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Abstract: The article describes the amazing transformation of Phinda. Six years earlier cattle and goats were grazing and now lions and cheetahs are back. 13 lions and 17 cheetahs were released.

Pride of Phinda

The top cats were missing, and to replace them from elsewhere wouldn't be easy. Cats don't like mixing with strangers, they have a strong homing instinct and are often feared by local people, but **Luke Hunter** took up the challenge to get them back.

The first time I saw free-ranging lions at Phinda, I knew at once that all the hard work had been worthwhile. The members of the pride looked completely at home as they sprawled incongruously on a crumbling concrete slab – the remains of an old milking shed – and warmed themselves in the dying evening sun.

Just six years ago, cattle and goats grazed here, and big cats were entirely absent. Today, the stock has gone, and the cats are back. The story of that transformation is an extraordinary one – and it represents an exciting new trend in conservation.

With South Africa firmly back in the world community, its citizens are realising the huge potential of their country as a centre for international ecotourism. As a result, areas formerly given over to livestock and cash crops are being reclaimed for wildlife. Government agencies, private companies and tribal communities alike are embarking on ambitious restoration projects, gradually consolidating small tracts of land and removing livestock, fences and infrastructure. The effects of years of persecution – which wiped out species from large parts of their ranges – are at last being reversed.

Work began at the Phinda Resource Reserve – a privately owned site on South

Africa's humid Maputaland coastal plain – with the release of more than a thousand wildebeest, zebra, giraffe and other ungulates between 1990 and 1992. Nearly 30 white rhinos and 56 elephants followed. The rich mammal community known to have existed in the region prior to European colonisation was now complete, except for the top predators.

But plans to reintroduce big cats are always controversial, and Phinda was no exception. People living around the park were understandably anxious that the cats would wander onto their land and kill their livestock. To allay their fears, the new arrivals were fitted with radio-collars. Part



Heavy sleeper. One of the first lions to arrive at Phinda was a young male, off-loaded into a holding pen after a 600km journey.

of my job was to keep track of the big cats and report back to local communities.

At the start, we knew little about how the animals would respond to reintroduction, and we weren't sure whether the plan would succeed. One thing we did know was that large carnivores, like many other animals, have a well-developed homing instinct. Once moved to a new area, they have a stubborn tendency to return to their original range – a habit that frequently lands them in trouble with humans as they head home.

In the past, animals were usually 'hard-released', meaning they were freed at the new site within hours of being caught and

transported. Unsurprisingly, they rarely settled in. We planned for our lions and cheetahs to spend about eight weeks in a large outdoor enclosure before being freed in the reserve. This would help them settle after their journey and acclimatise to their new surroundings.

But the plan was anything but straightforward. No one had tried this 'soft-release' method on large cats before, and there were problems to solve. Lions – and, to a lesser extent, cheetahs – are social animals, but you can't simply place an order for ready-made groups suitable for reintroduction. Instead, we acquired cats as they became available, and that meant mixing unfamiliar

and unrelated individuals. This is notoriously difficult, and so we did it gradually, introducing the animals to one another and slowly building new social groups.

Our plan was more successful than we'd anticipated. In the case of the comparatively docile cheetah, newly caught cats were surprisingly tolerant of strangers. Males that were housed together quickly formed alliances that persisted for life after their return to the wild. Adult female cheetahs are always solitary and they went their own way after release.

Lionesses, by contrast, need the companionship of other females. So we were pleased to see that previously unfamiliar

Roaring comeback. Building new social groups from unrelated lions was a slow and anxious process, but eventually the females would even suckle their step-sisters' cubs.

animals remained together permanently after release. They formed alliances typical of related animals in a pride, even suckling cubs belonging to other females – behaviour usually restricted to close relatives. This is an exciting finding, because most animals that become available for reintroduction are single animals or small groups that have left protected areas and fallen foul of humans. Experience at Phinda suggests that they can be welded into cohesive social groups.

Eventually, in early 1992, it was time to open the gates and give the animals their freedom. With some hesitation, 13 lions and 17 cheetahs left the security of the enclosure and became the first members of their respective species to walk free on this land for more than 50 years. Following a brief period of exploration, lion prides and territorial coalitions of male cheetahs each settled into stable living areas of up to 100km² – about the size of such groups' home ranges in similar habitat elsewhere in southern Africa.

The process of settling in was made easier by the abundance of prey – which was unused to predators. During one evening, I saw a pair of lionesses catch and kill four animals. This pattern of multiple kills was often repeated, suggesting that the herbivores were not 'predator-aware'. When I decided to investigate their response to the new hunters, I found that antelopes did recognise the cats when they spotted them – and usually reacted appropriately. The problem was that they simply weren't watching out for danger. Generation after generation had experienced little predation,

I watched amazed . . . precocious adolescents roaring claims and battling over disputed turf.

and so they had learnt there was little to fear. Rather than waste time on vigilance, they devoted themselves to feeding, grooming and social interaction. But the big cats' golden days were short-lived. By the end of the first year, the herbivores had increased the time they spent on vigilance by more than 200 per cent.

Despite the initial easy pickings, I was anxious about the reintroduced cheetahs, which are usually regarded as vulnerable to change. But they turned out to be much more adaptable than I'd expected. The males – which came from vast home ranges on Namibian farmlands, where they are persecuted – responded to an abundance of competition-free, prey-rich habitat by quickly establishing small, exclusive territories, which they defended from other males. They assiduously marked their new grounds with urine. Twice, when such warnings were ignored, violence erupted, and single males were killed in clashes with coalitions of residents. In both cases, the victors fed from the carcass (*BBC Wildlife*, March 1996, p19) – a behaviour that hadn't been well documented before in cheetahs.

Female cheetahs are non-territorial and they made use of the entire reserve, often passing through male territories. So it wasn't long before the first cubs arrived – a litter of three born six months after their parents had been released. Breeding has continued at a rapid rate, and more than 50 cubs have been born to date. More than 60

per cent of these have survived to independence, thanks to the relatively low density of large predators such as lions and hyenas, which kill high numbers of cheetah cubs in other areas.

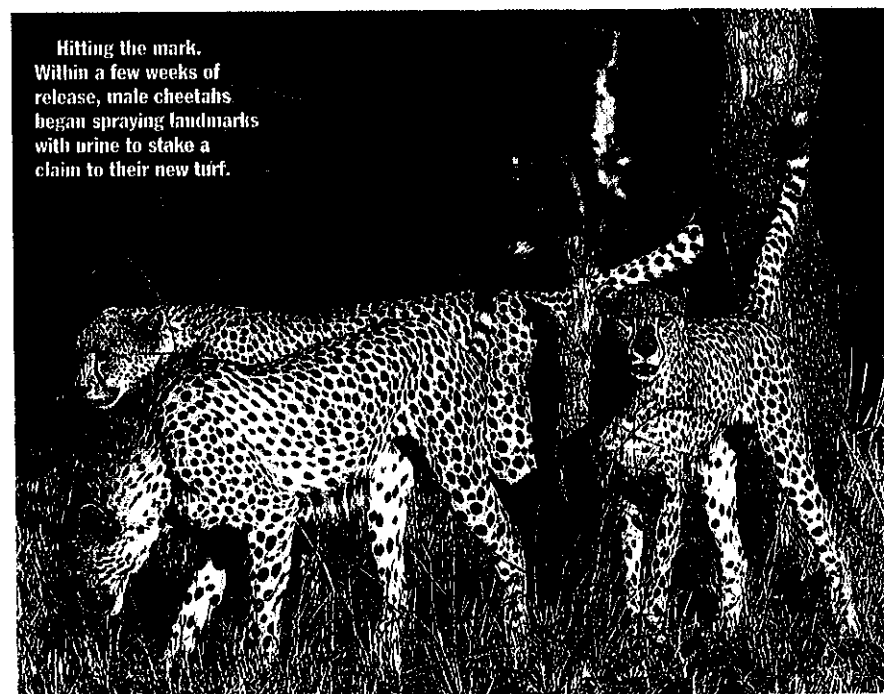
The lions were also quick to breed – despite the novel social situation they faced. Adult males are rarely caught for translocation, which meant that, though the Phinda lionesses were mature, their male companions were just 18-24 months old. These youngsters were approaching the age at which they would normally be forced to leave the pride and take up a nomadic existence for two or three years. Only in their fifth year would they be in position to challenge pride males for turf and females.

But at Phinda, the lack of adult males allowed the youngsters to skip the harsh trials of nomadic life and cruise directly into early adulthood. From the age of 21 months, they assumed the privileged role of exclusive consorts to the mature lionesses – who were eager to breed. Male lions start producing sperm at 26 months (though normally, they wouldn't get the chance to sire cubs until much later), and so, after a couple of hiccups, the young males became fathers at the tender age of 27 months.

I soon realised that the youngsters were capable of a whole repertoire of behaviours normally associated with males aged five to ten. Like older lions, they simply appropriated kills from females and avoided the toil and risks of hunting where possible. What's more, they were very possessive over females in oestrus – just like their elders – sometimes becoming involved in fierce fights. They also had all the yearnings for more land – and the females that go with it – that are typical of mature territory-holding lions. I watched amazed as groups of precocious adolescents went on territorial patrols, scent-marking or roaring their claims and battling with one another over disputed turf.

Another example came to light during the one pride takeover I saw at Phinda, when these adolescents behaved in a way that typifies the reproductively aggressive adult male: infanticide. The reserve's first two litters of lion cubs were lost to intruders – who killed their predecessors' offspring and so induced their newly won females to come into sexual readiness much sooner than if they had raised the cubs. The perpetrators were not yet three years old.

Fortunately, these early losses were balanced by vigorous breeding. As is normal among lions, mature females who lost



Hitting the mark.
Within a few weeks of release, male cheetahs began spraying landmarks with urine to stake a claim to their new turf.

◆ **Cat-trap.** A cheetah snared, but with the wire around his shoulders, not his neck, he survived long enough to be rescued.

their cubs conceived again quickly; what was unexpected was the part played by younger females. Lionesses in southern Africa are thought to begin ovulating between the ages of three and four, but the Phinda females started mating at 24 months and conceived at 32 months.

Many factors could be responsible for this intriguing pattern. Lions usually live in dense populations, and mating opportunities may normally be few and far between for young females. In reintroduced populations, low density and paucity of adults could create openings that don't usually exist in lion society. The near ideal conditions at Phinda, with its high density of prey and lack of competitors, could also mean that lionesses suffer little stress and so breed earlier. (A lioness's physical condition is also known to affect her reproduction.) Whatever the exact cause, it is encouraging that lions seem able to exploit the conditions they encounter during a reintroduction attempt – an ability that accelerates the re-establishment process in its crucial early stages.

Reintroduced predators need all the help they can get. Before the cats were released at Phinda, patrols removed hundreds of wire snares – both old and recent – but it's impossible to account for every last snare. And the problem is ongoing. Poachers are largely subsistence hunters trapping antelopes, but their method is indiscriminate, and lions are as vulnerable as impalas. Five lions have now died in



snare, as have two cheetahs. (Unlike lions, cheetahs don't usually scavenge from snares, but they are occasionally caught nevertheless.) When poachers took pride males, lionesses lost their front-line defence against foreign males, and the resulting social instability claimed a further five cubs.

Lessons have been learned from these sad losses, and the reserve's management plan now includes measures aimed both at educating local communities and at countering poaching. Subsequent translocation efforts involving large carnivores – and there have been at least six in southern Africa since 1990 – have included anti-poaching and education measures.

Reintroduced cats also face longer-term threats. Phinda's area of 180km² offers precious little room for large carnivores, which often react to lack of space with escalating aggression and emigration. Luckily, though, Phinda is not a conservation island. Farming is still widespread, but nearly 500km² of land is devoted to conservation in the region, and negotiations are underway to consolidate this into a single reserve. A grander vision by government

agencies, private landowners and tribal communities has earmarked a total of 3,000km² for possible inclusion into one contiguous park.

More land means more space for large mammals, and further introductions of cats and other species are high on the priority list. This will help us solve the second major problem facing reintroduced cats: inbreeding. Low levels of genetic variation may compromise fertility, breeding success and resistance to disease – with devastating effects on small populations. Later reintroductions can bring in fresh genetic stock and help secure a long-term future for reintroduced populations.

Some critics see this brand of active management as unwarranted interference. But in a world where wildlife populations are becoming smaller and increasingly fragmented, we are rarely afforded the luxury of 'letting nature take its course'. Planning, manipulation and management were essential parts of the Phinda programme. Together they hold out new hope for the big cats and perhaps represent the future of conservation in Africa. ■

In at the kill

When lions and cheetahs came back to Phinda, they had important effects on other meat-eaters. Leopards and hyenas live in the neighbouring Mkuzi Reserve, but leaving that reserve used to mean running the gauntlet of humans and their guns. With the establishment of Phinda, this threat disappeared, and the predators quickly recolonised Phinda as a result.

But they met some serious competition. Lions are terrifically aggressive towards other large carnivores, perhaps because they compete for similar food, and they kill both leopards and hyenas when the chance arises. In one incident, lions chased a young male leopard into a tree and kept him there for 30 hours, until hunger eventually forced the lions to move on. In another case, two half-grown hyena cubs were killed in a battle royal, in which the lions were also injured.

Lions and cheetahs can also bring benefits to other predators. Hyenas are sometimes able to dominate lions through force of numbers and so they can occasionally steal lion kills. The slightly built cheetah cannot afford to risk injury in defence of its prey; once I saw a single hyena chase two adult male cheetahs from their nyala kill. Remains of lion and cheetah kills have supplied other scavengers such as jackals and vultures with a new resource, and they seem to be on the increase in the park.

Reserved freedom. Once again a cheetah and her cubs can be seen roaming the Maputaland coastal plain, but this time within the safety of an extensive fenced reserve.

