



# BRAWN AND BRAINS

## AFRICA'S CLEVER CARNIVORES

Lions in reserve areas react differently to humans than they do when roaming unprotected among them. Having heard that the lions of southern Africa's Kalahari Desert display the two behaviours perfectly and have learned a thing or two along the way, writer and photographer **Anthony Ham** set off to observe them, with a cautious curiosity.

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### The Kalahari and its lions

The Kalahari is one of the oldest deserts on earth and at 2.5 million square kilometres is its largest unbroken tract of sand. It stretches from northern South Africa to eastern Namibia and Angola in the west, and into Zambia and Zimbabwe in the east. It is larger than Algeria (Africa's largest country) or Greenland.

But for all its aridity, the Kalahari is home to some of the healthiest lion populations in the subregion. A comprehensive 2004 survey of Africa's lions estimated that there were 312 in the Central Kalahari Game Reserve and 458 in the Kgalagadi Transfrontier Park alone. Elsewhere, Makgadikgadi Pans Game Reserve and Nxai Pan National Park are thought to be home to 50–200 lions, while researchers in Khutse Game Reserve, an appendage to (and contiguous with) the southern reaches of the CKGR, estimate a current lion population of around 40. That the Kalahari's protected areas are separated by human-inhabited lands places its lions in peril, yet population numbers appear, for the moment, to be reasonably stable. It is between the parks that lions are disappearing.

When you're watching wild lions at rest, there comes a moment when you cross some unseen frontier known only to lions: you have strayed too close.

This thought fills my mind as I explore the low, barren hills surrounding Motopi Pan in the northern reaches of Botswana's Central Kalahari Game Reserve (CKGR). Here, in one of Africa's largest sweeps of protected wilderness, far from human habitation, seven lions have stepped one by one from the thorn scrub and settled down to pass the morning. Human visitors to this part of the Kalahari are rare – the previous night the nearest member of my own species had been at least 50 kilometres from my camp. All morning I had followed the lions without seeing another vehicle.

For the most part, the lions gave little sign that my presence troubled them. But when I inched closer, narrowing the gap between us, their body language changed. The muscles drew taut beneath their skin, the pupils of their eyes shrank

to pinpricks, and the young male's first instinct was to step towards me, half in challenge. As I crawled even closer, he turned and walked off briskly, stopping a short distance away, maintaining a safe gap.

The afternoon before I had driven the length of Passarge Valley, one of the fossilised river channels for which the Central Kalahari is famous. Again, I had seen no other vehicles. When my 4x4 drew near to a large male resting beneath a tree, he barely registered my presence. For more than two hours, he and I were alone, just a few metres apart. At

one point, at a respectful distance and behind the safety of the car door, I stepped from the driver's seat, my boots crackling on the dry, hard grass, just to see his reaction. He raised his head sharply. His eyes widened. I clambered back into the vehicle.

They had nothing to fear, these lions of the deep Kalahari, at least not as long as they remained within the reserve's ▶

**There is evidence to suggest that the desert predators have one of the highest hunting success rates among all African lions**

ABOVE The endless horizon of the salt pans at the western boundary of the Makgadikgadi Pans Game Reserve.

OPPOSITE Lions from a seven-strong group that ranges close to Motopi Pan in the Central Kalahari Game Reserve. Kalahari lions have achieved almost mythical status due to their unusual behaviour and perceived strength.



ABOVE Sunrise over Deception Valley, one of the ancient fossilised river valleys that run through the heart of the Central Kalahari Game Reserve.

THIS IMAGE A male lion sporting the blond ring of hair and black mane that are characteristic of the Kalahari population.



boundaries. Nevertheless, even at rest, they knew the parameters of safety when it came to interacting with human beings. They knew precisely when they needed to be on their guard, when to stand and posture, when to retreat.

For lions that live entirely within the CKGR's boundaries, such choices are rarely the difference between life and death. But the same cannot be said for their cousins

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whose territories range into the human-dominated lands beyond the parks. For them, as for all lions living outside protected areas across Africa, one wrong move could mean certain death.

And yet, if one scientific study is to be believed, the lions that live in the Kalahari's human landscapes may just be rising to the challenge in ways that we never thought possible.

Much has been written about the lions of this arid region. Very little, it would seem, is true. They are not a separate subspecies. Rumours that they are the giants of the leonine world, too, are 'very much a myth' according to Dr Paul Funston, the leading expert on the lions of the southern Kalahari and the new senior director of the African Lion Program run by Panthera, an organisation dedicated to the conservation of wild cats. 'They are no bigger than other lions; in fact, their body mass is typically less than that, say, of their counterparts in South Africa's Kruger National Park. They have the same skeletal proportions.'

Such differences as there are seem to be common to lions in most arid regions, rather than being particular to the Kalahari. 'The differences are more subtle,' Funston told me. For example, 'Although the prides are similar in size to those elsewhere, they are fluid and split into smaller groups very regularly. Also, they clearly walk much greater distances at night than the lions I studied in Kruger. They are thus leaner and probably fitter. Their coloration too, with the dark mane and blond ring around the face, is typical of Kalahari lions.' There is also some evidence to suggest that these desert predators have one of the highest hunting success rates of all African lions.

But it's their behaviour around humans that distinguishes the lions of the Kalahari. For decades, the study of lions focused almost exclusively on how these wild cats adapt their behaviour to master their prey. This two-way dance between predator and quarry, between hunter and hunted, was based on the now rather old-fashioned idea that the most important work in lion conservation was taking place within national parks and other protected areas, places that kept lions separate from people. But with human populations growing rapidly to crowd park gates and surround reserve boundaries, the wild cats need to roam far and wide, introducing a whole new set of questions.

For the most part, science has been slow to react. And that is why the work of Dr Graham Hemson, who spent four years from 1998 studying lions in the northern Kalahari, and his colleagues has been greeted with such excitement.

Hemson's study area was the Makgadikgadi, part of the largest network of salt pans on earth. Covering more than 12 000 square kilometres, these pans are where the sands of the Kalahari retreat, leaving behind a polished white surface of what was, in ancient times, the bed of the largest lake in Africa. It is a place where the world turns white at midday, where the horizon is so distant and without discernible landmarks as to seem eternal. And yet the rainy season that begins in December draws massed flocks of flamingos and supports one of Africa's largest zebra migrations.

Makgadikgadi's western boundary is marked by an anomaly of a different kind – the Boteti River. It ceased to flow in 1993, causing a mass die-off of wildlife and drawing the park's animals into inevitable conflict with the herders and their livestock on the far bank. Without warning or apparent explanation, the waters returned in 2008, although levels in recent years have meant that wildlife and livestock are still able to stray into each other's domain.

'The fence around the reserve is supposed to be electrified,' explains Hemson protégé Keitumetse Ngaka, a Masters student at the University of Botswana. 'But the water is too low this year and elephants have knocked the fence over.



As a result, lions are making forays across the river and livestock is crossing into the park.'

Beyond the park, Hemson and his team found that herders customarily release their cattle from their enclosures in the morning and leave them to graze unattended throughout the day. Even more surprisingly, the herders rarely search for their livestock at day's end, waiting instead for them to return to the cattle-post for water at night. By one estimate, almost 15 per cent of the animals sleep out in the bush.

Even with such favourable conditions, the report by Hemson and his team recorded 'a wide range of behavioural adjustments made by lions in the vicinity of cattle-posts'. For a start, the cats rarely moved closer than three kilometres to the posts – on average, when a lion killed livestock it did so some 4.5 kilometres away. The study also established that lions clearly avoided human-inhabited areas between 06h00 and 20h00 – the period of the day when people were active and at large. Most remarkably of all, lions passing through human-dominated areas travelled at a

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normal speed until they reached the uncannily accurate distance of six kilometres from the nearest human settlement, whereupon they accelerated, 'moving significantly faster as they approached a cattle-post'.

‘If you go into the Central Kalahari,’ Ngaka confirms almost a decade after Hemson conducted his fieldwork, ‘you will see that the lions there are very bold.

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But our lions in Makgadikgadi are very shy. This is because they have been threatened by farmers. Inside the park, they know that they are safe. When they cross the fence, it is as if they know they are doing something wrong and that they are in danger.’

It is not only in the northern Kalahari that lions are showing their versatility. To the south, human-wildlife conflict has reached critical levels in the rangelands surrounding the Kgalagadi Transfrontier Park, which straddles South Africa and Botswana.

‘When lions leave the park and kill domestic livestock in neighbouring ranching areas,’ Funston has written, ‘they run a high risk of being shot, or captured and returned to the park.’ Entire prides can be exterminated as a result.

In the southern Kalahari the situation is more nuanced when it comes to lions learning their lessons, as Funston’s

exhaustive studies reveal. Sub-adult females who have survived their first foray beyond the park return to its safety, never to leave again. Males, on the other hand, become ‘habitual livestock killers’.


That females seem to learn from their experiences may have everything to do with the fact that their pride territories are stable and that they often remain within the protection of their natal pride. Males invariably disperse and roam across far greater territories out of necessity.

But there is little doubt that the lions know exactly what they are doing and where their boundaries lie. ‘We would dart the marauding animals and bring them back to the park,’ Funston explained. ‘When outside the park they would run like hell when we came after them – usually for the park. However, once back in safe territory, the same lions would be relaxed and not run from a ranger’s vehicle. Clearly they have the ability to learn.’

The impressive myths that surround Kalahari lions tempt us to label them as the cleverest lions on the continent. It’s more likely, however, that they are the beneficiaries of science’s belated recognition of what lions in human-dominated lands have always done. What has changed is the urgent need to understand what this means for the interaction between these wild cats and people.

‘I think most lions have always been risk-averse and have made changes in their behaviour to reduce the danger of being killed,’ explained Alayne Cotterill, biologist with Kenya’s Laikipia Predator Project. ‘As populations of humans and livestock increase in density, however, the behavioural changes necessary to do this are making it a serious issue to consider from a conservation perspective.’

That lions have always made complicated calculations and sophisticated choices in order to survive around humans in no way diminishes the significance of our new understanding of their behaviour. What it does mean is that lions, and not just those of the Kalahari, may be cleverer than anyone imagined.

With the sun high in the sky, I finally left the Motopi pride. As I did so, two vehicles approached in a cloud of noise and dust. When I turned to watch the lions’ reaction, they had already disappeared into the safety of the scrub. 

Studies reveal that female lionesses that survive encounters with humans outside the reserve area return to its safety, and never leave again. Males, however, venture out regularly to hunt.

