Reptile Survey & Mitigation for Peatland Habitats: Guidance & Practice

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Climate Change: Its Impact on Scotland's Wildlife & Landscapes.

24 September 2019, Stirling.

Reptile Survey & Mitigation for Peatland Habitats: Guidance & Practice

ARG UK froglife HSI amphibian and reptile conservation

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

Contents

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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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

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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.

First edition 9 September 2011
www.naturalengland.org.uk

NATURAL ENGLAND

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

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WITHDRAWN

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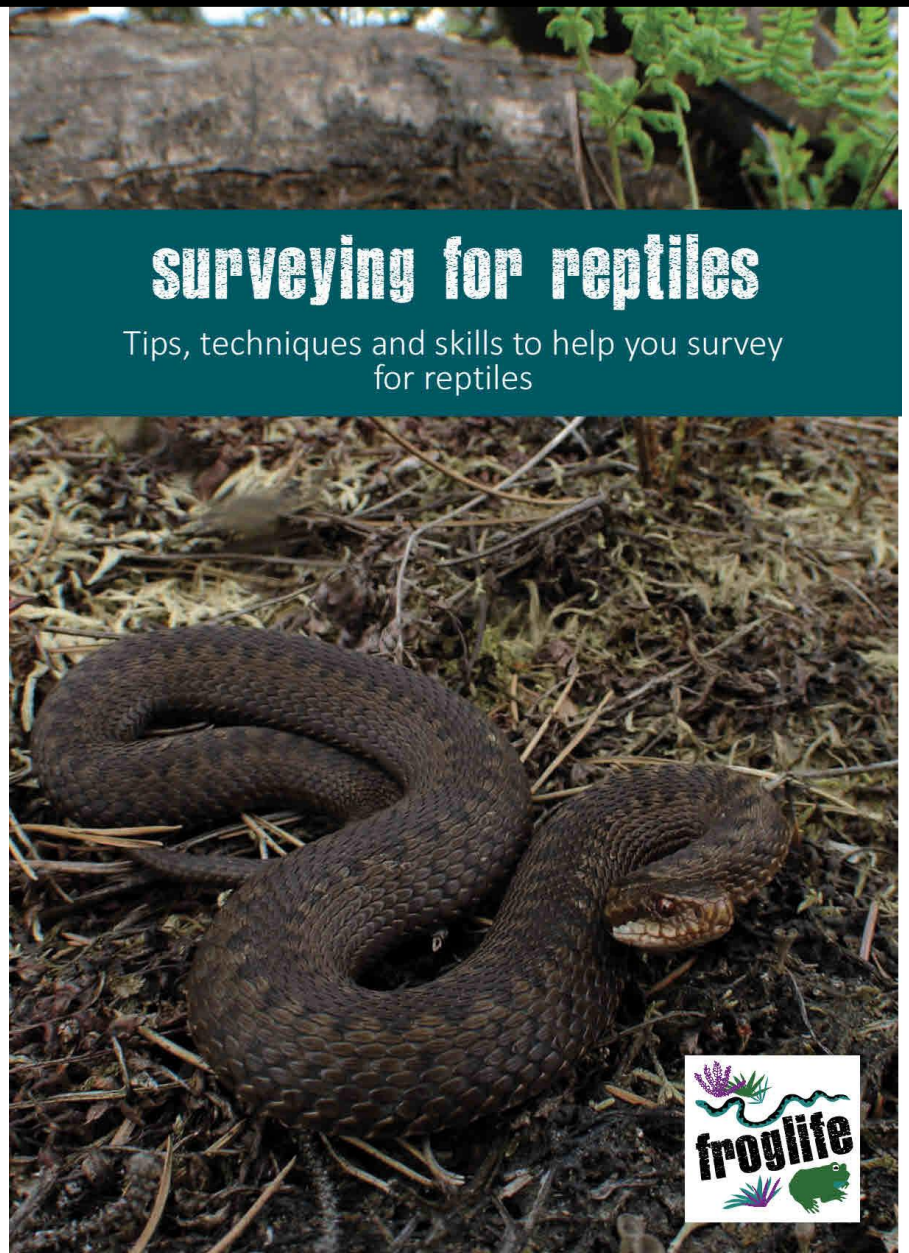

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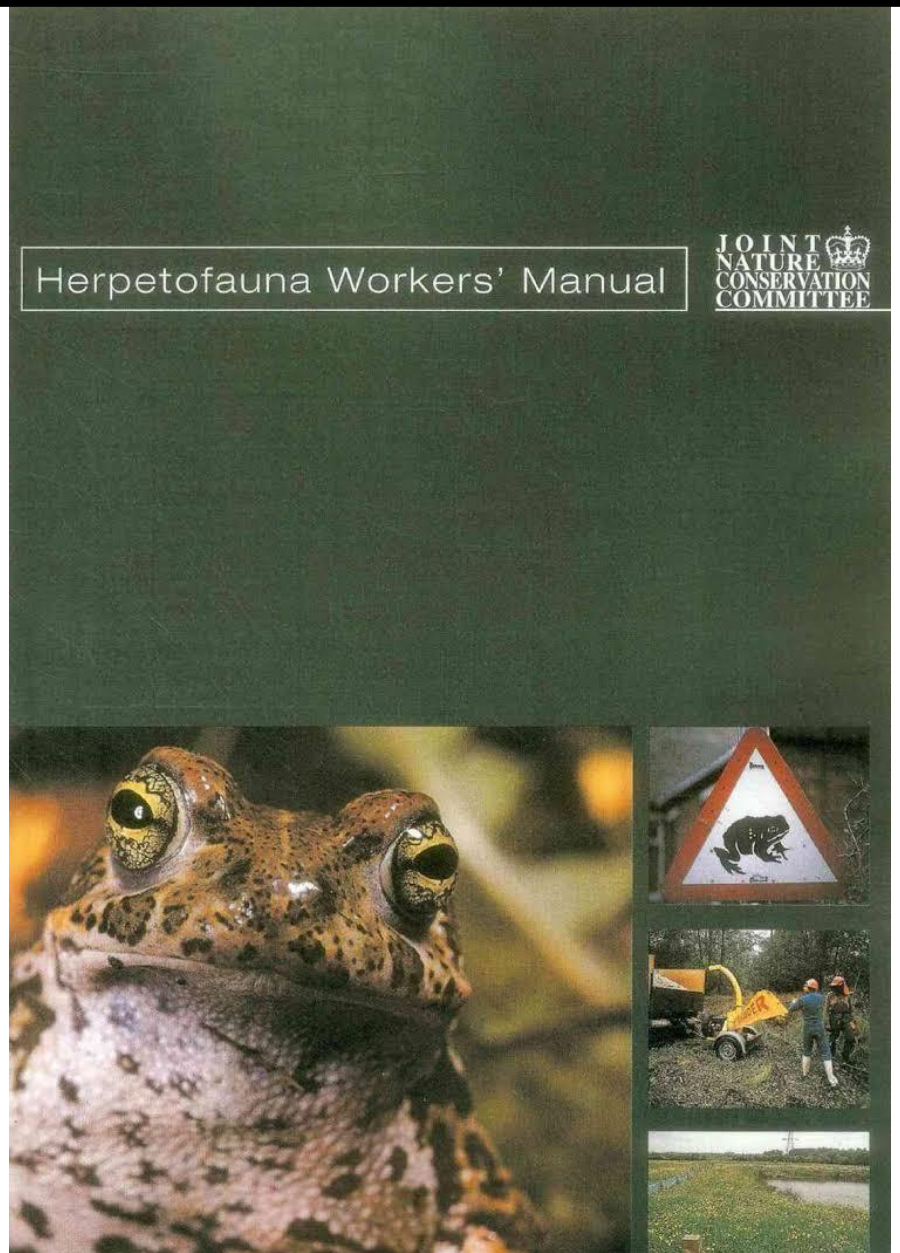

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www.jncc.gov.uk

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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:

FROGlife

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

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- Peatland Action launched in 2012

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

Background

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

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- 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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- **Peatland focus**

Background

- Published by ARG UK

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

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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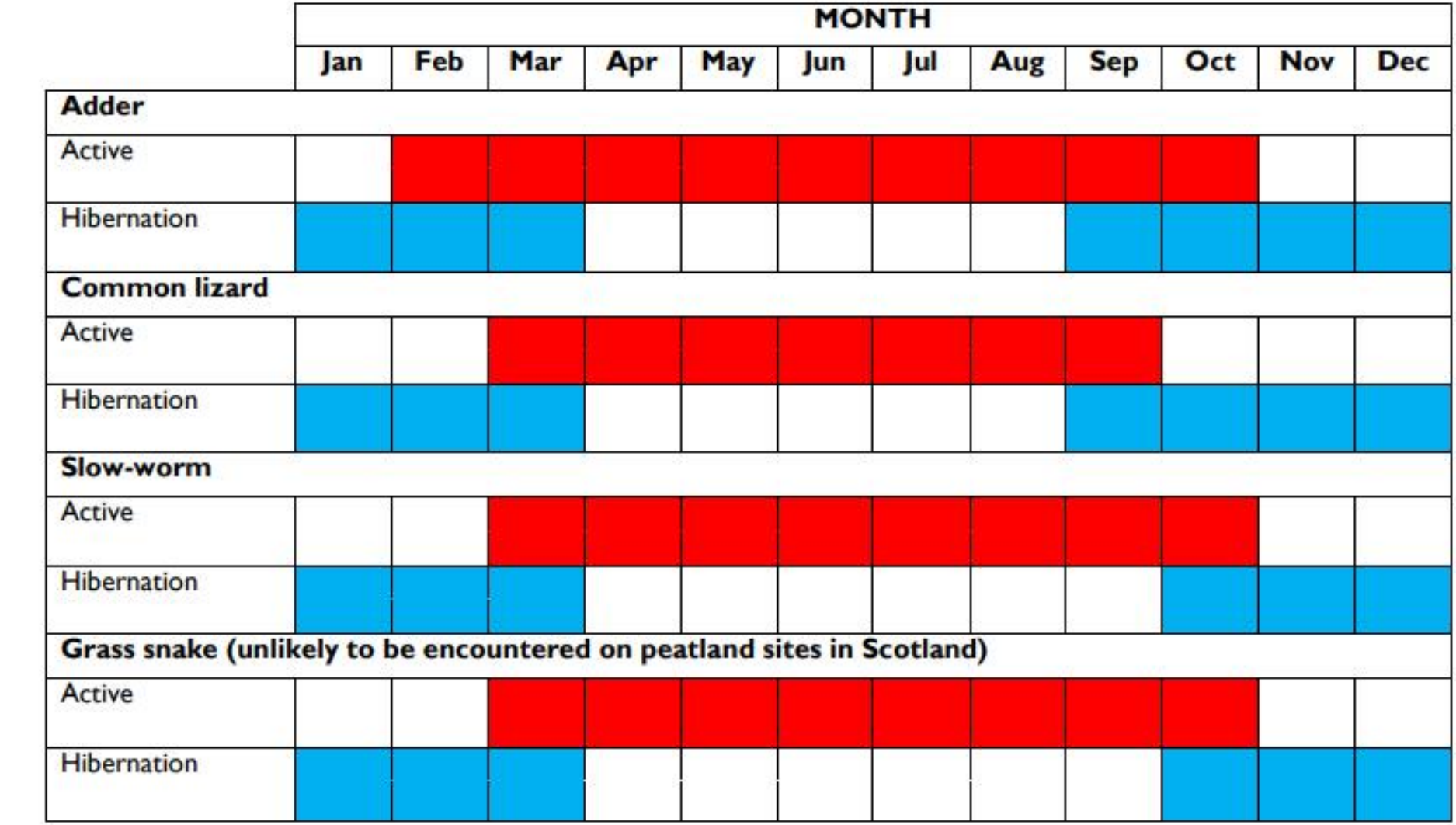

Figure 1. Chart showing active and hibernation periods for reptiles that occur in Scotland. (Note that these vary depending on weather conditions, and differ elsewhere in the UK. Therefore, they should be considered to be indicative only.)

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Peatland Restoration

- Ditch blocking - peat

Peatland Restoration

- Ditch blocking – plastic piling

Peatland Restoration

- Reprofiling and ‘cross-tracking’

Peatland Restoration

- Bunding

Peatland Restoration

- Bunding

Reptile Survey

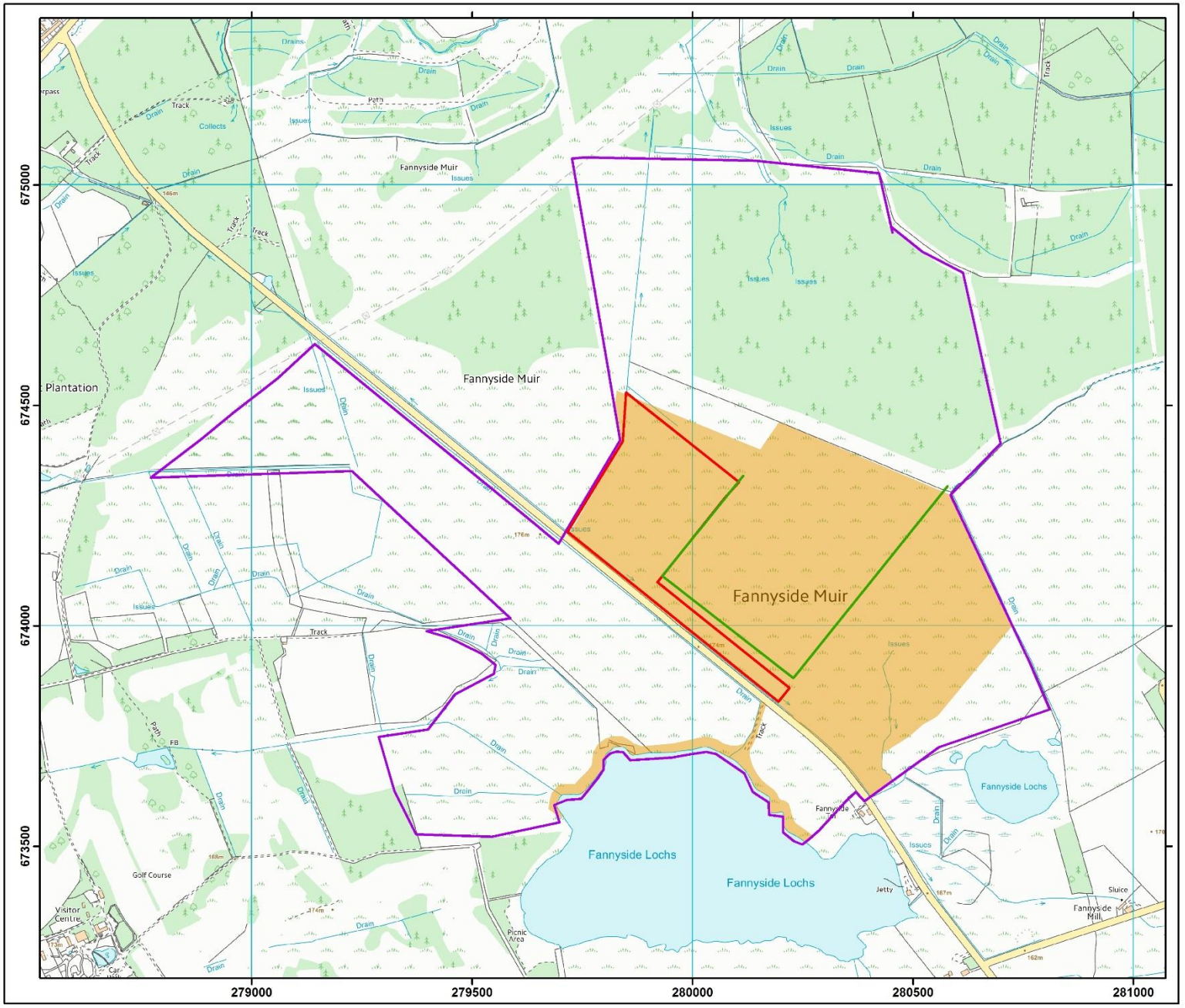
- Desk study
- Habitat assessment / mapping
- Presence

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



buglife Scotland

Caledonian Conservation Ltd

Key

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

Scale 1:8,000 @ A3

0 100 200 400 m

N

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
- Minimum density one per 1,000m^2 in suitable habitat (higher density preferable)
- Seven survey visits minimum
- Weather: 9-18ºC, no rain, wind < Force 4

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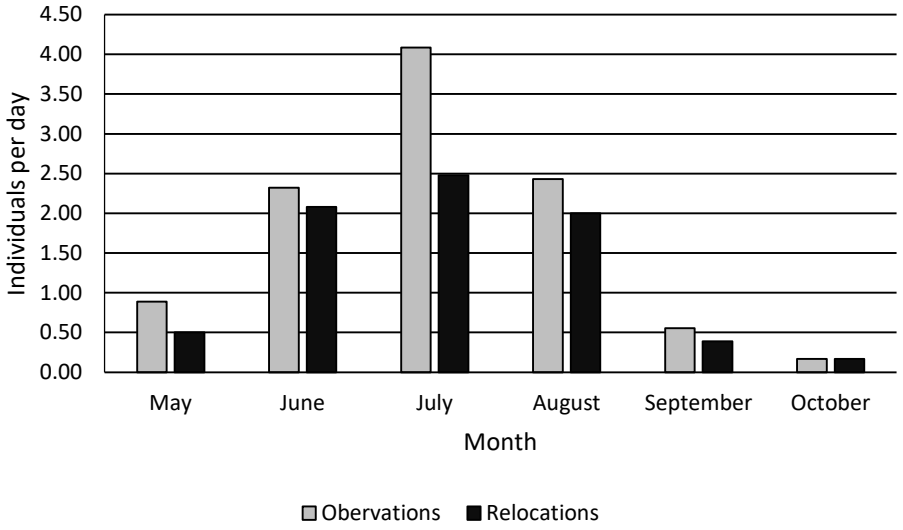
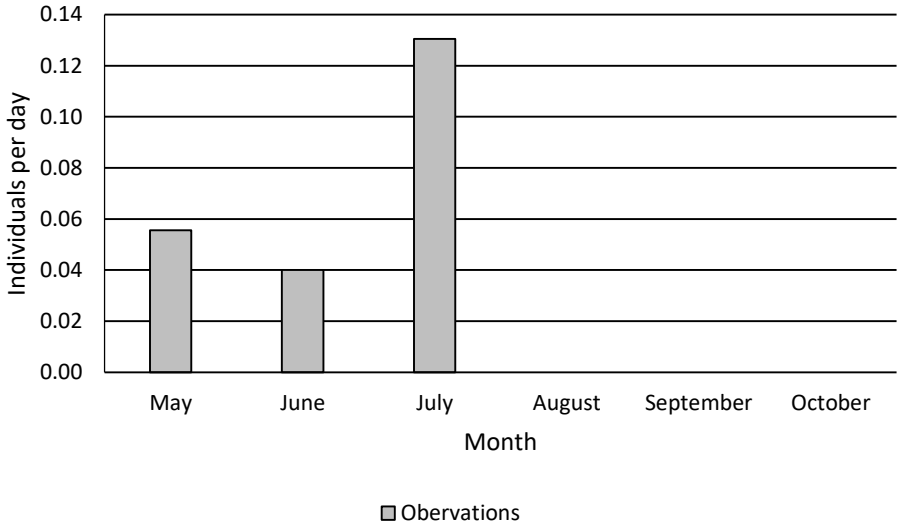
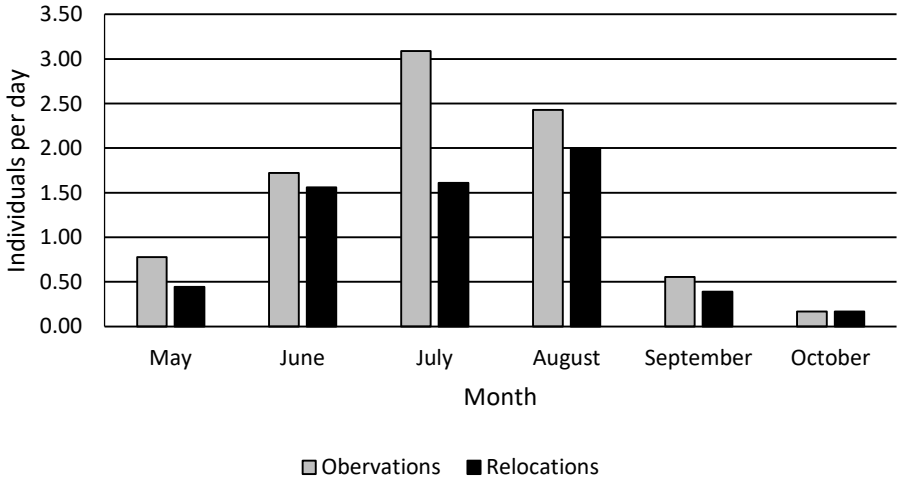
Reptiles observed and relocated per day of effort



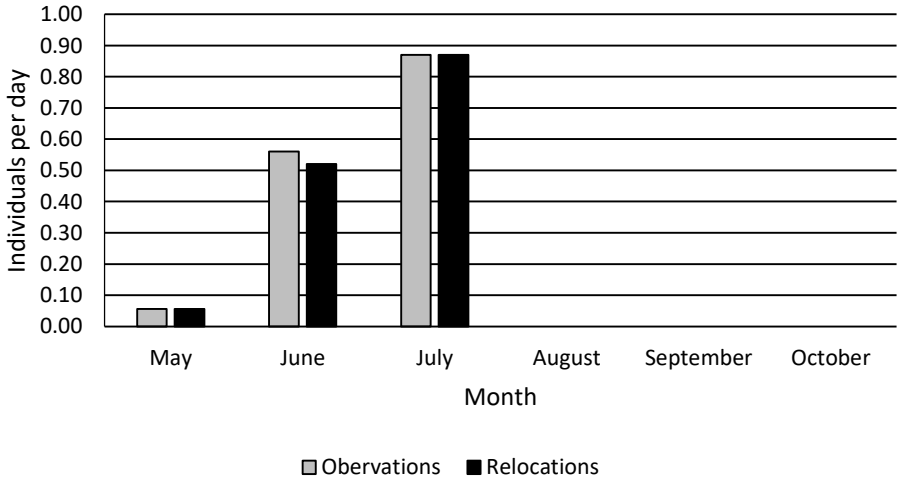
Adders observed per day of effort



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

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LIFE13 BIO / UK / 000428

Fannyside Muir Construction Method Statement:

Reptile Mitigation

Ref: CC0300/CMS1

27th July 2015

Prepared by:

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

Glenn Norris BSc(Hons), Ecologist

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												
Hibernation												

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

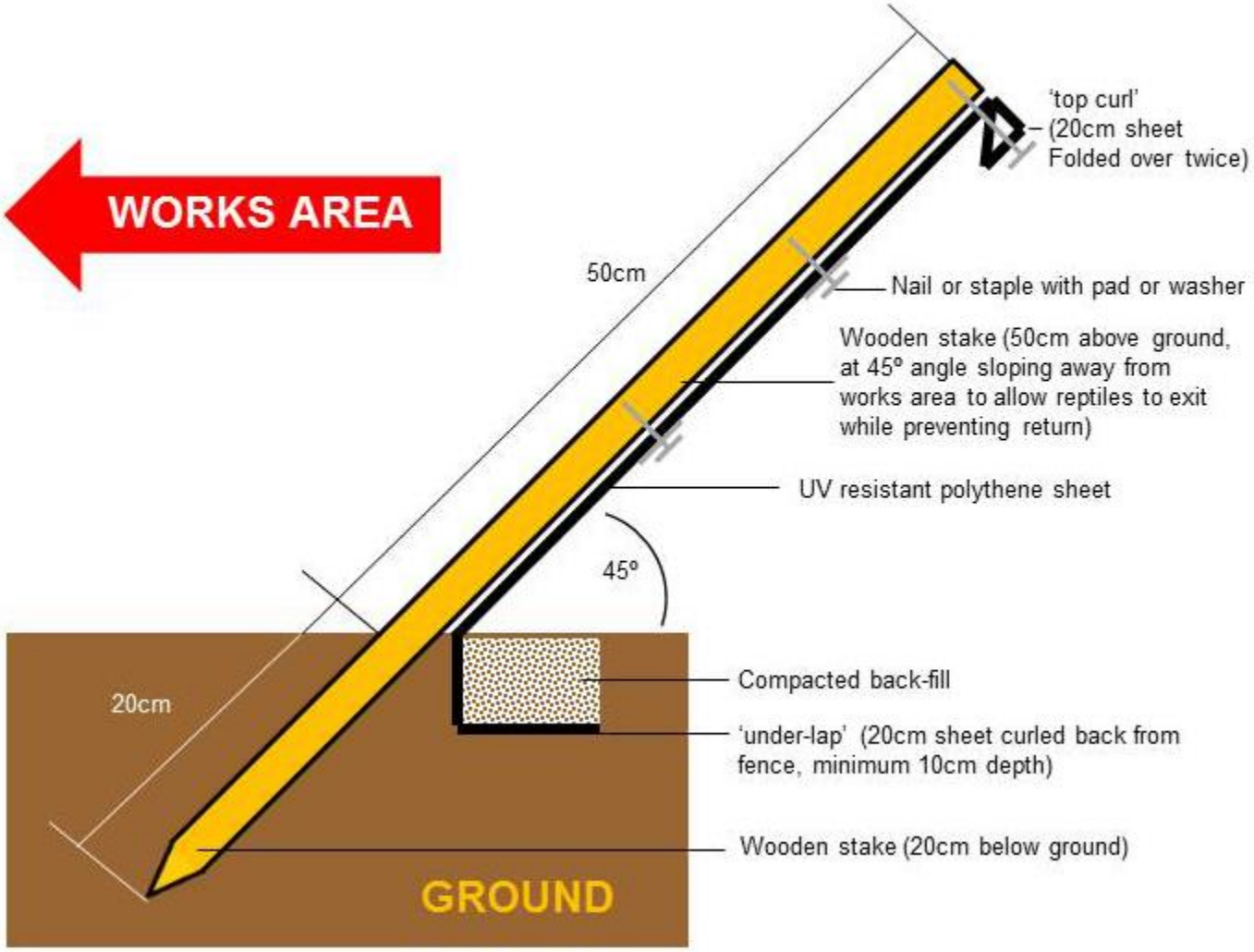
Reptile Mitigation

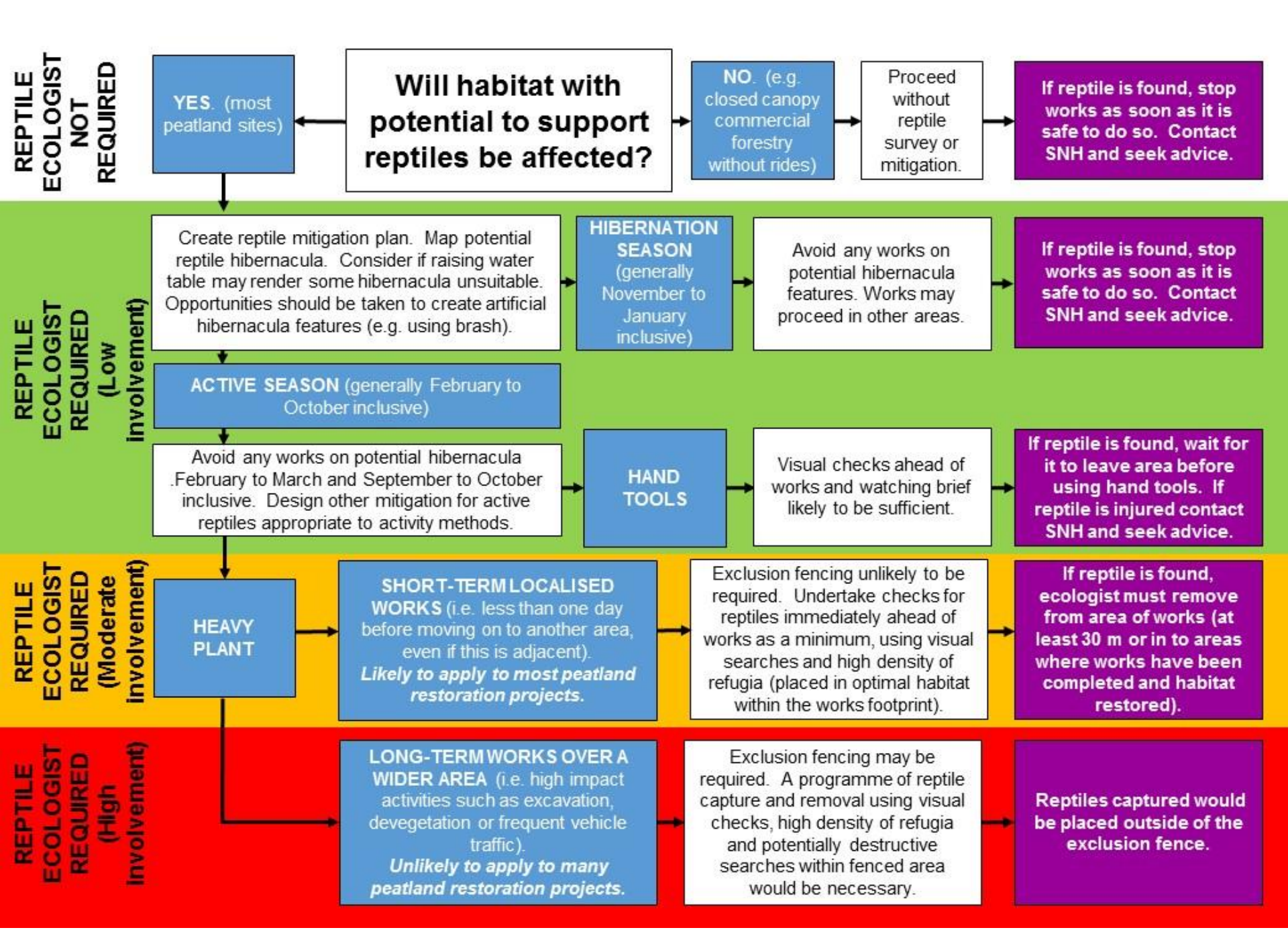
- Hibernacula
  - Avoid (30 m buffer but check for basking reptiles within 100 m)
  - Complete works during active period
  - **Best practice to replace lost hibernacula**
  - Specifications and references are given

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 $20m^2$)
  - Habitat lost or high disturbance over longer period: exclusion and removal

One-way reptile exclusion fencing




REPTILE ECOLOGIST NOT REQUIRED
YES. (most peatland sites)
Will habitat with potential to support reptiles be affected?
NO. (e.g. closed canopy commercial forestry without rides)
Proceed without reptile survey or mitigation.
If reptile is found, stop works as soon as it is safe to do so. Contact SNH and seek advice.
REPTILE ECOLOGIST REQUIRED (Low involvement)
Create reptile mitigation plan. Map potential reptile hibernacula. Consider if raising water table may render some hibernacula unsuitable. Opportunities should be taken to create artificial hibernacula features (e.g. using brash).
HIBERNATION SEASON (generally November to January inclusive)
Avoid any works on potential hibernacula features. Works may proceed in other areas.
If reptile is found, stop works as soon as it is safe to do so. Contact SNH and seek advice.
ACTIVE SEASON (generally February to October inclusive)
Avoid any works on potential hibernacula .February to March and September to October inclusive. Design other mitigation for active reptiles appropriate to activity methods.
HAND TOOLS
Visual checks ahead of works and watching brief likely to be sufficient.
If reptile is found, wait for it to leave area before using hand tools. If reptile is injured contact SNH and seek advice.
REPTILE ECOLOGIST REQUIRED (Moderate involvement)
HEAVY PLANT
SHORT-TERM LOCALISED WORKS (i.e. less than one day before moving on to another area, even if this is adjacent).
Likely to apply to most peatland restoration projects.
Exclusion fencing unlikely to be required. Undertake checks for reptiles immediately ahead of works as a minimum, using visual searches and high density of refugia (placed in optimal habitat within the works footprint).
If reptile is found, ecologist must remove from area of works (at least 30 m or in to areas where works have been completed and habitat restored).
REPTILE ECOLOGIST REQUIRED (High Involvement)
LONG-TERM WORKS OVER A WIDER AREA (i.e. high impact activities such as excavation, devegetation or frequent vehicle traffic).
Unlikely to apply to many peatland restoration projects.
Exclusion fencing may be required. A programme of reptile capture and removal using visual checks, high density of refugia and potentially destructive searches within fenced area would be necessary.
Reptiles captured would be placed outside of the exclusion fence.

Peatland Reptile Mitigation Summary Table

Works Activity	Season*	Action / Mitigation	Further Information
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). ***Likely to apply to most peatland restoration projects.***	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^2 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). ***Unlikely to apply to many peatland restoration projects.***	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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