



West Winch Housing Access Road

Environmental Statement Chapter 8: Biodiversity Annex 8.15 Reptile Survey Report

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1 Introduction

1.1 Methodology

Overview

- 1.1.1 Reptile surveys were undertaken for the Proposed Scheme for suitable habitat within the (previous) Scheme Boundary (all maps have been updated with the latest Scheme Boundary (October 2023)). The extent of the survey areas is considered to provide sufficient coverage of all areas of the current Scheme Boundary to determine presence or likely absence of reptiles throughout this updated boundary.
- 1.1.2 Reptile surveys for the Proposed Scheme comprised two main elements: the checking of artificial refugia and visual observation of habitats and natural refugia present. These surveys comprised seven survey visits undertaken in 2019 and updated in 2021.
- 1.1.3 The reptile surveys were completed with reference to guidance within the Herpetofauna Workers' Manual (1998), the methodology within Froglife's Reptile Survey Advice Sheet 10 (1999) and the Design Manual for Roads and Bridges (DMRB) Sustainability & Environment Appraisal: Biodiversity (Highways Agency, 2020).
- 1.1.4 In addition, surveys were undertaken with reference to the DMRB: Nature Conservation Advice in Relation to Reptiles and Roads (Highways Agency, 2005), which although withdrawn, still provides a relevant guide to the planning and design of reptile surveys for road schemes.

Reptile Field Surveys

- 1.1.5 The surveys comprised seven survey visits to suitable habitat within the Scheme Boundary, each incorporating two elements:
 - Survey of artificial refugia; and
 - Visual observation of habitats and natural refugia present.



- 1.1.6 In 2019, 600 refugia were installed within suitable habitats for reptiles which encompassed a larger area than 2021 (Artificial refugia are used to assist with the detection of reptiles within suitable habitat. The materials warm up and retain heat, and therefore are attractive to basking reptiles. The settling in period allows favourable conditions i.e. suitable humidity and temperature gradient to develop and for reptiles present within the habitat to become aware of the refugia). This larger area was due to the proposals at the time of the survey encompassing a larger area, extending further south than the current proposal and considered two potential route options.
- 1.1.7 In 2021, 396 refugia were placed in suitable habitat for reptiles present on the Proposed Scheme on the 10 and 11 of August 2021 and allowed to bed down for three weeks prior to the beginning of the survey visits.
- 1.1.8 A mixture of materials sized approximately 0.5m x 0.5m were used as artificial refugia, these included bitumen felt, corrugated metal and corrugated bitumen roofing sheets. Refugia were sited in suitable basking spots, close to cover, within habitat parcels identified to provide suitable conditions for reptiles during an initial site walkover and from aerial imagery.
- 1.1.9 Suitable reptile habitat totalled approximately 12 hectares (see Appendix A); by using 600 refugia in 2019 and 396 refugia in 2021, the density exceeded the minimum density as recommended by good practice guidance (Froglife, 1999). This guidance states the number of tins used '*will depend on many factors, such as likelihood of disturbance, size of site and what the survey is attempting to achieve*' and recommends a minimum of 5-10 refugia per hectare for 'general survey purposes'. Although the Froglife guidance forms the current, recognised, good survey practice, it should be noted that it is not specifically designed for use in demonstrating absence of reptiles from a development site, rather the focus is on identifying key reptile sites and increasing recording of reptiles. For this reason, the density of refugia has been increased for this survey to increase confidence in negative results, should likely absence be concluded. In addition, the size of refugia used in the survey were smaller than the recommended size within the Froglife guidelines



and the additional density will overcome any limitations with the use of smaller refugia.

1.1.10 Reptiles are ectothermic animals, deriving their body heat from the external environment. Therefore, the timing of the survey visits was dictated by weather conditions. All surveys were completed within the appropriate season (August to October) and within the appropriate ambient air temperature range (10-18°C). As far as possible, surveys were undertaken on sunny days with low cloud cover and little wind to maximise the probability of recording reptiles, should they be present; where ambient air temperatures were towards the upper end of the temperature range, days of higher cloud cover were targeted.

Dates of Survey and Personnel

1.1.11 The surveys were led by ecologist that met the CIEEM Competencies for Species Survey: Reptiles technical guidelines resulting in a strong understanding of the ecology of native reptile species (CIEEM, 2014).

1.1.12 The 2019 surveys were completed on the following dates:

- 30 August 2019;
- 5 September 2019;
- 17 September 2019;
- 19 September 2019;
- 20 September 2019;
- 27 September 2019; and
- 1 October 2019.

1.1.13 The 2021 surveys were completed on the following dates:

- 1 September 2021;
- 2 September 2021;



- 6 September 2021;
- 10 September 2021;
- 15 September 2021;
- 27 September 2021;
- 29 September 2021;
- 4 October 2021; and
- 8 October 2021.

Population Size Class Assessment

1.1.14 Froglife, 1999 guidelines were used to estimate the population size class of widespread reptile species. However, estimating population sizes or densities with any degree of accuracy or reliability is always problematic, as such professional judgement has been applied considering variables such as site size, increase in refugia density, whether both visual observation and refugia survey contribute to peak counts and individual reptile species ecology, to avoid misinterpretation of data.

1.1.15 The estimated population size class was based on the peak count of adult reptile species identified during the surveys and was assessed using three size classes: low, good, and exceptional (Froglife, 1999). These population size classes have been based on the peak counts of each species and is presented in Table 1-1.



Table 1-1 Population Size Classes

| Species | Low Population | Good Population | Exceptional Population |
|---------------------------------------|-----------------------|------------------------|-------------------------------|
| Grass Snake <i>Natrix helvetica</i> | <5 | 5-10 | >10 |
| Common Lizard <i>Lacerta vivipara</i> | <5 | 5-10 | >20 |
| Slow Worm <i>Anguis fragilis</i> | <5 | 5-20 | >20 |

Notes and Limitations

1.1.16 The 2019 survey data will no longer be valid due to the time elapsed from when the data was collected and due to the changes in survey area. This survey data will therefore not be used when estimating the population size class, but the data will remain relevant to give higher confidence in negative results when assessing the presence/likely absence of reptiles from areas within the Scheme Boundary.

1.1.17 In some areas of the Proposed Scheme, refugia were placed just outside of the Scheme Boundary. This was due to the accuracy of the in-field GIS software. This is not considered to significantly impact the accuracy of the field surveys, as refugia were placed in habitat of the same type that is present within the Scheme Boundary and any reptiles present outside of the boundary would likely occur onsite and are part of the same reptile populations. It is therefore considered reptiles would occur in the same densities within the habitats within the Scheme Boundary.

1.1.18 The total number of refugia used exceeds the recommended number per hectare of suitable habitat described within best practice guidelines (Froglife, 1999). The increase in refugia density was to increase the confidence in negative results, however the peak counts used to estimate the population size class have not been adjusted to reflect the increase in refugia density. This is not considered to be a limitation to the estimated population sizes for



each species, as the increase in refugia density accounts for the large amount of other refuge and basking habitat available across the Proposed Scheme, such as dense scrub, hedgerows, tussocky grassland, and ant hills. In addition, the refugia used in the surveys were 0.5m x 0.5m (0.25m²) in size and the refugia size recommended by the Froglife, 1999 guidelines recommend a minimum size of 0.5m².

- 1.1.19 Within the 2019 survey period, refugia 308-312 was discovered missing on the second survey visit. The missing refugia accounts for less than 1% of the total deployed refugia and is not expected to place limitations within the survey.
- 1.1.20 Within the 2021 survey period, the first survey was completed over two days due to rising temperatures. All refugia was surveyed on 1 September excluding refugia 108-173, on 2 September, only refugia 108-173 was surveyed. This limitation is not considered to impact the interpretation of the results as both surveys were completed within appropriate weather conditions.
- 1.1.21 On the first survey of 2021, refugia 302-327 had been destroyed by farming equipment. These were replaced on 2 September, being deployed in the same location they were originally placed. This is not expected to place limitation on the interpretation of the results as these represent less than 10% of the total amount of refugia deployed and were accessible on all other survey visits. All seven visits were able to be completed of these refugia throughout the remaining survey period.
- 1.1.22 The second survey of 2021 was conducted over two days due to rising temperatures. 6 September reached ambient temperatures early into the survey and it was aborted. It was continued on 10 September, and it was completed within the appropriate weather conditions. On the second day of the second survey, refugia 159 and 166 were not present, the missing bitumen accounts for less than 5% of all deployed refugia which is not expected to place limitations on the interpretation of the results. All seven



visits were able to be completed of these refugia throughout the remaining survey period.

1.1.23 On the fourth survey of 2021, 40 refugia had been destroyed by mowing of the field boundaries; Refugia 6, 7, 10, 11, 109-114, and four remained from refugia 73-108. This accounted for 11% of the total refugia placed throughout the survey. The refugia were replaced before the fifth visit; however, habitat suitability for reptiles in these areas had been significantly reduced by mowing. All seven visits were able to be completed of these refugia throughout the remaining survey period.

1.2 Results

Overview

1.2.1 Three species of reptile were recorded throughout the Scheme Boundary during the surveys: Common Lizard, Grass Snake, and Slow Worm.

1.2.2 No other reptile species were recorded during the survey and therefore, European Adder *Vipera berus*, Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis* were likely absent from within the Scheme Boundary. The habitat present is not suitable for the latter two species, Smooth Snake, and Sand Lizard and the Scheme Boundary is not within their geographical range.

Weather Conditions

1.2.3 Weather conditions during 2019 surveys ranged between 12⁰C and 20⁰C in temperature, and the 2021 surveys ranged from 11⁰C and 18⁰C, with cloud cover between 0 and 8 oktas; full details of weather conditions are included in Appendix C1 and C2.

Results of Field Survey

1.2.4 Common lizard, Grass Snake, and Slow Worm were recorded throughout the Scheme Boundary. The raw data for the 2019 survey period is presented in Table B1. The peak count of the 2021 reptile field surveys is summarised in



Table 1-2, species population size estimate is summarised in Table 1-3, below, with raw data included in Table B2.

- 1.2.5 To interpret the survey results and to estimate the population size class of reptiles, the Scheme has been divided into 17 discrete areas (Areas A to Q, labelled in alphabetical order, north to south), with the peak counts for each area used to determine the population estimates. The location of these areas is presented in Appendix A.

Area A

- 1.2.6 Area A is situated within the grounds of Hardwick Farm located in the northwest of the Scheme, adjacent to Queen Elizabeth Way on the A149 and near the Constitution Hill roundabout. The suitable habitat within this area comprised a mosaic of grassland, scattered trees and scattered scrub and is approximately 0.3 hectares. Within 2021, a peak count of one adult Grass Snake was found within this area which was not surveyed in 2019.

Area B

- 1.2.7 Area B is located north of the Proposed Scheme, running parallel to, and north of Constitution Hill Road on the A47. The suitable habitat comprised arable field margins, with a ditch and hedgerow totalling approximately 0.77 hectares. This is the only location within the 2019 and 2021 survey period where three species of reptile were recorded. A peak count of one adult Slow Worm, one juvenile Common Lizard and one juvenile Grass Snake was recorded within 2021. The records from the 2019 survey had presence of adult and juvenile Common Lizards, adult Grass Snakes and an adult Slow Worm. Two incidental records of adults Grass Snake were recorded on 30 August 2019.

Area C

- 1.2.8 Area C is located in the northwest of the Proposed Scheme, south of the Constitution Hill roundabout on the A47 and West Winch Road on the A10. This area of the Proposed Scheme is approximately four hectares and is situated within a mosaic of grassland, dense and scattered scrub. A peak



count recording of one adult and two juvenile Grass Snakes, two juvenile and one adult Common Lizard were present within Area C in 2021. The survey area for 2019 was smaller and only recorded the presence of one adult Common Lizard.

Area D

1.2.9 Area D is connected to Area C comprising of arable field margins running parallel to and south of Constitution Hill Road on the A47 accounting for 0.46 hectares. Within the 2021 survey period, one juvenile Common Lizard was recorded. Reptiles were absent from the 2019 surveys.

Area E

1.2.10 Area E is a large 6.1 hectare habitat and comprises grassland, scattered and dense scrub, and woodland with grassland understorey. The area is located south of Constitution Hill on the A47 and west of Sheep's Course Wood. This area had a peak count of two adult Common Lizards and three juveniles for the 2021 survey period. The results from the 2019 survey recorded presence for adult and juvenile Common Lizards as well as juvenile Grass Snakes which were not recorded in 2021.

Area F

1.2.11 Area F is located south of Sheep's Course Wood with an approximate area of 0.24 hectares. This location comprised arable field margins, scattered trees, and two small ponds in the middle of two arable fields. The survey that commenced in 2021 recorded a peak count of two adult Grass Snake. Grass Snake were absent from the 2019 surveys, however adult and juvenile Common Lizards were recorded in this area.

Area G

1.2.12 Area G is located east of the Proposed Scheme south of Constitution Hill Road on the A47, totalling 0.17 hectares. The refugia within this location was placed on the edge of Sheep's Course Wood and comprises arable field margins. The 2019 survey recorded a species absence from this location, however, the survey conducted in 2021 surveyed a larger area of field



margins. The 2021 survey recorded a peak count of one adult and one juvenile Common Lizard and three juvenile Grass Snake.

Area H

1.2.13 Area H is located north of Rectory Lane and comprises arable field margins and a drainage ditch totalling 0.14 hectares. The 2021 survey period recorded species absence within the area, however, the 2019 survey recorded adult and juvenile Common Lizard.

Area I

1.2.14 Area I has a total area of 0.1 hectares which is located north of Rectory Lane and comprises grassland and a ditch at the base of a hedgerow. Throughout the survey period of 2019 and 2021, reptiles were not recorded and are likely absent from this area.

Area J

1.2.15 Area J is 0.18 hectares and is located south of Rectory Lane. The refugia within this area were placed along two arable field margins with the 2019 and 2021 surveys observing no reptile sightings resulting in all three species likely absent from the area.

Area K

1.2.16 Area K is located to the south of Area J on Rectory Lane and contains 0.13 hectares of arable field margins. Throughout both survey years, reptiles were reported likely absent within the area.

Area L

1.2.17 Area L is located directly south west of Area K along arable field margins. This area is approximately 0.1 hectares of field margins that contain a ditch and a line of mature trees. Reptiles were reported likely absent for both survey years.

Area M

1.2.18 Area M is located along the road verge of Chequers Lane next to North Runcton Common and is composed of grassland and a ditch, forming the



arable field margin. This area is approximately 0.1 hectares. Throughout both survey years, reptiles were not recorded within this area and are thought to be likely absent.

Area N

1.2.19 Area N totals 0.18 hectares located south of Chequers Lane near North Runcton Common, all refugia within this area were placed within grassland within arable field margins. The 2021 survey period recorded one juvenile and one adult Common Lizard. Within 2019, only a small proportion of the area was surveyed with no reptiles recorded.

Area O

1.2.20 Area O is 0.05 hectares and is located east of Area N. The area comprises grassland arable field margin. In 2021, one adult Common Lizard was recorded within this area. This area was not surveyed in 2019.

Area P

1.2.21 Area P is located within the arable field margin and road verge that runs parallel to Lynn Road on the A10, south of the Proposed Scheme. This area is approximately 0.5 hectares in size. Reptiles were not recorded within this area for either survey year and are thought to be likely absent from the area.

Area Q

1.2.22 Area Q is located at the south of the Proposed Scheme along Lynn Road on the A10 accounting for 0.37 hectares. The suitable habitat within this area contained arable field margins and grasslands. This area wasn't surveyed in 2019 but the survey efforts of 2021 recorded a peak count of one juvenile and one adult Common Lizard.

Other 2019 survey areas

1.2.23 There were three areas that were surveyed in 2019 but not in 2021. Two of the areas surveyed recorded absences for three reptile species, however, one area recorded presence. This area contained grass and scrubland habitats located at TF 63583 14261, which is 320 meters south of the current Scheme



Boundary. Grass Snakes and Slow Worms were not recorded in this area, but juvenile and adult Common Lizards were.

Table 1-2 Peak Count of the 2021 Survey Results.

| Area | Grass Snake Adult Count | Grass Snake Juvenile/ sub-adult | Common Lizard Adult Count | Common Lizard Juvenile/ sub-adult | Slow Worm Adult Count | Slow Worm Juvenile/ sub-adult |
|------|-------------------------|---------------------------------|---------------------------|-----------------------------------|-----------------------|-------------------------------|
| A | 1 | No data | No data | No data | No data | No data |
| B | No data | 1 | No data | 1 | 1 | No data |
| C | 1 | 2 | 1 | 2 | No data | No data |
| D | No data | No data | No data | 1 | No data | No data |
| E | No data | No data | 2 | 3 | No data | No data |
| F | 2 | No data | No data | No data | No data | No data |
| G | No data | 3 | 1 | 1 | No data | No data |
| H | No data | No data | No data | No data | No data | No data |
| I | No data | No data | No data | No data | No data | No data |
| J | No data | No data | No data | No data | No data | No data |



| Area | Grass Snake Adult Count | Grass Snake Juvenile/sub-adult | Common Lizard Adult Count | Common Lizard Juvenile/sub-adult | Slow Worm Adult Count | Slow Worm Juvenile/sub-adult |
|------|-------------------------|--------------------------------|---------------------------|----------------------------------|-----------------------|------------------------------|
| K | No data | No data | No data | No data | No data | No data |
| L | No data | No data | No data | No data | No data | No data |
| M | No data | No data | No data | No data | No data | No data |
| N | No data | No data | 1 | 1 | No data | No data |
| O | No data | No data | 1 | No data | No data | No data |
| P | No data | No data | No data | No data | No data | No data |
| Q | No data | No data | 1 | 1 | No data | No data |

Population Size Class Estimate

1.2.24 All Areas within the Scheme displayed low population class estimates for several species which can are presented in Table 3, below. Areas H, I, J, K, L, M, and P are likely to have species absent within the study area.

1.2.25 FrogLife guidelines (1999) only recognise adult reptile individuals within the population size class estimate, however, juvenile individuals have been presented to show species presence where no adults were recorded. Where only juveniles have been recorded, low population size class has been assigned for the species in those areas.



Table 1-3 Population Size Class Estimate.

| Area | Species | Peak Count | Juvenile Peak Count | Population Class |
|-------------|----------------|-------------------|----------------------------|-------------------------|
| A | Grass snake | 1 | No data | Low |
| B | Grass snake | No data | 1 | Low |
| B | Common lizard | No data | 1 | Low |
| B | Slow worm | 1 | - | Low |
| C | Grass snake | 1 | 2 | Low |
| | Common lizard | 1 | 2 | Low |
| D | Common lizard | No data | 1 | Low |
| E | Common lizard | 2 | 3 | Low |
| F | Grass snake | 2 | No data | Low |
| G | Grass snake | No data | 3 | Low |
| G | Common lizard | 1 | 1 | Low |
| H | No data | No data | No data | Likely Absent |
| I | No data | No data | No data | Likely Absent |
| J | No data | No data | No data | Likely Absent |
| K | No data | No data | No data | Likely Absent |
| L | No data | No data | No data | Likely Absent |
| M | No data | No data | No data | Likely Absent |
| N | Common lizard | 1 | 1 | Low |
| O | Common lizard | 1 | No data | Low |
| P | No data | No data | No data | Likely Absent |
| Q | Common lizard | 1 | 1 | Low |



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