BWLCH COROG MAMMAL SURVEY 2019

Client:
Mr Simon Ayres
Project Director
Coetir Anian – Cambrian Wildwood
Unit 6F
Cefn Llan Science Park
Aberystwyth
Ceredigion
SY23 3AH
07814 577167
Simon.ayres@coetiranian.org

Author:
Ms Jan Baylis MCIEEM
Ecologist
Tŷ Mawr
Ceinws
Machynlleth
Powys
SY20 9HE
01654 761402
07817 464853
Jan.cadair@gmail.com

13.04.20_v1

Ed.06.05.20_v2

Contents

1. Introduction

Bwlch Corog is an upland area of 142 hectares near Machynlleth, falling just inside the Ceredigion county boundary, mid-Wales, which is being managed by the Coetir Anian – Cambrian Wildwood project for nature conservation and wider ecological objectives.

A baseline mammal survey was undertaken in the autumn/winter 2019/20, in the first year of practical land management taking place. It is then proposed to repeat the survey at the end of the project to compare with the first.

Land management during 2019 involved significantly altering the water table of the upland area by blocking ditches, slowing water run-off and creating pools, all of which will increase the water levels on the upland, aimed at increasing anaerobic conditions and therefore peat formation.

There are 56 terrestrial mammal species (not including seal species) resident in the British Isles (Wembridge & Bowen, 2013). This survey was not intended to record every species, due to a combination of reasons including the size of the site, time and budget. In addition, some of these species will clearly never be found here, such as Skomer vole *Myodes glareolus skomerensis* (a sub species of bank vole, endemic to Skomer Island, Pembrokeshire) and wild cat *Felis silvestris* of Scotland. It was intended to record as many species using the site as possible, using the methods described below, and was not a population count survey but a presence/absence account of mammals recorded on site at this time. This method relies on coming across field signs, with a mixture of luck and field skills knowing where to look for the best chance of finding signs.

1.1 Site location and description

See Figure 1 for location map.

Central grid reference SN735955.

The majority of the site is open upland, rising to 388m above sea level at Bwlch Corog itself, sandwiched between Nant y Castell and Nant Cefn-Coch valleys. This leads north to ancient semi-natural oak woodland and mixed woodland along the Nant Cefn Coch river corridor, the lowest point at 120m above sea level at the northern most point. Beyond the site boundary, this corridor merges with Nant y Castell, into Cwm Castell and Glaspwll.

1.2 Survey dates

Between 25.09.19 – 31.01.20

1.3 Surveyor and report author

Ms Jan Baylis MCIEEM. The surveyor has over 15 years of field ecology experience, specialising in water vole, otter and dormouse ecology, together with farmland and upland birds, and protected site management.

1.4 Weather

The weather on survey days was generally dry and not following high rainfall. This is generally good practice for mammal surveying as heavy rainfall, or following heavy rain which raises water course levels, can wash away field signs (particularly droppings) and make it more difficult to spot them in the field. This is in particular reference to riparian/aquatic mammals otter and water vole, but is of relevance to other mammals also.

2.0 Methodology

2.1 Desk study

A local biological records centre search was provided on the 13.02.20 by the West Wales Biodiversity Information Centre (WWBIC), of approximately 2km radius around the centre of the site. The mammal records from this search are noted in Appendix 2, and additional records acquired during this search are noted in a separate spreadsheet document. As some of these records are confidential, this information is not for public viewing.

2.2 Field survey

The survey was based on a walk-through method to record species presence, typically by recording field signs. Mammal field signs include droppings, feed remains, feeding signs, resting or living areas, footprints, hair, sightings, and are comprehensively described by Sargent and Morris (2003) and also Strachan (2002) in their mammal field guides.

The survey also followed some water ways to look for otter and water vole signs, and walked the river corridors, upland areas and woodland, creating transects that can be approximately repeated in five years' time. Two evening visits were also made, in an attempt to record nocturnal mammals such as bats, deer and badger. A MKIIa bat detector was used to detect bat echolocation calls.

In addition to the walk-through, two camera traps were also established for one month over winter in the woodland on the east of the river corridor of Nant Cefn-Coch, in Coed Llechwedd Einion. These were baited with jam and peanut butter, in particular to attempt to catch film footage of any badger, pine marten, squirrel.

The survey recorded presence of species on the site, and generally once a species had been recorded for the site, it was not always recorded again. So for example, it was obvious from the frequent spot-checks amongst the purple moorgrass *Molinia caerulea* tussocks revealing droppings and feed remains, that short-tailed field vole were common throughout the site. These were not all recorded.

The rivers, streams and banks were surveyed for the presence of otter *Lutra lutra* and water vole *Arvicola amphibius* field signs. For otters, these are spraint, feeding remains, obvious holts/lie-up sites, slides; for water voles, signs are in the form of droppings, latrines, burrows, feeding stations. The otter survey method used incorporated aspects of the standard methodology for a full survey, as summarised by RSPB, NRA & RSNC (1994) in the New Rivers and Wildlife Handbook. Water vole survey methodology followed a method

described by Strachan, *et al* (2011). Any habitat features of interest and suitability for them was also noted.

Hazel dormice *Muscardinus avellanarius* were also considered during this survey, as described by Bright, *et al* (2006) and follow the principal method of searching for hazel nuts gnawed by dormice, which have distinctive markings on the shell. See photograph in section 3.4 of hazel nuts found at Bwlch Corog, and description of markings. Compare this with descriptions of hazel nuts gnawed by other mammals.

See Figure 2 for approximate transect routes taken.

3.0 Results

See Figure 3 for mammal record locations. Record points and transect routes in Shapefile format also provided.

Nine mammals and one mammal group were positively recorded using the site.

These were:

Red fox *Vulpes vulpes*

European badger *Meles meles*

European otter *Lutra lutra*

Hazel dormouse *Muscardinus avellanarius*

Wood mouse *Apodemus sylvaticus*

Bank vole *Myodes glareolus*

Short-tailed field vole *Microtus agrestis*

Mole *Talpa europaea*

Grey squirrel *Sciurus carolinensis*

Bat species *Microchiroptera* group, probable pipistrelle species *Pipistrellus* sp

See Appendix 1 for grid references and details on these.

3.1 Red fox

Fox scats were frequently found throughout the site, usually on a prominent tussock, rock or earth mound.

3.2 European badger

There were various mammal paths throughout the site, which would typically be badger or fox, who use regular routes to traverse their territories. One of these led out of the site and across the access track, up the hedge bank and into the opposite field. There was badger hair caught on the fence wire at this field entrance, and therefore it is considered that this path into the site is used by badger. On the other side of the valley, further badger signs were

recorded below the workshop area, with hole diggings for foraging. No obvious setts were recorded, though it is likely that they use the commercial conifer plantation on the opposite valley side, and neighbouring farmland.

3.3 European otter

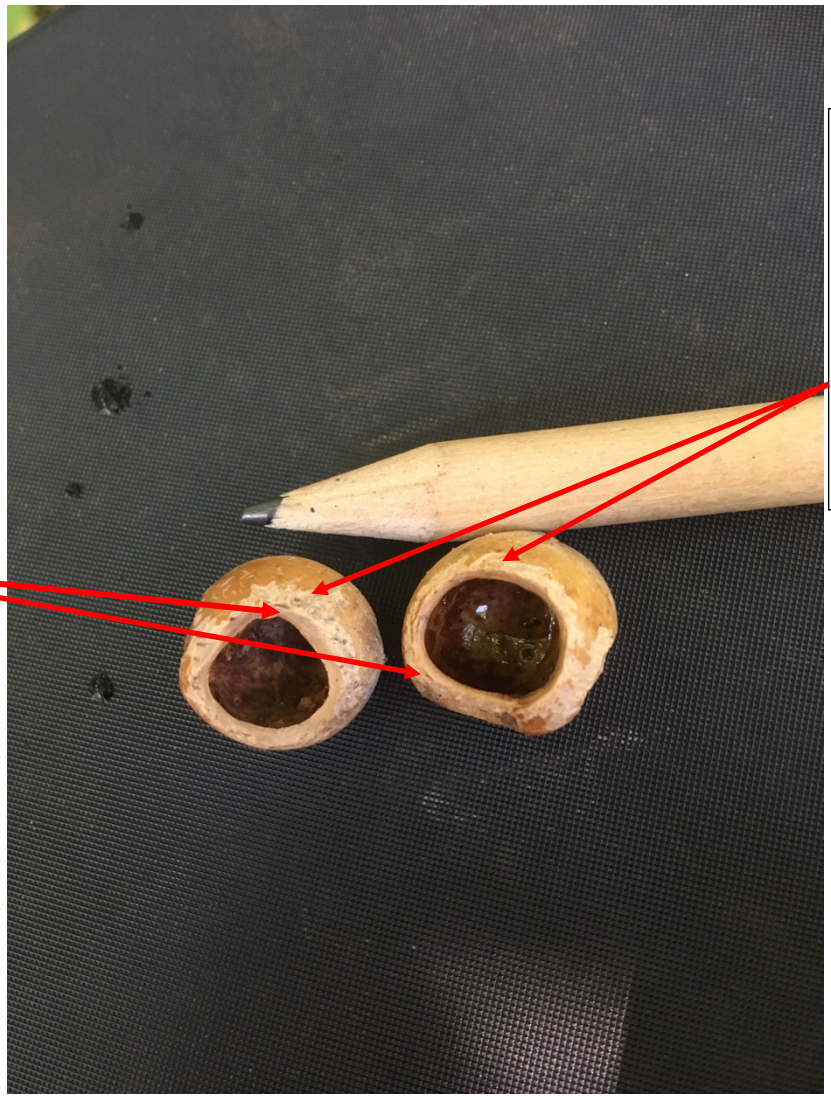
The two main rivers and any accessible pools/wet areas were walked to check for otter presence, with no obvious signs recorded. An obvious recent otter spraint (dropping) was recorded on a tussock along one of the many mowed tracks recently created that autumn. It is known that otters will travel over uplands across land between watersheds (Chanin, 2003), and therefore it isn't hugely surprising to see signs here, as the WWBIC records show they use these valleys downstream. A WWBIC also recorded otter signs in 2011 by the river bridge on the track at the site boundary. This individual was obviously making use of the easy access on the tracks across the otherwise tussocky terrain.

The streams and newly-opened pool areas throughout the site hold opportunities for both otter and water vole. No evidence of their use was found on this survey, but it is hoped that the pools will provide opportunities for both species during the course of the project and into the future. In particular, there were areas of greater tussock sedge *Carex paniculata* in these excavated areas, and these have been recorded as cover for breeding otter (Chanin, 2003) and in tussocky vegetation such as this, where the water table is high, water voles will use the tussocks to nest in the drier conditions (Strachan, 2011).

Tussock sedge on site. And showing recent excavations to create dams and pools.

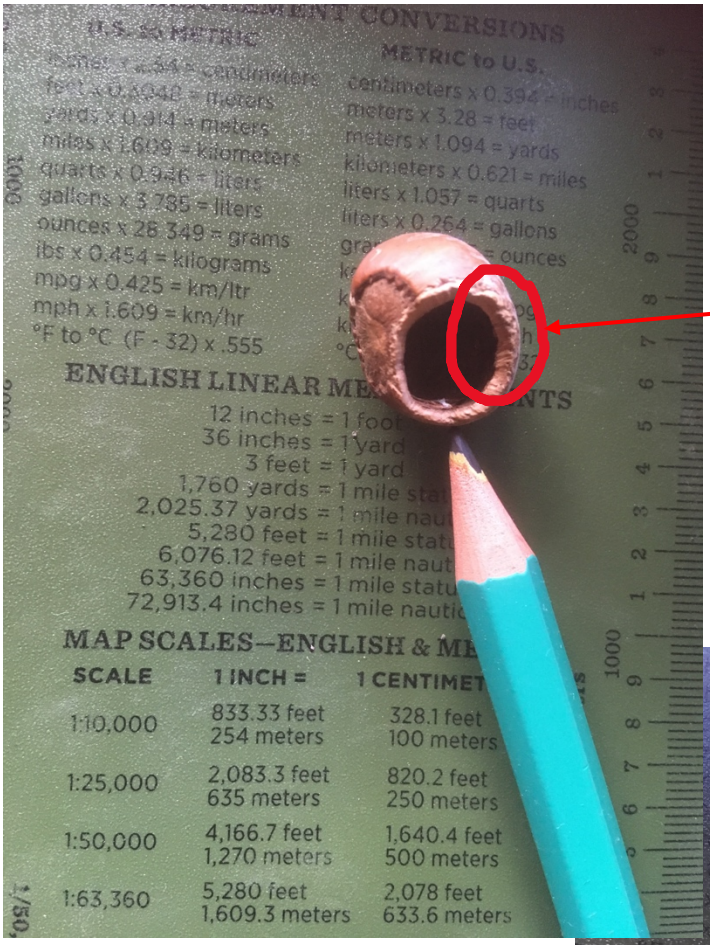
3.4 Hazel dormouse

Dormouse records were noted in the WWBIC search immediately adjacent to the site, and they are known in adjacent Einion and Dyfi valleys (*pers.obs.*). They had not yet been knowingly recorded within the site boundary, and therefore it was valuable to have positive confirmation of their presence during this survey. Several dormouse-gnawed hazel nuts were recorded in the woodland block east of Nant Cefn-Coch, and at the small bridge crossing at the site boundary. The habitat is generally excellent, particularly on this river corridor, with frequent bramble scrub, hazel, bracken cover.

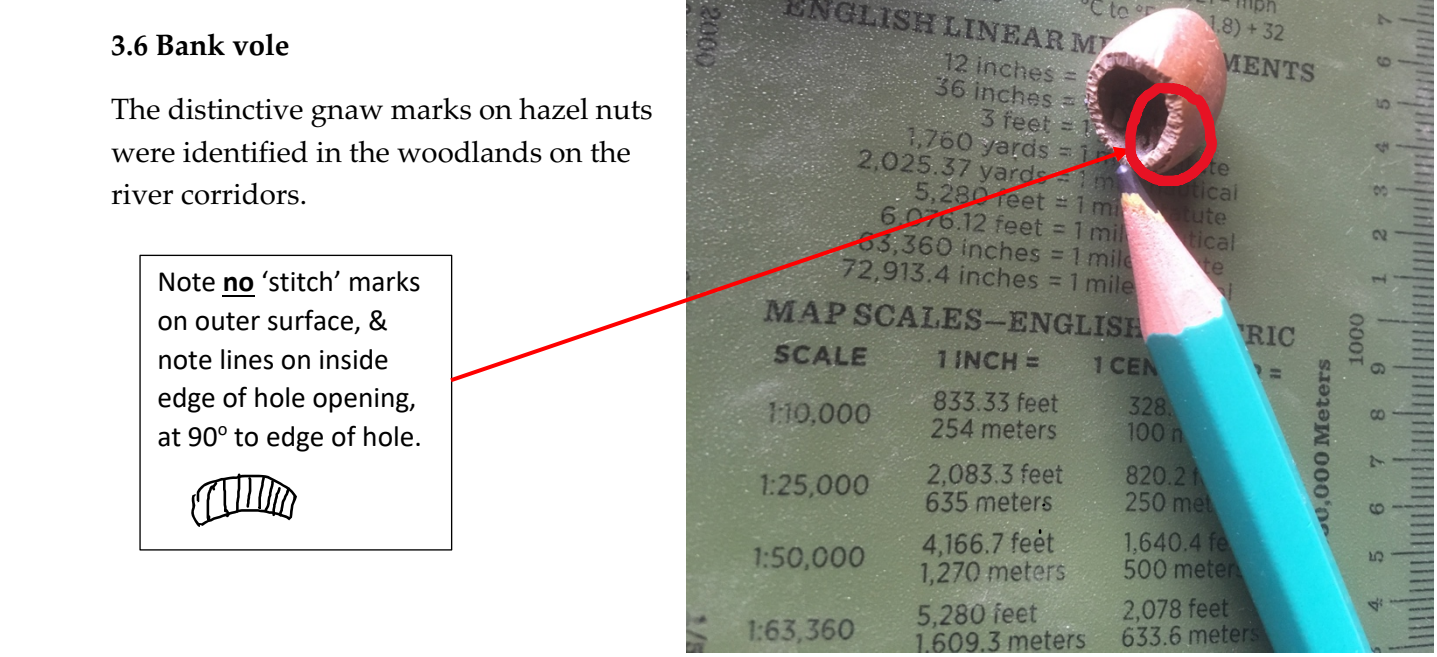


3.5 Wood mouse

Distinctive gnaw marks on hazel nuts in the woodlands on the river corridors. Found at same location as a dormouse record, so not obviously visible on this JPEG version of the map. Visible when zoomed into Shapefile layer.



Note 'stitch' marks on outer surface, & note lines on inside edge of hole opening, at 90° to edge of hole.



3.6 Bank vole

The distinctive gnaw marks on hazel nuts were identified in the woodlands on the river corridors.

Note **no** 'stitch' marks on outer surface, & note lines on inside edge of hole opening, at 90° to edge of hole.

3.7 Short-tailed field vole

The droppings and feed remains of this mammal were found very frequently throughout the open upland area. Spot checks between tussocks of *Molinia* and other grasses revealed these field signs on every occasion. Note dropping at pen tip, and short cut grass sections. Found in a typical vole run in the grass.

3.8 Mole

A distinctive mole hill was recorded on the field banks on the eastern boundary of the site.

3.9 Grey squirrel

Again, hazel nuts split open by grey squirrel were recorded frequently in the woodland corridors. This is a typical split nut, with a chip taken off one end, and then the nut prised open. There were no records for red squirrel *Sciurus vulgaris* in the WWBIC search, but there are known populations in mid Wales.

3.10 Bat species group

Two evening visits were made, and bats were recorded using the site at the edge of the woodland, along the access track and by the work compound areas. The bat detector picked up the probable echolocation calls of common pipistrelle *Pipistrellus pipistrellus*. This is one of three potential pipistrelle species in the UK: common, soprano *Pipistrellus pygmaeus* and Nathusius *Pipistrellus nathusii*.

4.0 Conclusions & recommendations

It was possible to ascertain that nine mammals and one mammal group use the site. It was not possible to say the remaining species were present or absent. It is considered that the work to raise the water table could attract water vole and otter to use the pools in the future. It is not thought that water vole will use the wooded river valleys as they are generally shaded, fast-flowing, shallow and rocky, and water voles tend to favour slow-flowing, deeper water, with soft banks for burrowing (Strachan, 2011). Water shrews *Neomys fodiens* may also benefit from these pools and wetter areas.

There is no doubt that other mammal species will be using the site, without being recorded during this survey. For example, it is known that the elusive pine marten *Martes martes* (a Mustelid) have been recorded in the Dyfi valley area, and are spreading successfully and remarkably rapidly from their reintroduction sites in mid-Wales, one of which was close to Bwlch Corog, and also near Aberystwyth. Personnel working on the site during this autumn stated they observed a pine marten crossing the access track close to the site boundary (*pers.comm.*). Brown hare *Lepus europaeus* were recorded by WWBIC in the search area and have been observed on the site by project staff, as well as roe deer *Capreolus capreolus*. Other members of the Mustelid family such as stoat *Mustela ermine* and polecat *Mustela putorius* are also likely to use the site.

It is likely that hazel dormice are to be found frequently in the woodland in these valleys, particularly where there is a mosaic shrub layer with some bramble and other ground flora.

It will be interesting to repeat this survey as planned, at the end of the project currently undertaking land management works. It is proposed that the approximate transects are repeated, camera traps are used again and dusk survey time incorporated.

5.0 References

Bright, P., Morris, P. & Mitchell-Jones, T. (2006). *The dormouse conservation handbook. 2nd Ed*. English Nature, Peterborough.

CIEEM (2013). *Technical Guidance Series. Competencies for species survey: water voles.* Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2013). *Technical Guidance Series. Competencies for species survey: Eurasian otter*. Chartered Institute of Ecology and Environmental Management, Winchester.

Chanin, P. (2003). *Ecology of the European otter. Conserving Natura 2000 Rivers. Ecology Series No.10*. English Nature, Peterborough.

Dean, M., Strachan, R., Gow, D. & Andrews, R. (2016). *The Water Vole Mitigation Handbook. Mammal Society Mitigation Guidance Series*. The Mammal Society, London.

RSPB, NRA & RSNC (1994). *The New Rivers and Wildlife Handbook*. RSPB, Sandy, Bedfordshire.

Sargent, G. & Morris, P. (2003). *How to find and identify mammals.* The Mammal Society, London.

Strachan, R. (2002). *Mammal detective*. Whittet Books, Suffolk.

Strachan, R., Moorhouse, T. & Gelling M. (2011). *Water Vole Conservation Handbook*. Third Edition. WildCRU, Oxford.

Wembridge, D. & Bowen, C.P. (2013). *Britain's mammals – a concise guide*. People's Trust for Endangered Species, Stanstead.

Figure 1. Site boundary map (in red outline).

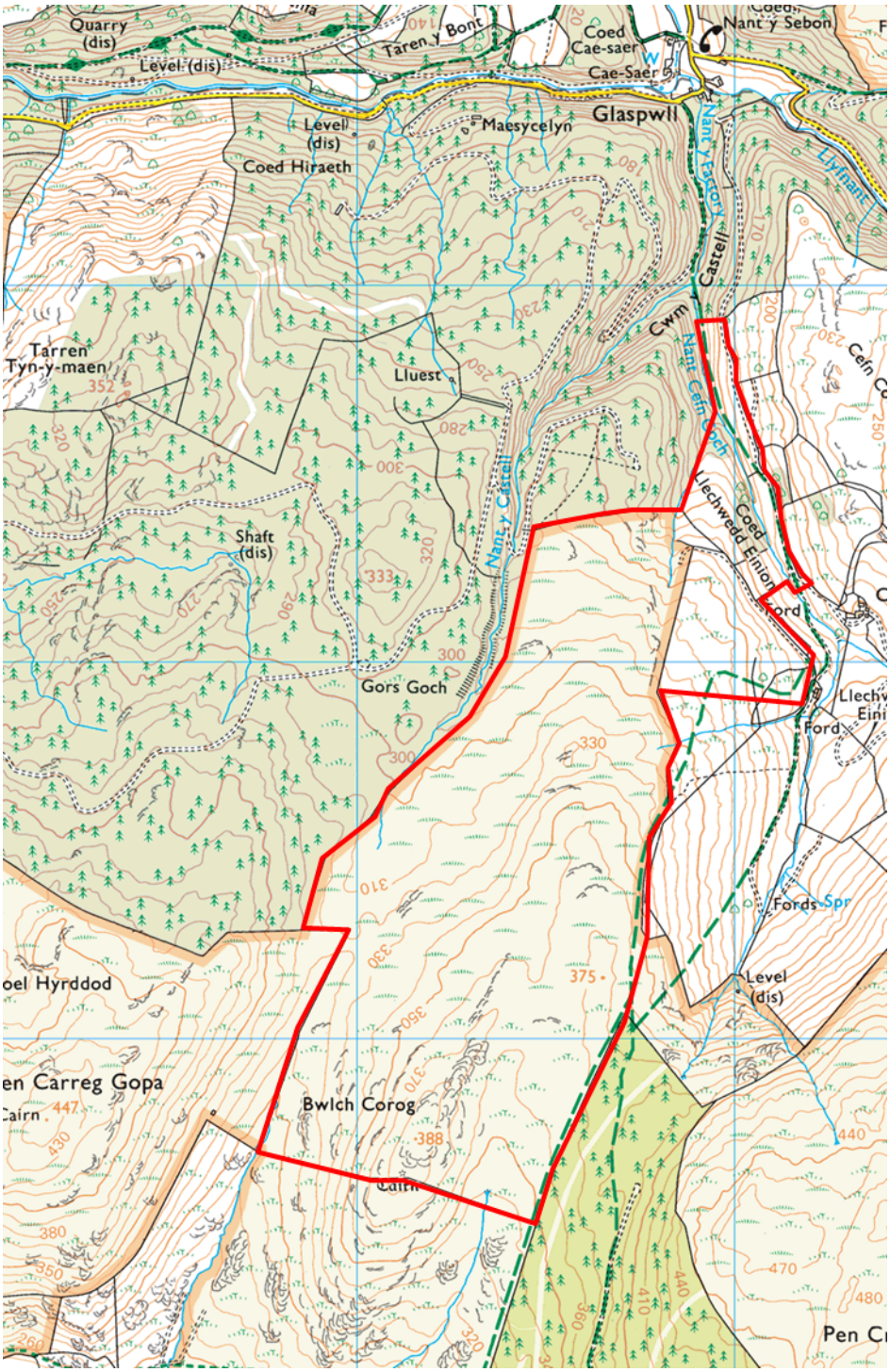


Figure 2. Approximate transect route

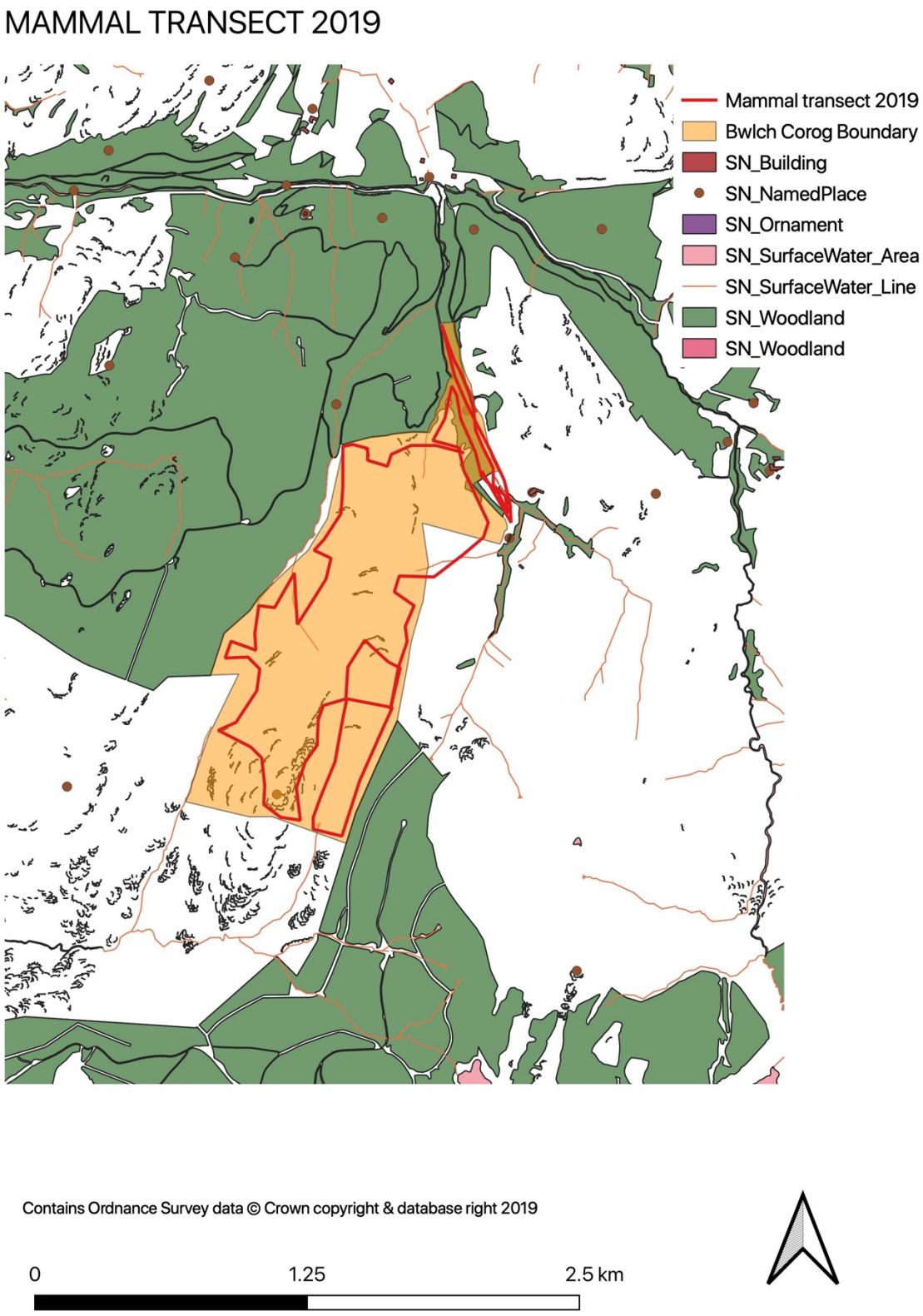
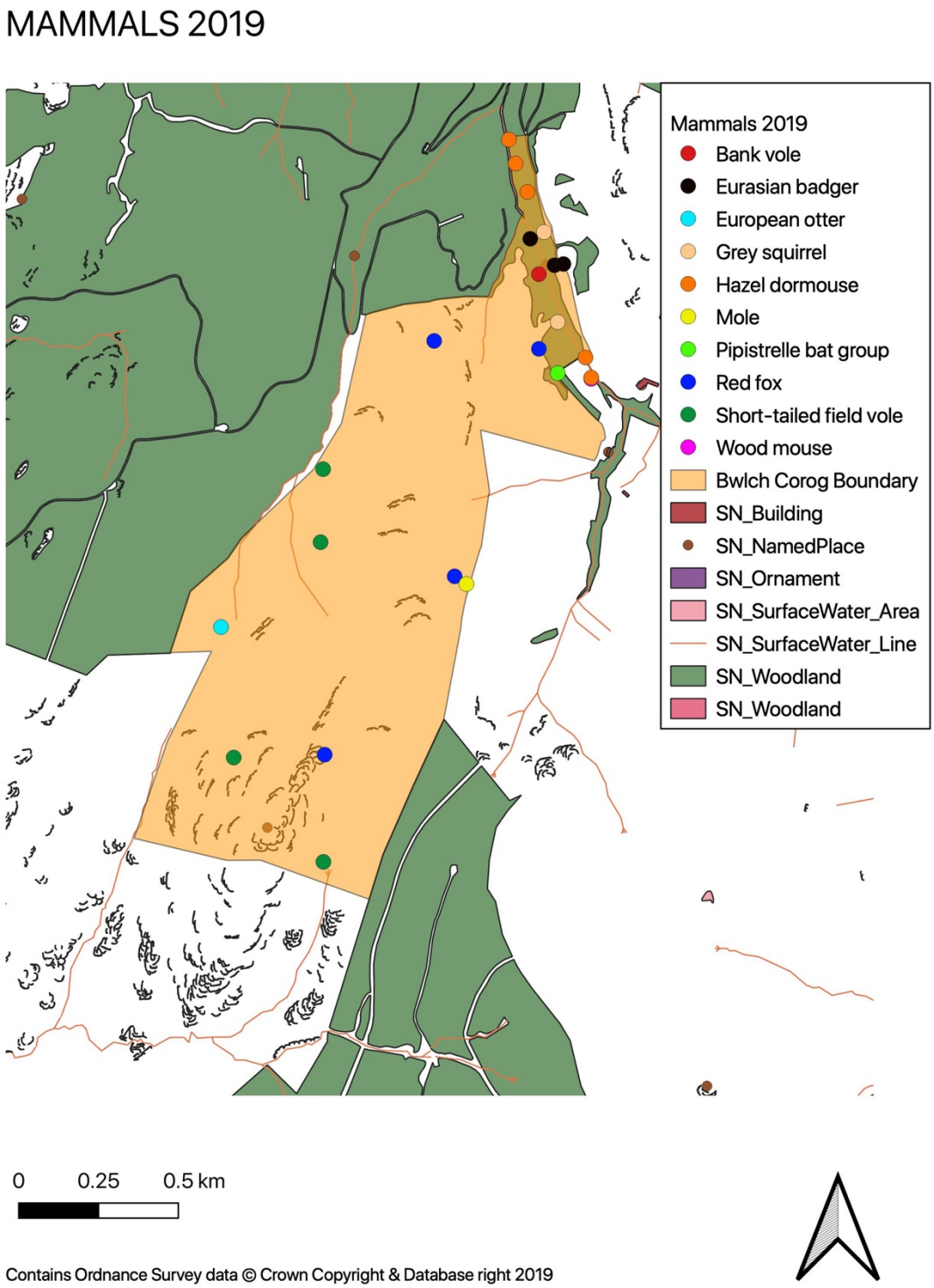


Figure 3. Mammal record locations for this survey



Appendix 1. Mammal record details

Date	Name	Scientific name	Grid reference	Details
25.09.19	Fox	*Vulpes vulpes*	SN73678 96259	Scat
02.10.19	Fox	*Vulpes vulpes*	SN73335 94962	Scat
03.10.19	Fox	*Vulpes vulpes*	SN73742 95521	Scat
03.10.19	Fox	*Vulpes vulpes*	SN74006 96234	Scat
25.09.19	Short-tailed field vole	*Microtus agrestis*	SN73330 95857	Droppings
02.10.19	Short-tailed field vole	*Microtus agrestis*	SN73322 95628	Droppings & food remains
02.10.19	Short-tailed field vole	*Microtus agrestis*	SN73050 94953	Droppings
02.10.19	Short-tailed field vole	*Microtus agrestis*	SN73331 94626	Droppings
20.09.19	Wood mouse	*Apodemus sylvaticus*	SN74170 96140	Gnawed hazel nut
25.09.19	Bank vole	*Myodes glareolus*	SN7400696468	Gnawed hazel nut
20.09.19	Grey squirrel	*Sciurus carolinensis*	SN73948 97062	Gnawed hazel nut
08.10.19	Grey squirrel	*Sciurus carolinensis*	SN74065 96318	Gnawed hazel nut
03.10.19	Mole	*Talpa europaea*	SN73779 95497	Mole hill
02.10.19	European otter	*Lutra lutra*	SN73010 95362	Otter spraint in middle of mowing track
08.10.19	Eurasian badger	*Meles meles*	SN74055 96496	Diggings
20.09.19	Eurasian badger	*Meles meles*	SN74083 96500	Hair on fence & path opp boundary on other side of road
20.09.19	Hazel dormouse	*Muscardinus avellanarius*	SN74170 96144	3 gnawed fresh hazel nuts
20.09.19	Hazel dormouse	*Muscardinus avellanarius*	SN74152 96207	5+ nuts
20.09.19	Hazel dormouse	*Muscardinus avellanarius*	SN73912 96890	Gnawed hazel nut
20.09.19	Hazel dormouse	*Muscardinus avellanarius*	SN73958 97226	Gnawed hazel nut
20.09.19	Hazel dormouse	*Muscardinus avellanarius*	SN73183 97166	Gnawed hazel nut

15.10.19	Pipistrelle bat group	*Pipistrellus* sp.	SN74065 96158	Echolocation calls

Appendix 2. Summary abstract from local biological records centre search, with grid reference omitted. Full details of these confidential records are retained by the project director.

Record date	***Scientific name***	***Common name***	***Distance from centre of Site (m)***
27/07/1982	*Pipistrellus pipistrellus*	Common Pipistrelle	725
27/07/1982	*Myotis*	Unidentified Bat	725
1974	*Mustela nivalis*	Weasel	725
1985	*Plecotus*	Long-eared Bat species	725
1982	*Plecotus*	Long-eared Bat species	725
27/07/1982	*Plecotus*	Long-eared Bat species	725
20/08/2008	*Myotis daubentonii*	Daubenton's Bat	725
07/08/2008	*Chiroptera*	Bats	725
11/08/2009	*Chiroptera*	Bats	725
12/08/2010	*Chiroptera*	Bats	725
07/08/2008	*Myotis daubentonii*	Daubenton's Bat	725
20/08/2008	*Chiroptera*	Bats	725
29/08/2007	*Chiroptera*	Bats	725
25/08/2009	*Chiroptera*	Bats	725
11/08/2009	*Myotis daubentonii*	Daubenton's Bat	725
11/04/11	*Lutra lutra*	European otter	846
2012	*Muscardinus avellanarius*	Hazel dormouse	982
11/04/11	*Muscardinus avellanarius*	Hazel dormouse	913
23/11/2003	*Arvicola amphibius*	European Water Vole	1726
14/11/2009	*Lutra lutra*	European Otter	1799
14/11/2009	*Lutra lutra*	European Otter	1799
17/09/2009-26/09/2009	*Pipistrellus pygmaeus*	Soprano Pipistrelle	1968
17/09/2009-26/09/2009	*Myotis mystacinus*	Whiskered Bat	1968
31/01/1988	*Vulpes vulpes*	Red Fox	1227
31/01/1988	*Vulpes vulpes*	Red Fox	1227