

EARBA STORAGE

A GILKES ENERGY COMPANY

Earba Pumped Storage Hydro Scheme EIA Report

Appendix 8.4: Protected Mammal Survey Report (2023)

February 2024



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EARBA STORAGE

A GILKES ENERGY COMPANY

Loch Earba Pump Storage Hydro

Earba Ltd



Protected Mammal Survey

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The evidence presented and interpretation provided is true and has been prepared and provided in accordance with the guidance of The Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.

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EXECUTIVE SUMMARY

- Tracks Ecology Ltd. was commissioned by Cairneyhill Ltd to undertake protected mammal surveys across the proposed Loch Earba Pump Storage Hydro site, located approximately 30km southwest of Kingussie, Highlands.
- The survey was identified as necessary to support an Environmental Statement for the proposed development.
- Protected species surveys of the infrastructure extended to include a buffer of 250m targeted otter, wildcat, water vole, pine marten, red squirrel and badger.
- Evidence of otter was identified on the northern section of Lochan na h-Earba and along the Allt Labhrach in the form of sprainting sites and two couches. Camera traps also captured regular presence of otter at the northern end of Lochan na h-Earba.
- Water vole were confirmed as using many of the small watercourses between Lochan na h-Earba and the River Spean with a large colony present on the watercourse flowing into the southern end of Lochan na h-Earba. Limited presence of water vole was also present north of Loch a'Bhealaich Leamhain on a small tributary of Allt Loch a'Bhealaich Leamhain.
- Pine marten signs were very limited across the Survey Area and camera traps captured pine marten on a limited number of occasions.
- Red squirrel were identified as being present in sections of closed canopy woodland in the northern edge of the Survey Area and along the River Spean corridor, but overall the Survey Area offered very limited suitable habitat for the species.
- No evidence of wildcat or badger was identified during the survey and overall the Survey Area offered limited suitability for these species.
- A series of mitigation measures are outlined for the protected species identified as being present with key constraints identified as being places of shelter for otter and colonies of water vole. It is likely that both these species will require activities that will require licenses to be in place prior to works commencing.

1 INTRODUCTION

1.1 TERMS OF REFERENCE

Tracks Ecology Ltd. was commissioned by Cairneyhill Ltd to undertake protected mammal surveys across the proposed Loch Earba Pump Storage Hydro site, located approximately 30km southwest of Kingussie, Highlands. The proposal is to use Loch a' Bhealaich Leamhain as the upper reservoir and Lochan na h-Earba as the lower reservoir with interconnecting tunnels and associated infrastructure. Lochan na h-Earba is currently formed by two lochs separated by a short section of river which supports a dam.

These surveys were requested to provide baseline information to support an Environmental Statement for the proposed development across the infrastructure and a buffer of 250m, hereafter referred to as the 'Survey Area'. The Survey Area was dominated by a mix of upland habitats and had a significant altitudinal range from 250m at the proposed entrance off the A86 public road to the upper slopes of the local peaks including Creag Pitridh and Binnein Shuas of 850m above sea level. Several alterations to the design during the surveys resulted in additional areas being covered with a total surveyed area of over 1,650ha (Figure 1).

1.2 OBJECTIVES OF STUDY

This report seeks to document the presence or likely absence of a number of protected mammal species from within the Survey Area. The focus of the survey is on identifying potential places of shelter for the focal species and assess the level of use of the habitats for commuting and foraging.

The surveys focused on the following species:

- Otter *Lutra lutra*
- Wildcat *Felis sylvestris*
- Water vole *Arvicola amphibious*
- Pine marten *Martes martes*
- Red squirrel *Sciurus vulgaris*
- Badger *Meles meles*

This report details the following:

- desk study information;
- field survey methodology;
- field survey results;
- comments on the nature conservation importance of receptors; and
- recommendations for further survey work and mitigation where appropriate.

1.3 SURVEY AREA DESCRIPTION

The Survey Area is located south west of Kingussie, south of Loch Laggan. Access to the Survey Area is from the A86 public road close to Moy Bridge. Existing estate access tracks are present, which allowed access to the two lochs of Lochan na h-Earba which combined, extend for a distance of almost 6km. Lochan na h-Earba is located between the high peaks of Binnean Shuas to the north and Creag Pitridh, Creag a' Mhaigh and Creag a' Chur to the south. Lochan na h-Earba is proposed to act as the lower loch for the pump storage project with the higher loch, Loch a' Bhealaich Leamhain, located in a corrie 3km south east.

The lowland sections of the Survey Area support areas of blanket bog, heath and grassland with scattered dwellings. Areas of semi-natural woodland are present along watercourses and sections of commercial and non-commercial planted conifer woodland cover small areas

of land. The landscape rapidly develops into an upland environment to the south along the proposed access route with extensive open moorland including patches of blanket bog and significant sections of wet heath with smaller pockets of acid grassland.

The landscape adjacent to Lochan na h-Earba is steep and rugged with the valley sides rising quickly supporting wet heath and rocky outcrops. On the upper slopes the soils are thin and the vegetation was, in places, heavily influenced by the basic nature of the geology. In the northern end of Lochan na h-Earba the slopes are somewhat gentler and increased semi-natural woodland, in the form of birch and Scot's pine dominated woodland, was present. Outwith the contiguous sections of woodland scattered trees remained, but many of these were in significant decline and regeneration was sparse in most areas.

The Survey Area extended further southeast up to an altitude of approximately 750m through a narrow pass at Bealach Leamhain, before dropping down to Loch a' Bhealaich Leamhain which forms the upper loch of the pump storage project, located at around 640m. The habitats located through the pass, and higher up on the adjacent peaks, supported montane heath habitats, with wet heath and blanket bog further southeast on the lower slopes.

2 LEGISLATIVE CONTEXT

2.1 OTTER

Otters in the UK are protected by the Conservation (Natural Habitats, &c.) Regulations 1994 as amended in Scotland and are commonly referred to as European Protected Species (EPS). The Regulations transpose into Scottish law the European Community's Habitats Directive (92/43/EEC). It is worth noting that at the time of writing, there has been no change to the protection of European protected species as a result of the United Kingdom's exit of the European Union.

It is an offence to deliberately or recklessly:

- capture, injure or kill an EPS;
- harass an individual or group of EPS;
- disturb an EPS while it is occupying a structure or place used for shelter or protection;
- disturb an EPS while it is rearing or otherwise caring for its young;
- obstruct access to a breeding site or resting place, or otherwise deny the animal use of the breeding site or resting place;
- disturb an EPS in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs;
- disturb an EPS in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
- disturb an EPS while it is migrating or hibernating;

It is also an offence of strict liability to:

- damage or destroy a breeding site or resting place of an EPS even if they are not in use at the time (i.e. a summer bat roost during the winter period or seasonally used otter holt).

In addition, otter is listed in the Scottish Biodiversity List and the UK Biodiversity Action Plan (BAP).

2.2 WILDCAT

The wildcat is a European Protected Species (EPS) and is protected by the Conservation (Natural Habitats &c.) Regulations 1994 as amended in Scotland which transpose into Scottish law the European Community's Habitats Directive (92/43/EEC). Offences for Scottish wildcat are the same as those outlined for otter.

Within this document the term 'den' is used to refer to any breeding/rest site which are not necessarily underground or within a defined structure. Dense brash, windthrow, scrub and log piles can all be used as den sites.

In addition, the species is also currently classified as Critically Endangered in Scotland by the IUCN Red List, listed in the Scottish Biodiversity List and listed in the UK Biodiversity Action Plan (BAP).

It is worth noting that the Scottish Wildcat, an isolated population of the European wildcat, although protected under the same legislation as otter, are under significant threat at present. The future prospects for the Scottish wildcat were considered bad and deteriorating by Joint Nature Conservation Committee (JNCC) (2007), and the species likely to become extinct in the biogeographical region. In the IUCN Red List of Threatened Species assessment of *Felis silvestris* for Europe, the isolated Scottish population is listed as Critically Endangered (Yamaguchi et al., 2015). Also, in the Scottish Wildcat Conservation Action Plan it is assessed as declining (Scottish Natural Heritage, 2013). This in combination with the elusive nature of the species, difficulties with differentiating between feral and domestic cats and wildcat x domestic cat hybrids within the field and the cryptic nature (often leaving few field signs with den sites difficult to identify), a degree of caution is required. As a result, the precautionary principle is often required to ensure that no inadvertent impacts on the species occur from land management activities and development. The Site also falls within one of the Scottish Wildcat Action Plan Priority Area, called Strathbogie.

2.3 WATER VOLE

Water vole is afforded protection in Scotland under section 9(4) of the Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2011, with the protection extended to include 'reckless' acts (continuing with an action in the knowledge of the consequences of that action) and acts of 'interference', as an addition to destructive acts cited in the 1981 Act.

Under the terms of section 9(4) it is an offence to "intentionally or recklessly":

- Damage, destroy or obstruct access to any structure or place which a water vole uses for shelter or protection; and
- Disturbance while in a place of shelter.

However, it should be noted that under present legislation the animals themselves are not otherwise protected in Scotland although recent proposals to extend the protection to the animals have been proposed.

In addition to the above, water vole is also listed in the Scottish Biodiversity List and the UK BAP.

2.4 PINE MARTEN

Pine marten is afforded protection in Scotland under section 9(4) of the Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2011, with the protection extended to

include ‘reckless’ acts (continuing with an action in the knowledge of the consequences of that action) and acts of ‘interference’, as an addition to destructive acts cited in the 1981 Act.

Under the terms of section 9(4) it is an offence to “intentionally or recklessly”:

- Damage, destroy or obstruct access to any structure or place which a water vole uses for shelter or protection; and
- Disturbance while in a place of shelter.

In addition to the above, pine marten is also listed in the Scottish Biodiversity List, the UK BAP and the Highland BAP.

2.5 RED SQUIRREL

Red squirrel is also afforded protection in Scotland under section 9(4) of the Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2011, with offences the same as those described for pine marten.

2.6 BADGER

Eurasian badgers and their setts are protected under the Protection of Badgers Act 1992 and by Section 11 (Schedule 6) of the Wildlife and Countryside Act 1981 (as amended in Scotland). It is illegal to kill, injure, take, possess or cruelly ill-treat a badger, or attempt to. Badger setts are protected from interference and it is an offence to obstruct access to, or any entrance of, a badger sett. In addition, it is illegal to disturb a badger when it is occupying a sett.

The Protection of Badgers Act 1992 was amended by the Nature Conservation (Scotland) Act 2004 to make it illegal to knowingly cause or permit an act which would interfere with a badger sett, and included recklessly killing, injuring or taking a badger.

In addition to the above, the badger is listed in the Scottish Biodiversity List.

3 METHODOLOGY

3.1 DESK STUDY

To provide additional contextual information a data collection exercise with respect to protected mammals was undertaken, including the review of the previous surveys undertaken at the Site and information obtained from the Highland Biological Recording Group.

A number of additional information sources were used to obtain ecological background information for the Survey Area. Information on statutory sites was obtained from the website of the statutory agency NatureScot via the “Site Link Portal” (<https://sitelink.nature.scot/home>)

A review of information held on the National Biodiversity Network (NBN) Atlas website (www.nbnatlas.org) was also undertaken to provide contextual background information for the location.

Aerial photography, both publically available (e.g. www.bingmaps.co.uk) and through Emapsite (www.emapsite.com) of the Survey Area was also used to guide field surveys.

3.2 SURVEY TIMINGS

All protected species surveys were undertaken by James Bunyan, a suitably experienced ecologist. Surveys were undertaken under suitable conditions across July and August 2023

on the following dates: 5th, 7th, 12th, 13th, 14th, 18th, 25th and 26th of July and 2nd and 3rd of August 2023. An additional visit to collect camera traps was undertaken on 30th August 2023.

3.3 OTTER

The otter survey was undertaken in broad accordance with the approach detailed by Scottish Natural Heritage 'Otters and Development' guidance document (Scottish Natural Heritage, 2010) and Chanin (Chanin, 2003). The survey concentrated on watercourses present within the Survey Area and included a thorough check for otter resting places including holts and couches.

Due to the often elusive nature of otter surveys predominantly rely on the interpretation of field signs rather than direct observation of the animals themselves. However, in remote locations where human disturbance is low direct observations may be possible. During the survey the following field signs were sought, with those which can be regarded as definitive, i.e. they provide certain confirmation of the presence of this species, marked with an asterisk:

- otter spraint (faeces)*;
- otter holt (den);
- footprint*;
- couch (resting place above ground); and
- pathways and slides into water.

3.4 WILDCAT

The wildcat survey was undertaken in accordance with the 'General Survey' approach detailed by Cresswell *et al.* (2012a) and that outlined by NatureScot. The survey was undertaken by an ecologist experienced in wildcat surveys and focused on identifying field signs such as potential den sites, scats, scratch marks, prey remains and prints. Confirming that wildcat is present from field signs alone is not possible as the signs are indistinguishable to that of feral/domestic cats or wildcat x domestic hybrids (excluding the use of DNA scat analysis). As a result, camera trapping is key to any Scottish wildcat survey.

It is worth noting that knowledge of wildcat ecology remains limited with very few confirmed den sites identified and described. Considering the legal protection and threatened nature of the species it is likely that any works which has the potential to impact upon individuals will require robust baseline information and strict mitigation measures.

To supplement field sign surveys, four camera traps were deployed across the Survey Area for a period of 48 trap nights from 13th July to 30th August 2023.

Camera trap locations were chosen based on likelihood of capturing wildcat while obtaining a good coverage of the Survey Area. Camera traps are of paramount importance when undertaking such surveys as pelage characteristics are key to differentiating between the presence of the species and that of feral/domestic cats or wildcat hybrids. Camera traps were baited with scent (valerian root) broadly following standard guidelines (NatureScot, 2014). A single camera trap was deployed at each of the four stations with scent bait deployed on the ground in the center of view at an optimal distance of approximately 2-3m. It is generally accepted that returning to check cameratraps frequently may reduce the likelihood of capturing wildcat on camera. However, this needs to be balanced with the need to manage vegetation and ensure that cameras have not been tampered with and remain functional. As a result, a single return visit after three weeks was undertaken. During this visit, batteries and memory cards were replaced, vegetation cut down where required and valerian root redeployed.

Browning Dark Ops HD Pro camera traps were used which utilise no glow flash technology to ensure that disturbance to animals passing in front of the camera was reduced to a minimum. All cameras were set to capture three images at each trigger event, with an event delay of only 10 seconds to maximise the chances of capturing good quality images for pelage identification should any wildcats be present.

Camera trap locations are detailed in Figure 2. A capture event was identified as the image capture of an individual Scottish wildcat or other species within a 10 minute period. Where there was no period of time between images greater than 10 minutes, but individual cats were present for a period greater than 10 minutes with multiple captures, this was still identified as a single capture event.

Any images of cats were then assessed against the currently recognised pelage criteria (Kilshaw et al., 2010; Kitchener et al., 2005). This method gives a score of between 1 (domestic cat trait) and 3 (wildcat trait) for seven key pelage or coat patterns (Figure 1). Based on this approach, individuals that score 19 or more for the resulting pelage score (called the '7PS' score) are classified as a wildcat. However, recent guidance from NatureScot (NatureScot, 2023) details that when only good information on the pelage of a cat is available (with no genetic information) a 7PS score of 17 or above should be assessed as being a wildcat. This lowering of the threshold is due to the level of hybridisation that exists in the wild and the fact that the vast majority of animals considered to be of conservation value as wildcats have lower pelage scores.

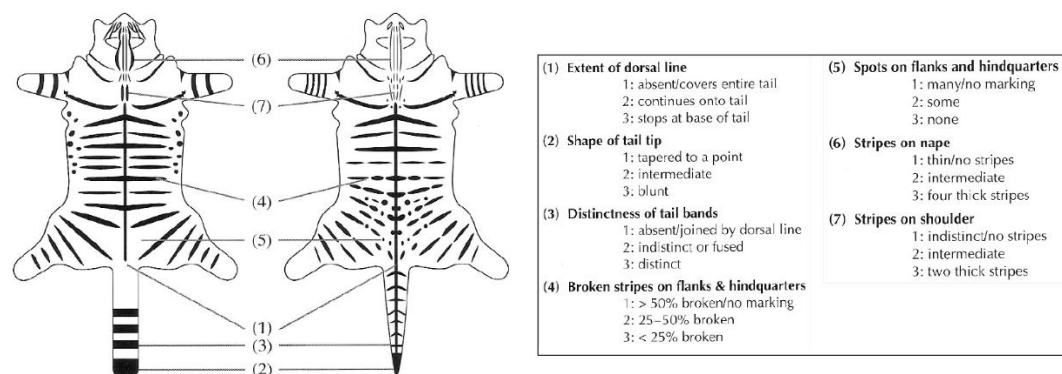


Figure 1: Comparison of the seven key pelage characteristics (7PS) that distinguish a striped-tabby domestic cat (right) from a Scottish wildcat (left) – adapted from (Kitchener et al., 2005).

3.5 WATER VOLE

The methodology employed during the survey follows that of an adapted version of the 'Water Vole Mitigation Handbook' (Dean et al., 2016), with additional reference to the 'Water Vole Conservation Handbook' (Strachan and Moorhouse, 2011) along with other publications (e.g. Ryland & Kemp 2009). Further field sign guidance was also used (Corbet & Southern 1977; Macdonald & Barrett 1993).

Active searches were conducted for water vole sign, including:

- droppings;
- burrows;
- latrines;
- feeding stations;
- lawns; and
- footprints and pathways.

Surveys included habitat assessments along the length of watercourses and ditches with periodic concentrated active searches undertaken with increased frequency in areas of optimal habitat and less frequent in areas of sub-optimal habitat. Where burrows and other field signs were encountered these were recorded and mapped with photographs taken. Where frequency of field signs (predominantly burrows) was dense these were grouped into approximate aggregations of small (less than 5), medium (5 to 9) and large (10 or greater) groups.

3.6 PINE MARTEN

The methodology employed during the survey follows that detailed within Cresswell *et al.* (2012b). Active searches were conducted for pine marten signs, including scats, prints and den sites.

3.7 RED SQUIRREL

Surveys were undertaken following guidance within Cresswell *et al.* (Cresswell *et al.*, 2012b) across the Survey Area with an emphasis on woodland. Active searches were conducted for red squirrel signs including dreys, feeding signs and animal sightings. In addition, woodland habitats were assessed for their suitability to support the species.

3.8 BADGER

The field sign survey comprised a search for setts and other signs of badger activity, e.g. latrines, dung pits, pathways, snagged hair and signs of foraging (Harris *et al.*, 1989). Where setts were identified within the Survey Area, each sett entrance was mapped and photographed with sett entrances then grouped and classified as a main sett, annex sett, subsidiary sett or outlier sett.

3.9 LIMITATIONS

The surveys were undertaken at an appropriate time of year by a surveyor with extensive experience of surveying protected mammals within northern Scotland. The Survey Area is large and distributed across rugged terrain with, in some cases, very steep ground which was not always safely accessible. As a result, small areas of steep rock faces and areas of isolated inaccessible ledges could not be surveyed with detail. In addition, small sections of dense plantation woodland were present within the north and southeast of the Survey Area. Within these areas, access was difficult, and some field signs may have been missed.

Despite these factors the limitations are not assessed to be significant, and the results represent an accurate assessment of the Survey Area at the time of the survey to the best ability of the surveyors and fit for purpose of assessment.

4 RESULTS

4.1 DESKTOP STUDY

Highland Biological Recording Group (HBRG) was consulted by SLR Consulting in relation to the Environmental Scoping Report. The HBRG held records of otter from within 10km of the Site location, but details were not provided within the scoping report. No other protected species records were provided.

In addition, a review of National Biodiversity Network (NBN) Atlas confirmed the presence of otter at numerous locations outwith the Survey Area and from within the Survey Area between the two section of Lochan na h-Earba as well as several records within 1km of the

Survey Area on all sides. The vast majority of the records were in excess of 15 years old with only a single record from within the last 10 years, however the location was low resolution, although is likely to be on the River Spean.

Records for wildcat are limited with no records within the Survey Area and the closest approximately 5km east. Only a single record was from within the last 15 years.

Numerous water vole records were present within 10km, primarily around Loch Ghuilbinn to the west, with no records within the Survey Area.

No pine marten records from within the Survey Area were present and records were limited to the larger blocks of woodland along Loch Laggan and to the west of the Site. Red squirrel were similarly distributed with almost all records along the A86 corridor including sections within 1km of the Survey Area.

No recent records of badgers were present with only a single record outwith the Survey Area, approximately 6km east from in excess of 20 years ago.

4.2 OTTER

The Survey Area supports extensive suitable habitat for otter including the main River Spean in the west, a tributary of the Spean, the Abhainn Ghuilbinn, which passes through the western edge of the Survey Area, Lochan na h-Earba and the Allt Labhrach to the north, as well Loch a'Bhealaich Leamhain. However, it should be noted that all of these features, except Loch a'Bhealaich Leamhain have been significantly modified with barriers to migratory fish present at various locations.

During the survey, evidence of otter activity was identified at a number of locations but was restricted to Lochan na h-Earba and the Allt Labhrach which flows from the northern end of the Loch. On the northern section of Lochan na h-Earba sprainting was identified in three locations. A large boulder, approximately halfway along the western edge of the loch, supported a sprainting site with several relatively old spraints present. Also present on the western banks of the loch was a section of bank which had a significant overhang with an open area beneath extending approximately 1.5m back. There was no formal cavity forming a holt-like structure but the presence of sprainting within this area, which was dry and well sheltered suggests that the location is likely to be used as a couch.

At the southern end of the northern most loch a small timber bridge is present over the connecting watercourse. Beneath this timber bridge on both banks several spraints were present. Again, due to the presence of sprainting within a sheltered area, it is assessed that these locations are used as a couch. Sheltered locations within the base of the Lochan na h-Earba glen are limited and as a result overhangs and structures like the bridge are likely to provide some degree of shelter for any otters passing through the glen or undertaking foraging within the lochs.

At the northern end of the Survey Area Lochan na h-Earba supports a small dam, with very limited flow entering the Allt Labhrach watercourse. The former river bed which was almost dry during most of the survey, passes beneath a small forestry track bridge on stone supports, soon after a small volume of water flow is present. From the bridge north, downstream, the river channel supports large boulders along the majority of the banks. These boulders support very significant gaps and cavities which could provide suitable otter holt and couch features. Along this section of the river, two sprainting sites were located on large boulders. Despite extensive searches of the watercourse, no confirmed holts or couches could be found. It is considered highly likely that otter is using the Allt Labhrach for a place of shelter, either along the section within the Survey Area and field sign evidence was not obvious or along

sections of the watercourse further downstream, outwith the Survey Area, where flow levels are higher.

Along the banks of Lochan na h-Earba a number of other locations where the banks have been undercut were present offering potential sprainting or low suitability couches, but none of these showed any signs of use by otter.

Otter activity along the River Spean and its tributary, Abhainn Ghuilbinn was somewhat surprising absent, with no sprainting or other signs identified. Several locations supported exposed roots or small overhangs but again no signs of use were identified.

Camera trap 1, located at the top end of Lochan na h-Earba captured otter on six occasions with one of the captures confirming two otters. Although it is not possible to confirm from the image, it is assessed that the photo containing two individuals is likely to be an adult with a yearling juvenile travelling together. Activity from the otters included both upstream and downstream travel and was exclusively during the night. Otter was not captured on any of the other camera traps. Table 1 provides a summary of otter capture events.

Table 1: Summary of otter captures at Camera Trap 1.

Date	Time	Direction of travel	Notes
16/07/2023	22:54	Upstream towards Lochan na h-Earba	Probable adult and juvenile
22/07/2023	02:45	Downstream into woodland	Single adult
27/07/2023	03:40	Undetermined	Single adult
08/08/2023	03:04	Upstream towards Lochan na h-Earba	Single adult
17/08/2023	05:21	Downstream into woodland	Single adult
23/08/2023	03:35	Downstream into woodland	Single adult

The presence of otter at this location occurs every 5 to 12 days and generally heading north downstream in the early morning. Although it cannot be confirmed from this data alone that would appear to suggest that the otter or otters are foraging in and around Lochan na h-Earba during the night before returning to a place of shelter (holt) within the woodland to the north of the Survey Area during the early hours of the morning before sunrise.

4.3 WILDCAT

No evidence to suggest wildcat are present within the Survey Area was identified. Field sign surveys did not identify any signs and in general the majority of the Survey Area was sub optimal with the upland areas offering limited cover and very limited prey. Some rocky escarpments may offer some level of shelter but combined with the isolated and exposed nature of these areas with little or no prey items, likelihood of use of these features is considered unlikely. Periodic use of such features during spring may occur on a very infrequent basis, when the upland habitats provide increased prey availability in the form of ground nesting birds.

The lower sections of the site, especially the areas of scattered woodland along the River Spean offer greater suitability for the species, but the lack of signs and absence of the species on the camera traps suggest that the area is not used by wildcat at the time of the survey.

Table 2 provides a summary of the camera trap results across the four stations including 'captures' of non-target species.

Table 2: Results of camera trapping showing capture events across species.

Camera Trap	Capture occasions						Other species
	<i>Otter (pair)</i>	<i>Otter (ind.)</i>	<i>Pine marten</i>	<i>Red Squirrel</i>	<i>Fox</i>	<i>Stoat</i>	
1	1	5	2			2	Deer
2							Extensive deer, woodmice
3			1		4		Deer, woodmice
4			1	1	2		Extensive deer

4.4 WATER VOLE

The main watercourses within the Survey Area including the River Spean and Abhainn Ghuilbinn were unsuitable for use by water vole with the channels relatively wide and in majority of locations fast moving with rocky banks and substrates. However, the smaller tributaries within the Survey Area, especially those between the River Spean and Lochan na h-Earba offered sections of optimal habitat. Many of these small burns ran through sections of heath and bog forming narrow channels, often less than 0.5m with slow moving water, or in some cases pool/riffle situations. Peaty banks were often vertical and up to 0.5m in many locations with dense grass, sedge and rush vegetation providing good cover along the margins. The steep sided narrow channels made looking for signs in some cases difficult but in many locations, signs were also present on the upper edge of the banks. Within these small burns, a number of colonies were present with the extent of field signs restricted to relatively short sections. The most common field sign detected was active burrows, both on the exposed banks of the burns but also along the tops of banks within the dense grassy vegetation. A small number of latrines were also identified, often on small rocks or larger boulders within the small burns.

South of Lochan na h-Earba a slow flowing sinuous burn is present, passing through the eroded blanket bog habitats. This burn, which is up to 10m across in places supports optimal water vole habitat with dense tussocky vegetation along the banks and peaty substrates. This section of burn stretches for approximately 1km from the southern end of Lochan na h-Earba to the Survey Area western boundary and water vole evidence was frequent along almost all stretches with extensive burrow networks and scattered latrines.

The watercourses draining the steep slopes of Creag Pitridh and Beinn A'Chlachair, flowing west into Lochan na h-Earba were generally too rocky and fast flowing to support water vole although a number of smaller tributaries were present with smaller sections suitable for supporting voles. No signs of this section of the Survey Area supporting active populations were identified.

The outflow of Loch a'Bhealaich Leamhain was also a relatively fast flowing rocky watercourse running steep down the eastern side of the Survey Area as Allt Loch a'Bhealaich Leamhain before joining Allt Cam outwith the Survey Area boundary. A small population of water voles appear to be present along a small northern tributary of the Allt Loch a'Bhealaich Leamhain, but active burrows were only identified in two locations.

It is worth noting that within upland environments, water vole colonies change their distribution frequently both year to year and also to some degree seasonally. Signs of small vole colonies at relatively high altitude can indicate overwintering sites, where they will often favour locations that retain snow cover, under which they can remain active throughout the winter with low risk of predation, surviving off stored food, roots and accessible green vegetation. Scattered burrows at low densities may also indicate sections of suboptimal

habitat which individuals are commuting through or using on a transitory basis between more optimal sections of habitat.

4.5 PINE MARTEN

During the field sign survey pine marten evidence was very limited within the Survey Area. A single scat was identified on a forest track north of Lochan na h-Earba and a second single scat on the footpath from Lochan na h-Earba up to Loch a'Bhealaich Leamhain. This latter scat is somewhat surprising as the locations is very exposed and some distance from any woodland or scrub habitats. No confirmed den sites were identified, although it is likely that a number of suitable locations are present within the woodland to the north of Lochan na h-Earba within the woodland habitats, but also possibly on the steep wooded slopes above Lochan na h-Earba to the east and west.

The camera traps captured pine marten twice at Camera Trap 1 and a single occasion at Camera Traps 3 and 4. This would suggest relatively low activity from the species within the Survey Area.

4.6 RED SQUIRREL

Suitable habitat for red squirrel was relatively limited with closed canopy woodland restricted to the areas around the northern end of Lochan na h-Earba and small pockets of woodland along the River Spean and Abhainn Ghuilbinn corridors. In general, the scattered trees, isolated small groups of trees and the low density sections of woodland where a closed canopy allowing aerial movement of squirrels is absent offer low suitability for the species.

A small amount of field signs in the form of feeding remains were found in two locations. The forestry track within the woodland areas north of Lochan na h-Earba supported feeding remains, centered around a small number of Norway spruce *Picea abies* adjacent to the track. Although a number of other coniferous species are present within this section of woodland including Sitka spruce, European larch and Scot's pine, red squirrels have a significant preference for Norway spruce cones and often dreys are constructed in the upper canopy. Identifying dreys in large coniferous trees can be difficult and no dreys were identified within this section of woodland.

A second location adjacent to the River Spean also supported a small number of gnawed cones, again of a small copes of Norway Spruce. Indeed, this was the location of one of the camera traps which confirmed the presence of red squirrels in the area with a single red squirrel captured at Camera Trap 4. No confirmed dreys were identified within this section of the Survey Area either.

4.7 BADGER

No evidence to suggest badger was using the Survey Area was identified during the survey. In general, the Survey Area offered sub-optimal habitat for badger with the majority of the upland areas either rocky or supporting a high-water table, consequently providing poor sett building habitat. Furthermore, upland environments, especially where habitats are either on very thin soils or on blanket bog and wet heath, do not provide suitable foraging for badger during most of the year.

Some patches of the lowland areas, especially along the River Spean offered some potential for sett building and foraging, but no signs of the species being present was identified. Furthermore, badger was not identified on the camera traps.

5 DISCUSSION

The field sign surveys identified the presence of otter activity at relatively low levels across the Survey Area as a whole with all activity identified located on the northern section of Lochan na h-Earba. However, two locations have been identified as couches, based on the presence of multiple spraints, each within a relatively enclosed and sheltered location. Both locations are located on the edge of Lochan na h-Earba and therefore will be lost due to inundation after the dam construction. Otter couches are assessed as being a place of shelter and as such prior to any works being undertaken it will be necessary to obtain a derogation license with respect to otter from NatureScot under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended): Regulation 44 (2) (e) prior to works commencing.

No holts or breeding holts were identified, however, the presence of activity on Lochan na h-Earba (including from an adult and juvenile), combined with the capture of otter on a regular, but somewhat infrequent basis would suggest that Lochan na h-Earba is within the core home range of at least one otter and it is possible that a holt is located within close proximity to the Survey Area. The upper sections of the Allt Labhrach both within and outwith the Survey Area offer high suitability for use as a holt but no definitive evidence was identified.

In addition to the need for a license to destroy otter places of shelter (couches) the following mitigation measures are also recommended.

- Preconstruction surveys extending to 200m from proposed area of works and including camera trapping at a number of locations along the Allt Labhrach to the north of the Site.
- If during the preconstruction surveys any locations are identified to support otter then these locations will also need to be subject to a derogation license.
- New watercourse or ditch crossings should be designed in a way to facilitate the movement of otter along the corridors through bankside reinstatement and reduced development footprints. This includes allowing for the easy and safe passage of otters under rather than over roads.
- Site speed limits close to watercourses and ditch networks should be reduced to a minimum to reduce the potential for road casualties.
- All excavations should be designed in a way to allow mammal escape or fitted with an escape ramp at no greater than 45° angle.
- All pipes or other equipment capable of entrapment should be covered to prevent ingress of mammals.
- The creation of artificial structures suitable for use by otter as a holt or couch should be considered. These could be simple 'off the shelf' products that could be installed under direction of the appointed Ecological Clerk of Works (ECoW) and covered with soil/stone to create long term opportunities for use by otter. The exact location of such a feature should be discussed with the ECoW but will be best located at key points such as watercourse confluences. The nature of the development which result in variable loch depths and drawdown zones will require careful consideration of mitigation feature locations.
- Pollution prevention plans must be put in place to prevent any negative impacts on the water quality of watercourses which may subsequently reduce populations of suitable prey species for otter such as brown trout.

With respect to water vole, the Survey Area supports extensive areas of suitable habitat and many areas support well established water vole populations at the time of survey. As water vole are confirmed to be present and there is the potential for a breach of wildlife legislation to occur, the following mitigation is recommended.

- Preconstruction surveys of suitable habitat to include an area extending to 100m from proposed area of works with particular emphasis on watercourses, ditch crossings, areas of wet/marshy grassland and areas of suitable habitat likely to be isolated by proposed works.
- Identified water vole populations should be re-surveyed and subject to an exclusion zone which extends to a 20m buffer from the section of habitats currently used (minimum convex polygon around all identified burrows). This exclusion zone should be reviewed on completion of pre-construction surveys and extended where necessary. All exclusion zones must be marked on the ground with appropriate signage and included within any constraints drawings.
- Particular attention should be paid to identifying the exact distribution of water voles in close proximity to finalised construction zones.
- Works in close proximity to watercourses should be reduced to a minimum where possible with number of watercourse crossing reduced as far as it practicable. Where unavoidable, watercourse crossings should aim to maintain a continuation of suitable habitat for water vole movement and avoid the need for water vole to cross roads.
- Where impacts cannot be avoided and burrows will be directly impacted upon, it may be necessary to apply for a license which is facilitated through the Wildlife and Natural Environment (Scotland) Act 2011 which includes provision for licensing impacts on some species protected under the Wildlife and Countryside Act (1981) as amended. Any license application should be a last resort and will require a comprehensive species protection plan. Depending on the final design it may be necessary to undertake trapping and relocation of individuals as a last resort. If this is required then, sufficient time should be allowed to undertake the trapping and relocation process at a suitable time of year.

Pine marten presence was low and no den sites were identified. It is possible that pine marten use areas of woodland or features within rocky outcrops on a seasonal basis. As a result, vigilance for the presence of potential pine marten dens should be maintained. It is recommended that pre-construction surveys are completed to provide contemporary data prior to works commencing. Such surveys should include the use of camera traps where possible.

Red squirrel evidence was limited to sections of woodland north of Lochan na h-Earba and also along the River Spean outwith current proposed works areas. No optimal habitat for the species is anticipated to be lost during the development, however, pre-construction surveys are recommended, targeting key woodland areas within or immediately adjacent (within 50m) of proposed works.

No evidence to suggest wildcat or badger being present within the Survey Area was identified. Nonetheless, preconstruction surveys extending to 200m for wildcat and 100m for badger, from proposed area of works should be undertaken. Any pre-construction surveys should utilise the use of camera traps, especially for species such as wildcat.

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APPENDIX A – PHOTOGRAPHS



Plate 1: Stretch of forestry track in northern edge of Survey Area where red squirrel feeding signs were identified.



Plate 2: Example of red squirrel feeding signs.



Plate 3: Boulder within channel of Allt Labhrach in northern edge of Survey Area with old otter spraints present.



Plate 4: View south towards Lochan na h-Earba from edge of forestry at approximate location of Camera Trap 1.



Plate 5: Bridge at southern end of northern section of Lochan na h-Earba with couches beneath supporting resting areas and significant sprainting from otter.



Plate 6: Extensive sprainting beneath both sides of bridge.



Plate 7: Significant overhang on banks of northern section of Lochan na h-Earba supporting otter couch with sprinting.



Plate 8: Extensive sprinting within couch area (Plate 7).



Plate 9: Typical section of watercourse entering southern end of Lochan na h-Earba supporting extensive suitable water vole habitat.



Plate 10: One of many burrows located in area at southern end of Lochan na h-Earba.



Plate 11: View of Loch a' Bhealaich Leamhain from west showing exposed nature of loch.



Plate 12: Typical section of Allt Loch a' Bhealaich Leamhain.



Plate 13: The upper slopes of the Survey Area supported areas of scree and rock with various cavities within. No sign of use of such features by protected species was identified.



Plate 14: Typical section of smaller watercourses located between Lochan na h-Earba and River Spean.



Plate 15: Typical view of River Spean.



Plate 16: Camera trap image of two otters at Camera Trap 1.



Plate 17: View of pine marten at Camera Trap 1.



Plate 18: View of pine marten at Camera Trap 4.



Plate 19: View of pine marten at Camera Trap 3.

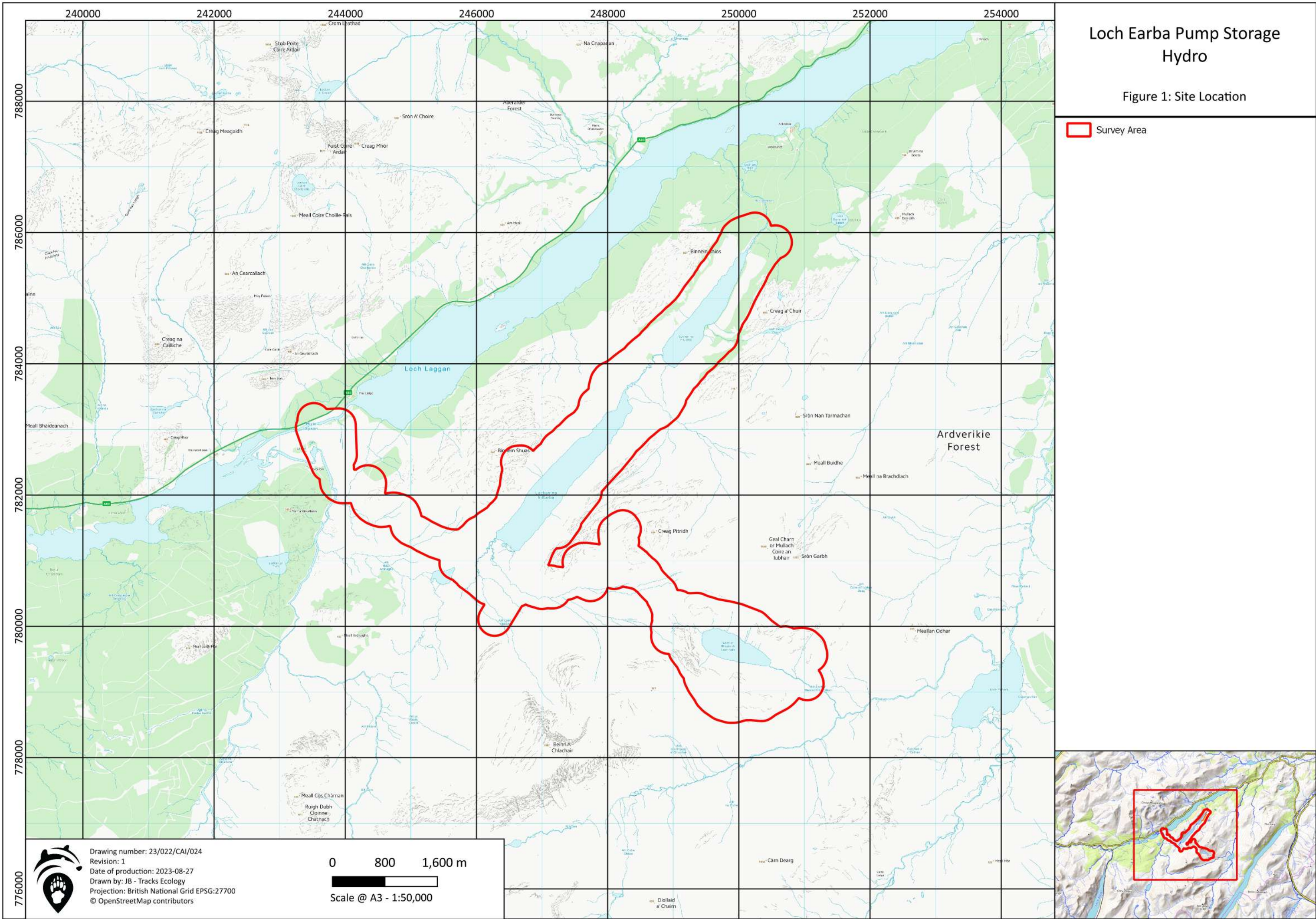


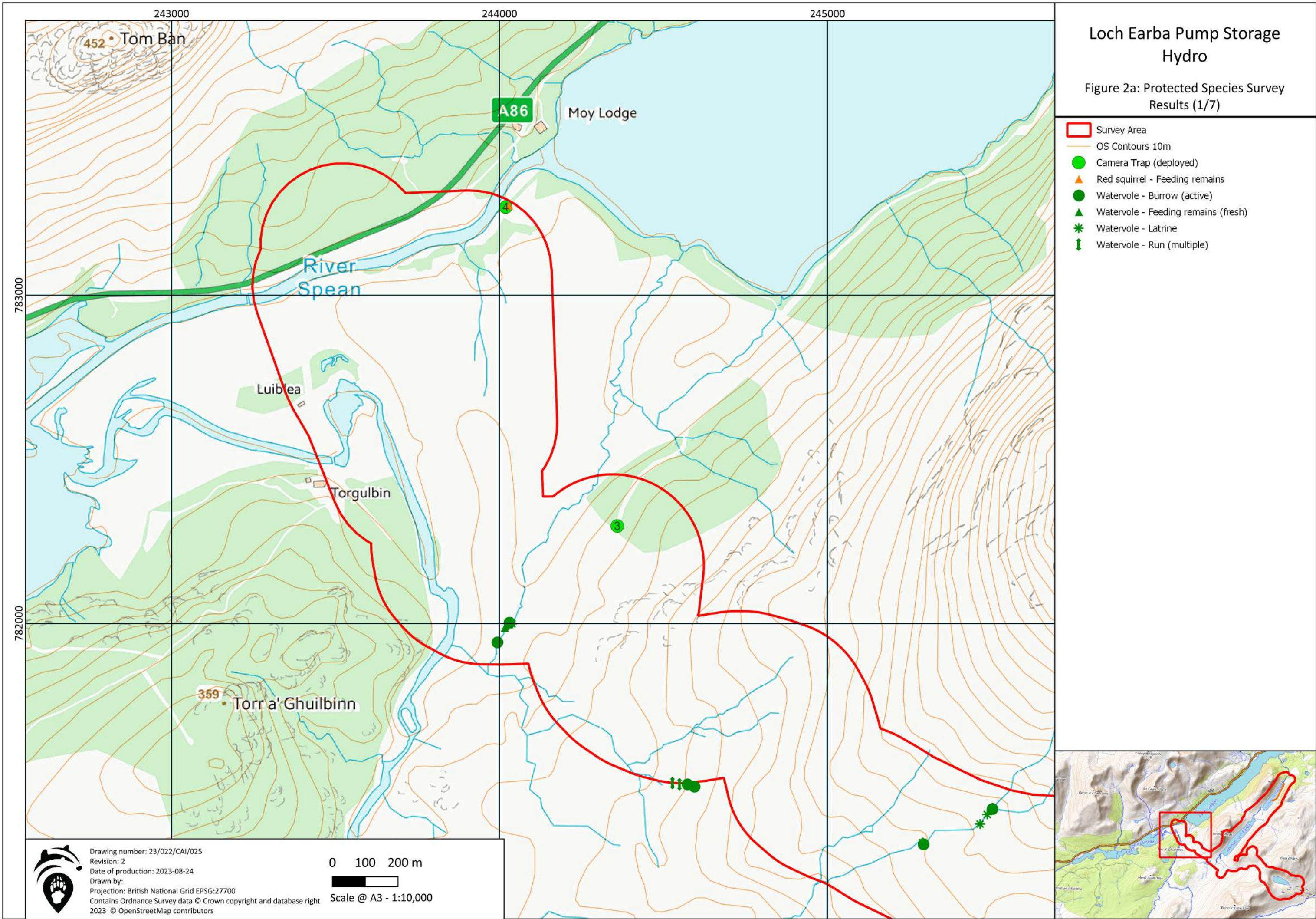
Plate 20: View of red squirrel at Camera Trap 4.

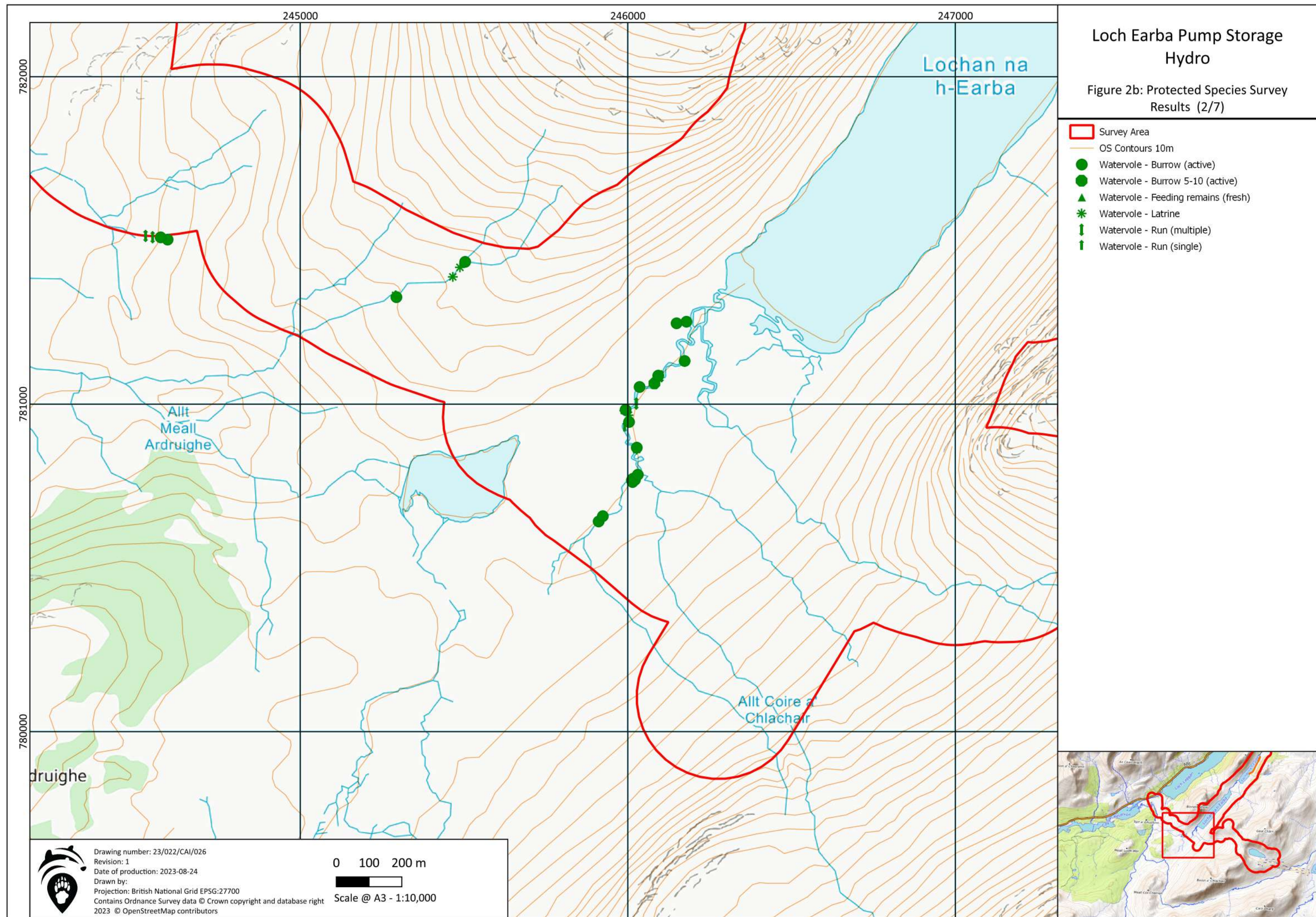


Plate 21: View of deer at Camera Trap 2.

APPENDIX B – FIGURES







247000 248000 249000

Loch Earba Pump Storage Hydro

Figure 2c: Protected Species Survey
Results (3/7)

- Survey Area
- OS Contours 10m
- Pine Marten - Scat
- Wolverine - Burrow (active)
- Wolverine - Burrow (potential)

781000

780000

h-Earba

924 Creag Pitridh

Allt Coire a' Chlachair

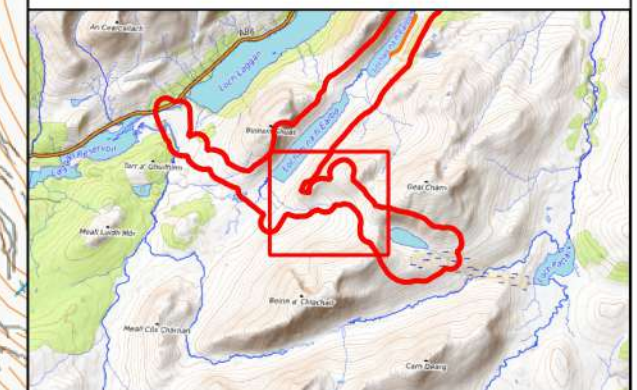


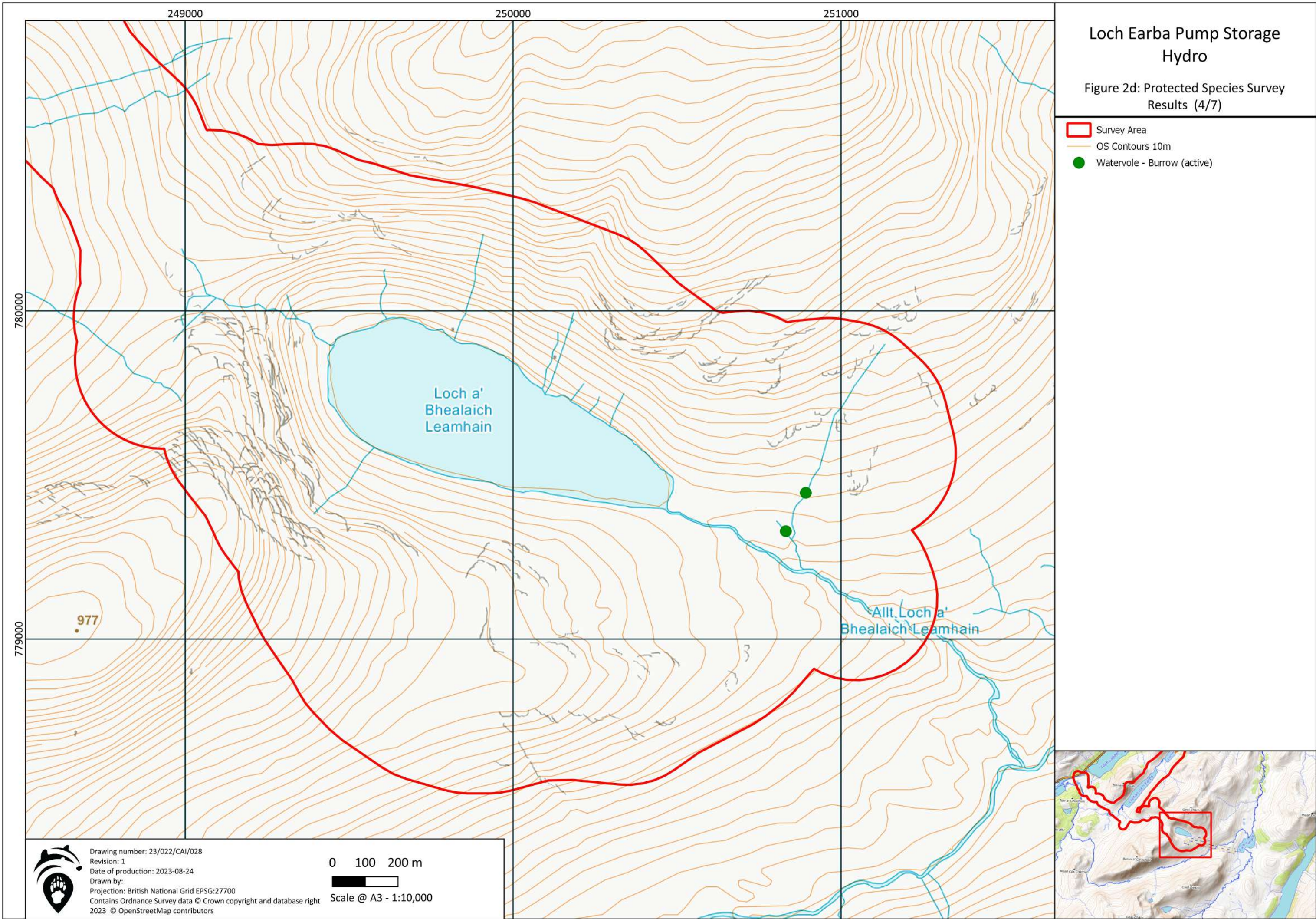
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Revision: 1
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Drawn by:
Projection: British National Grid EPSG:27700
Contains Ordnance Survey data © Crown copyright and database right
2023 © OpenStreetMap contributors

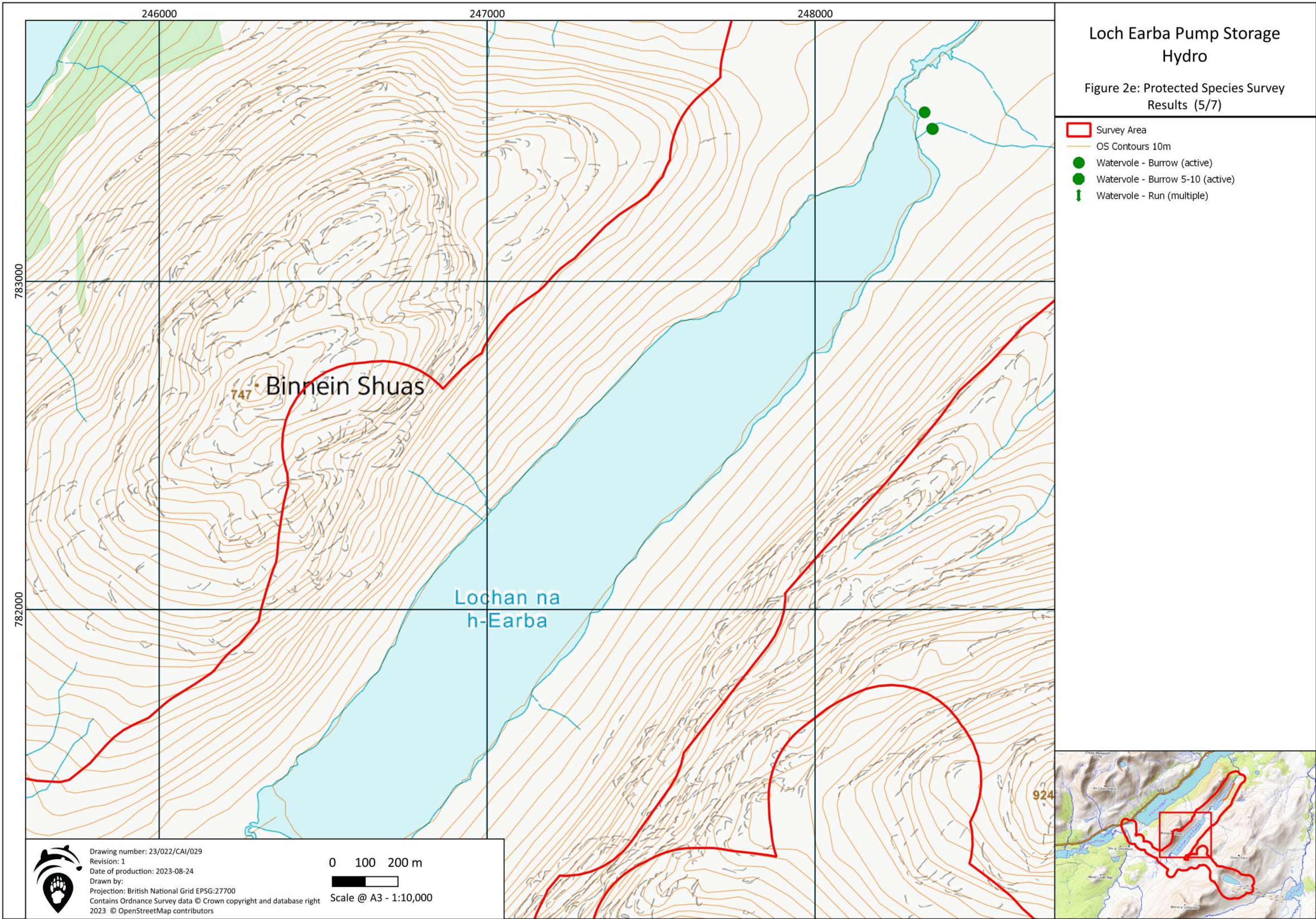
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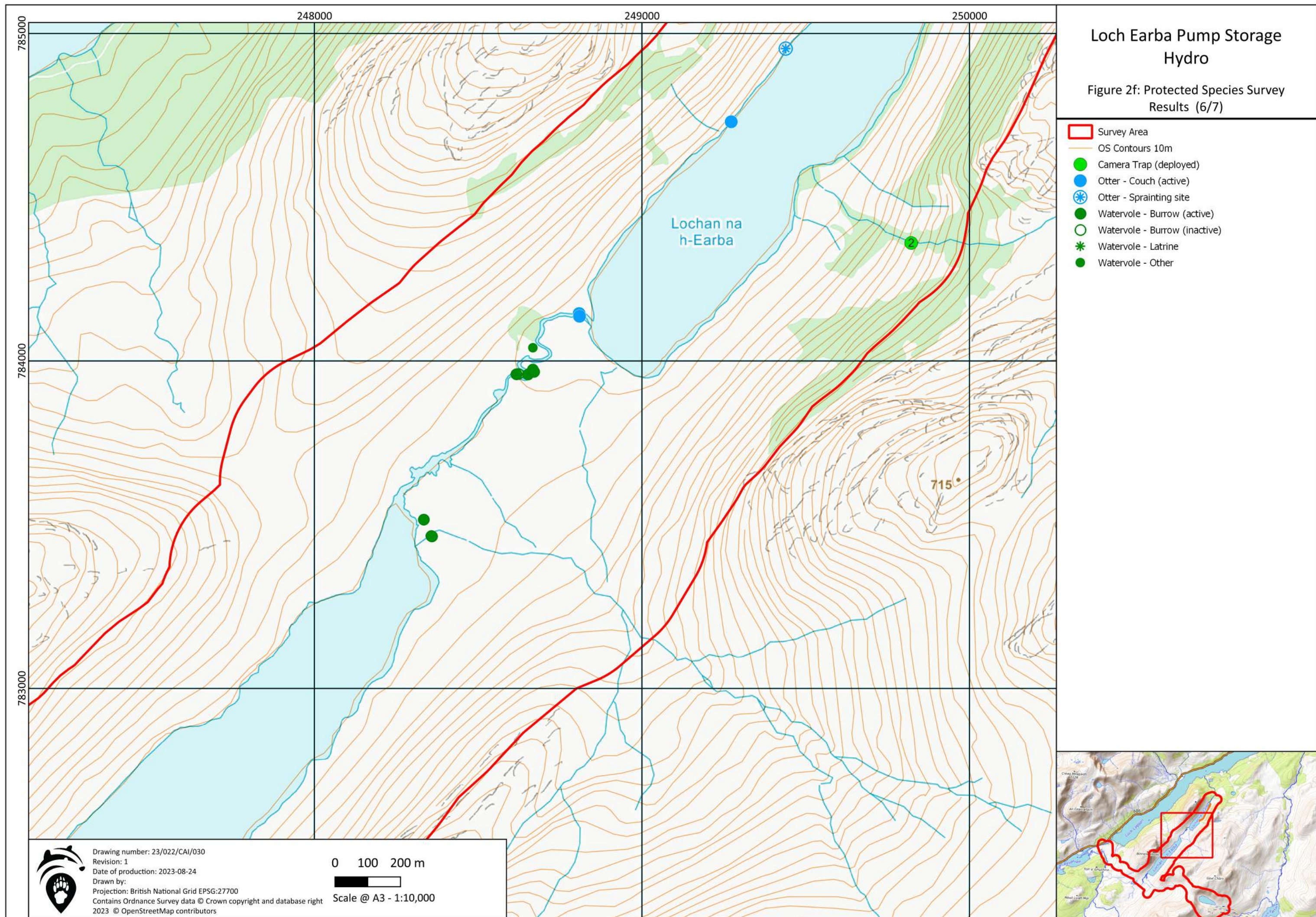


Scale @ A3 - 1:10,000









249000

250000

251000

Loch Earba Pump Storage Hydro

Figure 2g: Protected Species Survey
Results (7/7)

- Survey Area
- OS Contours 10m
- Camera Trap (deployed)
- Otter - Couch (active)
- ✱ Otter - Spraint
- ✱ Otter - Sprainting site
- ✱ Pine Marten - Scat
- ▲ Red squirrel - Feeding remains
- Watervole - Other

786000

785000

667 • Binnein Shios

Allt Labhrach

643 • Creag a' Chuir

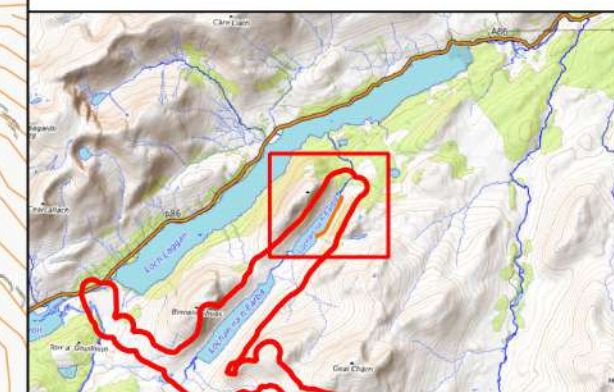
Loch Coire
ChuirLochan na
h-Earba

Drawing number: 23/022/CAI/031
 Revision: 1
 Date of production: 2023-08-24
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 Projection: British National Grid EPSG:27700
 Contains Ordnance Survey data © Crown copyright and database right
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0 100 200 m



Scale @ A3 - 1:10,000



784000

APPENDIX C – LEAD SURVEYOR – JAMES BUNYAN CV

JAMES BUNYAN

DIRECTOR – TRACKS ECOLOGY LTD



TRACKS ECOLOGY
ECO - GIS - UAV

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 **TWITTER**
@TracksEcology



PROFILE

I have over 20 years' experience working in the ecological sector, both in academia and commercial consultancies. In 2014 I set up Tracks Ecology Ltd to enable me to focus on a number of interests around the integration of technology in ecological consultancy and research. Today I provide a bespoke consultancy service incorporating a wide array of surveys for developments, forestry and nature recovery projects with a focus on using GIS, UAVs and wider technological applications.

EDUCATION

Biodiversity and Conservation, M.Sc.

University of Leeds, UK
Grade: Distinction. 2001 - 2002

Environmental Science B.Sc (Hons)

University of Birmingham, UK
Grade: 2:1 Hons. 1995 - 1998

EXPERTISE

- Ecological Survey & Assessment
- QGIS – data analytics & cartography
- UAVs for ecological applications
- Environmental applications of AI
- Integration of remote sensing data
- Harnessing emerging technology
- Clear and concise reporting

WORK EXPERIENCE

DIRECTOR

Tracks Ecology Ltd

2014
–
Present

Provision of high quality bespoke ecological and GIS services for projects of all sizes. Tracks Ecology Ltd offers pragmatic and ecologically responsible solutions to a range of sectors including construction, forestry and rewilding. Harnessing technological advances and novel approaches combined with traditional field techniques Tracks Ecology Ltd aims to provide a comprehensive range of services efficiently and effectively.

SENIOR CONSULTANT

Atmos Consulting Ltd

2010
–
2014

Management of ecological inputs for planning applications in relation to a large number of renewable energy schemes (wind and hydro) both large (Section 36) and small (FIT) across Scotland. Projects included ecological input to screening, scoping, EclA, Habitat Regulations Appraisal and Environmental Appraisal documents. Development of habitat and post construction management plans, peat restoration plans and licensed mitigation strategies.

SENIOR ECOLOGIST

Worcestershire Wildlife Consultancy

2008
–
2010

All aspects of ecological survey work were undertaken with the preparation, submission and implementation of numerous EPS licence applications (bats, great crested newts) along with a number of badger development licences. Production of tenders, client liaison, project management, marketing and administration along with providing training and support for colleagues.

KEY SKILLS _____

- Protected Species Surveys
- Ecological Impact Assessments
- CAA Approved UAV Pilot
- NatureScot EPS Licenses – Bats
- NatureScot EPS Licenses – GCN
- Skilled in QGIS
- Proficient in MS Office applications
- Qualified and insured UAV pilot
- Budget management (> £100K)
- Client liaison and management

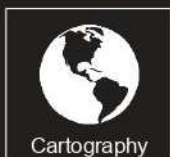
INTERESTS _____



Rewilding



Photography



Cartography



Running

MEMBERSHIPS _____

**Chartered Institute of Ecology
and Environmental
Management (Full membership)**

ARPAS-UK

**The Association for
Geographic Information**

WORK EXPERIENCE _____ (CONTINUED)

POSTGRADUATE RESEARCH

University of Bristol

2007

2008

Research project focusing on predator-prey interactions within wildlife corridors in north eastern Belize. Project involved various tropical field research techniques including camera trapping, scat collection, surveys for signs of prey and carnivore species and small mammal trapping. All work was carried out within the remote tropical forests of NE Belize.

ECOLOGICAL CONSULTANT

Land Care Associates, Birmingham

2006

2007

Ecological surveys across both urban and rural landscapes involving Phase 1 and protected species surveys. Involvement in large-scale urban development focusing on regeneration and urban biodiversity improvement schemes across the UK.

RESEARCH ASSISTANT

Wildlife Conservation Research Unit, Oxford University

2004

2006

Research assistant working on a number of projects including behavioural ecology of badgers and population monitoring of small mammals. Position also involved extensive administrative and project management work.

PROJECTS _____

- **WILDCAT SURVEYS** – Survey design and implementation using over 80 camera traps within the Cairngorm Connect landscape to assess baseline populations of the Scottish Wildcat. (Client: Saving Wildcats partnership)
- **UAV MAPPING** – Acquisition and processing of over 5000 high resolution images for production of detailed 3D model as baseline model for seabird research, Orkney. (Client: School of Biological Sciences, University of Aberdeen)
- **DETAILED HABITAT MAPPING** – Use of UAV acquired aerial imagery and ground based habitat surveys to provide detailed 3D models of habitats. Outputs guided native woodland creation plans. (Client: Bidwells)
- **BAT SURVEYS, WIND FARM** – Survey design and data collection of bat activity with the use of 12 static detectors at proposed wind farm site in remote location in Scottish Highlands. (Client: ITP Energised)

MORE PROJECT EXAMPLES CAN BE PROVIDED ON REQUEST

REFERENCES



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