REPTILE SURVEY

ON

LAND ADJACENT TO BOTALLACK VEAN, BOTALLACK, CORNWALL

July and August 2023

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REPTILE SURVEY ON LAND ADJACENT TO BOTALLACK VEAN, BOTALLACK, CORNWALL

OS Grid Ref: SW 3654 3313

Survey dates: Felt deployment: 29th June 2023
Survey period: 18th July to 30th August 2023

Taxonomic group: Reptiles

Time spent on site: 1 visit of 1 hour to set out refugia
7 visits of 30 minutes for checking refugia

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Report Author: Rebecca Haines (BSc (Hons)

Filename & issue number: RS_Land adj. to Botallack Vean, Botallack, Cornwall_Final 1

Report No: 20-346/LAA/Land adj. to Botallack Vean, Botallack, Cornwall_RS

Report for: Mr Mark Farmer and Jess Morris

Report completed: 19th September 2023

Report Sign off			
Document checked and approved for issue by:	Matthew Thurlow BSc (Hons) MSc ACIEEM	Simon Barnard BSc (Hons) MSc CEcol MCIEEM	
	1st Review	2nd review	
Signature:	[redacted]		
Date:	21st September 2023	26th September 2023	

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1. SUMMARY

Wheal Grey Ecology were instructed by Ms Chloe Pitt, of LA Architecture, on behalf of the clients Mr Mark Farmer and Ms Jess Morris to undertake a Reptile Survey on Land Adjacent to Botallack Vean, Botallack, Cornwall. The proposal is to erect a single dwelling on the site. The area surveyed was focused on the suitable habitats for reptiles within the red line of the planning application and any adjacent suitable habitat. The reptile survey was undertaken as habitats within the Site were highlighted as having the potential to support reptiles during the Preliminary Ecological Appraisal conducted by Wheal Grey Ecology on 1st June 2023.

Aims - The aim of the survey was to determine the presence or likely absence of native British reptiles at the Site, calculate population size class estimates for any reptiles recorded and the status of the study area with respect to the significance of the reptile population according to standard national guidance.

Methods - Refugia were placed on 29th June 2023 after a walkover of the study area was undertaken to identify optimum positions for attracting a range of reptile species. The refugia were placed in accordance with the recommendations from Gent and Gibson (2003) and Froglife (1999) and over as many habitat types as possible since each species has its own particular habitat requirements. The refugia were placed in sunny locations across the Site which consisted of dense scrub, continuous bracken, tall ruderals, and grass edges. The refugia were placed in such a way that reptiles would be more likely to utilise them for thermo-regulation over natural basking sites. A total of 35 refugia were placed across the survey area comprising 20 felts, 10 corrugated bitumen tiles, and five tins.

Legislation - All UK reptile species are protected under the Wildlife and Countryside Act 1981 (as amended) from intentional killing or injury and also from sale or attempted sale.

Results - Five Slow Worm were recorded onsite over the survey period with a maximum of one Slow Worm being observed during each survey visit; this represents a low population for Slow Worm at this Site.

Recommendations - It is recommended that prior to works commencing a method statement should be produced stating the Reasonable Avoidance Measures (RAMS) required, as stated in Section 6.1, which should then be signed by the client and adopted and used alongside an ecological watching brief conducted by a suitably experienced ecologist in order for the proposed development to proceed without harming wildlife and committing any offences under the relevant legislation. The RAMS and watching brief should be used whilst all habitats present onsite are cleared to minimize the risks of killing or injuring individual reptiles on the site, in order to ensure compliance with the relevant wildlife legislation. The clearance of the Site can be completed anytime during the reptile active season (April – September) since disturbing reptiles when they are hibernating has a high risk of injuring or killing them as they are unable to move away from activity.

Maintaining and enhancing the site for reptiles - The management and enhancement of the habitat onsite for reptile species could be incorporated into the current design proposal; this could be done through grassland creation along the southwestern half of the Site away from where the house is to be built, using a maritime grassland seed mix to match the surrounding grasslands, whilst native woody scrub could be incorporated into the northeastern area. The vegetated stone walls/Cornish hedgebanks should also be retained as proposed and extended/enhanced to provide potential reptile hibernaculum. Additionally, trimming the proposed hedge at the appropriate time for year (outside of the bird nesting season) should be considered to increase the light levels reaching the new area of grassland. Any introduced boundaries should also be permeable to wildlife with small gaps underneath or at the ends to allow reptiles to move back into the site post construction as gardens can be a valuable habitat for Slow Worm. This would help to maintain the biodiversity value of the site in accordance with the National Planning Policy Framework.

2. BACKGROUND

Wheal Grey Ecology were instructed by Ms Chloe Pitt, of LA Architecture, on behalf of the clients Mr Mark Farmer and Ms Jess Morris to undertake a reptile survey on the Land Adjacent to Botallack Vean, Botallack, Cornwall. The proposal is for the erection of a single dwelling, the current proposed plans labelled '23109-SK-00-04 MORRIS PROPOSED SITE PLAN' as provided by Ms Chloe Pitt can be found in Appendix 1. The area surveyed was focused on the suitable habitats for reptiles within the red line of the planning application and any adjacent suitable habitat indicated on Map 1 outlined in pink.

These reptile surveys were recommended as a result of the Preliminary Ecological Appraisal conducted by Wheal Grey Ecology on 1st June 2023, which found the scrub, ruderal vegetation and grassland edges to provide suitable opportunities for foraging and basking. A Slow Worm was also observed under a fallen plastic warning sign on the ground adjacent to the red line boundary, see Map 1.

The survey area covers 0.12ha of land consisting largely of scrub, tall ruderals, and Bracken, bound by a post and wire fence to the southwest with occasional short sections of vegetated stone walls in the southern, western and eastern corners. The Site lies approximately 250 meters to the northwest of the village of Botallack with the coastline approximately 400m to the west in West Cornwall. There are several adjacent buildings to the northwest and southeast with a band of scrub and a hedgerow running along but outside of the northeast boundary, an access road currently runs along the southwest boundary. Beyond the immediate vicinity there are agricultural fields used for the grazing of livestock to the northeast and southwest. The coastline is present approximately 400m to the west with areas of maritime grassland present.

3. SURVEY METHOD

3.1. Survey aim

The aim of the survey was to investigate:

Determine the presence or likely absence of native British reptiles at the Site;
Calculate population size class estimates for any reptiles recorded at the Site;
Calculate the status of the study area with respect to the significance of the reptile populations according to standard national guidance;
Detail recommendations for mitigation where required; and
Detail recommendations for biodiversity enhancements with regards to native British reptiles where appropriate.

3.2. Survey design

The method used to survey for reptile populations within the study area followed the methodology described by Froglife (Froglife 1999), the Herpetofauna Worker's Manual (Gent and Gibson, 2003) and, as far as possible, the best practice guidelines from the Herpetofauna Groups of Britain and Ireland (HGBI, 1998).

The use of artificial refugia for surveying reptiles on a site is a widely used and relatively non-invasive method; although it has limitations it is the standard method of assessing a site for a range of reptile species. Reptiles will use suitable materials (such as roofing felt and tins made of corrugated roofing metal) for shelter and sun-basking. Refugia are therefore used to increase the likelihood of making direct observations of species that are otherwise difficult to find. Slow Worm *Anguis fragilis* and Grass Snakes *Natrix helvetica* in particular will use artificial refugia. Viviparous Lizards *Zootoca vivipara* and Adders *Vipera berus* have been known to bask on the top and are occasionally found sheltering underneath. The results from using artificial refugia improve the longer they are in place through a season and the less they are disturbed during that time.

3.2.1. Refugia materials

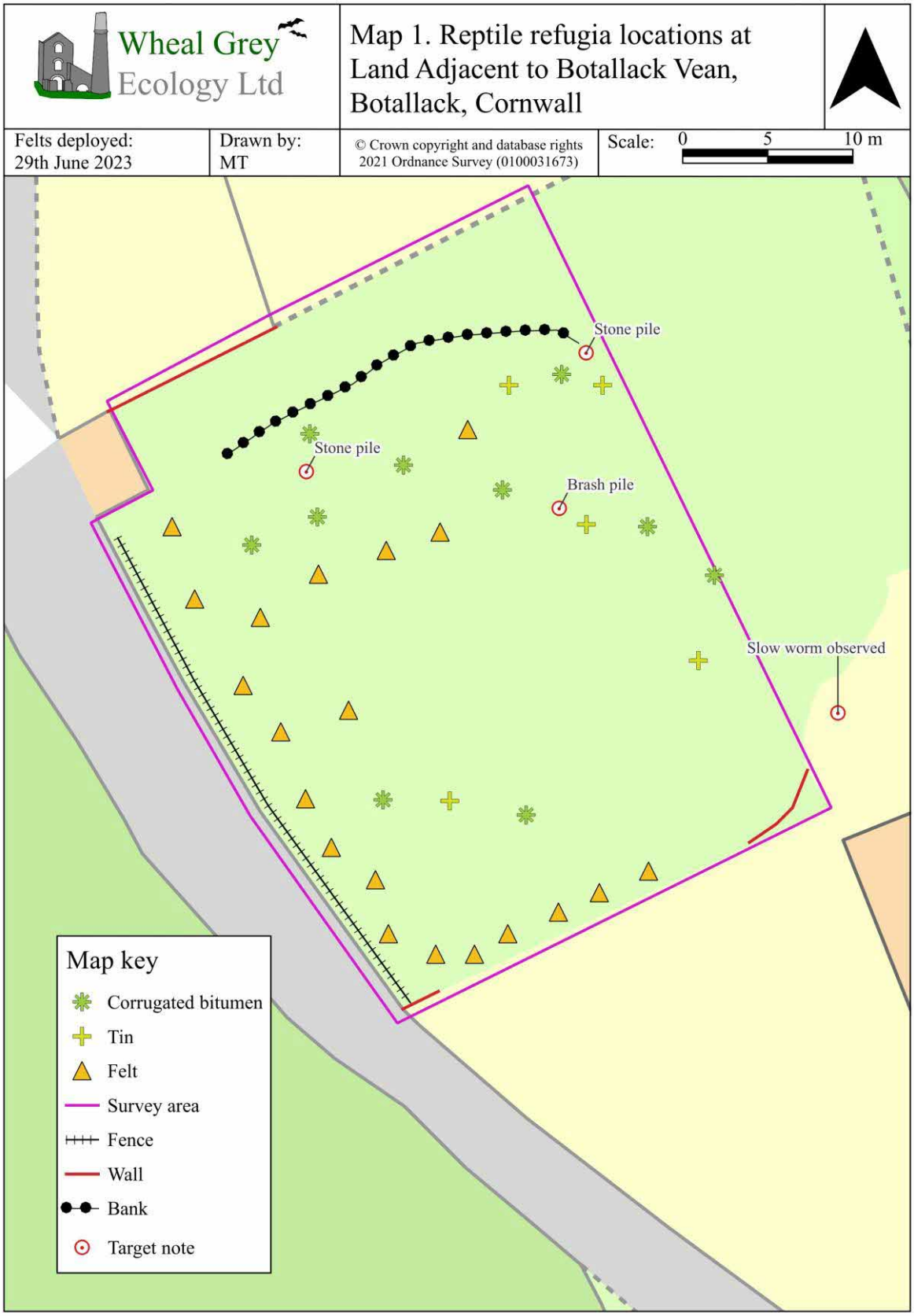
The artificial refugia used included; black bitumen based roofing felt approximately 50cm x 50cm ('felts'), squares of corrugated bitumen sheets, and box metal sheets also cut to approximately 50cm x 50cm ('tins').

3.2.2. Siting of the refugia

The refugia were placed on 29th June 2023 after a walkover of the study area was undertaken to identify optimum positions for attracting a range of reptile species. The refugia were placed in accordance with the recommendations from Gent and Gibson (2003) and Froglife (1999) and over as many habitat types as possible.

The refugia were placed in partially sunny locations suitable for morning and afternoon basking across the site which consisted of dense scrub, tall ruderals, continuous bracken, and grassland edges. The refugia were placed in such a way that reptiles would be more likely to utilise them for thermo-regulation.

A total of 35 refugia were placed across the survey area comprising 20 felts, 10 corrugated bitumen, and five tins, see Map 1.


Wheal Grey Ecology Ltd
Map 1. Reptile refugia locations at Land Adjacent to Botallack Vean, Botallack, Cornwall
Felts deployed: 29th June 2023
Drawn by: MT
© Crown copyright and database rights 2021 Ordnance Survey (0100031673)
Scale: 0 5 10 m
Stone pile
Stone pile
Brash pile
Slow worm observed
Map key
Corrugated bitumen
Tin
Felt
Survey area
Fence
Wall
Bank
Target note

3.2.3. Survey timings

All felts were allowed to 'bed-in' for approximately two weeks before a total of seven survey visits were undertaken between 18th July and 30th August 2023. Each survey visit consisted of a walkover of the study area, lifting and examining beneath each artificial refugium and making observations of natural basking points such as scrub edges and exposed rocks adjacent to tall vegetation.

When reptiles are observed on or under the refugia, or on nearby features, the number of individuals, the species, the sex (where possible) and maturity of each individual was recorded. Records of no reptiles or missing refugia were also kept.

3.2.4. Weather conditions for field survey visits

The first field survey visit was carried out on 18th July 2023; surveys then continued through July and August, in suitable weather conditions, until the last survey on 30th August 2023.

In total seven survey visits were undertaken at the site. The weather conditions and dates for each survey are included in Table 1. The survey period was warm and mostly dry which allowed survey visits to be conducted with ease in weather conditions that were suitable for undertaking reptile surveys (i.e. avoiding windy days and rain). The temperature was within the optimum range (between 9ºC and 18ºC), as recommended by Froglife (Froglife, 1999).

Table 1. Dates and weather conditions during each survey visit.

		Date	Time of day	Cloud (%)	Air temp. ºC	Avg. felt temp	Weather
Felts deployed		**29/06/2023**					
Survey	**1**	18/07/2023	09:15	50%	16	Warm/cool to touch	Light breeze with occasional sunshine
	2	25/07/2023	10:15	0%	15	Warm/cool to touch	Light breeze with strong sunshine
	3	04/08/2023	09:30	25%	16	Warm to touch	Light northerly breeze, partial sunshine
	4	11/08/2023	09:50	60%	16	Warm/cool to touch	Light breeze, hazy to full sunshine
	5	21/08/2023	18:00	70%	17	Lukewarm to touch	Slightly overcast with patchy sunshine and a light breeze
	6	25/08/2023	18:00	60%	16	Lukewarm to touch	Patchy Sunshine with cloud, showers had occurred during the afternoon
	7	30/08/2023	10:15	90%	14	Cool to touch	Overcast with patchy sunshine, very light breeze

3.3. Limitations of the survey

Due to the dense scrub present onsite, the locations of refugia were restricted to partially cleared and accessible areas.

Surveys were carried out within the sub-optimal survey period of the season for reptiles with some days still becoming very hot although August in general was uncommonly cool on average this year. Having surveys more spread out over the course of the active period may have resulted in higher numbers of reptiles being recorded. However, the surveys were generally completed in optimal weather conditions and temperatures and a good density of refugia were used; these surveys are therefore considered to represent a good picture of reptile activity at this site.

4. SURVEY RESULTS

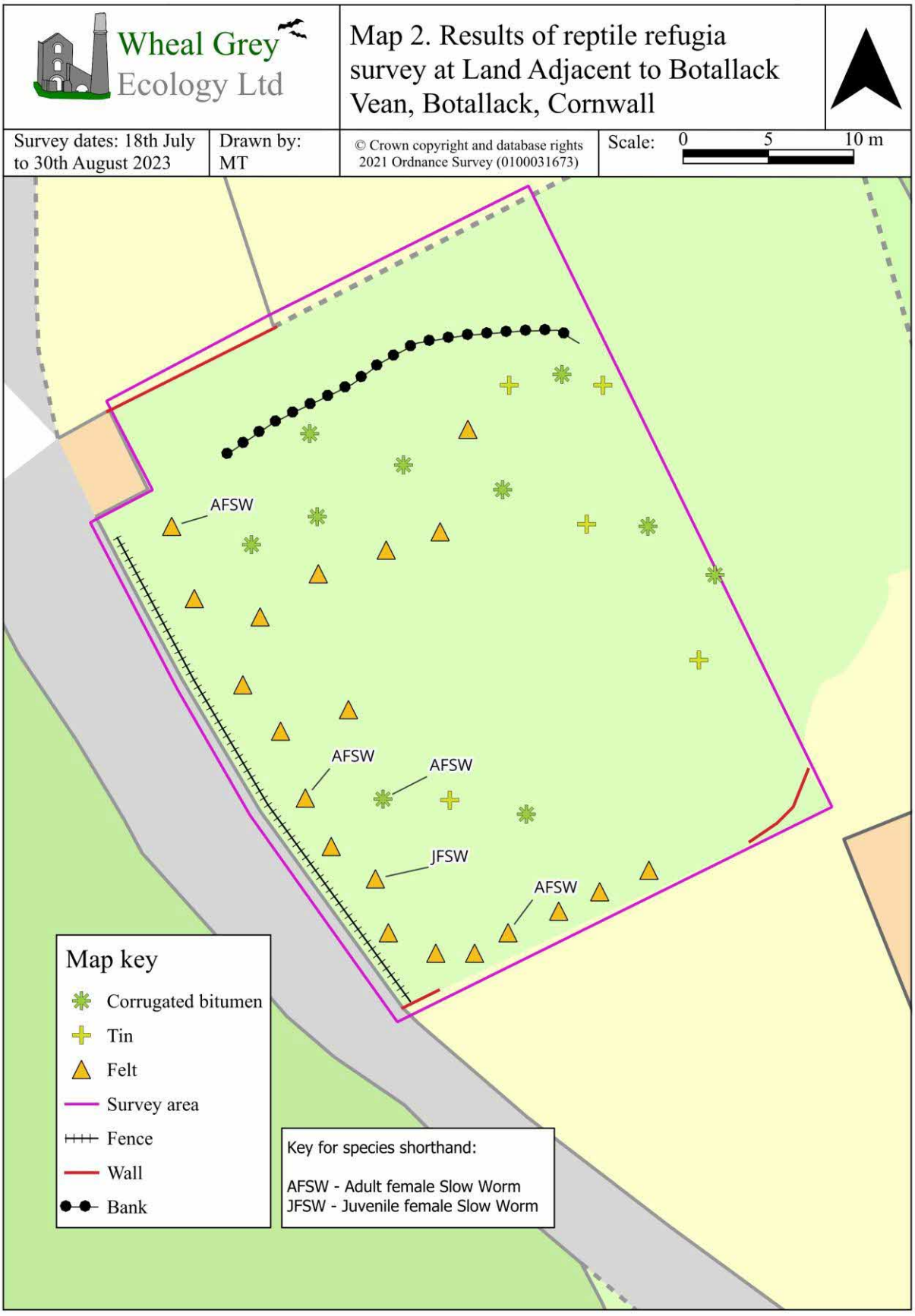
During the seven surveys, there were a total of five sightings of Slow Worm, with a maximum of one Slow Worm recorded during a single visit, with individuals found basking underneath both felts and corrugated bitumen sheets. These were largely focused towards the southwest of the Site, with an individual recorded in the strip of grass outside the redline boundary to the south east under the same fallen sign as one was found during the PEA, see Tables 2 and 3 and Map 2.

Table 2. Summary of reptile sightings by survey number during reptile surveys

	Species	Adult female	Adult male	Sub-adult male	Sub-adult female	Juvenile	Total
1	Slow worm	1	0	0	0	0	1
2	Slow worm	1	0	0	0	0	1
3	N/A	0	0	0	0	0	0
4	Slow worm	1	0	0	0	0	1
5	Slow worm	1	0	0	0	0	1
6	N/A	0	0	0	0	0	0
7	Slow worm	0	0	0	0	1	1

Table 3. Total reptile sightings across whole of the reptile survey

Species	Adults/sub-adults	Juveniles
Slow Worm	4	1


Wheal Grey Ecology Ltd
Map 2. Results of reptile refugia survey at Land Adjacent to Botallack Vean, Botallack, Cornwall
Survey dates: 18th July to 30th August 2023
Drawn by: MT
© Crown copyright and database rights 2021 Ordnance Survey (0100031673)
Scale: 0 5 10 m
AFSW
AFSW
AFSW
JFSW
AFSW
Map key
Corrugated bitumen
Tin
Felt
Survey area
Fence
Wall
Bank
Key for species shorthand:
AFSW - Adult female Slow Worm
JFSW - Juvenile female Slow Worm

5. ASSESSMENT

5.1. Reptile community within the study area

A total of five observations of Slow Worm were made across the study area of the proposed development site, with a maximum of one Slow Worm recorded during a single visit. One juvenile Slow Worm was observed which suggests a breeding population of Slow Worm may be present.

Froglife, the UK herpetofauna conservation organisation, has produced a set of criteria from which the importance of a site for reptiles can be assessed (Froglife, 1999). It can be used to give an objective evaluation of the importance of the reptile interest at a site, based on survey results.

The highest count for adults of each species recorded on a single survey day, and within the prescribed density of 5-10 refugia per hectare, is taken to score the population of each species found at the site, see Table 4.

Table 4: Reptile Site Survey Assessment (Froglife 1999**)**

Species	**Low population** ***Score 1***	**Good population** ***Score 2***	**Exceptional population** ***Score 3***
Adder	<5	5-10	>10
Grass Snake	<5	5-10	>10
Viviparous Lizard	<5	5-20	>20
Slow Worm	<5	5-20	>20

To qualify as a Key Reptile Site the site in question must meet at least one of the criteria listed below:

The site supports three or more reptile species
the site supports two snake species
the site supports an exceptional population of one species of reptile
the site supports an assemblage of species scoring at least 4 in terms of the population number (Table 4) – this requires a specified minimum survey effort for scoring
the site does not satisfy items 1 – 4 but is of particular regional importance due to presence of a local rarity.

Five Slow Worm were recorded onsite over the survey period with a maximum of one Slow Worm being observed during one survey; this represents a ‘Low’ population for Slow Worm at this Site.

The dense scrub, tall ruderals, continuous bracken, and grassland edges present onsite all provide good habitat for reptiles. The majority of reptiles were observed in the southwest section of tall ruderals and dense scrub. One consideration is that the vegetation in this area is less dense and is likely to receive more sunshine for a larger proportion of the day.

5.2. The species of reptile in the study area

A low population of Slow Worm was found to inhabit the Site. This species is widespread in the UK and thought to be relatively common in the southwest. It is found in many different habitats such as tussocky grassland and meadows, woodland rides, hedgerows, heathland, and urban wasteland and prefers to be covered or obscured by some vegetation rather than being in open areas. The Slow Worms found during the surveys were mostly adults with one juvenile. The adults observed were all female. The juvenile at this life stage is not consistently coloured so could not be sexed.

5.3. Legal and policy protection of reptiles

This section is a simplified description of the legislation with respect to widespread native reptile and amphibian species in the wild. In all cases reference should be made to the original legislation for a definitive interpretation.

5.3.1. The Wildlife and Countryside Act 1981

In the UK all six native species of reptile receive legal protection. These species are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect of Section 9(5) and part of Section 9(1). Under this Act individuals of these species are protected from intentional killing or injury and also from sale or attempted sale.

5.3.2. The Natural Environment and Rural Communities (NERC) Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006 now places in law a duty for every public authority to conserve biodiversity. UK reptiles are listed under Section 41 of the NERC Act 2006 which makes them of "*principal importance for conserving biodiversity in England"* and the presence of reptiles on the study area would be a "material consideration" in planning decisions.

5.3.3. Reptiles as species of Principle Importance under the UK-Post 2010 Biodiversity Framework.

All reptiles have been identified as conservation priorities under the UK-Post 2010 Biodiversity Framework. This derives from the NERC Act 2006.

6. RECOMMENDATIONS

6.1. Pre-construction and during construction

The Site was found to sustain low populations of Slow Worm. The proposed development at the Site involves the removal of areas of suitable reptile habitat and therefore has the potential for significant adverse impacts on the populations of Slow Worm currently inhabiting the Site.

Prior to works commencing a method statement should be produced separately stating the Reasonable Avoidance Measures (RAMS) required which should then be adopted, signed up to by the client and used alongside an ecological watching brief conducted by a suitably experienced ecologist in order for the proposed development to proceed without committing any offences under the relevant legislation. The RAMS and watching brief should be used whilst all habitats present onsite are cleared to minimize the risks of killing or injuring individual reptiles, in order to ensure compliance with the relevant wildlife legislation. This RAMS document should include, but is not limited too, the following careful working methods:

Conducting the works during the active reptile season (April to October inclusive),
Conducting a pre works disturbance of the grasses and vegetation followed by the vegetation being cleared down to ground level in several stages using hand operated machinery with the vegetation being checked in between each cut,
Clearance of the turf and top soil in stages using a toothed bucket down to a depth of 300mm working in a clear pattern from north west to south east so that reptiles can move out of the site ahead of the works and do not become trapped within the site; and
the use of designated access routes for works vehicles.

The clearance of the Site can be completed anytime during the reptile active season (April – September) since disturbing reptiles when they are hibernating has a high risk of injuring or killing them.

6.2. Post development

The management and enhancement of the habitat for reptile species could be incorporated into the current design proposal; this could be done through grassland creation along the southwestern half of the Site, using an acidic or maritime grassland seed mix, whilst native woody scrub planting could be incorporated into the northeastern area. The vegetated stone walls should also be retained as proposed and enhanced to provide potential reptile hibernaculum. Additionally, trimming the proposed hedge at the appropriate time for year (outside of the bird nesting season) should be considered to increase the light levels reaching the new area of grassland. Any introduced boundaries should also be permeable to wildlife with small gaps underneath or at the ends to allow reptiles to move back into the site post construction as gardens can be a valuable habitat for Slow Worm. This would help to maintain the biodiversity value of the site in accordance with the National Planning Policy Framework.

7. REFERENCES

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,

HGBI (Herpetofauna Groups of Britain and Ireland) 1998. *Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards*. HGBI, Halesworth, Suffolk.

JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. Available from: http://jncc.defra.gov.uk/page-6189

APPENDIX 1. Proposed site plans '23109-SK-00-04 MORRIS PROPOSED SITE PLAN' for Land Adjacent to Botallack Vean, Botallack, Cornwall as provided by Ms Chloe Pitt of LA Architecture.