



Scottish Wildcat Survey Report 2018





1. Introduction

The Scottish wildcat (*Felis silvestris silvestris*) is one of Scotland's most endangered mammals and the only remaining native cat in the UK. The population is in decline, largely through hybridisation with domestic and feral cats. Following habitat loss and persecution through the 19th century, the wildcat is now restricted in the UK to the Scottish Highlands north of the central belt. It is a European Protected Species, afforded legal protection under the Habitats Regulations 1994.

In 2013, the <u>Scottish Wildcat Conservation Action Plan</u> was launched and includes actions which will help reverse the decline of this species. The plan covers the period 2013-2019. Loch Lomond and The Trossachs National Park Authority is one of over twenty organisations who have signed up to the plan. The National Park Authority agreed to carry out co-ordinated surveys to establish the status of Scottish wildcats, hybrids and feral cats within the National Park, contributing to the overall current information base for Scotland.

2. Survey Aims

Wild-living cats are secretive and largely nocturnal. It can be very difficult to distinguish between feral cats, hybridised cats and pure wildcats on the basis of glimpse views, often in bad light and densely vegetated terrain. Even expert surveyors can find this difficult. Anecdotal reports cannot be relied on as good evidence of wildcat presence. They are simply reports of wild-living cats that provide a basis for further investigation. To tackle this problem, standardised methods of surveying using trail camera "traps" have been developed and are being used to help implement the Scottish Wildcat Conservation Action Plan

The aim of the survey was to identify the status of Scottish wildcats, hybrids or feral cats within the National Park. Improved information about the presence of wildcats in the National Park would help to ensure that the requirements of their legal protection could be met and provide a starting point for identifying management measures. The National Park extends to 720 square miles but potential good habitat for wildcat is less extensive. Populations of pure wildcats are also less likely to remain in areas that are densely inhabited by people, where large numbers of domestic cats greatly increase the likelihood of hybridisation. The great majority of the existing records and reports of potential wildcat sightings in the National Park are concentrated into relatively limited areas.

This first survey undertaken in the winter of 2018 prioritised the main areas within the National Park where there have been records of hybrids from previous surveys, questionnaires and anecdotal sightings (see section 2).

3. Scottish wildcat records in Loch Lomond and the Trossachs National Park

Wildcats are believed to have been found widely across the National Park in the past with many historical records such as those summarised in the 1993 'Atlas of mammals in Britain', available along with other wildcat datasets on <u>The NBN Atlas</u>. Jenny Bryce from SNH provided The National Park Authority with data in 2014 on more recent previous surveys undertaken in the National Park and anecdotal sightings from members of the public to inform our priority areas to deploying the trail cameras:

- The 2008 SNH Questionnaire survey yielded five results in the Trossachs area of the National Park. Three of these are now recorded on <u>The NBN Atlas</u>.
- The 2012/13 survey of the Trossachs undertaken by SNH and Kerry Kilshaw of WildCRU found one Hybrid cat, also in the Trossachs area.
- There have also been a number of sightings of potential wildcats and wildcat scats in the Trossachs and Strathyre area sent in to SNH and the National Park Authority.



Anecdotal reports of wildcats have occasionally been passed on from other areas such as Glen Kinglas. There may be other unreported locations where people think they may have seen wildcats.

4. Methodology

4.1 Selecting locations of trail cameras

National Park Authority staff met with partners from Forest Enterprise Scotland (FES), Woodland Trust Scotland (WTS) and RSPB Scotland in January 2018. With such a big area to cover and large areas of potential good habitat for Scottish wildcat, it was decided to look at locations where there were previous records or sightings. The wildcat habitat map produced by SNH was consulted and potential sites from knowledge in the field were discussed. Between partners a total of twenty one cameras were deployed in the Trossachs and Breadalbane areas of the National Park. Four of these were looked after by WTS, the remaining 18 by National Park Rangers and National Park volunteers. Figure 1 shows the locations of trail cameras and Map 1 shows the locations and spatial coverage. In addition to the partners above, four private land managers were also approached for permissions to site cameras.

Table 1. Location of trail cameras

Trail	Trail	Date	Location	Grid reference	Altitude	Habitat description				
camera	camera	2018								
no.	ID									
1	101	27/01	Inversnaid	NN 3347709751	78m	Oak wood, open, grass nr.				
						edge.				
2	102	24/01	Inversnaid	NN 3419911150	236m	Mixed Scots pine for. restoration block.				
3	103	27/01	Inversnaid	NN 3359811393	139m	Blackthorn scrub, craggy, open, grass.				
4	ELL01	26/01	East Loch Lomond	NN 3442306602	442306602 127m Crag, mixed					
5	LC01	28/01	Loch Chon	NN 4078808654	240m	Birch regen., edge, fence gap				
6	LC02	28/01	Loch Chon	NN 4095307954	165m	Scots pine, edge, grass, heather, wind-blow.				
7	LC03	28/01	Loch Chon	NN 4188706669	137m	Alder, grass, edge Sitka pl., stream.				
8	LC04	28/01	Loch Chon	NN 4291504978	143m	Alder, grass, nr. Sitka plantation.				
9	LC05	28/01	Loch Chon	NN 4232305851	143m	Alder, grass nr. Sitka plantation, stream.				
10	A01	06/02	Shannochill (Aberfoyle)	NS 5407299252	69m	Gorse, willow, scrub, grass, edge.				
11	A02	05/02	Aberfoyle	NN 5337001001	105m	Mixed wood nr. Golf course.				
12	A03	05/02	Aberfoyle	NN 5380901796	312m	Scots pine, open, grass, nr. edge, wind-blow.				
13	KG01	31/01	Kirkton Glen (Balquhidder)	NN 5288323589	438m	Young oaks, grass, nr. Sitka pl., edge.				
14	KG02	31/01	Kirkton Glen (Balquhidder)	NN 5205823942	439m	Young sitka plantation.				
15	C01	31/01	Craigruie (Balquhidder)	NN 4904020028	219m	Rocky, oak, grass, edge.				
16	IM01*	07/02	Immeroin (Glen Buckie)	NN 5333518307	202m	Mixed, Scots pine, nr. edge				



17	AU01*	02/02	Auchlyne	NN 5022528948	Not yet	Blackthorn thicket, nr. Scots				
			(GI. Dochart)		recorded	pine.				
18	GF1	24/1	Glen Finglas	NN 5592106844	Not	Edge of a small group of				
			_		recorded	trees in a clear area.				
19	GF2	27/1	Gleann Nam	NN 5261112509	Not	Adjacent to fank next to burn.				
			Meann		recorded					
20	GF3	25/1	Brig ' O Turk	NN 5296107015	Not	Near to cattle feed stance,				
			_		recorded	adjacent to fallen tree beside				
						old track.				
21	GF4	25/1	Lendrick	NN 5461607382	Not	On east edge of well				
					recorded	established wood near				
						heather and fallen trees.				



Contraction of the SCOTTISH WILDCAT 2.5 5 Kilometres 0 1000 Ø **CAMERA TRAP LOCATIONS - 2018** AU01 Main map extent STIRLIN **KG02** KG01 C01 IM01 (ato) (ato) (ato) (ato) (pour GF2 a lan 103 102 101 LC01 LOCH LOMOND AND LC02 GF4 GF3 GF1 LC03 ELL01 LC05 LC04 042 6-6-1 1136 A03 A02 A01 KEY Camera Trap Location © Crown copyright and database rights 2018. Ordnance Survey/100031883. The representation of features or boundaries in which LLTNPA or others have an interest does not-necessarily imply their true positions. For further information please contact the appropriate authority. Ren SNational Park Boundary 1 1 1 2 4 K

Map 1. Coverage and locations of trail cameras



4.2 Selecting locations of trail cameras on the ground

Once locations across the project area had been decided, the Project Manager liaised with Scottish Wildcat Action (SWA) in order to gain survey methodology advice from the extensive surveys carried out across the five priority areas of the SWA project. This standard methodology was then employed for the surveys across Loch Lomond & The Trossachs National Park. This information is available from their leaflet <u>'Guide to camera trapping Scottish wildcats'</u>. Step 2 in the guide gives guidance to micro-siting of the cameras. Agreement was obtained in advance from all land owners and land managers prior to putting cameras in place. The cameras were all put in place by Gareth Kett of the National Park Ranger Service and all locations were recorded by GPS.

4.3 Setting up the camera stations

Cameras were all deployed at the end of January 2018 until the end of March. Some were out on site for slightly longer, and some for slightly less, but all for a minimum of the recommended three weeks. They were set up using SWA guidance on photo settings. Dead game birds are recommended as suitable trap bait by SWA, so defrosted frozen quail was used as bait along with two pheasant wings per location and situated as recommended by the SWA guidance. At WTS (GF1-GF4) locations, deer gralloch was used for bait instead of the quail as this was readily available and easy to store and keep fresh. Valerian root in hessian pouches was placed at each site as per the guidance to act as a lure for the Scottish wildcats. Posts were not available, so cameras, bait and lures were carefully attached to trees next to tracks.

4.4 Re-visits and checks

Cameras were visited approximately every two weeks. The cameras located at Inversnaid (I01-I03), Loch Chon (LC01 – LC05) and East Loch Lomond (ELL01) were checked by National Park volunteers. WTS staff checked the cameras located at Glen Finglas (GF1-GF4). The remaining eight cameras were checked by Gareth Kett from the National Park Ranger Service. At each visit, bait and pheasant wings were replaced and the lure checked. Batteries were checked and SD cards swapped over as per the SWA guidance.

Unfortunately visits did not always happen on time. There were two instances of very deep snow over the winter, including the 'Beast from the East', where deep snow and drifts meant that access was impossible for approximately one week. Where access was delayed, visits were re-scheduled as soon as possible.

4.5 Data collection

After visits, SD cards were looked at by suitably skilled National Park volunteers. For each site, all species visiting the camera were recorded, with any people 'captured' by the cameras immediately deleted from the SD cards for data protection purposes. Once data on the cards had been looked through, the cards were deleted of images ready to be put back in the cameras. Any possible cat images were sent to Scottish Wildcat Action Priority Areas Manager Dr Roo Campbell for an opinion.

5. Results

Table 2. shows the range of species visiting each of the twenty one trail cameras. In total, more than twelve different species of mammal were recorded. These included domestic cattle and sheep as well as feral goats. There were also a number of unidentifiable small mammal species such as field mice. Songbirds included chaffinches, blackbirds, great tits and robins. A number of crow species were recorded, with ravens visiting most frequently. There were also a number of other birds including buzzards and great spotted woodpeckers. Examples of images 'captured' can be seen in Appendix 1.



Trail Camera	Scottish wildcat	Hybrid Wildcat	Badger	Red fox	Red squirrel	Pine marten	Weasel	Red deer	Roe deer	Cattle	Sheep	Feral goat	Songbird sp.	Woodcock	Pheasant	Small mammal sp.	Buzzard	Corvid sp.	Woodpigeon	Great spotted woodpecker
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Table 2. Species visiting trail cameras across the survey period





Figure 1. The number of locations where species have been recorded on the trail cameras

The number of camera locations where each of the species was recorded at varies from 0 to 16. Red foxes visited the most number of locations (16 out of a total of 21), with pine marten closely behind at 14. Most locations were visited by either red or roe deer. Badgers were recorded at 9 locations with red squirrels at 8. Great spotted woodpeckers, pheasants and feral goats were recorded at just 2 of the locations. Cattle and sheep were both recorded at 3 locations. No wild-living cats were recorded.

Looking through the camera images, some interesting animal behaviour was noted. The lure attracted the majority of mammal species, including cattle, sheep and even red squirrels. The bait and pheasant wings were often taken within a day of being put out. The bait was recorded being taken by pine marten, weasel, badger, red fox, buzzard, raven and red squirrel. Red squirrels were particularly interested in the pheasant wings, and ravens took the venison from the three of the four Glen Finglas sites where they triggered thousands of images. Badger and pine marten were very persistent in their efforts at obtaining the bait and often pheasant wings as well, with really interesting pictures of badgers climbing a good 1-2 metres up trees to release the bait.

5. Discussion and future recommendations

This survey aimed to determine presence or absence of Scottish wildcats within the main areas of Loch Lomond and The Trossachs National Park where records or reports of potential wild cats were known. Due to resource constraints, survey sites were prioritised across the north Breadalbane and east Trossachs areas of the National Park, with 21 camera sites in total. The project was delivered in partnership with Woodland Trust Scotland (WTS), RSPB Scotland and Forest Enterprise Scotland and four private land managers. The project team gained a lot of knowledge from liaising with Dr Roo Campbell from Scottish Wildcat Action (SWA) and gained



information regarding previous surveys from Jenny Bryce at SNH. The methodology used for the surveys was best practice methodology developed from the Scottish Wildcat Action Project. It has therefore been a successful project in terms of partnership working not only with partners and land managers, but also could not have happened without close working between the National Park's Conservation & Land Management Team and the National Park Ranger Service who carried out all the initial set up of each location and visited sites to check cameras and change bait. Thirteen National Park volunteers were then trained in checking the cameras and changing the bait and lures at nine of the sites. They also helped with sifting though the thousands of images. The volunteers contributed a total of 194 volunteer hours to the project in total. As stated previously, three visits had to be cancelled due to extreme weather conditions.

The camera trap images gained from the project to date don't currently provide evidence to indicate the presence of wild-living cats in the areas surveyed within Loch Lomond & The Trossachs National Park. Due to the low density of cameras deployed in these areas and the single survey season undertaken so far, this is by no means conclusive. The survey has, however, been a positive learning experience for those involved in terms of camera trap methodology, habitat preferences of Scottish wildcats and collating information on previous sightings across the National Park. The project also recorded other species visiting the trail cameras. Sightings of notable species such as red squirrels will be forwarded to the appropriate organisation and contribute to the NBN Atlas. Images obtained from the camera traps will also be used for social media posts to raise the profile of the project and Scottish wildcats. Working with the SWA Communications Officer, it is hoped that publicity about the project will encourage members of the public to report any sightings of Scottish wildcats or hybrids through the SWA website. This information will then be used to target future survey work.

During the project, the Project Team was also contacted by a M.Sc. Student from the University of Edinburgh who was doing a research project looking at people's knowledge and perceptions of the Scottish wildcat. The student carried out house to house surveys and left written surveys at various communities across Loch Lomond and The Trossachs National Park. She was also visiting some of the five priority areas in the Scottish Wildcat Action Project. The results of the M.Sc. research project are not yet available but will also be of interest and will complement this project and help inform future survey sites.

6. Recommendations for future surveys.

- Camera set up A few trail cameras were triggered by moving vegetation in front of the camera. If future surveys are carried out, it is important to site the cameras with additional care to fully avoid branches and grasses or other vegetation types likely to trigger an image. The SWA recommends using posts to place cameras and bait on. In the future, although this would take longer to set up, it would make it easier to ensure that cameras are set up off the ground away from vegetation and reduce the number of false images.
- The use and storage of bait There is currently only a working freezer in the Breadalbane Ranger Office. As volunteers started from the National Park Headquarters, this proved difficult to access. Alternative freezer options should be considered for future surveys. Although the venison used at WTS locations was easier to use as it was readily available, it did not appeal to as many mammals, and was often taken by ravens. It is recommended that quail be used as bait across the project area to standardise this. Visits do need to be made regularly to change the bait, as sometimes the bait was taken within the first day. This also highlights the importance of tying the bait down well.
- The use of lures The pheasant wings worked very well in attracting predators. However, as previously, the wings need to be placed very carefully to avoid triggering the cameras. The valerian attracted many animals, including sheep and cattle to the baiting stations. The



scent did seem to reduce quickly, so additional lure and hessian would be required for future surveys.

- Camera station locations Locations were chosen where there had been previous Scottish
 wildcats or hybrids recorded, and where there was good habitat. A small number of these
 sites were difficult to reach. Future sites for cameras need to be chosen based on good
 habitat, but this also needs to be weighed up in terms of ease of access and safe access
 for volunteers.
- Resources For this survey there were enough cameras and SD cards which can be reused. It is recommended that spare batteries are available for future surveys, as despite the lithium batteries having a long life, they ran out quickly at a couple of sites, which meant the cameras had to be brought in early. Mounting posts for cameras and baits should be acquired. In terms of staff resources, as well as a project co-ordinator, the Ranger Service was essential in the success of the project. An adequate dedicated commitment of National Park Authority staff time would also continue to be required for future surveys.
- Land manager agreements It is recommended that for future surveys written agreements are put in place early in the Autumn months to deploy the cameras, so the survey work can progress quickly in January.
- Volunteer support Volunteers were vital to the success of the project. A group of thirteen volunteers took part. They were taken to nine of the locations after cameras were set up and trained in checking the cameras and changing the bait. Not all volunteers took part in the checks on a regular basis; a number only did the training. For future surveys, the model used by SWA could be adopted, with perhaps two volunteers being responsible for a few stations each, rather than as many as nine, as this may give them more ownership of each site.
- Future surveys In order to confirm the presence or absence of Scottish wildcats in Loch Lomond and The Trossachs National Park, further surveys would be required covering additional areas of good habitat and further locations where potential sightings have been reported and where new reports come to light. These include: the south shore of Loch Earn where the carcass of a possible hybrid wildcat was picked up; Kirkton Glen where there has been a footprint of a possible feline recorded in the snow close to the location of cameras in this survey; Glen Kinglas where at least one report of a potential sighting has been passed on from and Cowal where there is a lot of suitable habitat. In order to not be reliant on a single survey season, it would also be prudent to cover some of the other original sites again, such as the easier to reach sites around Aberfoyle where there have been previous sightings.

7. Conclusion

The aim of the project was to identify the status of Scottish wildcats, hybrids or feral cats within Loch Lomond and The Trossachs National Park. A large area in the Trossachs, Balquhidder and one site in Glen Dochart were surveyed and no evidence of wild living cats was found. There is however still a lot of suitable habitat where wild living cats may be present so it is not yet possible to be confident about the status and identity of wild living cats in the National Park. However, evidence and experience from elsewhere in Scotland suggests that whereas a population of wild living feral or hybrid cats is possible, the continuing survival of a population of Scottish wildcats not recorded in recent years remains unlikely.



It is therefore recommended that one further survey season is carried out in other potential locations of to further determine the presence or absence of Scottish wildcats, hybrids or feral cats in the National Park.

8. Acknowledgements

We would like to thank the following people and organisations who helped prior to and during the surveys: Jenny Bryce, SNH; Roo Campbell, SNH; David Anderson and Russell Lamont, FCS; Fraser Lamont, RSPB; Gwen Raes and team, WTS Glen Finglas; Gareth Kett, LLTNPA; LLTNPA volunteers and the land owners and managers who allowed access for the trail cameras.

Project Manager: Linda Winskill, Wild Park Officer Project Sponsor: Alan Bell, Landscape and Ecology Manager





Appendix 1. Examples of wildlife images captured by the trail camera

Bushnell @ AU01 Weasel-AU01

2018-03-12 07:04:17

12

30 °F-1 ℃





Great spotted woodpecker-C01



Ravens-GF1





Magpie-GF3

39°F3 ℃●

2018-02-22 15:00:43



Red deer-IM01





Sheep IM01



Redwing-I03





Woodpigeon-I03



Roe deer-KG02

2018-04-04 16: 12: 28







Red squirrel-LC03





Woodcock-LC03







Badger-LC04



Robin-LC05

2018-03-03 10: 10: 03