

# Reptile Survey & Mitigation for Peatland Habitats: Guidance & Practice



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**9 February 2019, Stoke-on-Trent.**

# Reptile Survey & Mitigation for Peatland Habitats: Guidance & Practice



Amphibian and Reptile Groups of the United Kingdom  
Advice Note 10  
www.arguk.org

## Reptile Survey and Mitigation Guidance for Peatland Habitats Version 1, April 2018

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Cathrine, C. 2018. *ARG UK Advice Note 10: Reptile Survey and Mitigation Guidance for Peatland Habitats*. Amphibian and Reptile Groups of the United Kingdom.

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## Overview

- Background
- Reptiles on Peatlands
- Peatland Restoration Projects
- Survey
- Mitigation

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- Mitigation



**Examples**

# Background

## Protection

*All terrestrial reptile species are protected from deliberate and reckless harm in Scotland*

### **EXCEPT**

- Sand lizard (introduced)
- Grass snake (status as modern breeding population currently uncertain)

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# Background

- Guidance



Natural England Technical Information Note TIN102

## Reptile mitigation guidelines

England's six native species of reptile all have legal protection. They sometimes occur on land subject to development threats. If development proceeds there may be adverse consequences for the reptiles, as well as breaches of the legislation. Mitigation can reduce and compensate for development impacts, and can minimise the risks of committing an offence. Recent evidence shows that in many cases, carefully planned and implemented mitigation can offset the negative impacts of development. This note draws together existing guidance, recent research findings and field observations to produce a single set of standards for good practice in reptile mitigation. It has been prepared for ecological consultants and will be useful to developers, Natural England staff, local planning authorities and volunteers.

### Background

All of our reptile species have suffered declines, to varying extents across the country. For the widespread species, most populations of which occur outside protected sites, development without adequate mitigation continues to be a significant reason for this decline.

Natural England urges developers and their ecological advisers to use mitigation not only to meet legal requirements, but also to assist in conserving these frequently neglected animals.

All reptile species are now on the national Biodiversity Action Plan (BAP) priority list, and local authorities and other public bodies have a legal duty to take their conservation into account.

### Scope

This guidance covers the six native species of terrestrial reptiles in England:

- slow-worm *Anguis fragilis*;
- common lizard *Lacerta (Zootoca) vivipara*;
- sand lizard *L. agilis*;
- grass snake *Natrix natrix*;
- adder *Vipera berus*; and
- smooth snake *Coronella austriaca*.



Common lizard

In terms of status, these species may be divided into two groups:

#### The "rare species"

- sand lizard; and
- smooth snake.

#### The "widespread species"

- slow-worm;
- common lizard;
- grass snake; and
- adder.

Despite the term "widespread" some species are highly depleted locally and "widespread" does not mean ubiquitous or common.

Natural England. 2011.  
*Reptile Mitigation Guidelines*. Natural England, Peterborough.

Natural England Technical Information Note TIN102

## Reptile mitigation guidelines

England's six native species of reptile all have legal protection. They sometimes occur on land subject to development threats. If development proceeds there may be adverse consequences for the species, as well as breaches of the legislation. Mitigation can reduce or compensate for development impacts, and can minimise the risks of committing offences under the Reptiles and Amphibians Act 1981. This note shows that in many cases, carefully planned and implemented mitigation can offset the negative impacts of development. This note draws together existing guidance, recent research findings and field observations to produce a single set of standards and good practice in reptile mitigation. It has been prepared following ecological consultation and will be useful to developers, Natural England staff, local planning authorities and volunteers.

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*Reptile Mitigation Guidelines*. Natural England, Peterborough.

WITHDRAWN

The cover of the guide features a photograph of a peatland landscape with green plants in the foreground. A dark teal banner at the bottom contains the title "surveying for reptiles" in white, bold, lowercase letters.

## surveying for reptiles

Tips, techniques and skills to help you survey for reptiles

Froglife. 2015. *Surveying for reptiles. Tips, techniques and skills to help you survey for reptiles.* Froglife, Peterborough.

[www.froglife.org](http://www.froglife.org)



Herpetofauna Workers' Manual

JOINT  
NATURE  
CONSERVATION  
COMMITTEE

Gent, T. & Gibson, S.  
2003. *Herpetofauna  
Workers Manual*. Joint  
Nature Conservation  
Committee,  
Peterborough.

[www.jncc.gov.uk](http://www.jncc.gov.uk)



# Reptile Survey & Mitigation for Peatland Habitats: Guidance & Practice



## Froglife Advice Sheet 10

### REPTILE SURVEY

An introduction to planning, conducting and interpreting surveys for snake and lizard conservation

#### WHY SURVEY FOR REPTILES?

All of Britain's six native species of snakes and lizards are declining to some degree, and conservation measures to counter this trend are dependent on reliable and up to date information on their distribution. Unfortunately, in many areas details about where snakes and lizards are found are severely lacking for several reasons:

- reptiles are relatively challenging animals to find as they tend to be secretive, camouflaged, occur in comparatively low numbers on a given site, and may be inactive for long periods during winter or hot, dry summers
- the number of people actively interested in native reptiles has been comparatively low
- there has been a lack of easily available and workable guidance on how to survey reptiles.

In recent years there has been increasing interest in conservation of snakes and lizards, and a growing need for more specific guidelines on how to survey for them. Information on the local abundance and distribution of reptiles can be used for the following:

- help protect sites from damage or destruction
- compiling lists of important local sites (Key Reptile Sites)
- assisting with habitat management plans
- learning about the importance of different land use types and management methods
- assisting with enquiries about where reptiles are found
- generating records of reptile occurrence to send to local record centres and herp groups
- compiling local and regional atlases
- adding to the national database to help determine more widespread trends
- helping to determine trends in status.

This leaflet is aimed primarily at surveys for the four widespread reptile species (adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Lacerta vivipara* and slow-worm *Anguis fragilis*), but much of it also applies to the sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*.

#### PLANNING A REPTILE SURVEY

1. Decide the kind of information you want to obtain as a result of the survey. Your reason for conducting the survey will probably be to achieve one or more of the three following objectives:

- to determine the presence or likely absence of reptiles on a site you know little about (*presence/absence survey*)
- to determine the distribution of reptiles within a site, and/or obtain a basic idea of their relative abundance (*detailed survey*)
- to measure apparent changes in abundance of reptiles on a site (*monitoring*).

The methods you choose to employ will depend upon which of these questions you are trying to answer (as well as more practical considerations such as how much time you have to do it in.)

2. Obtain permission (preferably in writing) from the landowner, tenant or manager and make sure they are aware of the activities you will carry out. If surveying on a nature reserve, special permits or consents may be required. Licences may be required if the sand lizard or smooth snake are present on the site and the survey involves disturbing them (e.g. by placing refuges - see *Reptile surveys and the law*).

Produced by:



3. Do some research to find out whether there are any recent or historical records for the site

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

# Background

- Guidance

# Background

- Guidance vacuum

## **Background**

- Guidance vacuum
- Peatland Action launched in 2012



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[www.nature.scot](http://www.nature.scot)

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Bog sun-jumper *Heliophanus dampfi*) © Chris Cathrine

## **Background**

- Guidance vacuum
- Peatland Action launched in 2012
- Guidance needed

## Background

- Guidance vacuum
- Peatland Action launched in 2012
- Guidance needed
- (Although not in 'lessons learned' report.)\*

\*Byg, A. & Novo, P. 2017. *Peatland Action Programme – lessons learned*. James Hutton Institute / ClimateXChange

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## **Background**

- Guidance was prepared between 2015 and 2016 – Scotland only
- Revised by ARG UK between 2017 and 2018 – UK and Ireland
- Published by ARG UK in spring 2018
- Peatland focus

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## Background

- Published by ARG UK
- Supported by Froglife, The Herpetological Society of Ireland, Amphibian & Reptile Conservation Trust



amphibian and reptile  
conservation



## **Background**

John Baker (Amphibian & Reptile Groups of the UK), Mark Barber (Amphibian & Reptile Groups of the UK), Caledonian Conservation Ltd, Stephen Corcoran, Jon Cranfield (Herpetologic Ltd), Roger Downie (Froglife), Forest Enterprise Scotland, Jim Foster (Amphibian & Reptile Conservation Trust), Rob Gandola (Herpetological Society of Ireland), Carolyn Gillen (Caledonian Conservation Ltd), Nigel Hand (Central Ecology), Angela Julian (Amphibian & Reptile Groups of the UK), Steve Langham (Amphibian & Reptile Groups of the UK), Chris Monk (Amphibian & Reptile Groups of the UK), Andrew McBride (SNH), John McKinnell (SNH), Pete Minting (Amphibian & Reptile Conservation Trust), Glenn Norris (Caledonian Conservation Ltd), Silviu Petrovan (Froglife), David Pickett (SNH), Trevor Rose (Friends of Angus Herpetofauna), Scott Shanks (Buglife – The Invertebrate Conservation Trust), Julie Smith (Caledonian Conservation Ltd)



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## **Reptiles on Peatlands**

- Aimed at site managers
- Overview of reptile ecology, with specific details relevant to peatland
- Review of population densities
- Habitat use

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- Aimed at site managers
- Overview of reptile ecology, with specific details relevant to peatland
- Review of population densities
- Habitat use – **crucially hibernacula**

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	MONTH											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Adder</b>												
Active		■	■	■	■	■	■	■	■	■		
Hibernation	■	■	■						■	■	■	■
<b>Common lizard</b>												
Active			■	■	■	■	■	■	■			
Hibernation	■	■	■						■	■	■	■
<b>Slow-worm</b>												
Active			■	■	■	■	■	■	■	■		
Hibernation	■	■	■							■	■	■
<b>Grass snake (unlikely to be encountered on peatland sites in Scotland)</b>												
Active			■	■	■	■	■	■	■	■		
Hibernation	■	■	■							■	■	■

Figure 1. Chart showing active and hibernation periods for reptiles that occur in Scotland. (Note that these vary depending on weather conditions, and differ elsewhere in the UK. Therefore, they should be considered to be indicative only.)

## Peatland Restoration

***“Peatlands are ecosystems with a peat deposit that may currently support vegetation that is peat-forming, may not, or may lack vegetation entirely.”***

***Peat should have an organic layer or layers that exceed 50 cm deep from the soil surface and an organic matter content of more than 60%. Shallower deposits supporting typical peatland vegetation are also included.”***

Scottish Natural Heritage (SNH). 2015. Scotland's National Peatland Plan. Working for our future. SNH, Inverness.

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## **Peatland Restoration**

- 80% of UK's peatlands have been damaged
- Scotland holds majority of UK's peatlands

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- 70% blanket bog habitats in Scotland damaged

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- 80% of UK's peatlands have been damaged
- Scotland holds majority of UK's peatlands
- 70% blanket bog habitats in Scotland damaged
- 90% raised bog habitats in Scotland damaged

## Peatland Restoration

- Ditch blocking - peat



## Peatland Restoration

- Ditch blocking – plastic piling





## Peatland Restoration

- Reprofilng and ‘cross-tracking’



## Peatland Restoration

- Bunding



# Peatland Restoration

- Bunding

© Scott Shanks / Buglife



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# Reptile Survey

- Desk study
- Habitat assessment / mapping
- Presence

# **Reptile Survey: Habitat Assessment**

- Foraging Habitat
- Potential Hibernaculum Features

# **Reptile Survey: Habitat Assessment**

- Foraging Habitat
- Potential Hibernaculum Features
- Use aerial photography and/or LiDAR data if available
- Site visit



**Key**

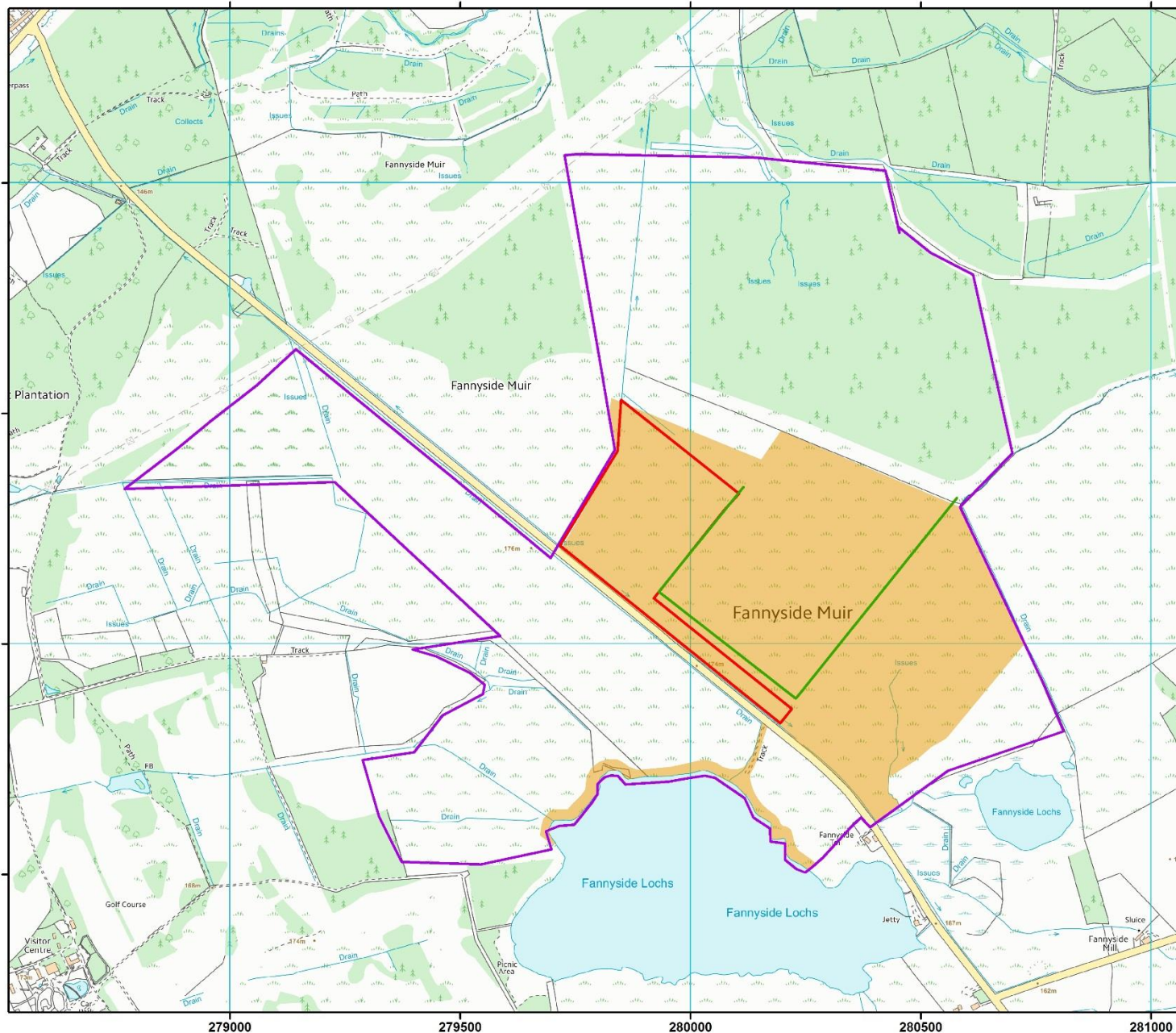
- Railway bund
- Suitable reptile habitat
- Area to be cross-tracked
- Project area

Scale 1:8,000 @ A3



**Figure 1**  
**Suitable Reptile Habitat**

**Fannyside Muir**  
**Reptile Construction**  
**Method Statement**





## **Reptile Survey: Presence**

- Artificial refugia and visual search combination
- Artificial refugia left for ideally four weeks prior to checks, but two weeks minimum
- Seven survey visits minimum
- Weather: 9-18°C, no rain, wind < Force 4

## **Reptile Survey: Presence**

- Artificial refugia
- Roofing felt, coroline, corrugated iron
- Size: 50 cm x 30 cm

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## Reptile Survey: Presence

- Artificial refugia
- **Roofing felt**, coroline, corrugated iron
- Size: 50 cm x 30 cm – **fits in rucksack**

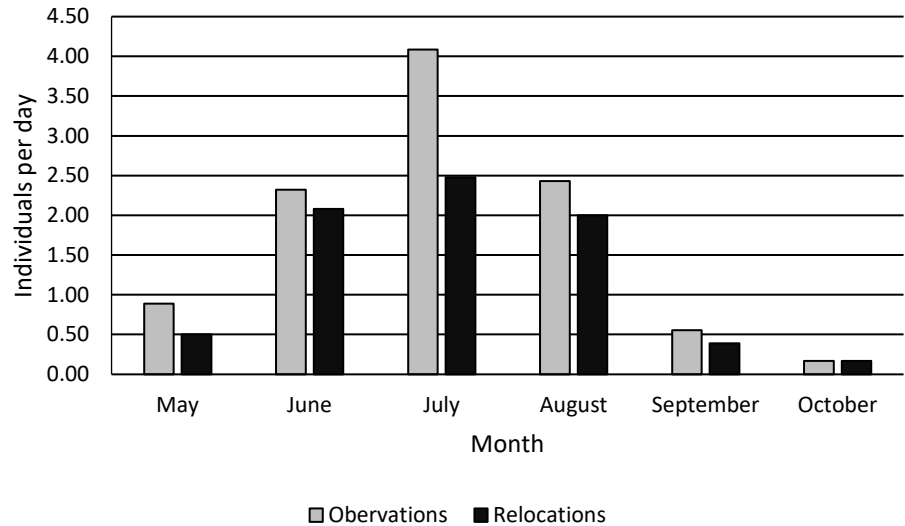
## Reptile Survey: Presence

- Artificial refugia
- **Roofing felt**, coroline, corrugated iron
- Size: 50 cm x 30 cm – **fits in rucksack**
- Minimum density one per 1,000m<sup>2</sup> in suitable habitat (higher density preferable)

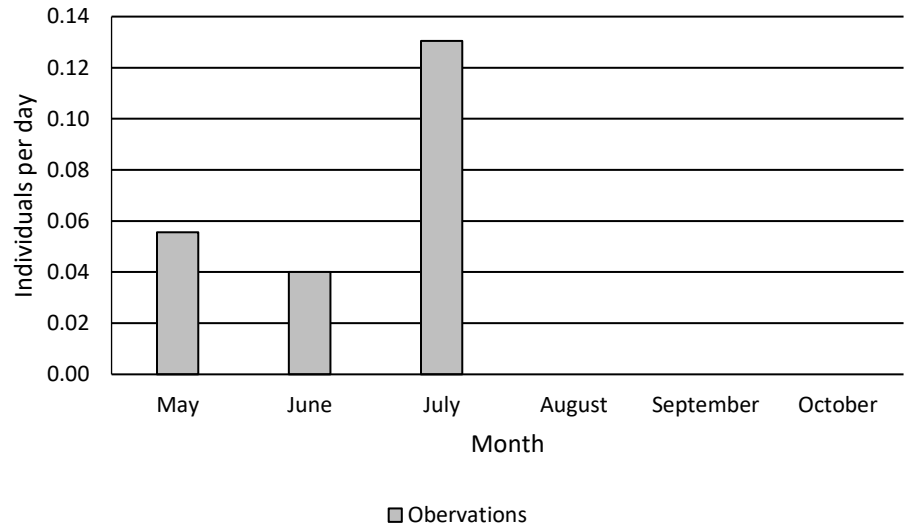
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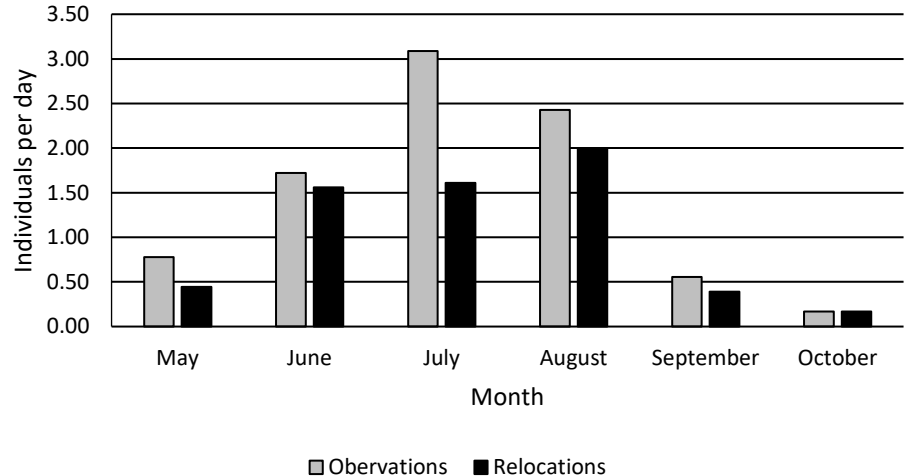
Reptiles observed and relocated per day of effort



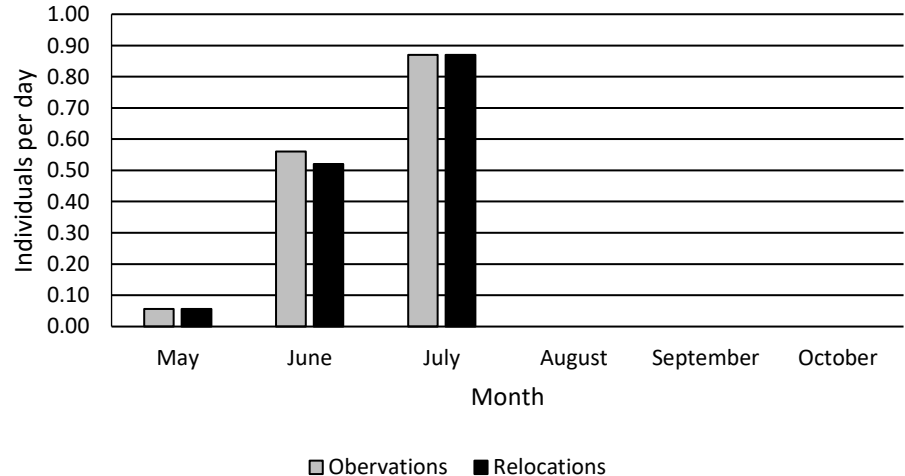
Adders observed per day of effort



Common lizards observed and relocated per day of effort



Slow-worms observed and relocated per day of effort





# **Reptile Survey: Presence**

- **Adders:**
  - Don't appear to use artificial refugia as often, particularly low density populations
  - Less detectable after May (England), but perhaps later in Scotland (June/July)

## Reptile Survey: Presence

- Adders:
  - Don't appear to use artificial refugia as often, particularly low density populations
  - Less detectable after May (England), but perhaps later in Scotland (June/July)
  - **Assume present if other reptiles found**

# Reptile Mitigation

- Site specific mitigation plans

# Reptile Survey & Mitigation for Peatland Habitats: Guidance & Practice



**LIFE13 BIO / UK / 000428**

## **Fannyside Muir Construction Method Statement: Reptile Mitigation**

Ref: CC0300/CMS1

27<sup>th</sup> July 2015

Prepared by:

Chris Cathrine BSc(Hons) MCIEEM FLS, Director (Ecology)

Glenn Norris BSc(Hons), Ecologist

[www.caledonianconservation.co.uk](http://www.caledonianconservation.co.uk)

## **Reptile Mitigation**

- Site specific mitigation plans
- Consult experienced reptile ecologist
- Main focus is to avoid harm (legal requirement)
- Change one of the following:
  - Timing
  - Location
  - Method

## Reptile Mitigation

- Timing
  - Foraging habitat: complete works during hibernation period
  - Hibernacula: complete works during active period

	MONTH											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Active		Amber	Red	Red	Red	Red	Red	Red	Red	Amber		
Hibernation	Red	Red	Red						Amber	Red	Red	Red

Figure 3. Chart showing general indicative active and hibernation periods for reptiles in Scotland for the purpose of planning work on peatland sites. Red indicates peak period, and amber indicates a period where this behaviour is less likely but may reasonably be expected to occur depending on weather. (Note that these do vary depending on species, weather conditions, and differ elsewhere in the UK.)

## **Reptile Mitigation**

- Hibernacula
  - Avoid (30 m buffer but check for basking reptiles within 100 m)
  - Complete works during active period

## Reptile Mitigation

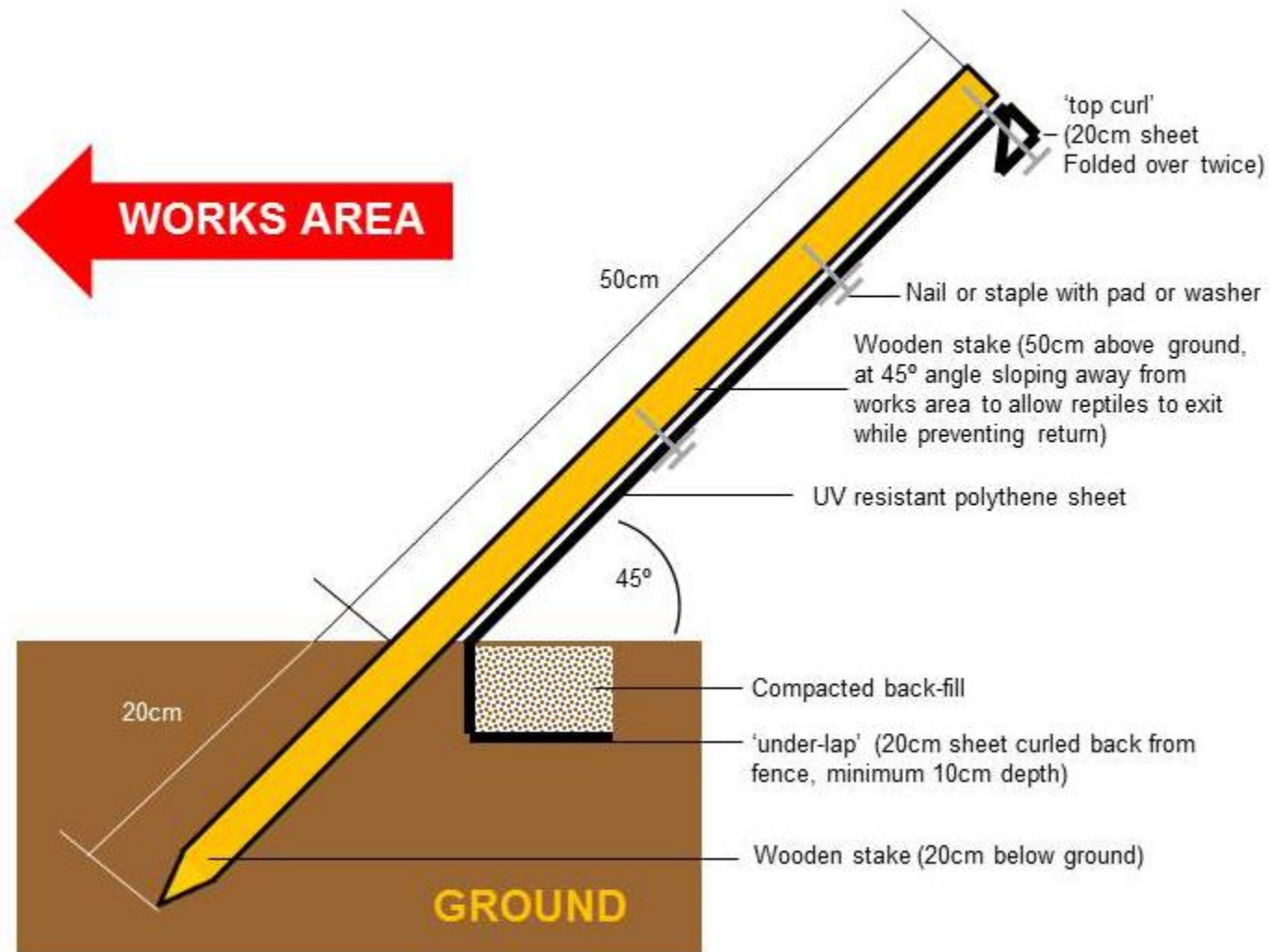
- Hibernacula
  - Avoid (30 m buffer but check for basking reptiles within 100 m)
  - Complete works during active period
  - **Best practice to replace lost hibernacula**
  - Specifications and references are given

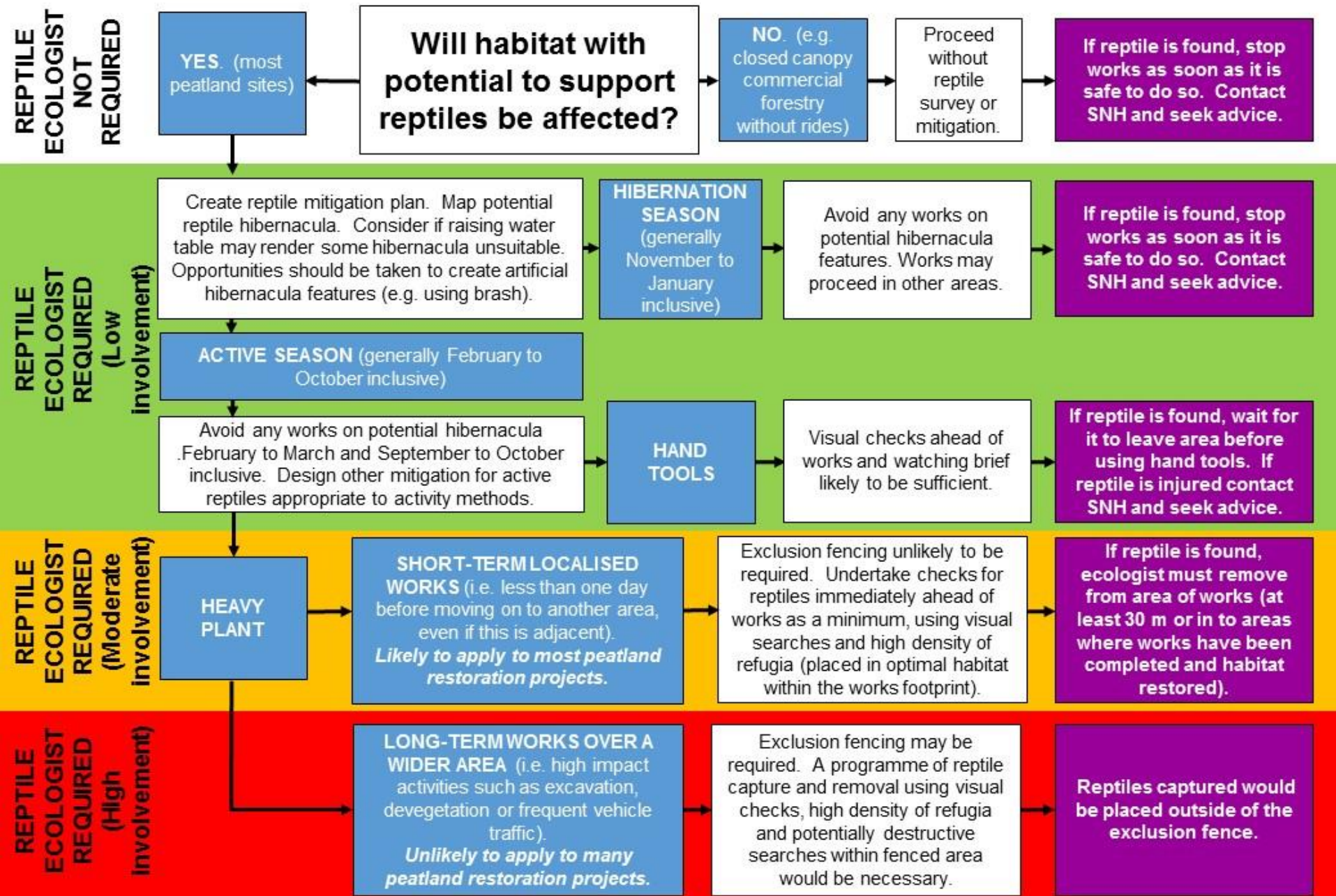


## **Reptile Mitigation**

- Avoiding harm during active season
  - Avoid works in suitable habitat during the active season (ie during hibernation)
  - Localised short-term activities:
    - Ecological Clerk of Works (ECoW)
    - Remove reptiles from harm's way
    - Visual searches
    - High density artificial refugia (one per 20m<sup>2</sup>)
  - Habitat lost or high disturbance over longer period: exclusion and removal

## One-way reptile exclusion fencing





**Peatland Reptile Mitigation Summary Table**

<b>Works Activity</b>	<b>Season*</b>	<b>Action / Mitigation</b>	<b>Further Information</b>
Site Design or Preparation of Site Management Plan.	General	Incorporate reptile ecology requirements in to site management plan, including maintaining or enhancing habitat such as hibernaculum features. Set reptile objectives.	Section 5 Section 7.5
Gathering baseline information for preparation of Mitigation Plan.	General	Data search for existing historic reptile records.	Section 5 Section 6
	Hibernation	Map potential hibernaculum features.	Section 5 Section 6
	Active	Map suitable habitat. Undertake presence survey if required using artificial refugia and visual transects.	Section 5 Section 6
Activities using hand tools.	Hibernation	Do not undertake works which could damage hibernacula.	Section 7.2
	Active	Visual check of work area immediately prior to activity. If reptiles present, do not complete works until they have left area.	Section 7.3
Activities using heavy plant – localised, short-term (including infrequent movements of heavy plant across suitable reptile habitat). <b>Likely to apply to most peatland restoration projects.</b>	Hibernation	Do not undertake works which could damage hibernacula. Heavy plant must not move over hibernacula.	Section 7.2
	Active	Ecologist check for reptiles immediately before works using high density of artificial refugia (minimum density of one tile per 20 m <sup>2</sup> placed at least one week prior to works) and visual searches within works footprint (including access routes for heavy plant). Any reptiles found should be removed by the ecologist and relocated to suitable habitat at least 30 m from the area scheduled for works, or in areas where works have already been completed and habitat restored.	Section 7.3 Section 7.4
Activities using heavy plant – larger areas, long-term (including frequent movements of heavy plant using across suitable reptile habitat). <b>Unlikely to apply to many peatland restoration projects.</b>	Hibernation	Do not undertake works which could damage hibernacula. Heavy plant must not move over hibernacula.	Section 7.2
	Active	May require use of barrier fencing to exclude reptiles from an area which will be subject to intensive destructive work or where a particular route will be used for frequent heavy plant movements over an extended period. Fence installation should be supervised by an ecologist. All reasonable effort should be made by an ecologist to remove reptiles from the fenced area, and to place these outside the fence. Destructive searches may be required. If the area will not be restored for reptile use after works are complete, translocation (under licence if appropriate) and/or creation of new areas of reptile habitat as compensation may be necessary.	Section 7.3 Section 7.4
Monitoring	General	Long-term monitoring of reptiles at peatland sites should also be considered. If habitat management is undertaken at a site, monitoring will help determine whether reptile mitigation has been successful, and can inform future projects. Monitoring can also help to identify negative population changes at an early stage, allowing them to be addressed.	Section 7.5

\*Hibernation season = September to March inclusive; Active season = February to October inclusive. See Section 2 and Figures 1 and 3 for more information.

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