



Ecological Mitigation and Enhancement Plan for Reptiles

Land east of Orchard Gardens Woodgate West Sussex PO20 3QW

Client: Andrew Loosley

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Status	Issue	Name of Author/Reviewer	Date
Draft	0	Natalie Evans BA (Hons), MA, MRSB – Ecological Consultant	16/03/17
Reviewed	1	Chris Formaggia BSc (Joint Hons) CBiol CEnv MCIEEM MRBS VR - Principal	17/03/17
Final	1	Natalie Evans BA (Hons), MA, MRSB – Ecological Consultant	17/03/17
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Mitigation and Enhancement Plan for Reptiles

1.0 Background and Scope

The scope of this report is to provide an ecological mitigation and enhancement plan for reptiles, at Land east of Orchard Gardens Woodgate West Sussex PO20 3QW

The site has been the subject of the following ecological reports by Arbtech Consulting Ltd.:

- A preliminary ecological appraisal on 20th July 2015.

The PEA identified long grassland and scrub habitats that are suitable to support common reptile populations. The survey recommended full reptile surveys in order to identify species and get a population estimate so that appropriate mitigation and compensation could be provided.

Since the original survey, the majority of the site has been cleared of vegetation, leaving only boundary scrub and tall ruderals, and suitable hibernacula. This was carried out in November 2016 when reptiles are not active and therefore there was negligible risk of killing or injury. The suitability of the site for reptiles has now been greatly reduced.

The proposed landscaping will provide green space adjacent to the treeline, enhanced planting to the tree/ditch line plus rear gardens all of at least 10m length which will all be created with consideration for reptiles. These areas will also provide connectivity to adjacent habitats. Although there will be an overall loss of habitat when compared to the site in its original state in 2015, the new development will, in fact, provide a long term, stable complex of suitable reptile habitat that would not be possible if the site was cleared completely under its permitted agricultural use.

Due to the clearance of the site, full reptile surveys would no longer be appropriate.

This plan aims to provide ecological mitigation as a precautionary measure for reptile species that may still be present around the site boundaries, to minimise the risk of killing and injury and ensure the survival of any population that may be present on site.

- Although normally based on reptile surveys, for this site the baseline is assumed that there are low numbers of individual widespread reptiles given the known local reptile species, the scale of the site and marginal habitat features present.

2.0 Site context

Table 1: Geographic location

Location	Land east of Orchard Gardens Woodgate West Sussex PO20 3QW
Grid Reference	SU 9400 0452
Site area	Survey site of 1.8ha

The site does not fall within any statutory or non-statutory designated nature conservation sites.

3.0 The Site and area description (plan in appendix I)

Table 2: Phase 1 habitat descriptions within the survey area – current site conditions

Phase 1 habitat type	Description of Features
A2 dense scrub C3.1 tall ruderal A3 scattered trees	The site currently consists of recently cleared vegetation with new growth emerging. There is dense scrub and brash piles around the site boundaries. A mature tree line runs along the eastern boundary.

The following reptile conclusion is from the preliminary ecological appraisal:

'The habitat on site represents good foraging areas, basking areas and refugia for reptiles. The long unmanaged grass and scrub with the wooded tree line create a mosaic of habitats that offer a range of foraging and shelter potential. Adjacent woodland and grassland to the north proves further habitat. The site is linked to the wider habitat by tree lines and gardens. There are records of slow worms, grass snakes, adders and common lizards within a 2km radius of the site.'

Priority habitats/habitats of principle importance

There are no designated priority habitats on site. Deciduous woodland priority habitat is located adjacent to the site to the north.

4.0 The proposed development (plan in appendix II)

The proposed development is the subject of a planning application with Arun District Council to redevelop the site for residential use comprising detached and semidetached properties and flats.

5.0 Desk Study

Existing records relating to the site and a surrounding 2km radius (the study area) have been received from the local biological records centre, Sussex Biodiversity Records Centre (SxBRC). Freely available information on designated sites, habitats and species of Principal Importance was also reviewed, including a search on Magic.gov.uk and using OS OpenData (2010). Information obtained from the desk study included:

- Landscape structure
- Habitats and species of Principal Importance (as listed on S41 of the Natural Environment and Rural Communities (NERC) Act 2006 (habitats and species of Principal Importance)
- Information on designated sites
- Information on the surrounding area, including waterbodies

There are no statutory designated sites within 2km.

Table 5: Recorded reptile Species

Common Name	Taxon Name
Slow-worm	<i>Anguis fragilis</i>
Common Lizard	<i>Zootoca vivipara</i>
Grass Snake	<i>Natrix natrix</i>
Adder	<i>Vipera berus</i>

6.0 The Mitigation and Enhancement Plan

In order to fully mitigate for any reptiles that may be present on the site, the following guidance has been used to inform the mitigation and enhancement strategy:

1. Froglife (1999). Reptile Survey. Froglife Advice Sheet 10. Froglife, Halesworth.
2. Herpetofauna Groups of Britain and Ireland (1998). Evaluating local mitigation/translocation programs: Maintaining Best Practice and Lawful Standards. HGBI.
3. JNCC (2004). Common Standards Monitoring Guidance for Reptiles and Amphibians.
4. Edgar et al (2010). Reptile Habitat Management Handbook. Amphibian and Reptile
5. These publications combined set out a nationally accepted best practice for surveying, mitigating and compensating for common reptiles.
6. Please note: Natural England's Technical Information Note TIN102 has been with-drawn until further notice and has not been consulted.

Tables 6 and 7 detail the mitigation and enhancements that will be implemented on the development site for reptiles.

Assuming reptiles are present on site, if these measures are undertaken it is highly likely that no reptiles will be harmed in any way as a result of the development works, and no legislation will be contravened.

Table 6: Reptile mitigation, Capital Works and Enhancements in Year 1

Work item	Specification
1. <i>Timing of works</i>	The reptile mitigation works should be undertaken in the active reptile season (March – October) to allow reptile movement into the adjacent habitat and to avoid impacting more vulnerable hibernating animals.
2. <i>Site clearance</i>	The remaining vegetation will be cleared (where necessary) in the following stages: • First cut to 10cm above ground level then left for 48hrs giving reptiles a chance to disperse naturally. Work will be undertaken from south to north guiding any reptiles into the adjacent suitable habitat to the north. • Any refugia will be deconstructed by hand by an ecologist or at least under the supervision of one. Any reptiles found will be moved to the adjacent habitat to the north. • Second cut to ground level. Work will be undertaken from south to north guiding any reptiles into the adjacent suitable habitat to the north. • Topsoil will be stripped with a toothed bucket. All work must be carried out under ecological supervision. After clearance, the site must be kept clear of vegetation so that the site remains unsuitable for reptiles. Note: birds are likely to use the scrub on site for nesting. A nesting bird check must be carried out a maximum of 24 hours prior to clearance and if any nests are present these must be left <i>in situ</i> until the young have fledged and appropriately protected from harm, damage or disturbance.

Table 7: Management of Reptile Habitat on site

Habitat	Location and management
<i>Long grassland/scrub boundaries</i>	The landscaping plan will incorporate long vegetation around the southern and eastern boundaries to provide replacement reptile habitat. This will only be cut back once a year in the winter months. The boundary planting will be at least 1m wide. Connectivity: at least 1m of chainlink fencing will be used in each

	individual plots fencing along the site boundaries to retain connectivity to adjacent habitats and between gardens.
<i>Refugia</i>	Log and stone piles will be added along the eastern, western and southern boundary where these do not encroach on individual gardens. These will be permanent features and should not be removed or dismantled.
<i>Public space</i>	The public space along the eastern boundary will incorporate both amenity grassland and small areas of longer grasses/shrubs to provide more diversity of habitat. As a public space, this will need to be mown regularly, but longer areas of grass must be left.
<i>Private gardens</i>	The gardens on site will provide a mosaic of habitats preferred by slow worms and do not need any special management.

Appendix I: Existing site (March 2017)



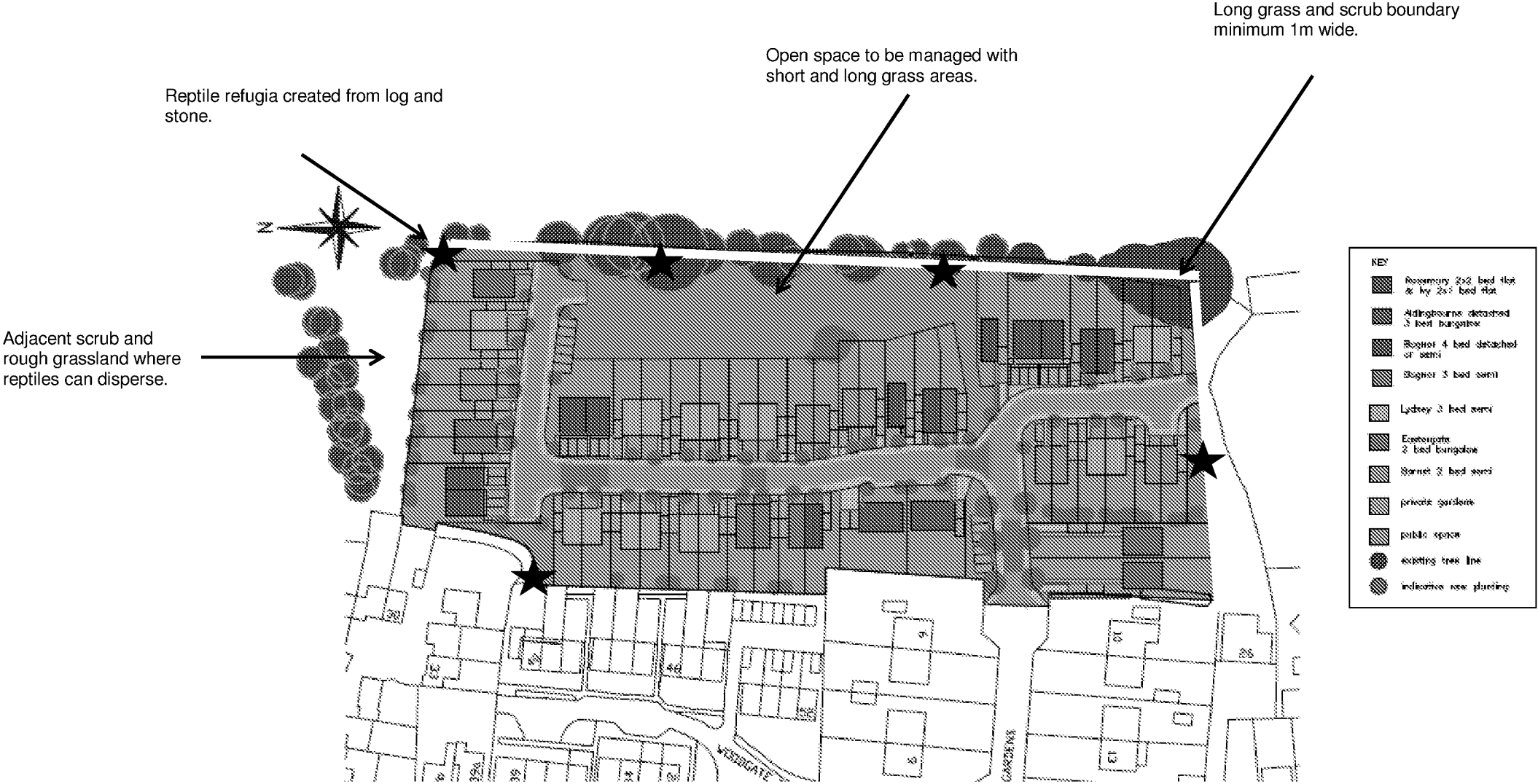
Site facing south



Appendix II: proposed site



Appendix III: proposed location of ecological mitigation, adjacent habitats and enhancements



Appendix IV: specifications for creation of reptile habitat

Brash/log piles can be created from arisings of scrub control. Piles should be placed in a sunny location and set within existing vegetation (for example, areas of long grass or long grass and scattered scrub), so that there is cover immediately surrounding, or adjacent to, the pile. To be useful to reptiles brash does not have to be tightly compacted, as recommended for invertebrates. To provide diverse structure within a brash pile, it is recommended that the central core be compacted, while the outer layers are laid more loosely on top. Vegetation growing through the outer edges of the brash pile will provide additional cover. Brash piles should be maintained by adding additional material as the pile decomposes. This can be provided from ongoing tree and scrub management activity. Log piles should contain a mixture of sizes and shapes, with some small-diameter material present. A standard log pile comprising similarly-sized timber, as results from normal forestry operations for instance, is of limited value to reptiles because the voids tend to be too large and the structure lacks complexity. Brash and log piles should be located away from areas of high public access, to reduce the risk of disturbance, collection or arson. On sites subject to high levels of public access, the materials can be either partially buried in the ground, or anchored with wire or secured with wire stapled to the larger logs.

Hibernation sites and basking banks

Creating hibernation sites (hibernacula) is a useful management measure either following recent habitat restoration, where such features may be absent, or where traditional hibernation sites are degrading through subsidence or excessive shade. Hibernation sites are also used for refuge and basking during the active season, so to refer to them as 'hibernacula' may be slightly misleading. However the term is used here to distinguish them from simple basking banks.

Creating Reptile Habitat Features Brash piles can utilise arisings from scrub and tree control to enhance habitat by increasing structural diversity (Jim Foster) A log pile sited in a sunny location, providing additional structural diversity to a grassland site (Jim Foster). The body of a reptile hibernaculum can contain a range of materials. For example, cut timber, brash, inert hardcore, bricks, rocks, grubbed up tree roots or building rubble. These features can provide a convenient way of using waste materials and arisings from site management. Materials that will decompose should not be placed beneath heavy components such as bricks or rocks, to avoid the risk of collapse. Wood chippings or

loose topsoil can be incorporated into the construction, to pack some of the larger cavities (reptiles can squeeze into small spaces, which may afford them protection from predators, such as mustelids or rats). There should be access points around the edges. These are best created by ensuring that timber or rubble protrudes from the edge, creating crevices that allow reptiles to get deep inside. It is not recommended to use pipes to create access points. Reptiles appear to prefer using more 'natural' cracks and holes. Pipes are also prone to blocking or becoming dislodged with time, meaning that access is considerably limited if they are the only entrance and exit points. There is no single perfect hibernation site, and managers should consider what fits best on their site. The key design features are;

- a sunny position,
- a well-drained site, not prone to flooding,
- orientation so that one of the long banks faces south,
- access to reptiles through openings of some sort,
- location in a patch of habitat favourable for dispersal, such as tussocky grassland,
- minimal public disturbance,
- size at least 4 m long, by 2 m wide by 1 m high, and ideally much larger.

Depending on soil conditions and hydrology, it is often preferable to dig a pit, and then place the materials partially buried inside, rather than just creating a mound on the surface. Materials to help drainage, such as slotted pipes and gravel, can be placed in the structure. However, on impermeable soils or in low-lying areas it may be safer to create an entirely above-ground structure, to reduce the risk of winter flooding. In areas of grassland or other herbaceous vegetation, turf should be removed from the footprint of the reptile bank, so that it can be used to cover the completed construction. In most cases the rapid establishment of vegetation cover on reptile banks will be important. If this cannot be achieved by use of turf, then seeding with a meadow mix may be required. It can be beneficial to plant or translocate scrub to the immediate north of the feature, as this will provide shelter and cover.

(Reptile Habitat Management Handbook, Paul Edgar, Jim Foster and John Baker 2010)

Arbtech Consultant's Contact details:

Natalie Evans BA (Hons), MA



Arbtech Consulting Ltd

