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FROM CAMBRIDGE ZOOLOGY TO BUSHMANLAND, NAMIBIA

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Having completed his MPhil at the Department of Zoology at the end of 1991, Namibian carnivore specialist Philip Stander returned home to take up a new post in the north-east of the country. His task was to investigate large carnivore conflict with the local people of Bushmanland. Here he describes his work – and explains how traditional bows and arrows have helped it.

Bushmanland is inhabited by some 2,500 Ju/'Hoan Bushmen, who still depend upon hunting and gathering to survive in the harsh environment of the Kalahari desert ecosystem. In recent years, well-meaning donors have introduced cattle to Bushmanland in order to give the Ju/'Hoansi some security in a rapidly changing world. Cattle farming is not a traditional Bushman activity, and though the Ju/'Hoansi value cattle for the easy food that they represent, they have not adapted easily to pastoralism. As a result, problems with large carnivores raiding livestock have been almost inevitable.

It was clear to me that carnivore research in Bushmanland would be facilitated by the help of local hunters. Initially I employed two men; Ghau, an old and highly respected hunter, and N/esi, a younger man who could act as an interpreter while I struggled to master the basics of the Ju/'Hoan language. It took several months to find a good basis of communication which then gave me an insight into the depth of Ghau's skill, not only in terms of tracking, or the following of animal spoor, but in all areas of ecology.

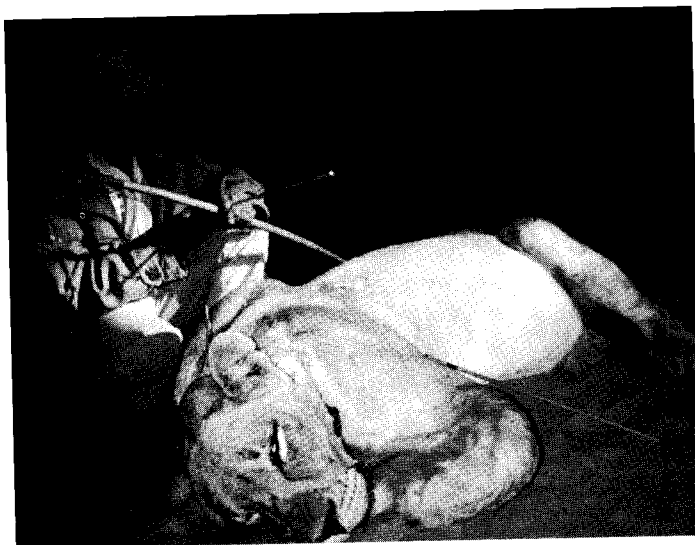
One story illustrates what I was beginning to tap into. Ghau was walking the 60 km through the bush from his village to Bushmanland's only shop. In the late afternoon he startled an adult eland bull, one of Africa's largest antelopes. Here was an opportunity he could not resist. Ghau was not carrying his bow and arrow, only a spear, and so he chased after the eland bull, taking its tracks as he lost sight of it. He ran through the evening and night, tracking by

moonlight, moving at a rapid and consistent pace. He ran into the next day, stopping only for water. Late that afternoon he could see from the tracks that the eland was tiring and soon it would be within sight. Ghau ran the eland into exhaustion, and killed it with his spear when it could move no further.

I began to realise that the Bushmen would not only help my research, they would be the essence of it. At this time, after six months in the field, four Cambridge undergraduates came out to work as volunteers to help me. The expedition *Cambridge Namibia '92*, led by Philippa Haden of Gonville & Caius College, boosted my work both financially and in terms of manpower. We were able to expand the Bushman team, and spent three months covering the entire area, searching for signs of lions.

The work was totally dependent on the Ju/'Hoan tracking. We were looking for tracks, and finding them we would follow them until we came close to the lions. That night, we would call the animals in to bait, using sounds that would attract them, and wait for them to come and eat. Then I would dart them with a combination of drugs, and the whole team moved rapidly to measure, examine and photograph the animals in the one hour period of immobilisation. Certain individuals were radio-collared, for follow-up work on movements.

By the end of 1992 we had a good idea of lion numbers, movements and stock raiding rates. It became clear that the lion population of Bushmanland was small, fragmented and unstable: the Kaudom game reserve to the north was supplying the



An immobilised lioness darted by Kaquece, one of the Ju'Hoan hunters

region with nomadic sub-adult males. Expelled from established prides, they were moving enormous distances to establish themselves. Stock was taken sporadically and the problem was numerically small-scale but significant to the Ju'Hoansi to whom the loss of a single animal was serious.

My research was aimed towards formulating some form of utilisation of carnivores to the benefit of the local people. I wanted ultimately to go beyond a system of simple compensation into the local management of a valuable resource. It appeared that lions could not fulfil this role; there simply were not enough of them to offer a good basis for utilisation, whether this was in the form of trophy hunting, live sale or tourism.

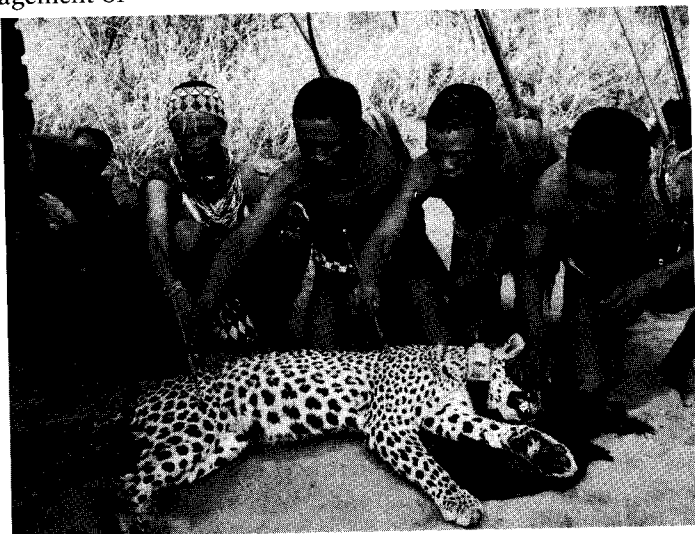
The team began to focus on leopard research. It began almost by default, when some local farmers came rushing to our camp saying that they had caught a lion in a gin trap. We went out to investigate, and found that the lion was in fact a large male leopard, furiously battling against the impediment on his leg. We immobilised him

and removed the trap, a monstrous medieval-looking piece of equipment. Fortunately the damage to the leopard was minimal; he lost one toe. We radio-collared him and began to monitor his movements.

Working on this male we would come across fresh leopard tracks that the Bushmen insisted were not his. Not only could they give me the animal's age and sex from the spoor, they could also give the timing of the track, and reconstruct the leopard's behaviour. I carried out extensive tests to establish the reliability and accuracy of the tracking and found the team

to be correct in 98% of the cases that they were presented with.

In 1993 we set up a study block of 500 km², and monitored it intensively to try and capture all the leopards moving through that area. The Bushmen designed a method to capture leopards, setting a fall door trap overnight. Early the next morning the team would go out to dart the animal in the trap, examine it and fit it with a radio collar.



Some of the team having darted and radio-collared a young female leopard

One morning the team suggested to me that my dart gun could be replaced with their traditional bow and arrow. They could modify their arrows to take a modern dart, and dart silently and accurately. I never needed to dart again. After an intensive capture period, we had eight animals radio-collared and these animals were monitored daily.

The research data that emerged from daily tracking sessions was amazing in its depth and detail. Little is known about the leopard, Africa's most elusive of cats. It is nocturnal and solitary and defies direct observation, confounding the usual methods of carnivore study. The Bushmen were giving the most remarkable insights into leopard ecology and behaviour through their ability to track with such skill. We began to build up a picture of leopards in the study area, drawing a mosaic of interlocking territories, and a range of prey animals.

Leopards are widely distributed throughout Bushmanland, apparently numerous, and have been responsible for predation on chickens, dogs and calves. The leopard therefore seemed to be the species around which a system of utilisation benefiting the Bushmen could be based. Philippa Haden came back to join the team as a full-time member, and together with us designed a utilisation system focused on the leopard.

The leopard is extremely valuable in the tourism market, and we began to investigate the options for developing a form of 'leopard tourism' for Bushmanland. The ecological research on the leopard was immediately applied to the formation of the plan. We wanted to be able to guarantee a tourist the sight of a leopard from a hide at night. The design of the experiment was based on the assumption that the best time to view a leopard is when it feeds.

Three months were spent carrying out the experiment. We continued to track our study leopards daily. When one of the animals made a kill, we moved a hide out to the site and attempted to habituate the leopard to the presence of the hide, at first leaving it empty, and then sitting in it as quietly as possible. Our mobile hide was small and relatively uncomfortable, but it afforded a remarkable view of an elusive carnivore. Watching a leopard from only ten metres away is an extraordinary experience; the animal is wary and any sound made inside the hide elicits an immediate reaction. You are the one in the cage being intensely observed by a wild animal.

Together with the Bushmen, Philippa shaped the 'leopard tour'. Though initially centred on the leopard viewing we needed other activities to complement it. The Bushmen decided that they were willing to give tourists an insight into their traditional life: they would take people out tracking and gathering bush foods, show them their tools and hunting equipment, and allow them to watch a traditional dance.

What had begun as a carnivore research project had become a rural development initiative. The leopard tour has been extremely successful, both in terms of local income and in the value it puts upon a carnivore which had previously been seen only as a nuisance.

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In 1994, Philip Stander returned to Cambridge for six months and wrote up his PhD thesis on the 'Ecology and hunting behaviour of lions and leopards'. In 1995 he was awarded the Thomas Henry Huxley Award for original work submitted as a doctoral thesis. He is now back in Namibia, actively involved with the Bushmanland project and acting Carnivore Co-ordinator for the entire country.