



Reptile Mitigation Strategy

Former Troedyrhiw library

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1: Introduction

1.1 A reptile mitigation strategy has been prepared for the land associated with the Former Troedyrhiw library, Tyntaldwyn road, Merthyr Tydfil CF484NG. The building lies within the boundry of Merthyr Tydfil council.

1.2 The former library is within the village of Troedyrhiw, a suburban area with residential properties to the north-west, west, south and south-east but to the north-east and east it is bordered by a woodland and grassland area with the wooded river corridor of the Afon Taf within 1km to the west. The former library is situated to the south-east of the town Merthyr Tydfil.

1.3 A small number of slow worms were found on site after the installation of a driveway onto the property. The site consists of a driveway to the left of the front of the property, and an overgrown alleyway to the left of the front of the property. There is also an area of unused land to the rear of the building, which was all grassland when the property was purchased in 2014, but had subsequently been left to overgrow with tall grass and brambles. (See fig 1) The tall grass and brambles were cut down to around 150mm in December 2019 in an attempt to keep the overgrowth under control. An area directly outside the rear wall of the building was levelled and hardcore spread in a three-tiered fashion going downhill, in order to provide a hard standing at the back of the property and a path to provide access around the whole building. Inert waste from inside the building has been dumped in two piles outside the rear of the property (See fig 2) The area between these piles has been compacted due to works already completed and as such has remained free of vegetation to this date. Our potted plants now occupy that area. (See fig 3)

1.4 The driveway area was also cleared in December 2019 and two ash trees removed from the old wall adjacent to the pavement. The old wall was dismantled and the driveway area levelled with a digger. A retaining sleeper wall was installed next to the pre existing path next to the house and a fence and gate erected at the end of the driveway. The slowworms were discovered while excavating the soil next to the manhole cover the other side of the fence at the rear of the driveway. Two worms were found hibernating under the soil and were relocated to a site at the rear of the garden that was not going to be disturbed. No destructive work had been done to the land surrounding the property since the discovery of the slow worms.

1.5 With regard to the mounds of unwanted earth and bricks are outside the rear of the building, the pile adjacent to the driveway is to be removed and the pile adjacent to the sub station will be used to level the slope down to the boundary wall with the property downhill from the site (the bunkhouse).

1.6 The next phase of proposed works to the garden will involve extending the driveway 500cm by moving the existing fence back by that distance. Following this an outbuilding is planned adjacent to the extended driveway.

1.7 Any work considered beyond this plan will be undertaken by hand. (see garden design Plan 1).

2. Legislation

2.1 There are four widespread species of British reptile - grass snake (*Natrix helvetica*), slow-worm (*Anguis fragilis*), adder (*Vipera berus*) and common lizard (*Zootoca vivipara*). These species are protected under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. They are given so called 'partial protection', which prohibits the intentional or reckless killing or injuring of individuals of any of the above species.

2.2 In addition, these species of reptiles are also listed in Part 1 Section 7 of the Environment (Wales) Act 2016 which is a list of the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in Wales.

2.3 All reptile species are Biodiversity Action Plan (BAP) species, and developments should ideally result in no net loss to the local conservation status of reptiles.

3. Reptile Ecology

3.1 Reptiles are ectothermic and must be able to warm themselves to maintain their body temperature and those that lay eggs must have heat to hatch them. In winter, British reptiles become torpid and hibernate in holes etc safe from severe frost. Cold reptiles move slowly, if at all and are easily killed by predators such as birds and cats.

3.2 The need to control body temperature governs much of the day to day activity of reptiles. Typically they aim to maintain body temperatures between 20 and 30°C. Habitats need to provide a structure that allows reptiles to bask or otherwise warm up using the sun's energy, but also avoid extremes of heat and cold.

3.3 Ideal reptile habitat consists of open areas and vegetative cover in close proximity to each other. Varied topography especially south facing slopes are favoured, with diverse vegetation type and structure. Microhabitats provide a range of basking opportunities, shelter from predators and wind, an abundance of prey and opportunities to cool down in humid, deeper vegetation when the weather is hot and dry.

3.4 Reptiles are only able to disperse over relatively short distances. They are dependent on large areas of continuous habitat or is most often the case, closely spaced patches linked by corridors of habitat. Habitat connectivity corridors play an essential role by maintaining population size and viability avoiding inbreeding whilst also reducing the risk of populations becoming extinct due to locally catastrophic events such as fire.

3.5 Hibernation sites or hibernacula must be frost free, humid, and safe from flooding and predators. Typical sites include burrows dug by other species such as rabbits, rotted tree stumps and root holes, large grass tussocks, ant hills, old walls and building foundations, piles of rubble and under large logs and fallen trees. Hibernation sites almost always have a south facing aspect and are normally in full or partial sun. Reptiles may hibernate singly or communally. Communal hibernacula are critical for some reptiles.

3.6 The Smooth Snake is not found in Wales and Sand Lizard is restricted to recent reintroduction sites. Grass Snakes are most commonly associated with wet habitats and frequently feed on aquatic animals such as frogs. The Adder and Slow-worm are typically associated with drier, heathland habitat and most types of grassland, and the Viviparous Lizard is found in a wide range of habitats.

3.7 Viviparous Lizards occupy a wide range of habitats, including wet and dry heathland, moorland, mountain scree slopes, most types of grassland (especially chalk grassland and rough grassland with bramble scrub), woodland glades and rides, coastal dunes and cliffs, vegetated shingle and hedgerows. The species avoids structurally uniform vegetation and prefers sites with a greater variation in the height of habitat cover. The highest densities seem to be found in damp or wet areas, especially where abundant grass tussocks are present to provide food, shelter, basking and hibernation sites. They feed on soft-bodied invertebrates.

3.8 Viviparous Lizards are diurnal and spend less time basking as they warm up quickly and can operate at lower temperatures. They can be active from February to November, and movement is normally limited to a few tens of metres. Around four to ten young are born in July (but birth can occur from late June to early September) in a transparent membrane from which the baby lizards rapidly break out.

4. Mitigation Strategy

4.1 An area of the garden will be left as grassland while further work on the garden is undertaken. (See Plan 1) This area will be used as a receptor site for reptiles. This will be approximately 3m x 2.5m in size.

4.2 This mitigation strategy will use species-deterrence and displacement measures (passive exclusion) and destructive searching.

Timing of Works Vegetation Clearance Within the Development Footprint

4.3 Habitats which could potentially support common reptiles should not be subject to ground disturbance during the reptile hibernation period (approximately from October to February inclusive), so as to reduce the risk of encountering (and potentially injuring or killing) any hibernating individuals. Clearance works on site will be undertaken within the active period for reptiles (March to September inclusive). If the season is mild (i.e. overnight temperatures remain relatively warm) it may be possible for clearance works to continue into October, but such works would have to be undertaken in agreement with the Local Authority ecologist. All works must be undertaken in suitable weather, when reptiles are likely to be active.

Vegetation Clearance Within the Development Footprint

4.4 Clearance and construction personnel (i.e. those other than Jonathan Cholewka undertaking the work) will be briefed as to the confirmed presence of reptiles on the site and the necessary course of action if any reptile is encountered i.e. stopping clearance works and allow the reptile to migrate voluntarily away into the retained habitat. An ecologist from Acer Ecology will be on site to supervise the vegetation clearance.

4.5 Clearance of vegetation will involve species deterrence and displacement measures ahead of other site work. This will be undertaken to encourage and compel individual reptiles that may be present in the works area to migrate away voluntarily from the works area and into the retained area. Appropriate measures will include the following:

- Potential refugia such as piles, stone, rubble, logs, discarded timber, sheet metal, plastic sheet, carpets and large rocks etc. will be carefully lifted and dismantled by hand and removed from the area to be cleared;
- Clearance of the site will be undertaken in a piecemeal fashion, the main clearance of site will commence from the south-west and proceed towards the north-east (i.e. towards the area of retained habitat). clearance will be spread over several hours to allow reptiles time to disperse out of the immediate works area into safe habitats at the site periphery;
- Taller vegetation in the areas to be cleared will initially be strimmed or brush cut to a height of no less than 15cm, and raked away so as to reduce its attractiveness for reptiles, small mammals, hedgehogs and terrestrial amphibians. The cut will be made in a direction which allows any species present to move to the area of the site which is being retained in order to find refuge.

- Strimmed vegetation will be raked up and put in a compost bin or into green garden waste bags. Any reptiles¹ (or other wildlife encountered) will be or will be carefully collected and held in an open topped container such as a bucket temporarily (grass will be included at the bottom as refuge) and then moved to the receptor area after the entire area of grassland has been strimmed.
- Immediately prior to the commencement of other site works (i.e. 24-48 hours ahead), the area to be cleared will be strimmed a second time, cutting the vegetation to 5cm with the cut vegetation again being raked away. A suitably qualified ecologist will supervise the second cut before works can commence;
- Raked or cut vegetation will either be removed entirely from the site;
- An ecologist from Acer Ecology (or alternative company) will be on site to supervise all of the strimming work.

Destructive Searching

4.6 The destructive search will comprise the sequential removal of the overlying vegetation, and then the removal of the top 250mm of soil using a wide toothed bucket on the back-actor of a suitable excavator. The search will be carried out under the close supervision of an appropriately experienced reptile handler who will stop works, and rescue and remove any reptiles which are found during the operation. The clearance will be undertaken starting in the south-west of the site and proceeding towards the area of retained habitat. Rescued reptiles will be captured and temporary held in a suitable open-topped container and then moved to the receptor site once all of the destructive searching has been completed. Different species of reptile (if present) will be transported in separate containers. Uncleared areas of the site are not to be tracked over by the excavator, and spoil is not to be stored on such areas.

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4.8 Once these areas have been destructively searched in this manner, they will be considered to have been cleared of reptiles, and normal earthworks and construction activities will then proceed in a conventional manner with no further constraint. However, the services of an appropriately experienced reptile-handler will be kept available on an 'on call' basis throughout the remainder of the construction period to deal promptly with any unexpected emergencies involving reptiles which may arise.

4.9 The area that is being developed once cleared should be maintained as bare ground and managed to prevent vegetation development so that it is unsuitable for reptiles for the duration of the proposed works.

4.10 The order of works for the garden are as following:

¹ Personnel will also be made aware of the identification features of adders, and the potential danger therefrom.

- Phase one will be to extend the existing driveway by around 5 metres. This will require the grassland occupying the 5 meters beyond the current fence at the end of the driveway to be cleared in accordance with the methodology outlined above, before hardcore is put down and the fence moved back to the new boundary of the driveway. This area will be subject to the methodology described in 4.3-4.9 set out above.
- The extension of the driveway will also allow access the rest of the garden with the digger and dumper without driving over previously untouched grassland.
- Phase two will be to get rid of the large pile of unwanted rubble and soil adjacent to the back gate leading on from the driveway. (See fig 3) This will be moved to the end of the driveway ready for collection. This will be dealt with as set out in Section 4.5, bullet point three
- Phase three will involve levelling the second mound of unwanted earth and bricks situated further downhill (see fig 3). It will be used to level the slope down to the boundary wall with the property downhill from the site (the bunkhouse). In order to do this the grass and brambles will have to be cleared from the bottom of the slope and will need to go be checked for reptiles using the steps 4.3-4.9 outlined above, before being covered over with soil.
- Phase four will involve clearing the remaining grassland outside of the highlighted receptor site area (Plan 1) in preparation for landscaping work, again following the same procedure outlined above (Sections 4.3 – 4.8) and maintaining as clear earth until the work has been completed (as detailed in Section 4.9).
- Some of the work involves the removal of existing grassland. For these areas, a suitable trained ecologist will be present when the top layer of soil is searched through for reptiles (Section 4.6-4.8).

4.11 Any animals found during the clearance of the site, or at any other time during works on the garden, should be recorded, together with species, sex, location, date, time, weather conditions and temperature to enable a complete record to be kept.

Hibernacula Creation

4.12 An artificial hibernaculum will be created within the retained habitats. Ideally, this will be installed before the end of September 2021. The location of the receptor site will be subject to the same process as set out in points 4.3.4.9.

4.13 The hibernacula will measure approximately 1m in length, 1m in width and 1m in height. It will comprise bricks, stone and/or timber. The bank will be orientated so it runs from east to west. The southern side of the bank will be finished with topsoil and seeded with a neutral wildflower mix. The northern side will be left with the rubble exposed to allow reptiles to enter cavities within the bank. The bank will also encourage invertebrates, providing prey items for reptiles. In particular, leaving portions of the south-facing bank bare will encourage thermophilic (warmth-loving) invertebrates. Appendix 2 provides an illustration of the hibernacula to be constructed.

5. Timetable of Works

Stage 1 - 25th-26th September first stage of cuts

Stage 2 - 27th-28th September second stage of cuts

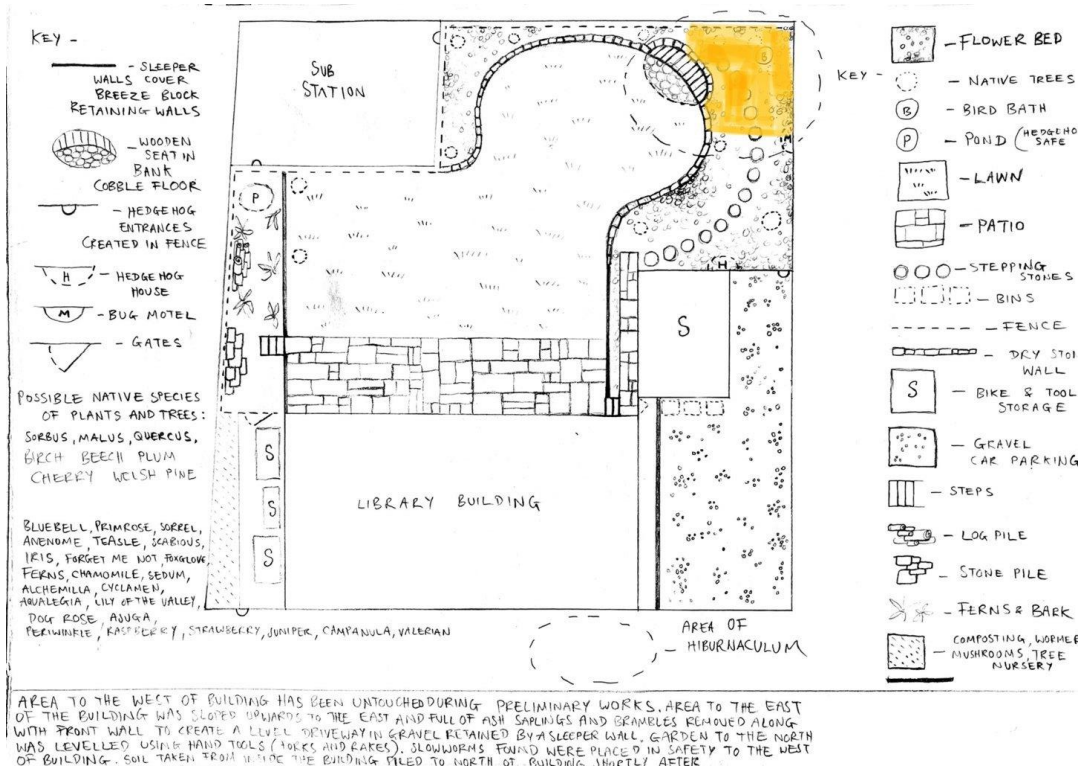
Stage 3 - 28th - 30th September destructive search

Stage 4 - October - January - landscaping works to be undertaken, beginning with the phases outlined in plan 1.

6. Monitoring

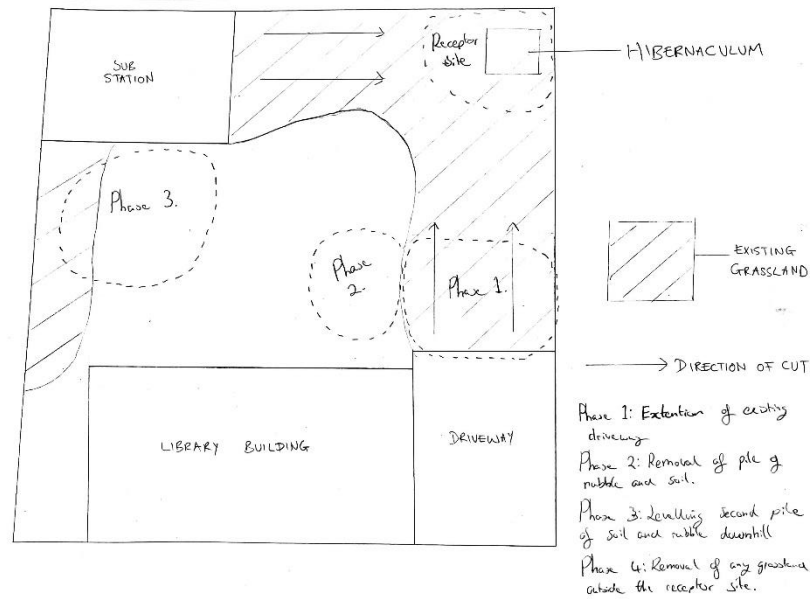
6.1 It is usual to monitor to see if the mitigation strategy has been successful. Monitoring will be undertaken by Jonathan Cholewka using bitumen artificial cover objects in the summer of 2022.

Plan 1: Garden Proposals

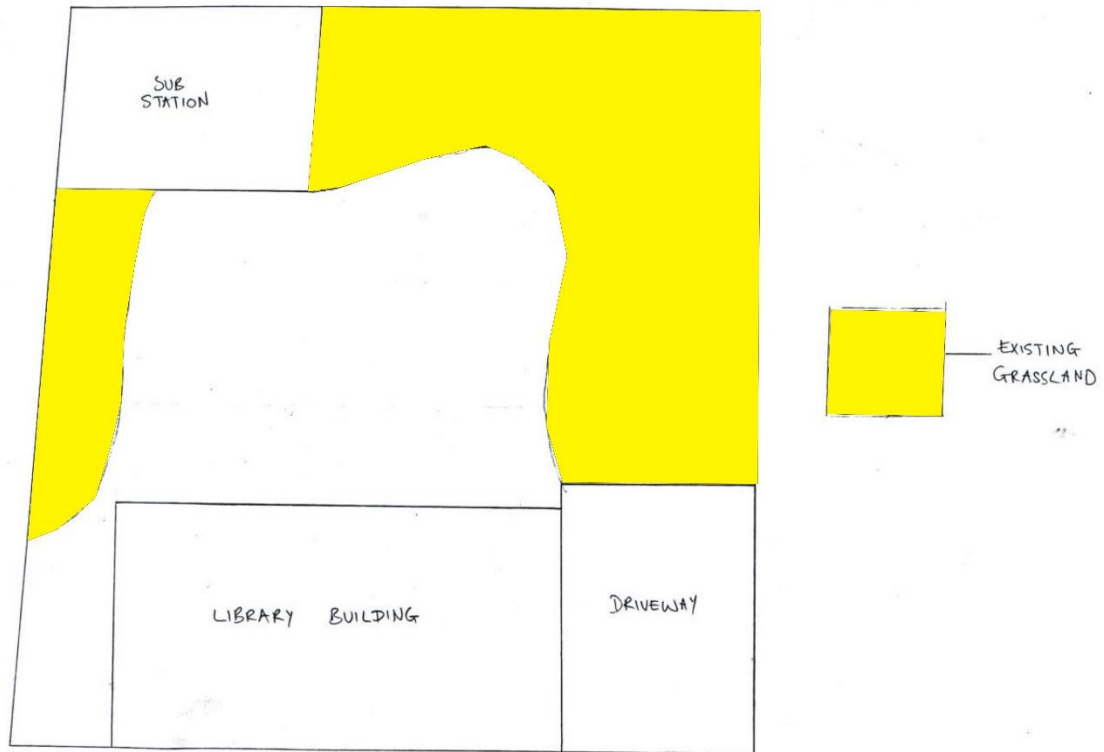


Note: Hibernaculum to be located within hatched area.

Plan 2: Stages of Work and Direction of Cuts/Destructive



Plan 3: On-Site Habitat Suitable for Reptiles



Appendix 1: Photographic Record

Fig 1:



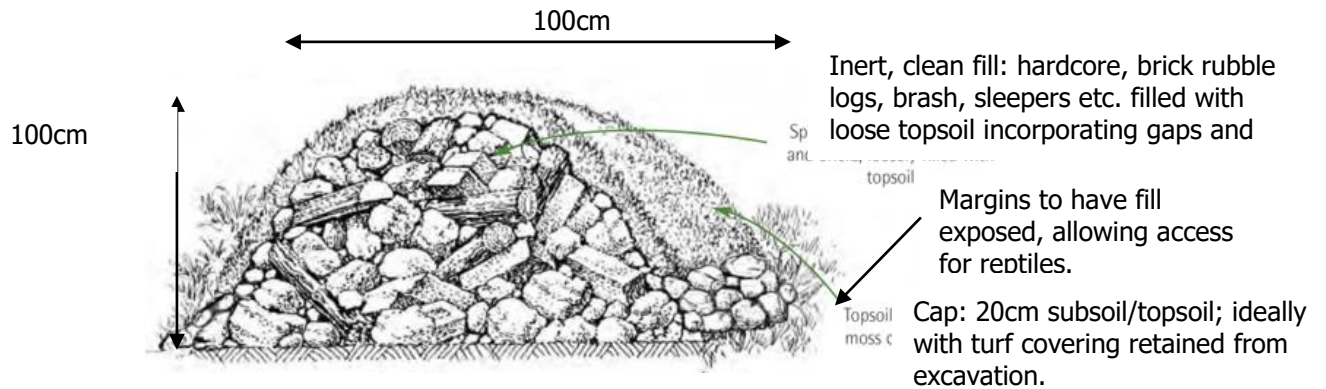
Fig 2:



Fig:3



Appendix 2: Reptile Hibernaculum



Notes:

- Ideally, the hibernaculum should be constructed on a gentle slope to prevent flooding.
- Turfs should be removed from the footprint of the hibernaculum before construction. These should be retained, and replaced over the completed hibernaculum.
- Materials which will decompose (e.g. plant matter) should not be placed under more enduring matter such as rocks, however, so as to avoid risk of collapse.
- The hibernacula will have gently sloping (approximately 70°) edges.
- The hibernaculum should be located in a sunny position.
- The hibernacula should run from east to west (i.e. with a long southern aspect).
- A suggested minimum size is 1m long by 1m wide by 1m high.
- The area around the hibernaculum should be managed as rough grassland.