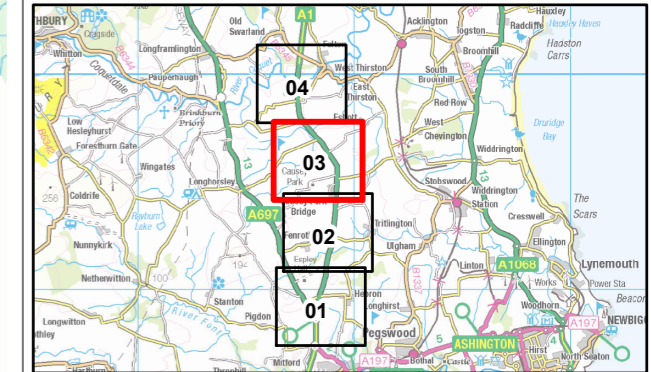
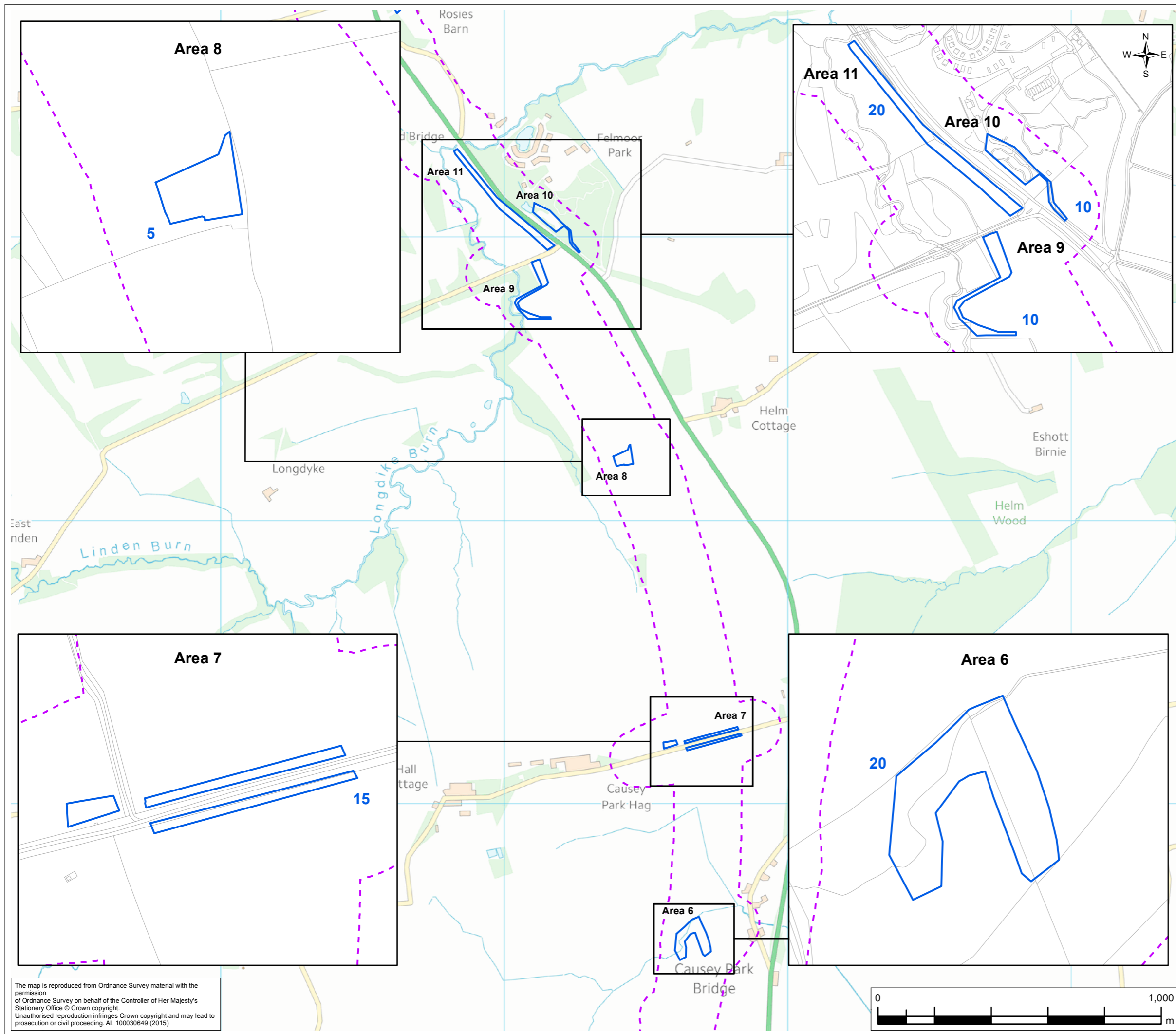


FIGURE 1.4

- Legend**
-  100m Survey Area
 -  Reptile Survey Area
 -  Number of Refugia



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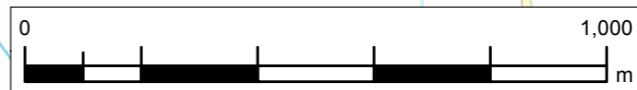



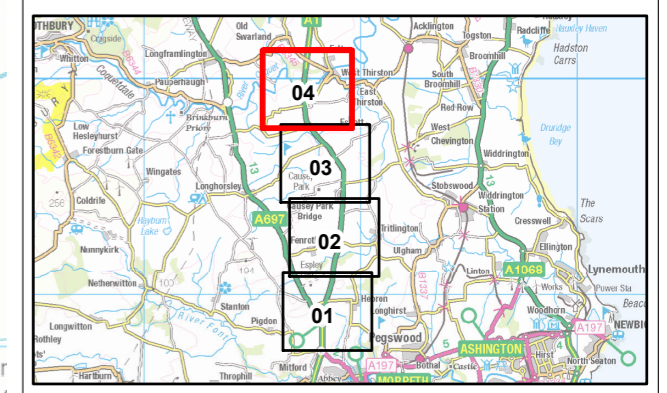
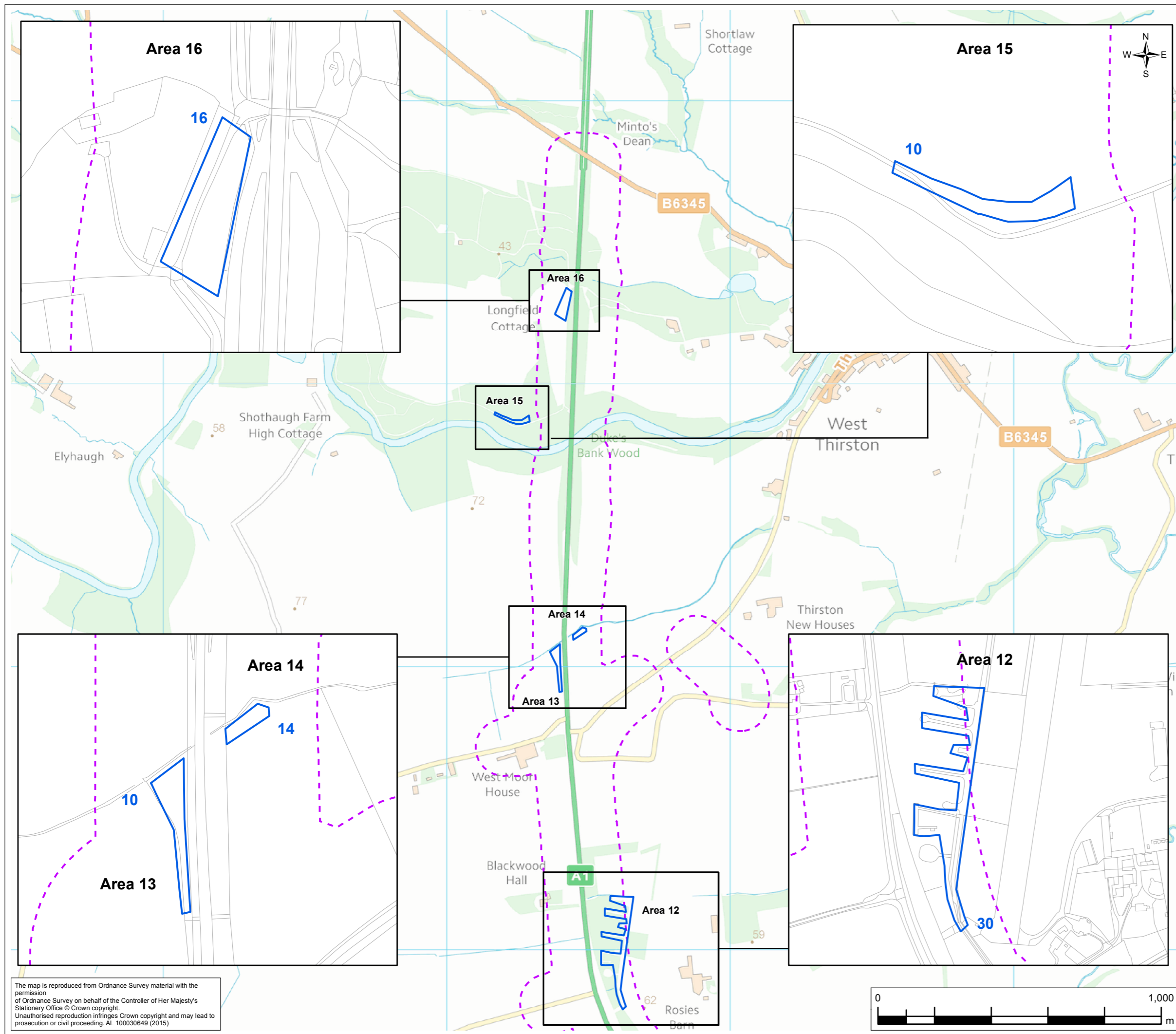


FIGURE 1.5

Legend

-  100m Survey Area
-  Reptile Survey Area
-  Number of Refugia



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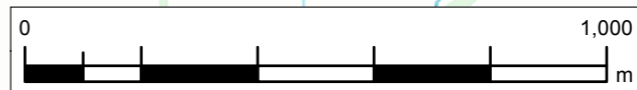
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APPENDIX A – DESKTOP STUDY RESULTS

Table B1: Desktop Study Results – Section A



Species	Common name	Abundance	Location	Date observed	Grid reference
<i>Vipera berus</i>	Adder	1 Count	Widehope wood	07/07/2014	NU10
<i>Vipera berus</i>	Adder	1 Count	Widehope wood	09/07/2014	NU10
<i>Vipera berus</i>	Adder	1 Count	-	07/07/2014	NU10
<i>Vipera berus</i>	Adder	1 Count	-	09/07/2014	NU10
<i>Vipera berus</i>	Adder	1 Count	-	09/07/2014	NU10
<i>Vipera berus</i>	Adder	1 Count	-	09/07/2014	NU10
<i>Vipera berus</i>	Adder	1 Count	Widehope wood	09/07/2014	NU10
<i>Vipera berus</i>	Adder	1 Count	Widehope wood	09/07/2014	NU10
<i>Vipera berus</i>	Adder	-	Longframlington Common	04/09/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Edlingham crags	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	-	Longframlington Common	04/09/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Linton Lane	11/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Linton Lane	11/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Cresswell dunes	14/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Cresswell dunes	14/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Cresswell dunes	14/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	-	07/07/2014	NU10

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Species	Common name	Abundance	Location	Date observed	Grid reference
<i>Zootoca vivipara</i>	Common Lizard	1 Count	-	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	-	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	-	07/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	-	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	5 Count	-	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	2 Count	-	11/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	-	14/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	-	14/07/2014	NZ29
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	1 Count	Widehope wood	09/07/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	2 Count	Longframlington Common	04/09/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	-	Longframlington Common	04/09/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	-	Longframlington Common	04/09/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	-	Longframlington Common	04/09/2014	NU10
<i>Zootoca vivipara</i>	Common Lizard	-	Longframlington Common	04/09/2014	NU10

APPENDIX B – SURVEY AREAS AND HABITAT SUITABILITY



Table C1: Description of reptile survey areas and habitat suitability categories.

Reptile area number	Photograph	Description	Suitability category
Reptile Area 1		<p>Scrub and poor semi-improved grassland with gorse scrub and tall ruderal vegetation. Grazing by cows.</p>	<p>Low suitability</p>
Reptile Area 2		<p>Edge of semi-improved grassland field on southern edge of stream.</p>	<p>Moderate suitability</p>

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Reptile area number	Photograph	Description	Suitability category
Reptile Area 3		Arable field with tall grassland verge. Next to the road verge.	Low suitability
Reptile Area 4		Poor semi-improved grassland verge located between crop fields.	Low suitability




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Reptile area number	Photograph	Description	Suitability category
Reptile Area 5		Young broadleaf woodland, semi-improved grassland verge, hedgerow, good habitat.	Moderate suitability
Reptile Area 6		Gorse scrub and semi-improved grassland. Grazed by cattle.	Moderate suitability




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Reptile area number	Photograph	Description	Suitability category
Reptile Area 7		Semi-improved grassland, tall ruderal, scrub, ponds and banks, very good habitat.	High suitability
Reptile Area 8		Arable field verge adjacent to woodland patch	Low suitability

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Reptile area number	Photograph	Description	Suitability category
Reptile Area 9		Arable, Scots Pine forest, tall ruderal.	Moderate suitability
Reptile Area 10		Small pond, woodland patch, semi-improved grassland.	Moderate suitability
Reptile Area 11		Unmanaged field with good basking locations, habitat mosaics and slopes.	High suitability

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Reptile area number	Photograph	Description	Suitability category
Reptile Area 12		Meadow, pond, boundary with woodland, very suitable habitat.	High suitability
Reptile Area 13		Field verge. No access to road verge.	Moderate suitability
Reptile Area 14		Hedgerow edges adjacent to arable fields.	Low suitability

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Reptile area number	Photograph	Description	Suitability category
Reptile Area 15		Woodland edge along path, south facing.	Moderate suitability
Reptile Area 16		Banks at the side of minor track. Woodland at both sides, sheep fields further south.	Moderate suitability

APPENDIX C – SURVEY RESULTS

Table D1: Dates of survey visits and associated weather conditions.

Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
1	11.04.17	A1	13:20	10	Dry, light wind, 100% cloud cover	0	0	-
		A4	12:30	11	Dry, moderate wind, 90% cloud cover	0	0	-
		A5	12:01	11	Dry, moderate wind, 90% cloud cover	0	0	-
		A6	11:18	11	Dry, light wind, 85% cloud cover	0	0	-
		A9	15:10	10	Dry, light wind, 100% cloud cover	0	0	-
	12.04.17	A2	14:15	14	Dry, moderate wind, 30% cloud cover	0	0	-
		A3	13:30	14	Dry, moderate wind, 30% cloud cover	0	0	-
		A7	12:27	14	Dry, moderate wind, 40% cloud cover	0	0	-
		A8	12:52	14	Dry, moderate wind, 40% cloud cover	0	0	-
		A11	14:45	14	Dry, moderate wind, 30% cloud cover	0	0	-
		A12	11:00	11	Dry, moderate wind, 50% cloud cover	0	0	-
	13.04.17	A10	12:10	12	Dry, light wind, 40% cloud cover	0	0	-
2	24.04.17	A1	12:30	12	Dry, moderate wind, 40% cloud cover	0	0	-

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Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
		A10	14:10	4.5	Moderate rain, light wind, 50% cloud cover	0	0	-
		A15	11:00	12.5	Dry, moderate wind, 30% cloud cover	0	0	-
	25.04.17	A2	11:40	7	Dry, light wind, 50% cloud cover	0	0	-
		A4	10:55	7	Dry, light wind, 40% cloud cover	0	0	-
		A5	15:44	9	Dry, strong wind, 80% cloud cover	0	1 mammal nest	Cold overnight
		A7	15:05	9	Dry, moderate wind, 60% cloud cover	0	1 vole	Cold overnight
		A8	14:41	9	Dry, moderate wind, 99% cloud cover	0	1 shrew nest, 1 vole	-
		A9	15:13	7	Dry, moderate wind, 60% cloud cover	0	0	Cold overnight
		A11	12:55	8	Dry, calm wind, 40% cloud cover	0	0	-
		A12	13:50	7.5	Dry, calm, 40% cloud cover	0	0	Some refugia wet
		A13	14:40	7	Dry, moderate wind, 90% cloud cover	0	0	-
		A14	14:00	7	Light intermittent rain, moderate wind, 70% cloud cover	0	0	-
	26.04.17	A3	09:57	6	Dry, light wind, 55% cloud cover	0	1 mammal nest	-
	2	26.04.17	A6	10:01	4	Dry, light wind, 50% cloud cover	0	0

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Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
3	9.05.17	A2	10:44	16	Dry, calm, 40% cloud cover	0	0	-
	23.05.17	A3	10:00	16	Dry, light wind, 50% cloud cover	0	0	-
	23.05.17	A5	10:30	15	Dry, calm, 70% cloud cover	0	0	-
		A7	10:40	17	Dry, light wind, 70% cloud cover	0	1 toad, 1 vole	-
		A8	11:00	18	Dry, light wind, 80% cloud cover	0	1 vole nest, 1 vole	-
		A10	11:52	17	Dry, moderate wind, 70% cloud cover	0	voles	-
	24.05.17	A4	11:20	22	Dry, calm, 10% cloud cover	0	0	-
		A9	10:11	19	Dry, calm, 10% cloud cover	0	1 toad	-
		A12	10:43	18	Dry, calm, 40% cloud cover	0	1 toad, 1 vole	-
		A13	11:45	20	Dry, calm, 5% cloud cover	0	0	-
		A14	11:10	19	Dry, calm, 5% cloud cover	0	1 common toad	-
		A16	10:20	15	Dry, calm, 5% cloud cover	0	0	-
	4	31.05.17	A5	16:56	16	Dry, light wind, 18% cloud cover	0	0
A7			17:01	16	Dry, light wind, 50% cloud cover	0	1 vole	-
4	31.05.17	A9	15:44	16	Moderate rain, light wind, 20% cloud cover	0	0	-

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Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
		A10	16:15	17	Dry, light wind, 30% cloud cover	0	2*toad	-
		A11	14:53	16	Dry, light wind, 33% cloud cover	0	0	-
		A13	15:50	16	Dry, light wind, 40% cloud cover	0	0	-
		A14	16:25	16	Dry. Light wind, 35% cloud cover	0	1 toad	-
	1.06.17	A3	9:45	19	Dry, moderate wind, 30% cloud cover	0	0	-
		A4	10:50	19	Dry, moderate wind, 40% cloud cover	0	0	-
		A16	10:10	17	Dry, light wind, 75% cloud cover	0	0	-
5	20.06.17	A3	07:30	13	Dry, calm, 60% cloud cover	0	0	-
		A9	09:03	13	Dry, calm, 60% cloud cover	0	0	-
		A10	09:42	14	Dry, light wind, 80% cloud cover	0	1 toad	-
		A11	10:15	14	Dry, light, 70% cloud cover	0	1 shrew	-
	22.06.17	A2	15:30	18	Dry, light wind, 100% cloud cover	0	0	-
		A8	16:45	18	Dry, light wind, 9% cloud cover	0	0	-
		A12	07:00	18	Dry, light wind, 100% cloud cover	0	0	-
5	22.06.17	A14	18:00	18	Dry, light wind, 100% cloud cover	0	0	-

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Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
6	22.08.17	A3	16:04	17	Dry, calm, 100% cloud cover	0	0	-
		A5	16:10	17	Dry, calm, 100% cloud cover	0	0	-
		A7	15:30	18	Dry, calm, 100% cloud cover	0	0	-
		A8	13:38	18	Dry, calm, 100% cloud cover	0	0	-
		A10	16:40	18	Dry, calm, 100% cloud cover	0	1 palmate newt, 5* toads	-
		A13	10:50	16	Dry, calm, 100% cloud cover	0	0	-
	23.08.17	A4	16:35	16	Dry, light wind, 90% cloud cover	0	0	-
		A16	10:00	15	Dry, calm, 100% cloud cover	0	0	-
7	30.08.17	A3	18:02	13	Dry, moderate wind, 75% cloud cover	0	0	-
		A5	19:08	13	Dry, calm, 70% cloud cover	0	0	-
		A7	19:54	13	Dry, calm, 70% cloud cover	0	0	-
		A8	07:10	7.3	Dry, calm, 50% cloud cover	0	0	-
		A9	07:20	14	Dry, calm, 70% cloud cover	0	0	-
		A10	16:40	14	Dry, calm, 40% cloud cover	0	1 toad	-
7	30.08.17	A11	18:43	14	Dry, calm, 60% cloud cover	0	0	-

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Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
		A12	18:40	14	Dry, light wind, 35% cloud cover	0	4*mammal nests	-
		A13	19:42	14	Dry, light wind, 65% cloud cover	0	1 mouse	-
		A14	18:07	14	Dry, light wind, 90% cloud cover	0	Snail eggs	-
		A16	07:00	7	Dry, light, 70% cloud cover	0	0	-
	31.08.17	A4	18:20	16	Dry, calm, 30% cloud cover	0	0	-
		A15	18:10	15	Dry, calm, 25% cloud cover	0	0	-
8	04.09.17	A9	18:27	19	Light rain, calm, 100% cloud cover	0	0	-
		A11	18:19	17	Light rain and wind, 100% cloud cover	0	0	-
	05.09.17	A12	17:06	17	Dry, light wind, 60% cloud cover	0	Mammal nests, 7 voles	-
		A13	18:07	17	Dry, light wind, 80% cloud cover	0	1 palmate newt	-
		A3	19:03	15	Dry, light wind, 65% cloud cover	0	0	-
		A5	18:41	16	Dry, light wind, 65% cloud cover	0	3* mammal nests	-
A8	19:28	16	Dry, calm, 70% cloud cover	0	0	-		
8	06.09.17	A4	07:30	12	Dry, light wind, 40% cloud cover	0	1 mammal nest	-

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Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
		A7	07:30	11	Dry, calm, 20% cloud cover	0		-
		A16	08:19	15	Dry, Light, 5% cloud cover	0	1 toad, 5 nests	-
9	19.09.17	A5	11:40	-	15% cloud cover	0	2*mammal nests	-
		A7	10:51	12	Dry, light wind, 2% cloud cover	0	4*mammal nests	-
		A8	10:14	12	Dry, light wing, 2% cloud cover	0	0	-
		A13	18:48	-	Dry, calm, 5% cloud cover	0	3*field vole	-
	20.09.17	A4	12:50	16	Dry, 40% cloud cover	0	0	-
		A9		16	Dry, calm, 65% cloud cover	0	1 mammal nest	-
		A11	9:04	14	Dry, calm, 70% cloud cover	0	0	-
		A12	11:30	15	Dry, calm, 70% cloud cover	0	3*voles 1*newt 1*shrew	-
10	3.10.17	A4	11:30	14	Dry, moderate wind, 25% cloud cover	0	0	-
		A9	09:50	12	Dry, moderate, 25% cloud cover	0	0	-
		A11	12:15	9	Moderate rain and wind, 100% cloud cover	0	0	-
		A12	09:25	12	Dry, moderate wind, 0% cloud cover	0	0	-
10	3.10.17	A13	08:50	11	Dry, moderate wind, 0% cloud cover	0	0	-

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Visit no.	Date	Survey area	Time	Temp. (°C)	Weather conditions	No. reptiles	Other species	Notes
		A16	08:30	9	Dry, moderate wind, 0% cloud cover	0	0	-
	4.10.17	A15	11:15	9	Moderate rain and wind, 100% cloud cover	0	0	-

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