

Reptile Survey

Land at Bilsham Road

Yapton

West Sussex

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species maybe recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Background

- 1.1 The Ecology Partnership was commissioned by Gleeson Strategic Land to undertake a reptile survey on land Bilsham Road, Yapton.
- 1.2 The site is situated along the southern boundary of the West Sussex village of Yapton. The site is set within a semi-rural landscape surrounded by agricultural land as well as commuter towns and villages. The immediate surroundings consist of residential dwellings to the north and east, and arable fields with hedgerows to the south and west. The site is currently dominated by arable land, which at the time of survey, was covered by bare ground.
- 1.3 The red line boundary is shown in the figure overleaf. The survey boundary was extended later which is shown by the blue boundary.



Figure 1: Approximate red line boundary and survey boundaries

1.4 This report presents the results of The Ecology Partnership's survey of the site, which aims specifically to determine the current presence or likely absence of reptiles on the site.

1.5 Section 2 of this report sets out the methodology of this reptile survey. In section 3 the results of the survey are presented. Discussions and implications for development are found in section 4. Section 5 presents the conclusions drawn from the report.

2.0 Methodology

2.1 A terrestrial survey of the site for reptiles (presence or absence) was carried out at the site between the 6th and 31st May 2016 (redline boundary). Prior to the commencement of the survey, the site was set up with artificial refugia (roofing-felt mats) for reptiles on 25th April 2016. Refugia were later set up in the extended area (blue boundary) on the 29th June 2016. Surveys were then carried out between the 6th and 25th July 2016 in this area.

2.2 The timing and number of survey visits completed were based on guidelines produced by Froglife (1999) and Gent and Gibson (1998). A total of seven survey visits were made to the site to check the refugia for the presence of reptiles and to carry out a visual transect. Visits were only carried out if the weather conditions were suitable for locating reptiles and took place at a variety of times of day (some in the morning and some in the afternoon/evening so that different mats would be exposed to the sun), in order to maximise the probability of finding reptiles if they were present. On each visit to the site, a minimum of one circuit to check all refugia was carried out.

2.3 Note that whilst checking the artificial refugia a visual check was also carried out of natural basking sites and refugia on the site. Natural refugia, such as logs and brash piles, were searched for evidence of reptiles, whilst the route chosen in moving between the artificial refugia allowed a thorough visual transect of the whole site to be carried out, again in accordance with Natural England guidelines.

3.0 Results

3.1 The table below documents the timing and weather conditions of the reptile survey visits.

Table 1: Details of the surveys and finds

Visit and Site number	Date	Time	Conditions	Finds
1 Redline	04/05/2016	10:50	Sunny, mild, calm, 20% cloud 13°	Slow worms: 10 adults, 3 sub-adults and 13 juveniles
2 Redline	06/05/2016	17:30	Sunny, warm, 50% cloud, 22°	Slow worms: 23 adults, 8 sub-adults and 22 juveniles
3 Redline	09/05/2016	10:00	Overcast, cool breeze, 100% cloud 20°	Slow worms: 33 adults, 21 sub-adults and 46 juveniles
4 Redline	19/05/2016	11:50	Mixed sun & cloud, 70% cloud, 18°	Slow worms: 33 adults, 30 sub-adults and 49 juveniles
5 Redline	24/05/2016	11:00	Sunny, clear, slight breeze, 3% cloud 17°	Slow worms: 25 adults, 19 sub-adults and 36 juveniles
6 Redline	27/05/2016	14:00	Sunny, warm, hazy 50% cloud, thundery 22°	Slow worms: 22 adults, 17 sub-adults and 18 juveniles
7 Redline	31/05/2016	14:30	Overcast, blustery, 80% cloud 14°	Slow worms: 27 adults, 14 sub-adults and 47 juveniles
8 Blueline	6/07/2016	17:30	Hazy sunshine, light breeze, 60% cloud 20°	Slow worms: 1 adult female; 2 sub-adult males; 1 juvenile
9 Blueline	12/07/2016	15:45	Brightening after rain, 100% cloud, 15°	Slow worms: 1 adult female; 1 adult male.
10	15/07/2016	15:30	Overcast but warm, 98%	Slow worms: 4

Blueline			cloud, 20°	adult females; 2 adult males; 1 sub-adult female; 1 sub-adult male; 1 juvenile.
11 Blueline	18/07/2016	18:00	Clear, sunny, still 0% cloud, 26°	No finds
12 Blueline	20/07/2016	09:45	Overcast, breezy, 100% cloud, 20°	Slow worms: 2 adult females; 2 adult males; 4 sub-adult females; 2 juveniles.
13 Blueline	22/07/2016	17:45	Sunny, clear, light breeze, 10% cloud, 24°	Slow worms: 1 adult female; 1 sub-adult female.
14 Blueline	25/07/2016	10:00	Hazy sunshine 60% cloud 20°	Slow worms: 2 adult females; 2 adult males; 2 sub-adult females; 1 sub-adult male

3.2 It will be seen from the above table and map below that only slow worms were detected as being present on the site. The peak count of adult (including sub-adults) slow worms across the seven survey visits was 63, which is considered as an 'exceptional' population (Following the Froglife Advice Sheet, 1999). No other reptile species were found on-site and it is considered that no other species would be present within the red line boundary.

3.3 The location of the slow worms are found on the very edges of the site, on the northern and western boundaries (Figure 2).



Figure 2: Occurrence of slow worms of different life stages within the redline boundary.

SW= slow worm; A = adult; SA = sub-adult; J = juvenile; m = male; f = female

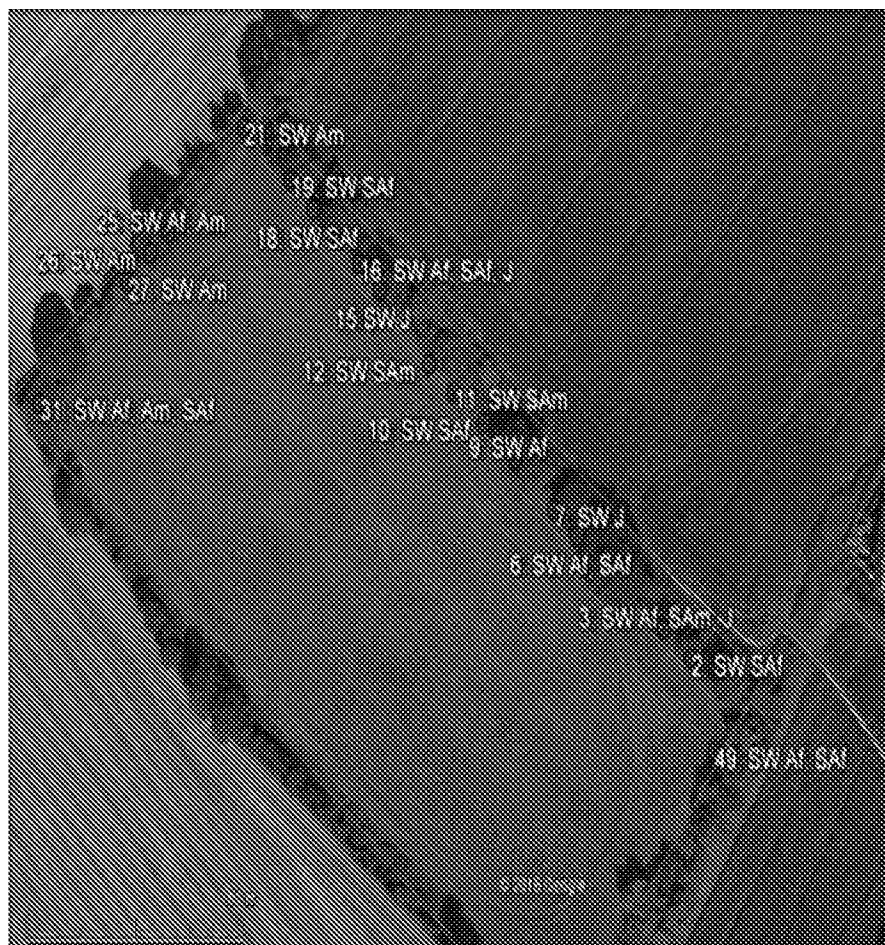


Figure 3: Occurrence of slow worms of different life stages within the extended area.

SW= slow worm; A = adult; SA = sub-adult; J = juvenile; m = male; f = female

4.0 Discussion and Recommendations

- 4.1 The size of the slow worm population can be assessed using the Froglife (1999) scoring system. This system assumes a density of 10 refugia per hectare (so 80 for an 8 ha site). A population size class assessment, which is based on the number of adults (including sexually mature sub-adults) recorded in one survey visit can be made using Table 1.

Table 2: Population class assessment categories (Froglife, 1999)

	Low population (Score 1)	Good population (Score 2)	Exceptional population
Adder	<5	5 - 10	>10
Common lizard	<5	5 - 20	>20
Grass snake	<5	5 -10	>10
Slow-worm	<5	5 - 20	>20

4.2 The maximum number of adults/sub-adults identified in one survey visit was 63, therefore the site is considered to support an 'exceptional' population of slow worms. It was estimated that over 288 individuals were recorded during the 14 visits (7 to each portion of the site), of which about 102 were adults, 81 were sub-adults and 105 were juveniles. However, during the first few visits disturbance of the refugia across the site had occurred, meaning that about half of the refugia has to be reset or replaced at some point during the survey. As a result, the numbers of slow worms found may be reduced compared to what would have been recorded with no disturbance occurring.

4.3 The majority of slow worms were identified along the boundaries of the site, within the eastern section of the site, where the fields back onto houses with gardens. Only roughly 30 of the estimated 260 individuals were identified along the western boundaries bordering fields and hedgerows. The results are consistent with the generally high suitability of suburban gardens as habitat for slow worms.

4.4 The survey did not detect any other reptile species on the site so it is likely that only slow worms are present. However, this cannot be stated with 100% certainty based on a limited number of visits.

Mitigation / Enhancement Strategy and proposed Method

4.5 Mitigation in this instance is relatively straightforward, as the slow worms were found only on the rough-grassland margins of the site. The interior of the fields (and therefore the likely development footprint) is actively managed semi-improved grassland, mown

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- for silage (blue boundary) or arable (redline boundary), and is therefore generally unsuited to reptiles. They may, however, stray into the grassland interior of the field whilst foraging during the spring/ early summer before the grass is mown.
- 4.6 Assuming the fields within the redline boundary remain arable up to the point of development, and that the development and access footprints do not impinge on the vegetated margins, the only mitigation required is to erect a reptile exclusion-zone fence. The fence will need to be positioned 2m in from the vegetated margin, with signage that will indicate that vehicle access or storage of building materials or chemicals is not permitted behind the fence. The fence line acts as a reptile-proof barrier to preclude any possible movement of reptiles or other small fauna onto the development footprint.
- 4.7 There are two options for works to the grassland within the blue boundary. One is to wait until early- to mid-winter and plough the field interior so that it becomes inhospitable to the reptiles when they become active in spring. After ploughing it would be necessary to erect the high-visibility exclusion-zone fence. The second option would be to erect the reptile-proof barrier during the period of reptile torpor (November to February), without ploughing the field, so that any possible movement of reptiles or other small fauna onto the development footprint during their period of activity is precluded.
- 4.8 In the case that any area of the rough marginal vegetation will need to be disturbed (e.g. for creation or widening of an access road) the affected section of vegetation will need to undergo a translocation process to remove any reptiles present in it before any disturbance occurs. This would involve:
- Erection of a continuous reptile fence surrounding the marginal vegetation to be cleared, facing outwards (i.e. with the roll-over and buried tuck-under on the outside).
 - Set-up reptile refugia on a 3-4 m grid pattern inside the reptile fence (roofing-felt mats)

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- After a bedding in period of 7 days, check mats for up to 60 days or until 5 consecutive days without reptile finds. (How long this takes will depend on whether the area concerned has a higher or lower density of slow worms).
 - Translocate any reptiles found to suitable parts of the vegetated site margin that will not be affected (grassland rather than scrub).
 - The reptile proof barrier separating the affected part from the unaffected vegetation should remain in place until the area within it has been cleared of all vegetation, so that reptiles will not return.
 - Translocation will need to be completed before the slow worms' winter torpor begins, so ideally by the end of September or latest one week into October.
 - After completing the translocation the marginal rough grassland should be strimmed down to approximately 1 foot, and then re-trapped for reptiles for several days until the ecologist is happy that all of the slow worms have been captured;
 - Natural refugia and vegetation patches remaining in the main site to be searched / dismantled by hand;
 - Once this is complete the site can then be cleared down to ground level under the supervision of an ecologist;
 - Holding area to be monitored during site works by an ecologist to ensure the fence is fit for purpose and that the area is respected as a 'wildlife area'.
 - Once development is complete the reptile fencing should be removed, allowing reptiles to recolonise green-spaces within the development footprint.

Enhancement Strategy

- 4.9 The large population of slow worms found on the site margins can be easily protected during the development process using the above mitigation measures. A development proposal that converts relatively sterile arable land to suburban gardens will in itself make a larger area suitable as habitat for slow worms. However, to ensure a net gain for biodiversity (from the point of view of reptiles) the site can also be enhanced for wildlife as part of the site design, and include features which are specifically favoured by reptile species (as well as by birds, small mammals, amphibians and invertebrates). This is will

encourage colonisation of the interior of the site from the margins as also possibly from surrounding areas (such as the hedgerow network). There are several ways in which the site can be deliberately enhanced for ecological value.

4.10 Enhancing the rough vegetation along the edges of the site. The simplest way of doing this is to cut down some of the dense banks of bramble scrub, especially where this extends right up to the edge of the arable field, since this is unsuitable as reptile habitat. Cut material can be used to create brush piles in shaded areas (e.g. under trees or hedges). This operation should be repeated every 4 years or so.

4.11 A 2m wide buffer strip of arable land can be developed to protect the marginal vegetation on-site. The arable land can be converted into grassland habitat using a damp-meadow seed mix. This mix should include at least 50% of the following damp-meadow species:

- Bugle – (*Ajuga reptans*)
- Common knapweed – (*Centaurea nigra*)
- Wild carrot – (*Daucus carota*)
- Hemp agrimony – (*Eupatorium cannabinum*)
- Meadowsweet – (*Flippendula ulmaria*)
- Birdsfoot trefoil – (*Lotus corniculatus*)
- Greater Birdsfoot trefoil (*Lotus pedunculatus*)
- Ragged Robin (*Lychnis flos-cuculi*)
- Cowslip – (*Primula veris*)
- Selfheal – (*Prunella vulgaris*)
- Meadow buttercup – (*Ranuncullus acris*)
- Wild mignonette – (*Reseda lutea*)
- Pepper saxifrage (*Silaum silaus*)
- Bladder campion – (*Silene vulagris*)
- Wild red clover – (*Trifolium pratense*)
- Tufted vetch – (*Vicia cracca*)
- Creeping Bent – (*Agrostis stolonifera*)

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- Marsh Foxtail – (*Alopecurus geniculatus*)
 - Sweet vernal grass – (*Anthoxanthum odoratum*)
 - Crested dogstail – (*Cynosurus cristatus*)
 - Smaller cats tail – (*Phleum bertolonii*)

4.12 Areas of open green-space should be created within the development footprint and should include at least 60% of open grassland and be seeded with a similar damp-meadow mixture. The remaining 40% (or less) can be sparsely planted with native scrub species as listed below (4.13)

4.13 The new marginal grassland strips and green-space grassland - together with existing grassland field verges - should be strimmed to 15-20 cm on a two-yearly cycle, in late summer, and the arisings raked up and piled as compost heaps under scrub or hedgerow.

4.14 Retain existing hedgerow trees and tall scrub, wherever possible, and enhance them with planting of additional species (where these are not already present) such as:

- Hazel - (*Corylus avellana*)
- Hawthorn - (*Crataegusmonogyna*)
- Blackthorn - (*Prunus spinosa*)
- Dog rose – (*Rosa canina*)
- Elder – (*Sambucus nigra*)
- Wayfaring tree – (*Viburnum lantana*)
- Spindle – (*Euonymus europaeus*)
- Travellers joy – (*Clematis vitalba*)
- Honeysuckle – (*Lonicera periclymenum*)

4.15 Habitat piles should be installed within landscaped green-spaces and the areas of marginal rough grassland for use as refugia by reptiles. These could be e.g. log or stone piles and should be located in a variety of conditions, including under shrubs.

Planting around habitat piles with such species as honeysuckle or clematis can also add value.

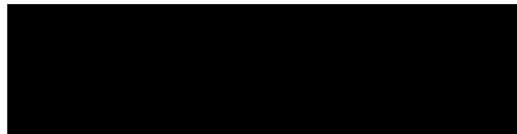


- 4.16 It is considered that the enhancements of the site will provide optimal opportunity in the future for the slow worm population, as well as encouraging the wider vertebrate and invertebrate fauna from the nearby area to colonise and co-exist with any future building development on the site. These proposals will provide new opportunities for fauna species in the local area.
- 4.17 It is considered that with the specific enhancements in place that the site will be of enhanced for a range of wildlife, including for reptiles. The enhancements would result in new habitats within the red line boundary and result in an increase in biodiversity interest of the site.

5.0 Conclusion

- 5.1 Exceptional numbers of slow worms have been identified on-site. The species is mainly dispersed along the northern and western margins of the site within rough grassland and low scrub vegetation.
- 5.2 Mitigation measures for reptiles are required should the site be developed. Mitigation measures involve erecting a reptile exclusion fence line between the rough grassland vegetation and arable field. Should marginal vegetation be required for removal a 60-day reptile translocation may be required. Further details of relevant mitigation measures are stated within the report.
- 5.3 Habitat creation and enhancement can be used to ensure the future optimal use of gardens and retained natural margins of scrub and grassland on the site by slow worms, as well as encouraging colonisation by other fauna. It is considered that the proposals for the site could result in a net increase in biodiversity.

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