Delcroft and land beyond, Woodchurch Rd, Shadoxhurst, Kent

Herpetological Surveys

12th July 2018 / Ref No 2017/11/02

Client: FDC Homes

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1 Introduction

1.1 Background to the Scheme

Following a 'Preliminary Ecological Appraisal' which identified the risk of reptiles and great crested newts being present, KB Ecology Ltd has been commissioned to undertake a reptile survey and a great crested newt survey with regards to a proposed development at Delcroft and land beyond, Woodchurch Rd, Shadoxhurst, Kent, in support of a planning application for the demolition of the existing bungalow and erection of a number of new dwellings.

1.2 Survey Objectives

The purpose of the survey was to assess the likely impact of the scheme on reptiles and great crested newts, and to assist in demonstrating compliance with wildlife legislation and planning policy objectives.

The key objectives of this survey were to:

- Confirm the presence / likely absence of the species within suitable habitat.
- Provide recommendations for necessary mitigation work.

1.3 Limitations

This report records the potential for flora and fauna evident on the day of the site visit. It does not record any flora or fauna that may appear at other times of the year and, as such, were not evident at the time of visit.

The findings of this report represent the professional opinion of a qualified ecologist 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.

2 Methodology

2.1 Reptile survey

Detailed reptile surveys were undertaken using artificial refuges, in accordance with best practice guidelines (Froglife, 1999). A total of 13 artificial cover objects were installed on 11th April 2018. They were then checked on seven separate occasions in April and May 2018. Numbers of each reptile species were recorded, as well as the air temperature. Naturally occurring refuges were also checked for reptiles, and any additional incidental sightings were also recorded.

2.2 Great crested newt survey

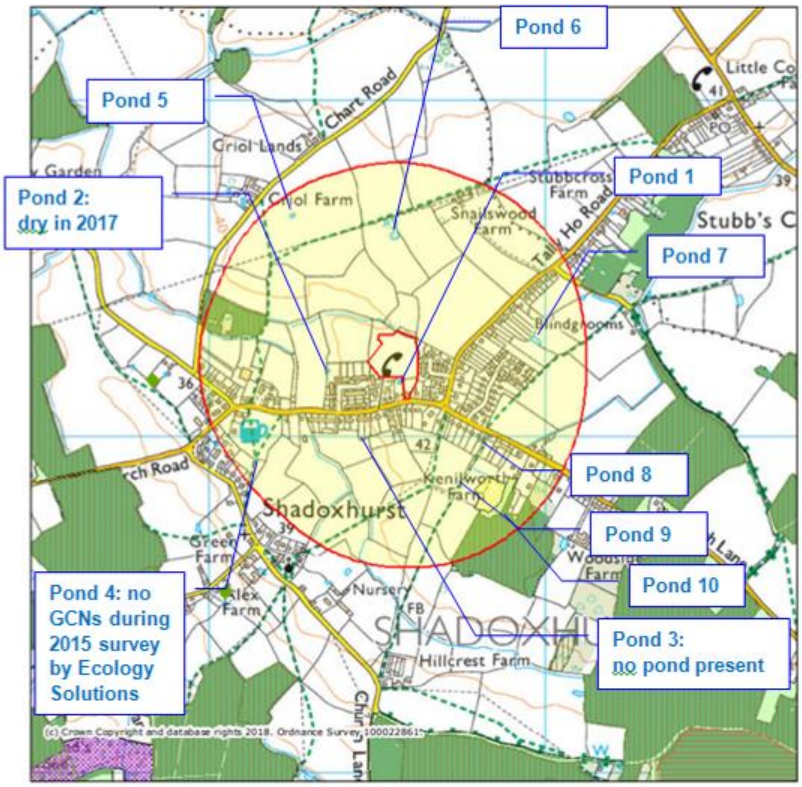
2.2.1 Pond 1

Six visits were carried out in April-June 2018, only during suitable weather conditions, i.e. with night time air temperatures at least 5^{O}C, no or little wind and no or light rain. A number of different survey techniques were used in line with best practice recommendations (English Nature, 2001).

The perimeter of the pond was walked at night. The bottom of the pond was searched with a powerful torch (a million candle power) and sightings of amphibians were recorded. If present, and given sufficient water clarity, adult great crested newts can be seen in the shallow edges of the pond using this technique, where they may be feeding, exhibiting courtship behaviour, or egg laying. Trapping was also carried out. Submerged vegetation was searched for the presence of great crested newt eggs. The eggs are usually wrapped in the leaves of aquatic plants (such as water mint and water forget-me-not), but can also be wrapped in dead leaves or overhanging grass leaves. It is necessary to un-wrap a folded leaf to identify the egg. This interference increases the risk of predation for the egg, hence once an egg is found the use of this technique is ceased.

2.2.2 Pond 6

A check for great crested newt eggs on vegetation was conducted in Pond 6 and a Great crested newt Environmental DNA (eDNA) sampling was undertaken to check for the presence of the species (water sample of one pond were thus taken on 10th May 2018, following the strict methodology provided[1],[2]).



Access to ponds 5, 7, 8, 9 and 10 was not granted[3].

3 Legislation

3.1 Reptile

All British native reptiles are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (WCA). This legislation prohibits to:

- Intentionally or deliberately capture, kill or injure a common reptile species (which includes slow worms).

[1] Surveys and water sampling were undertaken by Katia Bresso CEnv MCIEEM, a qualified professional consultant ecologist with over 15 years of experience, and licensed great crested newt surveyor (Class Survey Licences Registration Number 2015-8717-CLS-CLS) and Megan Austin.
[2] Further information can be found here http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18650
[3] letters were left on 16th April 2018

- Sell, barter, exchange, transport or offer for sale reptiles or any part of them.

The Abandonment of Animals Act 1960 (as amended) may also apply when translocation of reptiles are proposed as part of a mitigation strategy. As such, care must be taken to ensure that any receptor sites are suitable for the species in terms of habitat and carrying capacity in order that minimal stress and suffering is imposed upon the reptiles concerned.

3.2 Great crested newt

Common amphibian species are afforded limited legal protection under the Wildlife & Countryside Act 1981 (as amended). The great crested newt is afforded full legal protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). It is also listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 and is therefore a European Protected Species. This makes it an offence to:

1. Deliberately or recklessly capture, injure or kill any wild animal of a European protected species
2. Deliberately or recklessly disturb wild animals of any such species
3. Damage or destroy their breeding site or resting place
4. Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal, or any part of, or anything derived from these species.

Disturbance of animals includes in particular any disturbance which is likely

5. to impair their ability:
   - to survive, to breed or reproduce, or to rear or nurture their young, or
   - in the case of animals of a hibernating or migratory species, to hibernate or migrate;
6. to affect significantly the local distribution or abundance of the species to which they belong.

4 Results

4.1 Reptile

The survey recorded slow worms and common lizards in all areas including ACO 296. Table 1 below gives the details of the survey.

Table 1: Results and weather conditions for each survey visit

Reptile survey, Delcroft, Woodchurch Road, Shadoxhurst

13 Felts installed 11.04.2018

Survey	Date	Time	Average Air Temp. deg C:	Cloud cover, %	Wind	Viviparous Lizards		Slow worms		Other notes
						adults	juveniles	adults	juveniles	
1	24.04.2018	14:30	17	90	v.light	2	4	7	6	Reptiles found in all areas inc. 296
2	02.05.2018	10:00	11	100	Moderate			6	17	
3	10.05.2018	9:00	12	50	light		1	5	11	
4	18.05.2018	16:00	12	20	v.light	4	2	6	14	
5	21.05.2018	16:20	18	30	v.light	2		10	21	
6	23.05.2018	9:30	16	80	light	1		4	23	
7	25.05.2018	10:15	15	100	v.light			6	11	

*Neighbour reported regularly having grass snakes near pond and compost heap adjacent to site

4.2 Great crested newt

4.2.1 Pond 1

Great crested newts were encountered only on one occasion in Pond 1 (no breeding recorded), as shown in table below:

Pond 1												
Sessions	Date	Temp °C	Vegetation cover	Turbidity	Trapping			Torching			Egg search	
					Great crested newts	Smooth newts	Palmate newts	Great crested newts	Smooth newts	Palmate newts		other
1	26/04/2018	10	4	3	0	10	0	0	11	0	negative	
2	01/05/2018	10	4	2	0	0	0	\\\\\\\	\\\\\\	\\\\\\	negative	
3	09/05/2018	13	4	2	0	6	0	0	3	0	negative	
4	24/05/2018	13	4	1	**1 female**	1	0	0	2	0	negative	
5	05/06/2018	11	3	3	0	0	0	\\\\\\\	\\\\\\	\\\\\\	negative	
6	14/06/2018	pond dry										

4.2.2 Pond 6

The results of the eDNA analysis came back as positive, indicating that great crested newts had been present in Pond 6 in the 7-21 days prior to the sampling. The full details are present in Appendix A.

5 Recommendations

It will be necessary to follow a mitigation strategy to minimise disturbance to reptiles and great crested newts and a Habitats Regulations licence (or a Natural England EPSM licence) will be needed to undertake the work, which can be done in two ways:

A. A EPSM licence could be sought from Natural England to permit the proposed works. An application would need to be prepared and submitted to Natural England for determination, once full planning permission has been granted. A decision on the application would be made by Natural England within 30 days of receipt (although it has taken Natural England considerably more time in the last two years). The licence application would need to include full details of the proposed ecological mitigation / compensation and a program for these works.

B. Alternatively, it may be that the site can be part of the soon-to-go live District licensing[4].

The following mitigation measures will take place (see Appendix B):

- A wildflower meadow will be seeded (with regards to management, frequent 'cut and rake' should be carried out for the first year and then a yearly meadow cut at the end of summer (and rake).[5], [6];
- Creation of two hibernacula near the SUDS pond;
- Creation of six brash/log piles[7] ;
- Prior to any ground works starting, a translocation exercise should take place, once a European Protected Species Mitigation licence (i.e EPSM licence) has been granted by Natural England.
    1. An application would need to be prepared and submitted to Natural England for determination, once full planning permission has been granted. A decision on the application would be made by Natural England within 30 days of receipt (although it has taken Natural England considerably more time in the last two years). The licence application would need to include full details of the proposed ecological mitigation / compensation and a program for these works. Alternatively, it may be that the site can be part of the soon-to-go live District licensing[8].
    2. A newt and reptile-proof fence will be installed around the footprint of the development. This will be done during the newt active season, with installation of pitfall traps and reptile refuges.
    3. Trapping of great crested newts will take place during the newt active season, until five zero capture days have been achieved (it is likely that a minimum of 30 trapping sessions will need to be carried out).
    4. Trapping of reptiles will take place for a number of sessions[9] between March and October, during suitable weather conditions (i.e. cool weather with no heavy rain but sunny intervals between showers, and ambient air temperatures between 10-20^{o}C).
    5. All animals will be relocated near the brash piles.
- These mitigation measures are subject to any variation required by Natural England under any licence issue.

[4] see https://naturalengland.blog.gov.uk/2017/02/17/newts-in-the-news-a-major-step-forward-for-district-licensing/

[5] http://wildseed.co.uk/page/management-of-meadows-and-grassland

[6] Only hand held machinery should be used, and the cut should be no lower than 15cm off the ground as reptiles are present.

[7] Brash and log piles will be at least one meter high and two metres in diameter. They will comprise a mix of large and small diameter material. The centre of the pile will be compacted, but the outer part will be un-compacted. They will be located in sunny positions. They will be topped up periodically (for example every five years) with further material.

[8] unfortunately, at the time of writing this report, it is not known if the LPA of the site will take part, nor details of the licensing conditions

[9] minimum of 15 trapping sessions, ceasing trapping after five clear days with no trapping during suitable weather conditions

Appendix A

SureScreen Scientifics

Folio No: E2939
Report No:
Order No: 2017/11/02
Client: KB Ecology
Contact: Katia Bresso
Contact Details: katia.bresso@kbecology.co.uk
Date: 30/05/2018

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

Date sample received at Laboratory: 16/05/2018
Date Reported: 30/05/2018
Matters Affecting Results:

RESULTS

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1999	Woodchurch Rd, Pond 6	TQ 97552 38614	Pass	Pass	Pass	Positive	12

SUMMARY

When Great Crested Newts (GCN); Triturus cristatus inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (eDNA) traces to confirm GCN habitation, or establish GCN absence.

The water samples detailed below were submitted for eDNA analysis to the protocol stated in DEFRA WC1067 (Latest Amendments). Details on the sample submission form were used as the unique sample identity.

RESULTS INTERPRETATION

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UK Tel: +44 (0)1332 292003 Email: scientifics@surescreen.com
Company Registration No. 08950940

Lab Sample No.- When a kit is made it is given a unique sample number. When the pond samples have been taken and the kit has been received back in to the laboratory, this sample number is tracked throughout the laboratory.

Site Name- Information on the pond.

O/S Reference – Location/co-ordinates of pond.

SIC- Sample Integrity Check. Refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. Inspection upon receipt of sample at the laboratory. To check if the Sample is of adequate integrity when received. Pass or Fail.

DC- Degradation Check. Analysis of the spiked DNA marker to see if there has been degradation of the kit since made in the laboratory to sampling to analysis. Pass or Fail.

IC- Inhibition Check- PCR inhibitors can cause false results. Inhibitors are analysed to check the quality of the result. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Result- NEGATIVE means that GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence. POSITIVE means that GCN eDNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed. Positive or Negative.

Positive Replicates- To generate the results all of the tubes from each pond are combined to produce one eDNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. It may be assumed that small fractions of positive analyses suggest low level presence but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive.

METHODOLOGY

The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great Crested Newt, Version 1.1

The analysis is conducted in two phases. The sample first goes through an extraction process where all six tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (also called q-PCR). This process amplifies select part of DNA allowing it to be detected and measured in 'real time' as the analytical process develops. qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signals during the exponential phase of the reaction is measured for fast and objective data analysis. The point at which amplification begins (the Ct value) is an indicator of the quality of the sample. True positive controls, negatives and blanks as well as spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared so they act as additional quality control measures.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 and means there should be no detection of closely related species. We have tested our system exhaustively to ensure this is the case in our laboratory. We can offer eDNA analysis for most other species including other newts.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. Kits are manufactured by SureScreen Scientifics to strict quality procedures in a separate building and with separate staff, adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit. Stages of the DNA analysis are also conducted in

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SureScreen Scientifics

different buildings at our premises for added

SureScreen Scientifics Ltd also participate in Natural England's proficiency testing scheme and we also carry out inter-laboratory checks on accuracy of results as part of our quality procedures.

Reported by: Derry Hickman **Approved by:** Sam Humphrey

End Of Report

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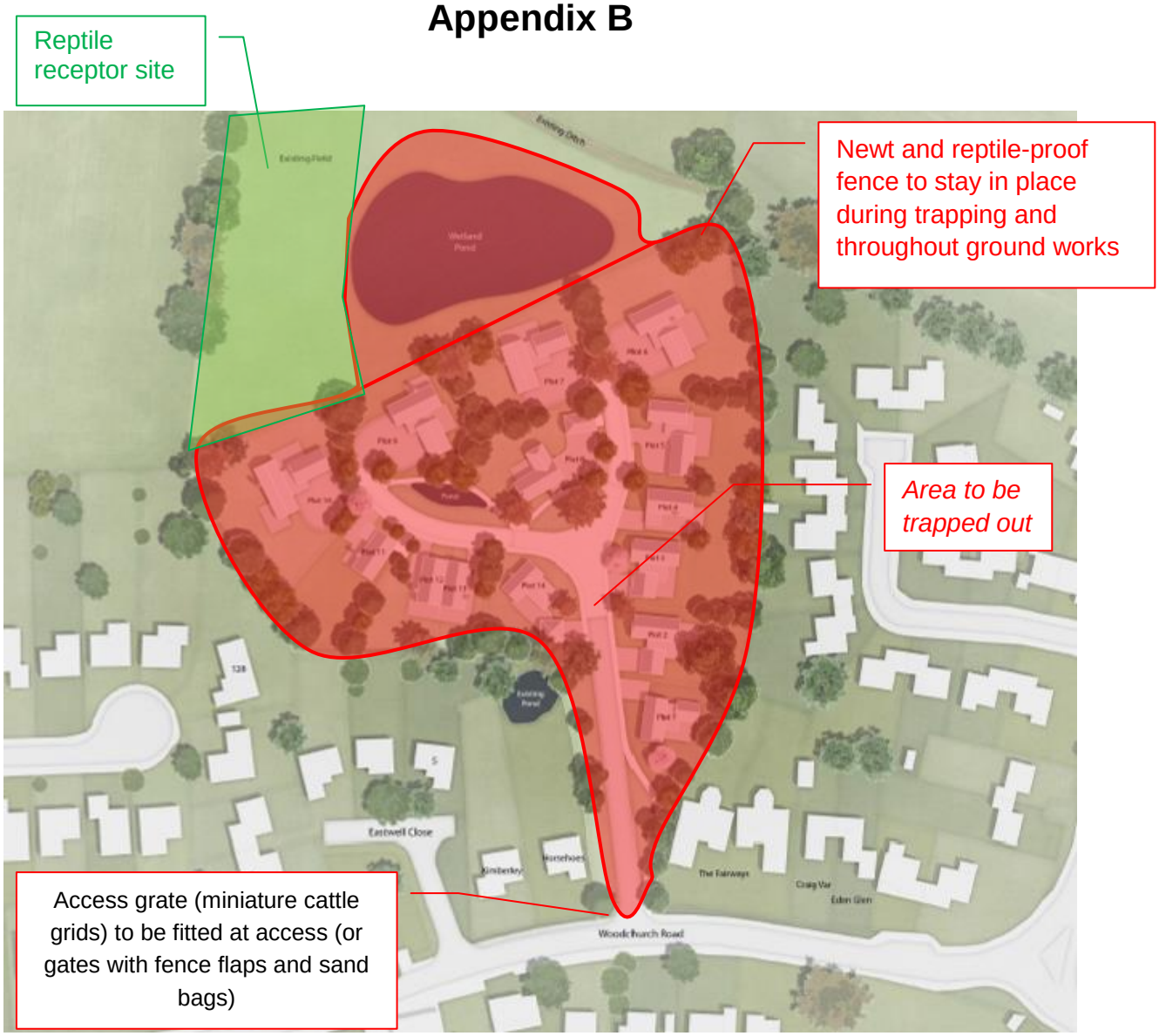
Appendix B


Reptile receptor site
Newt and reptile-proof fence to stay in place during trapping and throughout ground works
Area to be trapped out
Access grate (miniature cattle grids) to be fitted at access (or gates with fence flaps and sand bags)
Eastwell Close
Woodchurch Road

Six brash/log piles

Reptile receptor site: Proposed wildflower meadow

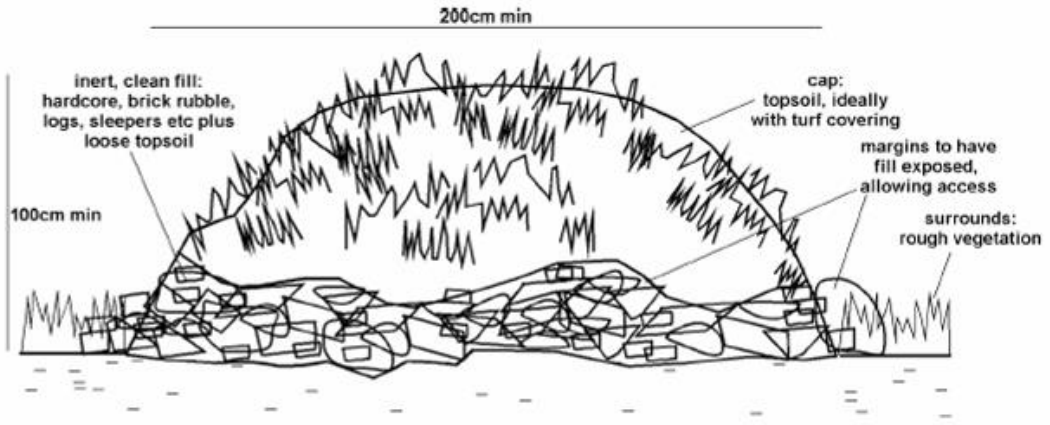
one hibernaculum

one hibernaculum

Recommended 5m wide North/South corridor (outside of any formal gardens, consisting of species rich grassland and scrub)

Figure 3: Suggested hibernaculum design

This design mimics artificial and natural conditions in which great crested newts have frequently been found over-wintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.



More info here if needed:
http://www.rspb.org.uk/makeahomeforwildlife/advice/gardening/reptiles_amphibians/hibernacula.aspx
http://www.arc-trust.org/pdf/dragons%20in%20your%20garden%202015.pdf