AWE Aldermaston, Hydrus Project

Berkshire

Reptile Survey Report

Prepared by:
RPS Planning and Development

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RPS Planning and Development
Mallams Court
18 Milton Park
Abingdon
Oxon
OX14 4RP

Tel 01235 821888
Fax 01235 820351
Email rpsox@rpsplc.co.uk

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Summary

S.1 RPS was commissioned to conduct a reptile survey on land at the Hydrus project site at AWE Aldermaston in Berkshire.

S.2 The survey objectives were:

- to establish whether reptiles were present or not within suitable areas of habitat on site;
- to establish which reptile species are present; and
- to estimate population numbers present in order to assist in the formulation of appropriate mitigation strategies.

S.3 The reptile survey concentrated on an area of grassland around a woodland copse and small ditch in the south east corner of the site which was considered to offer the most favourable habitat for reptiles within the site.

S.4 The survey followed guidelines set out in Herpetofauna Workers' Manual (JNCC, 2003) and Froglife's Advice Sheet 10 (1999).

S.5 The reptile survey was conducted using artificial refugia made from roofing felt and carpet tiles. Seven survey visits were carried out during the months of June and July 2009.

S.6 The site was found to support a LOW population of slow worms and grass snakes. No adders or common lizards were identified during the survey. The site does not qualify as a key reptile site under Froglife guidelines (Froglife 1999). Common toads have also been recorded using the refugia during the reptile survey.

S.7 Mitigation measures have been outlined within this report and should be implemented prior to works commencing as part of the Hydrus redevelopment. These precautionary measures would safeguard reptile and amphibian species during the clearance works and construction phase, and ultimately ensure the longevity of each species within the Hydrus project site.

1 Introduction

1.1 RPS was commissioned to conduct a reptile survey on land at the Hydrus project site at AWE Aldermaston in Berkshire.

1.2 The Hydrus site is approximately 8.5 hectares, the majority of the site comprises of neutral grassland which in places can be considered flower-rich with patches of acid grassland. This grassland has developed over aggregate and broken ground is effectively "brownfield" in nature. A small deciduous copse is located in the southeast corner of the site with a field layer which is dominated by bramble. There are scattered trees over the remainder of the site and a veteran oak is located adjacent to the copse.

1.3 The reptile survey concentrated on the area of grassland around the woodland copse and small ditch in the south east corner of the site which was considered to offer the most favourable habitat for reptiles within the site.

1.4 A desk study (RPS, 2009) found that the four common reptile species (slow worm, common lizard, grass snake and adder) were present within 2km of the site. Previous surveys (Atkins, 2004) and anecdotal evidence suggest all four species are present within AWE Aldermaston.

1.5 The site is bordered by roads to the north and west and by areas of managed grassland interspersed with deciduous woodland and parkland trees to the south and east.

1.6 The main objectives of survey were to:

- Establish whether or not reptiles were present within suitable areas of habitat on site;
- Establish which reptile species are present; and
- Estimate population numbers present in order to assist in the formulation of appropriate mitigation strategies.

1.7 All reptile species native to Britain are protected under section 9(1) and 9(5) of the Wildlife and Countryside Act (1981). Under this legislation it is illegal to intentionally kill or injure these species, or to sell, barter, exchange or transport any native reptile, or part of them. Smooth snakes and sand lizards are further protected by the Act under Schedule 5 Section 9.4a against intentional damage or destruction to any structure or place used for shelter or protection and 9.4b against intentional disturbance while occupying a structure or place used for shelter or protection. They are also protected by the Habitats and Species Directive, Annex 4 against killing, disturbance or the destruction of them or their habitat and they receive special protection under the Bern Convention Appendix 4. All native reptiles are UK Biodiversity Action Plan (BAP) priority species, for which action plans have or will be prepared.

1.8 This report describes the survey methodology and the survey results, and draws conclusions regarding use of the site by reptiles.

2 Methodology

2.1 The presence/absence reptile survey was undertaken by an experienced ecologist in an area of the site identified as containing habitat suitable for reptiles as illustrated on Figure 1 and described in the results section below.

2.2 The survey was conducted using artificial refugia made from roofing felt approximately 50cm x 100cm and carpet tiles approximately 50cm x 50cm. These provide shelter and basking opportunities for reptiles, which can be recorded on or under the refugia in suitable weather conditions. The survey followed the recommended methodology outlined in the Herpetofauna Workers' Manual (JNCC, 2003) and Froglife's Advice Sheet 10 (1999).

2.3 On 20th May 2009, 42 refugia were placed in areas of suitable habitat in the south east corner of the site. The refugia were left undisturbed for a period of two weeks prior to the first survey visit being undertaken in order to allow them to bed down and to give time for reptiles to find them. The locations of the refugia are shown on Figure 1.

2.4 In order to conform to best practice guidelines for determining the presence or absence of reptile species, seven survey visits were undertaken to inspect the refugia and a visual search was undertaken when the refugia were being laid. On each of the seven visits every refuge was inspected for reptiles basking on top and was then lifted in order to identify any reptiles beneath. Any reptiles seen by direct observation whilst walking between refugia were also noted down. The number and species of each reptile observed was recorded.

2.5 Survey visits were undertaken on 3rd June, 16th June, 22nd June, 2nd July, 6th July, 13th July and the 30th July 2009. Locations where reptiles were identified are shown on Figure 1.

2.6 Reptiles are deemed most abundant from April (following hibernation) to June. Surveying using refugia can be ineffective in July and August because high temperatures reduce the amount of basking time needed by reptiles. Surveys carried out in July were conducted only when weather conditions were suitable. Confidence in the results of this survey therefore remains high.

2.7 Each survey visit was conducted in weather conditions suitable for recording reptile activity. Periods of strong wind or heavy rain were avoided and surveys were typically undertaken when air temperature were below 20°C.

2.8 The survey results were used to estimate population size classes for the reptile species found and to identify key reptile sites by employing the assessment suggested in Froglife's Advice Sheet 10 '*Reptile Survey*' (1999). The assessment is based on the maximum number of adult reptiles seen directly or under refugia (set at a density of up to 10/ha) by one person in one day, as summarised below.

Table 1: Criteria for reptile population assessment

	Low population	**Good population**	**Exceptional population**
Grass snake	<5	5 – 10	>10
Slow-worm	<5	5 – 20	>20
Adder	<5	5 – 10	>10
Common Lizard	<5	5 – 20	>20

2.9 To qualify as a key reptile site the site must meet at least one of the following criteria:

1 – Supports three or more reptile species

2 – Supports two or more snake species

3 – Supports an exceptional population of one species (see table above)

4 – Supports an assemblage of species scoring at least 4 (see table above)

5 – Does not support 1-4 but which is of particular regional importance due to local rarity

3 Results

3.1 The Hydrus project site survey results are provided in Table 2 below and should be read in conjunction with Figure 1.

Table 2: Summary of survey results

Date	Adder			Common Lizard			Grass snake			Slow worm		
	Adult	Juv	Pop. criteria	Adult	Juv	Pop. criteria	Adult	Juv	Pop. criteria	Adult	Juv	Pop. criteria
03/06/09												
16/06/09												
22/06/09												
02/06/09												
06/07/09										4		
13/07/09							1			2		
30/07/09										2		
Total							**1**			**8**		

3.2 Of the four common reptiles species in the UK two were identified on the site. Slow worms were recorded on 3 visits with a peak count of four adults (low population) and a single grass snake was identified on one visit (low population). Adders and common lizards were not identified during any visits.

3.3 Using the Froglife criteria the site is deemed to support a low population of slow worms and grass snakes. The site does not qualify as a key reptile site.

3.4 During the survey visits common toads (*Bufo bufo*), a UKBAP Priority Species, were frequently recorded under the refugia with a peak count of five toads during one survey.

4 Evaluation/Recommendations

4.1 The site supports low populations of grass snakes and slow worms. The Hydrus project site does not qualify as a key reptile site under Froglife guidelines (1999).

4.2 Natural England considers that the relocation of species and therefore off-site translocation should only be considered as a last resort. Moving animals out of an area represents a depletion of the local biodiversity and there is no guarantee of success. For these reasons it is proposed in this case that reptiles present within the Hydrus project development boundary should be retained in the locality i.e. within the copse to the south east of the site and associated rough grassed boundary and scrub habitat.

4.3 Slow worms have been identified around the edge of the copse to the south east of the Hydrus project site and along the edge of the wet ditch. A grass snake was located along the edge of the copse and associated rough grassland. The copse and wet ditch will be be retained as part of the redevelopment proposals.

4.4 The following precautionary mitigation measures should be implemented prior to works commencing as part of the Hydrus project redevelopment.

Reptile Exclusion and Destructive Searches

4.5 Herpetofauna (including Great Crested Newts) exclusion fencing should be erected along the proposed building footprint and associated new access road during the construction works to stop trenches etc acting as pitfall traps. The location of the fencing should be discussed with an ecologist and its erection supervised by an experienced ecologist.

4.6 A suitably qualified ecologist should also undertake a destructive search of any suitable terrestrial habitat scheduled for removal as part of the Hydrus project redevelopment proposals. Any animals found during the fencing installation and associated vegetation removal should be relocated into suitable habitat within the retained copse and associated scrub and grassland habitat.

Habitat Creation

4.7 The majority of the existing vegetation within the Hydrus project boundary would be lost to the redevelopment proposals. The copse on site will be left untouched.

4.8 A number of stand alone trees would also be felled within the site boundary. No wood should be removed from the site but instead should be retained and suitably placed in order to create hibernacula which would benefit herpetofauna in the immediate and surrounding areas.

4.9 The landscape proposals for the site should use native planting to provide high quality habitats and to promote nature conservation by attracting local wildlife. Native planting would also tie in with the existing vegetation on the site, enhancing existing tree belts and strengthen wildlife corridors by filling in gaps to aid wildlife movement and habitat permeability.

4.10 Areas of proposed grassland should aim to compensate for any loss of habitats as a result of the Hydrus redevelopment and maintain connectivity to the existing copse and wider suitable habitats, which both reptile and amphibian species are currently using.

4.11 A Sustainable Urban Drainage (SUD) basin is proposed within the south east corner of the Hydrus site. Native planting suitable for these conditions should be incorporated into the design of these features which would benefit herpetofauna.

Hibernacula

4.12 An artificial hibernaculum should be created within the retained copse to the south east of the site using the existing materials within the copse.

4.13 The design of an artificial reptile hibernaculum would as far as possible mimic natural conditions frequently used by reptiles to hibernate (Appendix A). The materials used to build the inert, clean fill of the hibernaculum can include brick, rubble, hardcore, logs, sleepers, etc. The hibernaculum should be built large enough so that the centre of it remains frost free, therefore, the dimensions of the hibernaculum will be approximately 1m high and 2m wide. The inert, clean fill material should be piled up, leaving spaces between the rubble for any reptiles to be able to access the hibernaculum. A dense layer of straw should be added on top as well as mixed into the bulk of the rubble for insulation purpose. The hibernaculum should then be covered by topsoil, ideally with a turf covering. The hibernaculum should be constructed in such a way so that reptiles within have different exit points and can therefore exit it freely, as the hibernaculum could otherwise act as a trap. Trees scheduled to be felled as part of the Hydrus redevelopment should be used as materials towards the creation of this hibernaculum.

Other

4.14 All of the above measures would also safeguard and benefit the amphibians that have also been recorded within Hydrus project site i.e. common toads (2009) and in previous years great crested newts (Atkins 2004).

5 Conclusion

5.1 The site supports a low population of slow worms and grass snakes. Slow worms were identified around the edge of the copse and along the edge of the ditch. A grass snake was located along the edge of the copse.

5.2 The site does not qualify as a key reptile site under the guidelines in Froglife's Advice Sheet 10 (1999).

5.3 Mitigation measures have been outlined within this report and should be implemented prior to works commencing as part of the Hydrus application. Enhancement measures for herpetofauna have also been provided within this report.

5.4 The precautionary measures that have been outlined within this report would safeguard reptile and amphibian species during the clearance works and construction phase, and ultimately ensure the longevity of each species within the Hydrus project site.

5 References

Atkins, (2004) AWE Hydrus Ecological Report. Unpublished

English Nature, 2001. Great crested newt mitigation guidelines. Version: August 2001. English Nature, Peterborough.

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

Gent, T and Gibson, S (Eds.), (2003) Herpetofauna Worker's Manual. Joint Nature Conservation Committee, Peterborough.

HMSO, (1981) Wildlife and Countryside Act 1981 (as amended) HMSO, London. The Stationery Office, Norwich.

HMSO, (1994) Conservation (Natural Habitats (&c.) Regulations 1994. HMSO, London. The Stationary Office, Norwich.

RPS, (August 2009) AWE Aldermaston, Hydrus Project Phase 1 and Desk Study Report.

Figures

Figure 1

Location of artificial refugia and summary of reptile survey results

Appendices

Appendix A

Artificial Hibernaculum Example

Hibernaculum Specification (Natural England 2001)