2015-2016

Cardiff University slow worm project

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Executive Summary

- This report describes the first year (2016) of a slow worm project at a secret site at Cardiff University.
- The site is the grounds of a student residences location within the urbanised area of Cathays, Cardiff.
- Part of the site has been re-wilded into a grassland meadow for slow worms and other wildlife, and a piece of corrugated tin has been placed to warm in the sun for heat-loving reptiles.
- The site was monitored for slow worms and the project was successful. There were 29 sightings in the active season (4th May-17th October 2016). This season is slightly later than average. The peak numbers of individuals recorded in single visits were in July and August, which is again later than average.
- The project was carried out by grounds people from the SPORT department as part of the Cardiff University Sustainability initiative.
- Slow worms are a protected species under the Wildlife and Countryside Act (1981) and a species of principal importance for biodiversity under the Environment (Wales) Act (2016).

Introduction & Method

This report describes the first year of a new environmental project at a student residences site at Cardiff University. The project was carried out by the grounds maintenance team (in the SPORT department within Campus Facilities).

The project involved the re-wilding of a summer grassland meadow on a poor soil steep slope at the back of the site. The bank was allowed to grow without being mowed between March and October. This part of the site was not sprayed with herbicide or hedge-trimmed and disturbed as little as possible (after: Thomas 2010, pp.132–135).

The meadow area was monitored for wildlife, in particular slow worms (*Anguis fragilis*), which were known to formerly be present in the area. Reptiles are difficult to survey by visual search alone because they are shy of humans, highly camouflaged, and often stay in dense vegetation. In order to facilitate the surveying of slow worms, a *refugium* was placed on the site (see materials section for details). A refugium (plural: refugia) is a small piece of material which catches the sun to heat up. It will retain warmth even when the sun goes behind clouds. Since reptiles are cold blooded, they need to spend time each day sunbathing to gain energy. Reptiles seek out natural or artificial refugia as desirable locations for sunbathing and therefore the placement of refugia is standard practice for surveying reptiles.

Once a fortnight (weather permitting), the refugium was checked and the results recorded.

Lee Raye checking the refugium in June.

Slow Worms

The slow worm is a native species of legless lizard. It is completely harmless to humans. The slow worm's diet consists especially of slugs, snails and earthworms but also insects and spiders. They can live over 50 years (in captivity) and grow 300-400mm in length (Wareham 2008, pp.47–48). The species seems to have declined in recent years in south Wales (Caerphilly County Borough Council 2002). However, they are not a territorial species and their range is usually only about 200m² (Beebee & Griffiths 2000, pp.115–123). This means that small sites like this one can play a vital role in species success.

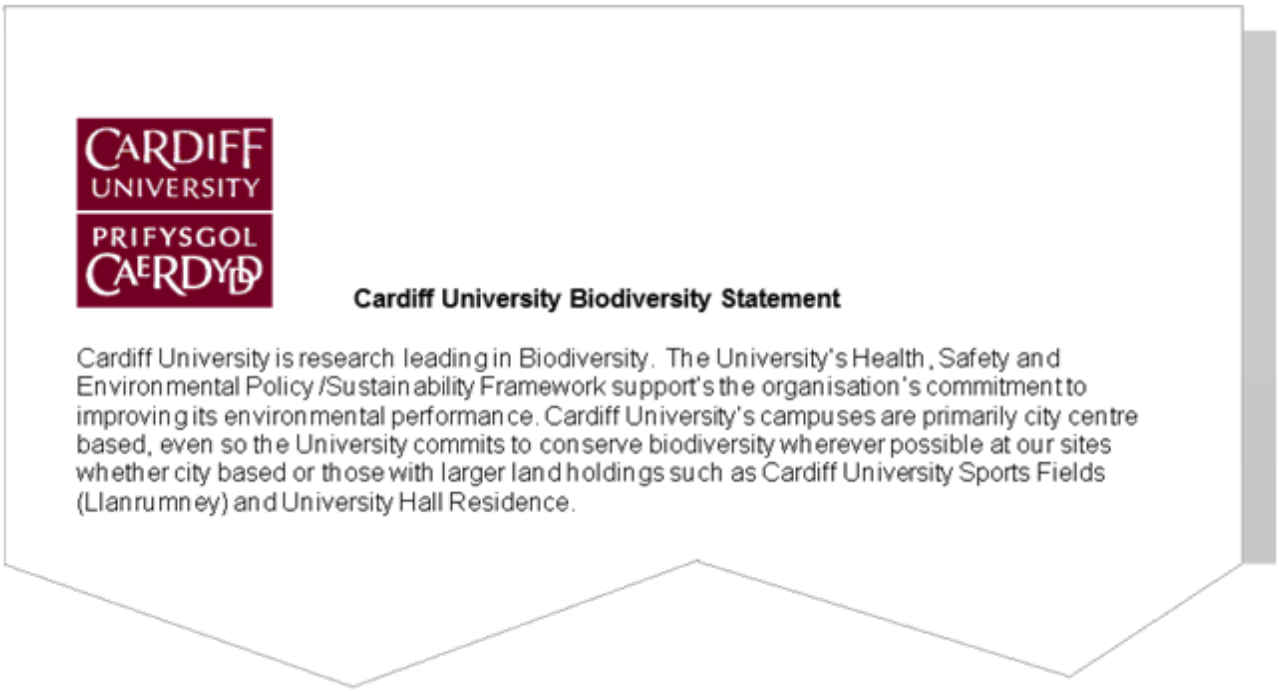
The bank surveyed is connected to the railway tracks by a green corridor of shrubs and bushes, slow worms. Slow worms could have been recruited to the bank from the closed off railway track area. The railway tracks run between Cathays Cemetery and Roath Park further north, which would be an ideal recruitment zone. However, it is equally possible that the slow worms were already present on site, and simply went unmonitored until the present project begun.

Slow worm photographed at Cardiff University in September 2016.

The Law

Slow worms are protected against sale or killing by the UK Wildlife and Countryside Act (1981), which is a UK version of the EU Birds Directive (2009/147/EC). They are not ‘fully’ protected against capture/touch so no license is needed to survey them.

Under the new Environment (Wales) Act (2016), all public authorities have a responsibility to ‘seek to maintain and enhance biodiversity’ (Section 6). This includes particularly conserving the species of principal importance to biodiversity (Section 7). Slow worms are currently one of the species listed here. Public authorities are obliged to publish conservation plans and also routine reports on what they have done to comply with this law.



Materials & Costs

The project was very low cost:

Material	Cost	Notes
Refugium	Donated by Cardiff University Sports Fields - Llanrumney.	This was a piece of green corrugated tin, approximately 1m x 1.3m, left over from another project. An ID label was printed, laminated and attached to the corner with a drilled hole and cable tie.
Camera	Staffs' own equipment used	Basic digital camera - 10mp Canon Power Shot A800, with a USB SD card reader.
Safety Equipment	Staff uniform used	Steel toe cap boots, waterproof jacket, garden gloves, high vis jacket
Computer & printer	Office computer used in down time	

All equipment continues to be functional for future work.

The refugium in situ, early in the season.

Problems & Solutions

Two adult slow worms and a light coloured juvenile beneath the refugium during September.

- **Problem:** There was an initial issue locating material for the refugium.
- **Solution:** A piece of green tin was donated to the project by Cardiff University Sports Fields - Llanrumney as off-cuts from a completed project.

- **Problem:** It was initially not clear whether the site was suitable, since no slow worms started using it until May.
- **Solution:** All sites take some time to be colonised by new species, but by the end of the season numbers were high.

- **Problem:** Slow worms did not leave the site until mid-October. This meant that the site looked untidy during open days and Fresher's Week.
- **Solution:** A signpost was produced (see Appendices) to explain why the grass was not being cut. These were not placed around the site but could be in future.

- **Problem:** The bank is difficult to access for interested visitors.
- **Solution:** This is part of the reason it has been colonised by slow worms and cannot be solved.

- **Problem:** The camera had trouble focusing fast enough at close range in bright conditions. The pictures taken made it impossible to identify individuals (to estimate total population.)
- **Solution:** This problem was not solved. Perhaps a new camera could be procured for the next phase of the project?

The camera had difficulties taking detailed enough pictures for identification, even when carefully focused.

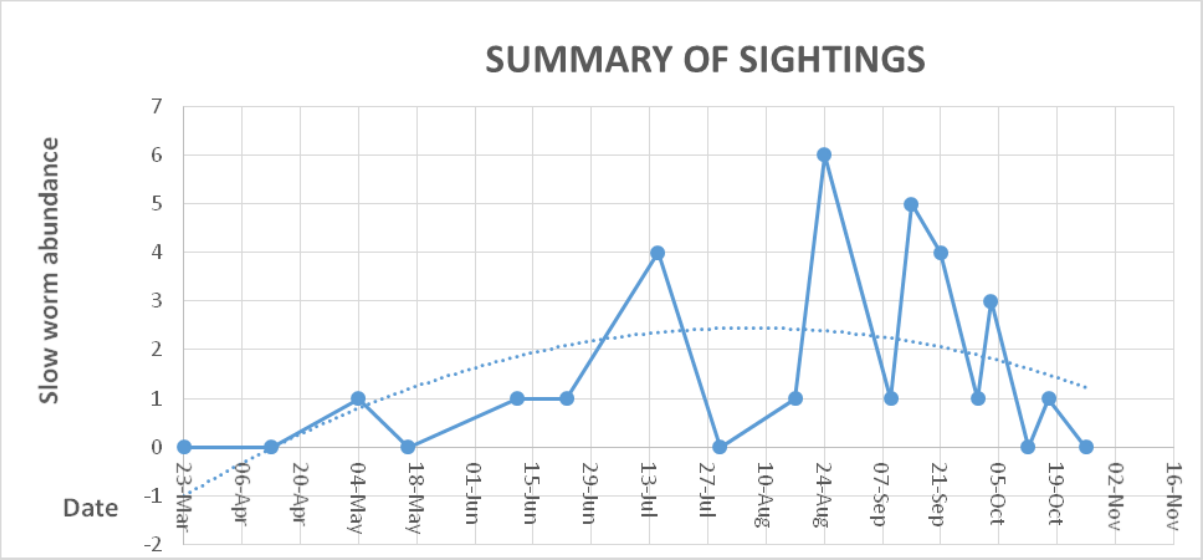
Results & Discussion

Slow worms hibernate underground over the winter period, so can only be monitored over summer. They may even hibernate elsewhere. Site re-wilding began in March. The bank was not sprayed, mowed, hedge-trimmed or controlled for weeds from then (Thomas 2010, pp.132–133). Survey visits were carried out every fortnight from mid-March. The first slow worm on the site was observed on the 4th May 2016. This was only a single slow worm. No slow worms were found on the 16th May and only single slow worms were observed in June. Slow worms are usually thought to be active from April so this is a late first record (Wareham 2008, p.50).

Slow worm peak observed activity at the site was during August (6 individuals were observed on the 24th August). This is again later than average, peak activity is usually found to occur in June (Beebee & Griffiths 2000, pp.117–118).

The significance of these records is not clear. It is possible that the slow worms in the area become active later than average and go into hibernation later too, this is known from the north of Britain. Alternatively, it may be possible that the slow worms just took some time to start exploiting the new habitat and refugium.

Date	Time Start	Time Left	Weather	Species	Abundance
23/03/2016	13:15	13:45	sunny, breeze	Slow worm	0
13/04/2016	14:30	15:00	sunny, breeze	Slow worm	0
04/05/2016	14:30	15:00	sunny, hot	Slow worm	1
16/05/2016	14:30	15:00	cloudy, hot	Slow worm	0
11/06/2016	19:00	19:30	clear, warm	Slow worm	1
23/06/2016	19:30	20:00	cloudy, warm	Slow worm	1
15/07/2016	12:00	12:30	drizzle	Slow worm	4
30/07/2016	21:00	21:15	just getting dark	Slow worm	0
17/08/2016	14:30	15:00	cloudy, warm	Slow worm	1
24/08/2016	14:30	15:00	hot, clear	Slow worm	6
09/09/2016	16:15	16:45	hot, cloudy	Slow worm	1
14/09/2016	15:00	15:15	hot, clear	Slow worm	5
21/09/2016	15:00	15:15	warm, cloudy	Slow worm	4
30/09/2016	15:15	15:30	drizzle	Slow worm	1
03/10/2016	15:15	15:30	sunny, clear	Slow worm	3
12/10/2016	15:00	15:15	sunny, warm	Slow worm	0
17/10/2016	15:15	15:30	warm, wet	Slow worm	1
26/10/2016	15:00	15:30	warm, wet	Slow worm	0



A table and chart showing the presence/absence and abundance of slow worms present on each visit. Points indicate visits. The visits were not evenly spaced, but the axis has been adjusted so that points which are closer together (i.e. those from September onwards) happened more frequently.

During the day time, slow worms were observed whether it was warm or hot, cloudy or clear, and when it was dry or drizzling. A late visit to the site at the end of August showed no slow worms were present around sunset – the refugium is exclusively being used for sunbathing, but has the advantage of keeping off rain.

Plant species were observed at the beginning of the season – the area was colonised by dandelions (*Taxacum* sp.) and daisies (*Bellis perennis*), brambles (*Rubus fruticosus*), bluebells (*Hyacinthoides non-scripta*) and forget-me-not (*Myosotis* sp.). One plant was identified tentatively as a *phlox* sp. By the end of the season the flowering plant species richness had risen to twelve. The site was left to rewild itself into a meadow naturally rather than being planted so this measure of biodiversity is a good start, although grassland takes many years to return to the richness of a natural meadow. At the end of the season, after the slow worms had left, the ground cover was reduced with a hedgetrimmer, and the silage removed to simulate the mowing of a meadow and prevent habitat succession into shrubland/woodland (Thomas 2010, pp.132–133).

We also observed a number of songbirds (thrush (*Turdus philomelos*), great tit (*Parus major*), wren (*Troglodytes troglodytes*), starling (*Sturnus vulgaris*)), red admiral (*Vanessa atalanta*) and cabbage butterflies (*Pieris rapae*), bumblebees (*Bombus lucorum*) and honeybees (*Apis* sp.), damselflies, stone spiders (*Drassodes lapidosus*) and wood ants (*Formica rufa*) using the created habitat. No survey was carried out for nocturnal species. A footprint survey for mammals like hedgehogs (*Erinaceus europaeus*) and possibly a camera trap survey for common birds and mammals (*Vulpes vulpes, Sciurus vulgaris*, additional *turdus* & *parus* spp.) would be advisable for next year. The university regularly catch and remove small mammals so these are not expected to be regular.

A stone spider using the area beneath the refugium to catch insects.

Acknowledgements

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Tony Bell, grounds supervisor, assisting with the autumn mowing of part of the bank.

Bibliography

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Appendix 1: Signpost for Site

Cardiff University cares about wildlife.

As part of our ongoing commitment to biodiversity on campus, the top of this bank is being maintained as a grassland meadow.

During the summer the grass here will be long and bursting with wildflowers, bugs and bees.

Look out for the common visitors below.

You can find out more, or report sightings by emailing CSERVSustainability@Cardiff.ac.uk.

Hedgehogs (Erinaceus europaeus) are mammals covered in spines.

Hedgehogs "anoint" themselves by rolling in smelly substances to make their spines especially formidable to predators.

Red admirals (Vanessa atalanta) are butterflies commonly seen all year around.

Red admiral caterpillars are found on nettles, but the butterflies will eat any nectar, and especially love bright wildflowers,

Slow worms (Anguis fragilis) are not a type of snake at all but a legless lizard.

They are harmless to humans but they love hunting slugs and snails. You might see them sunbathing in the long grass.