

**THE EVIDENCE
FOR THE PRESENCE OF LARGE EXOTIC CATS
IN THE BODMIN AREA AND THEIR POSSIBLE
IMPACT ON LIVESTOCK**

**A report by ADAS on behalf of the Ministry of Agriculture Fisheries
and Food**

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SUMMARY

This is a report on the investigation into the possible presence, and potential impact on livestock, of "big cats" in the Bodmin Moor area of Cornwall. The study was carried out on behalf of the Ministry of Agriculture Fisheries and Food (MAFF) between 12 January and 1 July 1995. The Ministry's area of responsibility in relation to "big cats" is with the safety of livestock.

The investigation was widely publicised in the media after it was announced on 12 January 1995. The police, local councils, the NFU, and CLA were all formally notified and asked to pass information thought to involve "big cats" to ADAS.

Locations of sightings made since January 1994, have been plotted and confirm that reports have been centred on Bodmin Moor and surrounding areas. As individual sightings cannot later be verified, the investigation has concentrated on following up evidence that can be subjected to analysis.

Detailed analyses have been carried out of video films submitted to ADAS. Where there is sufficient of the animal visible to judge, the measurements and body proportions show that it has the same dimensions as an adult domestic black cat.

Three plaster casts of footprints taken on Bodmin Moor were submitted for analysis. It was concluded that two were from a domestic cat and one from a dog.

At the outset of the investigation it was decided that five cases of possible livestock predation by "big cats" would be followed up in detail. Only four cases of possible predation have been reported by the public in the six months since the start of the investigation. In none of these was there any evidence of the involvement of a "big cat".

The investigation could not prove that a "big cat" is not present. However, the investigation received no verifiable evidence for the presence of a "big cat". Only four cases of possible predation were reported in six months and there was no evidence for "big cats" being involved in these. There is no significant threat to livestock in the Bodmin area.

INTRODUCTION

Two Government Departments have responsibilities in relation to "big cats" living in the wild. The Home Office are concerned with the safety of the public and MAFF with the safety of livestock. The Department of the Environment are responsible for the legal keeping of such animals in captivity.

On 12 January 1995 Mrs Angela Browning, Parliamentary Secretary at MAFF announced that ADAS would carry out an investigation into the possible existence of one or more large exotic cats on Bodmin Moor in Cornwall. This was in response to the continued concerns expressed by people living in the area, that such animals might become established and pose a significant threat to livestock.

The announcement of the investigation generated very considerable media interest. The press coverage coupled with formal approaches by MAFF to the police, local councils and farming organisations meant that virtually all landowners in Cornwall must have been aware of the work to be carried out by ADAS.

The investigation aimed to answer two basic questions; firstly, is there any concrete evidence to substantiate claims of a big exotic cat at large in the Bodmin Moor area? Secondly, and following from the first question; is there evidence of a significant agricultural problem in the area that might be caused by a "big cat"? Whilst it would never be possible to prove that an exotic "big cat" was not present, an investigation of physical evidence might demonstrate that such an animal was present and what threat this posed to livestock. It was decided that the only practical way to obtain such material was to rely on it being submitted by the farming community and public.

The study concentrated on hard evidence that could be independently verified. This included an evaluation of material, such as video film or casts of footprints, submitted by the public. An important part of the study was to follow up five cases of livestock predation reported to the Ministry, where the cause of death was attributed to "big cats" by the livestock owner and where there was significant material to investigate. In these cases there was a thorough field investigation, by an experienced ADAS Wildlife Biologist, and subsequent post-mortem of the livestock carcass by a veterinary surgeon. During the study only four such cases were reported to ADAS or the Ministry from the Bodmin area.

DISTRIBUTION OF REPORTS

Since January 1994, 77 reports of sightings, livestock kills and injuries, attributed to big cats, have been recorded from Cornwall (Map 1). Twenty nine of these have been reported since the present investigation began. Some of the reports were too vague to be included and were omitted along with reports of "big cat" calls. It was felt that most people were unlikely to be sufficiently familiar with a range of calls to have any real chance of identifying them correctly. Almost all reports of "big cat" sightings are made in good faith. However, they cannot be independently verified and many of the reports, although well intentioned, will be mistaken. The species most often suggested as being present were puma (*Felis concolor*) and leopard (*Panthera pardus*).

The distribution of reports might indicate the area where a "big cat" is most likely to be found. Reports have come from throughout Cornwall, although most were centred on and around Bodmin Moor; the area identified as the focus for the work when the investigation was launched.

VIDEO FOOTAGE AND STILL PHOTOGRAPHS

Several sequences of video footage were submitted to the investigation by a farmer from Bodmin Moor. All those showing alleged big cats had been previously shown on national television. Unfortunately the quality of the film was not good; nevertheless the sequences were studied frame by frame. Individual frames were compared to "scale" photographs taken by ADAS. The animal shown was also compared to individual items on the film that could provide a reference for size, such as fence posts and gates. Colour copies of individual frames from the videos were also taken.

On two days, sequences were taken in daylight and the background against which the video was taken could be identified. Ranging poles, marked with 0.5 m blocks of red and white, were then placed by ADAS along the field boundaries where the animal had been filmed. Further video and still photographs were taken for comparison with the submitted videos.

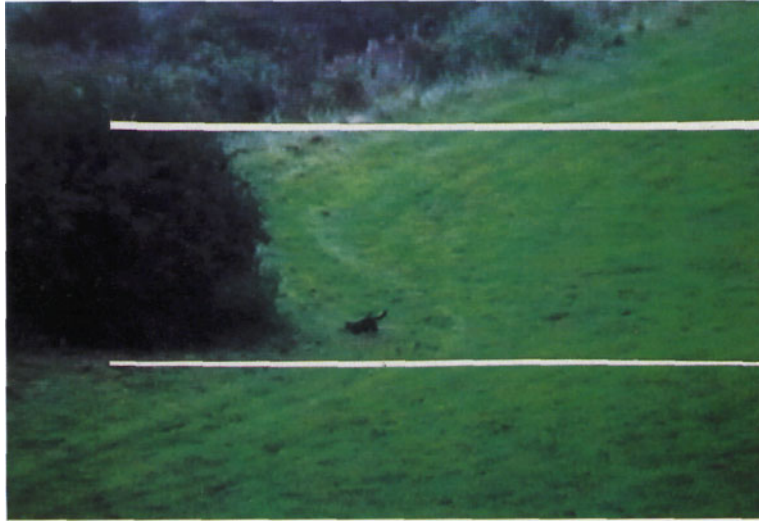
For one sequence, a black domestic cat was placed near to the site where one of the videos had been taken. A comparison of a single frame from a video taken by the farmer and a shot of a black domestic cat and ranging poles, taken at the same location, is shown in Figure 1. Although the domestic cat used for the scale photograph is probably not that shown in the video submitted by the farmer, it can be seen that the two animals are almost identical in size, colour and body proportions.

Similar comparisons can be made for the other daytime video sequences. In these, comparison between the animal, the background against which it was photographed and subsequent scale photographs, clearly show that the animal photographed is the size and shape of a domestic cat. A frame of an animal jumping over a broken down wall, which looks on the video sequence rather like a large animal, is again found to be only the size of a domestic cat when compared to a scale photograph (Figure 2).

The animal, or animals, shown in the daytime videos are black in colour. It has been claimed that small black animals are "young" black leopards or pumas. Black pumas are very rare indeed and we are unaware of any having been kept in captivity in this country. Any black "big cats" would probably be melanistic leopards. Male leopards are about twice the size of females, with a weight range for adults from 30-70kg (65-155lbs). They have a head to tail length of some 170-280cm (5'6"-9'). Adults are, therefore, some ten times the size of a domestic cat. Very young leopards, the size of a domestic cat, would not be independent of their mothers and be immature in their behaviour and gait.

Two of the sequences were shot at night. On one there are only brief glimpses of eyeshine at some distance and it is impossible to say anything conclusive about the animal concerned. In the other night sequence the photographer claimed the animal to be a young leopard. The pupils of this animal can be clearly seen (Figure 3); they have constricted in the lamp light to narrow vertical slits. In none of the larger cats, like leopards, jaguars or pumas do the pupils contract in this manner.

Figure 1



a) A colour copy of a single frame from a video shot in August 1993. From nose to tip of tail, the length of the animal is only about half the distance between the "wheelings" made by a tractor. It is also small compared to the fence posts in the background. (Mrs R. Rhodes)



b) A picture taken by ADAS of a domestic cat and some 1 metre ranging poles on 20 March 1995, at the same site as the shot shown in a) above. A comparison shows that the animal in a) is the size, shape and colour of a black domestic cat, although possibly with shorter hair than the one in picture b). (ADAS)

Figure 2



a) A colour copy of a single frame from a video shot on 20 June 1994. In the video the animal quickly jumps over the wall and it looks like a large cat. The horse in the background gives some idea of scale but it is difficult to compare on the moving video. (Mrs R. Rhodes)



b) A picture taken by ADAS on 20 March 1995 of an ADAS Officer and some 1 metre ranging poles at the same site as the shot shown in a) above. The animal jumping up onto the stones is less than 30 cm (12 inches) at the shoulder. There is no indication that it is anything other than a domestic cat. (ADAS)

Figure 3



a) A colour copy of a single frame from a video taken by a farmer on 14 December 1994. Note that the pupils are narrowing to a vertical slit. (Mrs R. Rhodes)



b) A photograph of a melanistic leopard showing that the pupils constrict in a way similar to humans; in a circular fashion. In this photograph they have closed to a very small circular opening. (ARDEA)

Such constriction is only found amongst the smaller cats of the genus *Felis*. In addition, the distance between the eyes in relation to the width of an eye, is consistent with a domestic cat, not a leopard or puma which have a relatively large distance between the eyes. The cat on the video appears to be black and is almost certainly a domestic cat.

In the video sequences submitted, where any distinguishing features can be seen, the animal featured is almost certainly a domestic cat. We believe that the reason that the animals in the videos looked large was the absence of any reference in the immediate background against which the size of the animal could be judged. Walls and remains of walls can be anything from a few centimetres to 1 or 2 metres tall and they make it very difficult to judge size.

It has been claimed that small black cats are young "big cats". However, in the absence of any concrete evidence of adults, and in an area where there are known to be a number of black domestic cats, there would seem no reason to suppose black animals the size, shape and body proportions of domestic adult cats, and behaving as such, are anything other than domestic cats.

A still photograph taken by a press photographer (Colin Shepherd) on Bodmin Moor, showing one animal on a stone gate post and the head of another beside it, has been said to show two "big cats" (Figure 4). A full profile of one animal can be seen but comparison with a scale, photographed against the same gate post, shows it to be about 30cm (12") at the shoulder, the size of a domestic cat. The tail is also not long enough, in relation to the body, for the animal to be either a leopard or puma. The photograph is almost certainly of two domestic cats. The photograph was taken from a distance with a long focus lens and the cats look large because of the altered perspective in relation to a calf very much closer to the camera.

FOOTPRINTS

The identification of tracks is not an exact science, as the form of a print depends on a number of factors. The softness of the ground and the speed of the animal will affect a print, as will the age and therefore size of the animal. Dog tracks can vary enormously in size, both because of age and breed differences. When looking at a single plaster cast of a track it is difficult to see how representative this is of a series of prints and there are no other field signs available to help identification.

Three plaster casts of footprints have been received from Bodmin Moor. The casts were submitted because they were thought to be unusual although not necessarily from "big cats". The casts are shown photographed alongside a cast taken from a puma in Figure 5. The first two (Bodmin 1 & 2) are probably feline. The toe pads are relatively prominent and well separated from the rear pad. Small marks from claws are visible but these are not prominent given the depth to which the toes have sunk into the mud. The size of the prints (44x37mm and 38x40mm) is consistent with the prints being from a large domestic cat. Comparison with the adult puma prints indicates that the animal was not an adult "big cat". The proportions of the print are consistent with those of an adult domestic cat and we conclude that they are domestic cat prints

The print from which the third cast from Bodmin was taken, has been formed by a hind foot being placed on the print formed by the fore paw. Although it is normal to see prominent claw marks in dog prints, this print is shallow and was almost certainly formed by a dog.

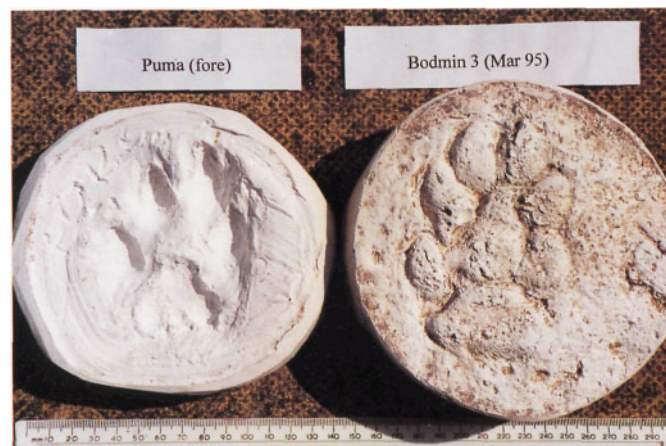
Figure 4

An animal alleged to be a "big cat" sitting on a gatepost on Bodmin Moor, compared to the same gatepost with a 1 metre tall ranging pole alongside. The animal is clearly not more than 30cm (12 inches) at the shoulder. (South West News Service and Colin Shepherd/ADAS)



Figure 5

Photographs of three plaster casts of paw prints submitted from Bodmin Moor, compared to a cast taken from a puma. The prints are discussed in the text but the first two are probably domestic cat and the third a large dog. (ADAS)



BREEDING

From the reports ADAS have received it appears that claims of large cats breeding in the wild in the Bodmin area are based on sightings by three people. None of the other reports received refers to cubs or kittens.

Clearly these reports of possible breeding are only as reliable as the sightings themselves. Most cannot be tested in any way but two of the reports were filmed and were submitted as part of the video evidence. As discussed above there is no reason to believe that in these two cases the animals seen were anything other than domestic cats.

One person reported possible cross-breeding between species in this area but we could find no hard evidence to support this. The report is apparently based on the belief that there were a number of species present (i.e. lynx, puma and melanistic leopard) and that the predominance of black animals reported in some way indicated cross-breeding between these species

BO. Cross-breeding between different species of cat can occur in captivity but only between closely related species. Puma, lynx and leopard are not closely related within the cat family. Cross-breeding would not occur in the British countryside given the enormous behavioural, biological and logistical (the need for substantial opportunities for the species to meet) barriers to overcome.

LIVESTOCK DEATHS

An important part of the investigation was to follow up reports of livestock predation attributed to "big cats". The possible impact of such animals on the livestock industry is the primary reason for the Ministry's interest. There have been four reports of livestock deaths that were initially thought, by those owning the animals, to have been caused by a "big cat". All the animals involved were sheep and the locations of the incidents are shown on Map 1.

January: Trecarrel Mill. The animal involved was a one year old Jacob lamb, with an estimated live weight of about 20kg (44lbs). It was found with about 50% of body mass gone; leaving only the head, neck, hind limbs, body skeleton and skin. The right ear had been bitten off and most of the ribs gnawed. Numerous badger signs and some fox signs were found at the site. It was not possible to identify the cause of death at post-mortem but there was strong circumstantial evidence of scavenging by native mammals, particularly badgers.

February: Pipers Pool. An adult in-lamb Dorset cross ewe was found dead with the left forelimb removed and the chest and abdominal cavities exposed. It was estimated less than 5kg (11 lbs) of flesh had gone. Some wounds on the carcass were consistent with fox and corvid scavenging. Tracks reported near to the carcass were found to be dog tracks (Figure 6). Fox and badger tracks were also found nearby and fox scent was identified from the carcass. Postmortem showed the ewe to have been in reasonable bodily condition but with a severe foot rot lesion on the right forelimb. This was sufficient to have caused acute lameness and secondary debility. Circumstantial evidence suggested that this animal may have been attacked by a large dog, perhaps having been singled out because of its lameness and was then scavenged by fox and corvids.

April: Upton Cross. A large young ewe was found dead with several small wounds on the rump

and scratch marks on the hind legs. Minimal amounts of tissue had been removed and the wounds were unlikely to have been the direct cause of death. Signs of fox and badger were found at the site, plus one dog track, possibly that of the farmer's own sheepdog. On post-mortem the carcass was found to be too decayed for meaningful internal examination and the cause of death could not be identified.

June: Linkinhorne. A two and a half month old, 9.5kg (211b) Beulah/Welsh cross lamb was found dead with neck, lungs and heart eaten away, and one ear missing. A trail of wool suggested it had been dragged about 8m out from a boundary fence. It was noticed that there was a problem on the farm with lambs trapping themselves in the fence netting. Signs of fox and badger were found at the site. The post-mortem indicated death due to emaciation. There was no evidence of haemorrhage or bruising to suggest trauma or attack.

In addition to the livestock deaths formally investigated, ADAS heard about another two alleged kills caused by a "big cat" after the carcasses had been incinerated. In a further case the dead animal was a one day old lamb, which was not formally investigated because of the high mortality of newly born lambs. Two cases somewhat further from The Moor were also followed up. In one case post-mortem showed that the animal probably died from a gastric torsion and in the other, the death of several sheep was caused by dogs.

To summarise the results of the investigation into alleged livestock kills; there were only four cases that could be formally investigated in six months. Further, of these animals, two did not die from traumatic injuries caused by a predator, a third was severely disabled prior to being killed, probably by a dog, and for the other it was impossible to tell the cause of death. No evidence of anything other than native scavengers or dogs was found. It is clear that at the time of the investigation there was no significant threat to livestock from a "big cat".



a) The adult ewe referred to under the investigation from Piper Pool. (ADAS)



b) The print found in association with the above dead ewe. The print is almost certainly the print of a large dog. (ADAS)

CONCLUSION

There was clear public interest at the possibility of a "big cat" being present on Bodmin Moor and genuine concern for the safety of livestock. MAFF responded to the possible threat to livestock by commissioning an investigation by ADAS. It was accepted at the start of this investigation that it would never be possible to prove that such an animal, or animals, did not exist, but it was believed that if they did, hard evidence would be forthcoming. People helpfully supplied material for the investigation and reported sightings, suspected livestock kills and injuries.

No verifiable evidence for the presence of a "big cat" was found. There were only four suspected livestock kills reported in nearly six months, none of which gave any indication of the involvement of anything other than native animals and dogs. There is no significant threat to livestock from a "big cat" on Bodmin Moor.

Acknowledgements

The authors would like to thank all those who submitted information for evaluation; however, the findings of the report remain the responsibility of the authors alone.