



Norwich Western Link

Environmental Statement

Chapter 10: Biodiversity

Appendix 10.25: Reptile Survey Report 2021

Author: WSP

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1 Introduction

1.1.1 WSP UK Ltd was commissioned by Norfolk County Council to complete a comprehensive suite of reptile surveys, with the following objectives:

- Establish whether reptiles are present or likely absent within the Survey Area.
- Determine, if present, which species are within the extent of the Survey Area and the distribution of these species.
- Present the findings of the survey in a baseline report.

1.1.2 The findings of these objectives will be used to inform the impact assessment and proposed mitigation for all reptile species present across the Scheme. Details of the impact assessment and mitigation will be included within the Biodiversity Chapter of the Environmental Statement for the Scheme and will incorporate the results from both the 2019 and 2020 reptile reports.

1.1.3 We have included a summary of key information shown in this document in an accessible format. However, some users may not be able to access all technical details. If you require this document in a more accessible format please contact norwichwesternlink@norfolk.gov.uk



Norfolk County Council

NORWICH WESTERN LINK ROAD

2020 Reptile Survey Report





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2020 Reptile Survey Report

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WSP

62-64 Hills Road

Cambridge

CB2 1LA

Phone: +44 1223 558 050

Fax: +44 1223 558 051

WSP.com



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1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1. The Norwich Western Link Road (NWL) is a highway scheme linking the A1270 Broadland Northway from its junction with the A1067 Fakenham Road to the A47 trunk road near Honingham.
- 1.1.2. The NWL, hereafter referred to as the Scheme, will comprise the following listed below
- Dualling the A1067 Fakenham Road westwards from its existing junction with the A1270 to a new roundabout located approximately 400m to the north west.
 - Construction of a new roundabout.
 - Constructing a dual carriageway link from the new roundabout to a new junction with the A47 near Honingham.
- 1.1.3. As part of a separate planned scheme, Highways England proposes to realign and dual the A47 from the existing roundabout at Easton to join the existing dual carriageway section at North Tuddenham. If that scheme proceeds, it is expected that Highways England will construct the Honingham junction and the Norwich Western Link will connect to the north-eastern side of that junction.
- 1.1.4. The Scheme will cross the River Wensum and its flood plain by means of a viaduct. The Scheme will also cross four minor roads by means of overpass or underpass bridges. The Scheme will include ancillary works such as provision for non-motorised users, necessary realignment of the local road network and the provision of environmental mitigation measures.

1.2 ECOLOGICAL BACKGROUND

- 1.2.1. The requirement for a reptile survey followed the identification of suitable habitats with the potential to support reptile populations, that may be impacted by the Scheme. These habitats were identified following the Phase 1 Habitat Survey (WSP UK Ltd, 2018) and comprised tussocky grassland, woodland, scrub, wetland, field margins and other boundary features such as ditches and hedgerows. It was therefore recommended that a reptile survey be undertaken to establish a sufficient baseline to inform impact assessment. The initial Phase 1 Habitat Survey was undertaken in 2018 when multiple route options were being considered before it was then refined in 2020 relating to the Scheme.
- 1.2.2. Reptile surveys were carried out within a limited Survey Area in 2019. The location and results of these surveys are publicly available¹ (WSP UK Ltd., 2019). This report should be read in conjunction with the previous report and the majority of locations covered by the 2019 reptile survey have not been included in the 2020 survey effort. See section 3.5.2 for details of the one location where refugia were deployed in both the 2019 and 2020 survey effort.

¹ <https://www.norfolk.gov.uk/roads-and-transport/major-projects-and-improvement-plans/norwich/norwich-western-link/timeline>

- 1.2.3. The 2020 reptile survey effort described within this report compliments that completed in 2019. Together they have sufficiently covered all habitat due to be directly impacted by the Scheme and thus form an overall baseline for reptiles within the Survey Area.

1.3 BRIEF AND OBJECTIVES

- 1.3.1. WSP UK Ltd was commissioned by Norfolk County Council to complete a comprehensive suite of reptile surveys, with the following objectives:
- Establish whether reptiles are present or likely absent within the Survey Area.
 - Determine, if present, which species are within the extent of the Survey Area and the distribution of these species.
 - Present the findings of the survey in a baseline report.
- 1.3.2. The findings of these objectives will be used to inform the impact assessment and proposed mitigation for all reptile species present across the Scheme. Details of the impact assessment and mitigation will be included within the Biodiversity Chapter of the Environmental Statement for the Scheme and will incorporate the results from both the 2019 and 2020 reptile reports.

1.4 STUDY AND SURVEY AREA

- 1.4.1. An ecological Desk Study was completed in March 2020 to include recent data relevant to the Scheme. The Study Area for this was defined as a 2km radius of the Scheme, shown in (Appendix A).
- 1.4.2. The Survey Area in relation to reptiles comprised a 50m buffer of the Scheme, including temporary areas for construction and access roads. All suitable habitat identified as having potential to support reptile populations and due to be directly impacted by the Scheme was surveyed using artificial refugia deployed at appropriate densities. Suitable habitats within the survey area but not due to be directly impacted by the scheme were subject to an initial walkover survey and incidental sightings were recorded. The 2020 survey effort excludes the majority of locations that were previously surveyed in 2019 and the Survey Area extents are shown in Appendix B.

2 RELEVANT LEGISLATION

2.1 LEGAL COMPLIANCE

- 2.1.1. Native, widespread reptile species (common or viviparous lizard *Zootoca vivipara*, adder *Vipera berus*, grass snake *Natrix helvetica* and slow worm *Anguis fragilis*) are partially protected under Schedule 5 of The Wildlife and Countryside Act (1981), under part of Section 9(1) and all of Section 9(5). As such it is an offence to;
- 'intentionally or recklessly kill or injure' an individual of these species; or
 - 'sell, offer or expose for sale, or [have in] possession or transport for the purpose of sale, any live or dead [individual] or any part of, or anything derived from' an individual of these species'.
- 2.1.2. All species of reptile are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act (2006) public bodies, including local planning authorities have a duty to have regard for SPI when carrying out their functions, including determining planning applications.

3 METHODS

3.1 OVERVIEW

- 3.1.1. The reptile survey was completed between May and July inclusive, with reference to the Design Manual for Roads and Bridges (Highways England, 2019), Herpetofauna Workers' Manual (Gent & Gibson, 2003) and the methodology contained within Froglife's Reptile Survey Advice Sheet 10 (Froglife, 1999).
- 3.1.2. All reptile records collected during the 2020 reptile survey period will be submitted to Norfolk Biodiversity Information Service (NBIS) in a timely manner.

3.2 DESK STUDY

- 3.2.1. An ecological desk study was completed in March 2020 to include recent data relevant to the Preferred Route. Records of any notable or legally protected species, including reptiles, from within a 2km radius of an updated Scheme Boundary (Appendix A) were requested from NBIS.

3.3 REPTILE PRESENCE/LIKELY ABSENCE SURVEY

- 3.3.1. The survey comprised seven visits to each area of the Survey Area, each incorporating two elements:
- Survey of artificial refugia.
 - Visual observation of habitats and natural refugia present.
- 3.3.2. 464 refugia² were installed within suitable habitat on 6 and 7 May 2020.
- 3.3.3. Sufficient refugia were deployed to determine presence/absence from the various parcels of suitable habitat, with a greater density of refugia than recommended within Froglife guidance used in order to increase confidence in results. Each refugia was numbered and indicative locations are presented in Appendix B.
- 3.3.4. Reptiles are ectothermic animals, deriving their body heat from the external environment. Therefore, the timing of the survey visits was dictated by weather conditions. Surveys were completed within the active season (March-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.

² 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.

3.4 DATES OF SURVEY AND PERSONNEL

- 3.4.1. The reptile surveys were led by ecologists with extensive reptile survey experience and a strong understanding of the ecology of native reptile species.
- 3.4.2. Surveys were completed on the following dates;
- 21 May 2020;
 - 26 May 2020;
 - 28 May 2020;
 - 1 June 2020;
 - 10 June 2020;
 - 19 June 2020;
 - 10 July 2020; and
 - 16 July 2020.

3.5 NOTES AND LIMITATIONS

- 3.5.1. Due to access restrictions, the seventh survey was completed on two separate days. Refugia south of The Broadway (Appendix B) were surveyed on 10 July 2020 (survey 7a) and all other refugia were surveyed on 16 July 2020 (survey 7b). This limitation is not considered to impact the interpretation of the results as both these surveys were completed within appropriate weather conditions.
- 3.5.2. Although included in the 2019 survey effort, refugia were again deployed along the edge of the stream located south of the River Wensum (Appendix B). This was because the refugia deployed here in 2019 were washed away before all seven surveys could be completed. This is the only overlap between the 2019 and 2020 refugia survey efforts.
- 3.5.3. Standing Advice from Natural England identifies that surveys should be avoided in July (Natural England, 2014). The surveys on 10 July and 16 July were undertaken following consistently high temperatures towards the end of June that prevented reptile surveys taking place. This limitation is not considered to impact the interpretation of the results as the surveys were undertaken within the active season for reptiles and weather conditions during these surveys were optimal, with the highest count of reptiles being recorded on 10 July.
- 3.5.4. The survey on 26 May ended with a temperature of 20°C. This is 2°C outside of the ideal temperature range for reptile surveys (10-18°C), however, this is not expected to place limitations on the interpretation of results as the temperature was within the ideal range for majority of the survey and reptiles were observed.
- 3.5.5. The survey on 1 June ended with a temperature of 19°C. This is 1°C outside of the ideal temperature range for reptile surveys (10-18°C), however, this is not expected to place limitations on the interpretation of results as the temperature was within the ideal range for majority of the survey.
- On the survey of 1 June, livestock prevented surveyors accessing 20 refugia south of Foxburrow Plantation. This is not expected to place limitations on the interpretation of results as these represent less than 5% of the total amount of refugia deployed and were accessible on all other survey visits.



- 3.5.6. The survey design was informed by the objectives of establishing presence / absence and determine reptile distribution across the Survey Area. Although artificial refugia were not deployed along every area of suitable habitat within the Survey Area, all key habitats were included. Therefore there is considered to be no limitation on the interpretation of results with refugia deployment made at all represented potentially suitable habitats. It is considered that a reasonable assessment of the likelihood of reptile occurrence across the entire Survey Area can be made given the extent of both the 2019 and 2020 survey effort.

4 RESULTS

4.1 OVERVIEW

- 4.1.1. Three species of reptile were recorded during the presence/likely absence surveys; grass snake, slow worm and common lizard.
- 4.1.2. No other reptile species were recorded during the survey and therefore, other species (common European adder, smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*) were considered to be likely absent from the Survey Area. The habitat present and locality of the Survey Area were not suitable for the latter two species, smooth snake and sand lizard.

4.2 DESK STUDY

- 4.2.1. The Desk Study did not return any records of reptile within the Study Area (the extent of which is shown in Appendix A).

4.3 RESULTS OF REPTILE SURVEY

- 4.3.1. One juvenile slow worm was observed basking beneath refugia K218 on the first survey visit. This refugia was located along a hedge that formed a boundary between an arable field to the south and grazing pasture to the north (Appendix B, 1).
- 4.3.2. On the survey of 26 May two juvenile slow worms were observed basking beneath refugia R17 and one adult slow worm was observed basking beneath refugia 310. R17 was located on an arable field margin with woodland to the north (Appendix B, 2) and 310 was located along a woodland ride in Foxburrow Plantation (Appendix B, 3).
- 4.3.3. On the third survey two juvenile slow worms were again observed basking beneath refugia R17 (Appendix B, 2).
- 4.3.4. On the survey of 19 June one grass snake was observed basking beneath refugia C82 and one juvenile slow worm was observed basking beneath refugia R18. Refugia C82 was located on a southern hedgerow that bordered Breck Road (Appendix B, 4) and R18 was located on an arable field margin with woodland to the north (Appendix B, 5).
- 4.3.5. On the survey of 10 July one common lizard was observed basking on a felt refugia located along the southern edge of Foxburrow Plantation (Appendix B, 6) and one juvenile slow worm was observed basking beneath a felt refugia located along the northern side of a hawthorn hedge that formed a partition between arable fields (Appendix B, 7). Furthermore, three juvenile, two male and one female slow worms were observed basking beneath refugia located along the woodland edge south of the Broadway. These slow worms were distributed along the line of refugia as shown in Appendix B (8). Finally, one male and one female slow worm were observed basking beneath refugia located south of a hedgerow that forms a border between an arable field to the south and grazing land to the north (Appendix B, 9 and 10).
- 4.3.6. Weather conditions during surveys ranged between 11°C and 20°C in temperature, with cloud cover of between 0 and 8 oktas; full weather details are included in Appendix C.

Table 4-1 – Survey Results

Survey visit	Date	Grass snake		Slow worm		Common lizard	
		Adult count	Juvenile/sub-adult count	Adult count	Juvenile/sub-adult count	Adult count	Juvenile/sub-adult count
1	21/05/20	-	-	-	1	-	-
2	26/05/20	-	-	1	2	-	-
3	28/05/20	-	-	-	2	-	-
4	01/06/20	-	-	-	-	-	-
5	10/06/20	-	-	-	-	-	-
6	19/06/20	1	-	-	1	-	-
7a	10/07/20	-	-	5	4	1	-
7b	16/07/20	-	-	-	-	-	-
Total count:		1		16		1	

4.4 INCIDENTAL RECORDS

- 4.4.1. Two juvenile slow worms were observed beneath a pile of refugia on 7 August 2020, at approximately 13:00 (Appendix B, 11). This was during the collection and removal of refugia from Site.
- 4.4.2. No other incidental sightings were made.

5 REFERENCES

5.1 PROJECT REFERENCES

WSP UK Ltd. (2019). *Interim Reptile Report*. Cambridge
WSP UK Ltd. (2018). *Phase 1 Habitat Survey*. Cambridge

5.2 TECHNICAL REFERENCES

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

Gent, A. & Gibson, S., (2003). *Herpetofauna Workers Manual*. Peterborough: Joint Nature Conservation Committee.

Highways England. (2019). LD 118 Biodiversity Design. *Design Manual for Roads and Bridges*, 1(Appendix A).

Natural England. (2014). *Reptiles: surveys and mitigation for development projects*. [Online] Available at: <https://www.gov.uk/guidance/reptiles-protection-surveys-and-licences> [Accessed 12 10 2020].

Appendix A

MARCH 2020 DESK STUDY



THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Legend:

- 2km Study Area
- March 2020 Scheme Boundary



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Revision Details

By	Date	Suffix
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Drawing Status

FINAL

Job Title

**Norfolk County Council
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Drawing Title

March 2020 Desk Study

Scale at A1

1:15,000

Drawn

UKMCW003

Stage 1 Check

OP

Stage 2 Check

AH

Originated

MW

Date

07/10/2020

0 200 400 600 800 1,000 m



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70061370-09-10-0001

Appendix B

REPTILE SURVEY 2020



THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Legend:

- Survey Area
- Reptile Refugia Locations
- Reptiles:
- ▲ grass snake
- ▲ slow worm
- ▲ common lizard



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Revision Details

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Drawing Status

FINAL

Job Title

**Norfolk County Council
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Drawing Title

Reptile Survey Results

Scale at A1

1:8,500

Drawn

UKMCW003

Stage 1 Check

OP

Stage 2 Check

AH

Originated

MW

Date

09/12/2020

0 100 200 300 400 500 m



Drawing Number

70061370-09-10-0002

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Appendix C

WEATHER CONDITIONS

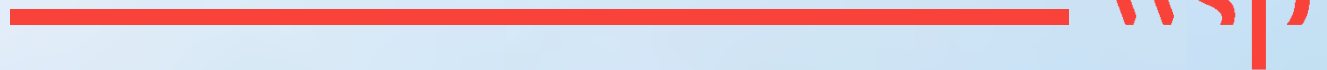


Table C-1 – Weather Conditions During Surveys

Survey visit number		1	2	3	4	5	6	7a	7b
Date		21.05.20	26.05.20	28.05.20	01.06.20	10.06.20	19.06.20	10.07.20	16.07.20
Start	Time	06:00	07:00	07:00	06:30	07:30	07:00	08:30	09:45
	Air temp. (°C) (shade)	13	14	11	12	12	13	12	17
	Cloud cover (oktas)	3	2	1	1	7	1	8	6
	Wind speed	0	0	1	0	0	1-2	3	1
Finish	Time	09:30	09:50	09:30	09:15	09:30	10:00	12:00	11:15
	Air temp. (°C) (shade)	18	20	17	19	14	18	15	18
	Cloud cover (oktas)	3	2	1	0	8	2	8	3
	Wind speed	0	0	1	1	1	1-2	3	0
Description/ Notes		Bright and warm	Bright sunshine	Clear skies and warm	Bright and warm	Overcast	Dry, slight breeze	Short period of light rain at the end of survey	Overcast and humid



62-64 Hills Road
Cambridge
CB2 1LA

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