THE WILDLIFE GAME

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Figure 5.4
This Zimbabwean black rhino had to be destroyed because one of its back legs had been severed by a steel cable snare.
Photo: *Nick Marsberg*

Figure 5.5 Another snared black rhino
This black rhino died on the shores of the Indian ocean on South Africa's Zululand coast after fighting free from a steel cable snare. Note the horrific neck wound made by the snare.
Photo: *Natal Parks Board.*

Figure 5.6 A snared elephant
All over Africa today it is very common to find elephants with trunks severed by wire snares. The author has himself killed probably a hundred elephants with such an injury.
Photo: *The author.*

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About poachers and commercial poaching in Africa: A mirror of the world

IN Africa the elephant and black rhinoceros are the two species most badly affected by commercial poaching. In South and Central America it is the many valuable species of neo-tropical parrots. In Asia, it is the three species of Asian rhino, the tiger, some species of bears, many species of parrots, and turtles.

The commercial poaching of elephants and rhinos in Africa, however, is such a spectacular example of what is essentially a global phenomenon, it is pertinent that the African problem be examined in some depth. Then - once the conditions that have given rise to the African situation are comprehended - the reader can extrapolate the symptoms of the syndrome to fit the poaching circumstances he knows about on other continents.

Figure 6.1 A wasted carcass

When poachers strike all they take are the rhino's horns. The meat and the hide are wasted. This white rhino was killed in one of the Zululand game reserves in Natal, South Africa. Although such poaching is not unknown in South Africa it is really well under control.
Photo: *Natal Parks Board.*

The Year of the Rhinoceros

The 'Year of the Rhinoceros' (1975) came first, so we shall concentrate on this case history with the same priority. It is appropriate, too, because the black rhino has become a symbolic species that now embodies the preservation ethic.

The protectionists of the world have castigated the African people for poaching their rhinoceroses (and other species) to the point, in some cases, of local extinction. They have also accused many African leaders, and their senior politicians, of over-exploiting the continent's wildlife resources for personal gain. Both these accusations, in some countries, are true.

Other stories - greatly sensationalised by the media - however, are NOT true; and many interpretations about the cause-and-effect of commercial poaching in Africa are also largely invalid. Unfortunately, the false stories - and the imaginative translations offered - have dragged many smelly red herrings right under the already sensitised noses of a concerned world public. And they have side-tracked those people who are genuinely concerned and want to help.

Society, for example, has been brainwashed into accepting the popular idea that the lucrative illegal market for rhino horn and elephant ivory is the primary 'cause' of Africa's poaching pandemic. This is not true, because - as the reader

will come to progressively better understand – poaching is merely the symptom of a very much more malignant malady!

If Africa's poaching problem has any chance of being solved the *real* factors that are causing it must first be identified. Then ways and means to remove those elements from the 'conservation' equation must be discovered and applied. This is the *only* way that *any* problem is solved – *truly* solved – and how it *remains* solved for ever! As is the case with any ailment, the treatment of only one of its symptoms will, at best, have but a palliative effect.

The most blatant of the so-called 'conservationist' and media untruths are statements to the effect that the poachers are making a fortune out of their activities. Throughout the late 1980s, for example, quoted prices allegedly paid to poachers for black rhino horns ranged from US $20 000 to US $50 000 per kilogramme. One over-eager reporter made the extravagant claim that one particular poacher received US $100 000 for a single pair of horns.

The Poachers

The poachers are commonly depicted as being avaricious, heavily armed gangs of thugs – employed by black marketeers – who race around the African bush in four-wheel-drive vehicles mowing down rhinos and elephants with machine-guns. And, to add a bit of emotive colour to the stories, their 'greed' and their 'lust' – alluding to the idea that rhino horn is an aphrodisiac – always seem to creep into the scripts as being complimentary 'causes' of the poaching rackets.

If these facts were true then closing down the markets might well help to solve Africa's poaching problem – but they are, generally, *not* true. The real facts are quite different.

The current wave of commercial rhino and elephant poaching began simultaneously in many parts of Africa – but in different ways – during the early years of the 1970s. Its most publicised phase occurred in Kenya where Somali bandits, heavily armed with automatic weapons, raided southward from their northern lairs, and operated with seeming impunity inside many of Kenya's national parks.

During the 1970s, and throughout the 1980s, rebel forces, fighting against their governments in Mocambique and Angola, are also reported to have killed the big pachyderms in large numbers to finance their military operations. Internecine wars, and political unrest, therefore, have been important contributing factors supporting local poaching epidemics; and Africa's plague of recent wars has undoubtedly been the source of the automatic weapons and the ammunition used by the poachers.

'Conservationists' claim that during the latter part of the 1970s, and throughout the 1980s, Africa's black rhinos were reduced from an estimated 65 000 animals to a mere 3 500. These figures may not be exact but they are probably essentially correct.

The bulk of rhino and elephant poaching that took place during this period, however, was really carried out quietly – persistently – inexorably – by local rural people who lived adjacent to the continent's big game reserves. The most common weapon used was the ubiquitous AK 47 assault rifle.

In some cases, the poaching was carried out – or was organised and controlled – by the more sophisticated city relatives of these rural folk; or by hunters employed by city businessmen. In all these latter cases, however, the killing was *always* carried out with the assistance of the local rural people who, if nothing else, acted as paid guides for the hunters. Which ever way this problem is viewed, therefore, the illegal annihilation of Africa's rhinos and elephants has been accomplished by, or with the connivance and the willing cooperation of, the rural folk who share their environment with these animals. And this situation still pertains over most of Africa today.

The Black Market & The Poachers' Remuneration

Corrupt businessmen, government officials, even senior politicians, have provided the poachers with a constant, if parsimonious, local market for their poached horns and tusks. And the occasional risk these racketeers have taken was richly compensated by profits that, in the middle 1980s, ranged upwards to 9 000 per cent (for African rhino horn); and which, by the end of the decade, had reached 15 000 per cent. This profit, of course, was shared by how-so-ever-many hands the products passed through – from the poacher to the end retailer in the Far East who sold the powdered rhino horn to his patient/customers in small potions.

But the African poachers themselves – the rural people who did the killing, or who helped others to do the killing – received only a pittance for their troubles.

In 1987 the poachers in Zambia's remote Luangwa valley – who were all local villagers living within a day's easy walking distance from the boundaries of the valley's two national parks – were quite happy to receive the equivalent of US $30 for a pair of black rhino horns – and a good pair of elephant tusks could be procured for even less. Furthermore, these prices could be significantly lowered if payment was made in the poacher's own village with bags of mealiemeal, or with an assortment of other foodstuffs.

The author was working as a specialist consultant to a British television company in Luangwa at that time. He was advising its producer during the shooting of a film that was documenting the elephant and rhino poaching story in the valley. The author spoke to several captured poachers; he worked with the game rangers who had arrested them; he had many long discussions over drinks at the bar, or at the dinner table, with several members of the Zambian Wildlife Department's directorate; and he also discussed the Luangwa poaching scene with a number of local people. The facts presented here, therefore, were obtained from the best of authorities – and first hand!

The prices the Luangwa valley poachers received for their contraband rhino horns – and elephant tusks – may seem very low by First World western standards, but they must be considered in the light of the local circumstances. In Zambia's remote Luangwa valley US $30 is equivalent to three months wages for a rural black man – when jobs are at all available, that is!

The sad fact is that the poachers do not know the real price of the raw commodities they are selling. And the buyers have organised themselves into cartels –

controlled by powerful senior politicians – that have kept the local prices to a bare minimum. The Zimbabwean wildlife authorities, for example, claim that at the end of the 1980s no less than five Zambian government ministers were involved in the poaching rackets. So in Zambia there is really only one market for illegal rhino horns and elephant tusks; and the prices are pretty well set. Authentic reports indicate that similar circumstances also prevail elsewhere on the continent.

What is important to understand about this scenario, however, is that no one is holding a pistol to the poachers' heads. There is no coercion involved whatsoever. The black marketeers may sometimes provide the weapons, and the ammunition – and they buy the illegally procured horns and tusks – but they do not *force* the local people to poach. The people poach because they *want* to – because, in fact, they now *have* to. It is an imperative dictated by their extremely low status on the hierarchical needs scale, and by the circumstances of their environment.

The Wholesale Market for Rhino Horn

In 1987 the top *wholesale* world price for African rhino horn, obtainable in the Yemen, was US $900 a kilogramme. And, because an average adult black rhino carries approximately three kilogrammes of horn, this made a pair of such horns worth some US $2 700. At that time, the top wholesale price for African rhino horn on the Far Eastern market was much less – about US $600 a kilogramme.

These prices were readily obtainable despite the fact the international community had placed the black rhino on the 'endangered' Appendix I list of CITES in 1975 – which totally prohibited *all* commercial trade in *any* black rhino product world-wide. This also, despite the ongoing and active work carried out by dedicated IUCN and WWF officials who, with local government support, have progressively closed down the market places for rhino horn wherever they were to be found – even in the then non-CITES member states.

In 1988, the most lucrative market for both black and white rhino horns shifted to Taiwan where the average *wholesale* price suddenly increased to US $1 500 a kilogramme; although, for a short period in July of that year, Taiwanese traders did purchase a large amount of raw rhino horn for US $2 486 per kilogramme. This, however, they immediately re-sold to supply a sudden, very profitable, scramble for the raw product on the Hong Kong market.

These top prices, however, were not paid by the Asian shop owners. They were paid by rich speculators who were buying up all available horn in anticipation of Africa's two rhinoceros species becoming extinct in the wild; which, if that happened, would rocket rhino horn prices to astronomical new levels.

Other flash-in-the-pan prices are also mentioned from time to time. In 1990, for example, the Director of South Africa's Natal Parks Board, Dr George Hughes, was offered a wholesale price of US $1 850 per kilogramme for his organisation's entire *legal* stockpile of rhino horn. This sale did not take place, however, because South Africa is a signatory to CITES and it has agreed to abide by the 1975 rhino horn trade embargo decision.

The largest concentration of both black and white rhino in the world occur in Natal's game reserves today, and since the rhino horn trade embargo was imposed, the Natal Parks Board has been all the time accumulating rhino horns recovered from natural mortalities in the field. The wholesale price Dr Hughes was offered, of course, was for a totally above-board purchase of the last large consignment of legal rhino horn in the world. All these facts taken together no doubt made the proposition of a transaction doubly attractive to the buyer. But this offer does *not*, in any way, reflect the current standard price for *illegal* rhino horn on the black market.

Dr Hughes is contemplating asking CITES at its 1992 meeting in Japan for special permission to sell off the NPB rhino horn stocks – which fact, without doubt, will create a huge furore amongst the animal rights NGO lobby. The reality of the situation, however, cannot be ignored. The Natal Parks Board rhino horn stockpile now amounts to some three metric tons, and it would realise US $5,5 million. This kind of revenue would finance many important wildlife 'conservation' projects for which the Board currently has no funding at all.

Figure 6.2 The value of rhino horn

African rhino horns like these are NOT worth the tens of thousands of dollars touted by the protectionists and the media. The wholesale price for African rhino horn at the end of the 1980s was only US $1 500 per kilogram – and both the back and front horns on an adult black rhino rarely exceed three kilogrammes. The poachers, however, are often paid as little as US $30 for both horns.

Photo: *Rick Mathews.*

The point that has to be emphasised about the above-board price offered to Dr Hughes is that - even for a totally *legal* supply of rhino horn - it does not even *begin* to approach the hugely inflated values that the protectionists - and their sensation-seeking allies in the media - have so artfully conditioned the general public to believe.

The Commercial Uses of Rhino Horn

Rhino horn is used in the Yemen for making ornate ceremonial dagger handles, the exceptional beauty of which is said to enhance the social status of their owners. This market, it is said, has now been closed down. Ownership of rhino horn dagger handles, however, is a cultural tradition of the Yemeni people, so the market may just go underground - and the prices may rise as a consequence. It remains to be seen, therefore, if this market will remain closed.

In the Far East, rhino horn is used as a traditional medicine to cure many varied ailments - especially for lowering fevers. It is a Western media myth that rhino horn is used as an aphrodisiac. In fact, of all the people on earth, only one small tribe in the north eastern hill country of India are known to have ever used rhino horn as a sex potion.

The Retail Market in Rhino Horn

Retail prices for African rhino horns vary considerably. In Taiwanese medicine shops - which is a good reflection of the Far Eastern market - the 1988 retail prices ranged from US $3 347 per kilogramme to US $4 660. An average between these two prices, therefore, would place the *retail* value of a good pair of black rhino horns at about US $12 000.

The retail price is calculated from the cost-by-weight of the minuscule scrapings that are taken from the horn and sold to ailing patients as medicinal potions. The price per kilogramme is worked out according to the number of scrapings that make up one kilogramme - multiplied by the price per scraping. These prices, of course, are not available to the poachers - or to the middlemen involved in the illegal trade - and it takes years for a trader to recover his initial investment, and to make a profit. Some of the smaller medicine shop owners, for example, claim it takes them as long as ten years to dispose of a single large horn.

The principal black market danger to Africa's remaining rhinoceroses now lies in the fact that their horns are being hoarded by financial speculators all over Asia. Irrespective of the markets which have been closed, the businessmen who still buy illegal rhino horns realise full well that the demand for traditional medicines is very deeply rooted in the ancient cultures of the Asian people; and that the official closure of the markets will *NOT* remove the demand.

The Protectionist and Media Myth

These are the facts. Yet the media, and the self-styled 'conservationists' of the animal rights brigade, are *still* boldly putting out the story that the poachers are receiving vast sums of money for their illegal trophies. From where, one might ask, do they get their information? The following answer is pure speculation - but it is offered with great confidence.

The Distortion of Rhino Horn Prices

The first thing that can be safely assumed is that the sensation seeking propagandists are quoting the *retail* prices on the Far Eastern medicine market - not the *wholesale* prices with which the poaching business, from start to finish, is *solely* concerned. Another undoubted probability is that they are quoting - and exaggerating - the retail prices of not *African* rhino horn, but the infinitely more valuable horn of Asia's own three rhinoceros species.

The 1988 retail price for *Asian* rhino horn ranged between US $40 558 and US $42 880 per kilogramme. At US $40 000 per kilogramme, of course, a good pair of black rhino horns would retail at US $120 000 - or ten times their *real* retail value. And the horns of the white rhino, which is a much bigger animal, would retail at some US $160 000.

But, it must be stressed, these prices are *not* valid for *African* rhino horns!

Nevertheless, this is how society was undoubtedly hood-winked throughout the 1970s and 1980s. This was how their emotions were hyped-up during the 'Year of the Rhinoceros' - and how the public has continued to be deceived ever since. The tragedy of this fact is that, in the process, many caring people have been propagandised into believing that it is this so 'obvious' and 'lucrative' black market that is the 'cause' of Africa's poaching problem. They have, of course, never been offered an alternative reason - but then nobody has bothered to look for one either.

The real reasons for the poaching, in fact, have been very well hidden behind this obscure smoke-screen of emotive rhetoric; and behind the heart-rending coloured pictures of slaughtered rhinos and elephants that have appeared on television screens, in glossy magazines, and in newspapers, all over the world. The real reason for Africa's poaching pandemic, in fact, is a huge and complex subject - to which the entire next chapter is devoted.

The Failure of Prohibition

The universally accepted solution to save the black rhino that was put forward in 1975 was, once again, the protectionists' panacea - PROHIBITION. Stop the trade! Destroy the markets! And poaching, so they said, will come to an end. But this did not happen. The complete denial of the legal market, and the frontal attack on the illegal one, was, therefore, clearly NOT the answer to Africa's rhino poaching problem.

Whilst this war on the markets was being waged the real causes of the poaching problem were allowed to continue - unnoticed and unattended. And they continue to fuel the poaching inferno today - *still* largely unrecognised, and *still* very much ignored.

In retrospect, most honest people admit that prohibiting the legal trade in African rhino products was not the catholicon they had hoped for - and had wanted. Irrespective of the international ban on the legal trade in rhino horn, the poaching continued. It became so bad, in fact, it reduced Africa's black rhino

populations to zero in many countries; and to dangerously low levels in others.

The black rhino's rapid decline to the brink of extinction[1], within a single decade, has been far more dramatic than the decline of the continent's elephants. But, in point of fact, the figures show that ten times as many elephants were slaughtered - for exactly the same reasons - during this same period.

The Year of the Elephant

1989 was the 'Year of the Elephant'.

The drama unfolded thus: During the 1980s Tanzania and Kenya - as well as several other African countries - suffered catastrophic collapses of their elephant populations through poaching. Unwilling to recognise, or to tackle, the *real* causes of their poaching problems, they succumbed to the First World protectionists' clamour for an international ban on the legal trade in ivory. On the 18th July 1989, Kenya's President Daniel Arap Moi dramatically and publicly burned 12 tons of elephant tusks, worth an estimated US $3 million, to signify his country's commitment to the cause of wildlife 'conservation', saying:

> *'I hope our action today will help to persuade others to appreciate the urgent need to take drastic action to halt the wanton slaughter of elephant by declining the trade in ivory.'*

Kenya's lucrative tourist trade, of course, has been seriously threatened by its poaching epidemic, and this has put that country's leaders into a state of panic. Richard Leakey, the Kenyan government minister responsible for wildlife affairs, has called his country's serious poaching problem 'economic sabotage'. And other government officials pointedly drew the logical conclusion: 'If something isn't done soon tourism in Kenya is dead.'

East Africa's solution to their poaching problem - a universal ban on the legal trade in ivory - was resisted by several southern African states who had their poaching problem under control. They offered an alternative proposal. Firstly, that the countries which were experiencing severe and uncontrollable poaching problems should place their elephants on the CITES Appendix I list. This action would have proscribed international commercial trade in ivory to and from those identified countries. Secondly, that those *other* countries which had healthy elephant populations, and which had their poaching situations under control, should be allowed to leave their elephants on the CITES Appendix II list. This would have permitted *these* latter countries to legally continue their commercial trade in ivory under strictly controlled CITES quotas.

The southern states even suggested that there should be a central CITES-controlled world ivory market - to which *ALL* legal elephant ivory should be sent for sale. This may still come about!

The southern African states' suggestion for a 'split listing' was totally in line with the rules and regulations of CITES. In fact, the use of this stratagem is the normal practice used to regulate appropriate levels of wildlife trade between nations - according to the relative status of their respective wildlife trade resources. A classical example is the control which is applied to the legal trade in crocodile and alligator skins. Split-listing of the ivory trade was, therefore, the recommendation of the executives of both the IUCN and CITES (but it was, strangely, strongly opposed by WWF - which is an important matter that is discussed at some length in later chapters). UNEP also expressed its scepticism about the trade ban idea.

Kenya and Tanzania, however, were not at all prepared to accept this suggestion. They stated their firm belief that an ivory trade ban would not work *at all* unless, and until, there was a complete cessation in international ivory trade transactions. They also stated their fears that poached ivory from their own countries would be laundered through the proposed southern African legal market - which did nothing to promote friendly inter-state relations. So the East African states went ahead with their canvassing for international support for a world-wide ban on the trade in ivory.

The protectionists, of course, having laboriously set the scene over many, many years, were delighted! The battle commenced.

How the African Elephant became an 'Endangered Species'

At the beginning of 1989, a very prominent animal rights organisation in the United States (The Humane Society of the United States) anticipated the East African proposal. HSUS wrote to the US Fish and Wildlife Service stating its belief that the United States should formally recommend an international ivory trade ban at the 1989 CITES meeting. This idea was supported by similar petitions from a total of thirty-eight other protectionist groups in the United States.

The USFWS then asked the public of America for what it called further 'information' on this suggestion. A total of 529 respondents supported the proposal; 23 favoured, instead, the split listing idea provided for in the CITES articles.

At that point, several USFWS officials clearly set their sights on having the African elephant listed on CITES Appendix I - but they waited for one of the African 'range' states (a state in which the African elephant occurred) to first make the proposal.

In their book *To save an Elephant* animal rightists Allan Thornton (co-founder of Greenpeace, U.K., and co-founder of the British animal rights group the Environmental Investigation Agency) and Dave Currey (co-founder and Executive Director of the EIA), explained how this was engineered. With financial support from the Washington-based Animal Welfare Institute (which, despite its name is a very active animal 'rights' group), they investigated the illegal ivory trade. Then they planted the seed in the minds of Tanzanian 'conservationists' that was to grow into the formal Tanzanian proposal to CITES that the African elephant be placed on the Appendix I list.

The authors even admit to drafting the letters that the Wildlife Conservation Society of Tanzania sent, via the wildlife minister, to the country's state president. The proposal itself was researched and expertly constructed by Jorgen Thomsen of WWF-USA, with whom Thornton and Currey had been consorting on the subject for some time.

Only when the Tanzanian proposal was made public did Kenya support it.

1. Except in the southern states of Africa.

It is quite incorrect to apply a single management strategy to a 'species' as a whole – such as is implied with a so-called 'endangered species'. This is because 'species', *per se*, do not function as biological units. Species are comprised of many different and completely independent populations – and the respective fortunes of any one of them is determined by the degree to which *that population* is affected by the specific positive and negative forces that exert pressures upon it. Thus management can only be applied legitimately to a species via its respective populations – one by one.

This is why the word 'species' is used in parenthesis at the beginning of this chapter – because in this context it is being incorrectly applied.

Several independent populations of the same species, which occur in widely separated areas of their natural range – but even in the same wildlife sanctuary – for example, may each legitimately warrant being assigned to separate and very different columns on the management ladder. This is because in some parts of their range the species' populations may be very large – even reaching pest proportions – whereas in other parts – due to local human pressures, perhaps – relic populations of the same species could be verging on local extinction.

The management ladder, therefore, can be used in various ways. It can be considered a simple template on which to assign appropriate positions to the *separate* populations of a single world-wide species – for the purpose of assessing their respective management needs in different places. Or it can be used as a complex multi-species matrix on which ALL the different 'species' populations in a single (small) wildlife sanctuary are assigned to a range of positions at the same time – but this would only be valid if a single population of each species occurred in such a sanctuary.

The management ladder is not a management tool, *per se*. It is simply a device used here to facilitate the explanation of wildlife management principles – to help the reader to generate a mental image of the validity of 'POPULATION management' – as opposed to 'SPECIES management'. Its finer points will be discussed in later chapters.

A major point being made in *this* chapter – and it is worth reiterating to emphasise its importance – is that the

Figure 20.2 Rhino population manipulation is now a relatively simple operation
The author catching black rhino in Zimbabwe. The capture, the translocation and the establishment of black rhino in new sanctuaries is now a relatively easy task. In southern Africa many new populations have been successfully established over the past 25 years.
Photo: *Zimbabwe Herald.*

assigning of a status category to a species as a whole, and the blanket imposition of a uniform management strategy to such a species, is simply not valid. This observation will be reinforced, time and time again, in later chapters. But uniform management strategies *are* being erroneously applied to 'species' all the time. The preservation management implications associated with the IUCN's concept of an 'endangered species', for instance – and which are being applied world-wide – is a very good example of this fact.

The idea of assigning a global status category to a 'species' is fallacious because it inherently pre-supposes that every single population of that species deserves the application of the self-same kind of management treatment. There are countless examples which demonstrate that this idea is quite illogical.

The black rhinoceros, for example, is a declared 'endangered species'. This classification, according to the IUCN definition, implies that the black rhino is:

'An animal . . . in danger of extinction and whose survival is unlikely if the causal factors continue to operate. Included in this category are species whose numbers have been reduced to a critical level or whose habitat has been so drastically diminished in size or degraded or both that they appear to be in danger of extinction.'

But how can the black rhino be an 'endangered species' when every single one of its several populations in South Africa is expanding – some at a rate as high as 9 or 10 percent per annum. This means the black rhino *in South Africa* is doubling its population numbers every eight years. What is more, new, healthy and vigorous populations of black rhino are being established in South Africa all the time – as a consequence of the capture of animals in strong and healthy populations and their reintroduction to suitable habitats in other sanctuaries.

This exemplifies the serious flaw inherent in the concept and practice of allotting status categories to 'species'.

There are parallel examples in the comparison of Southern Africa's several safe and very healthy elephant populations, with the unsafe and heavily poached elephant populations of East Africa and Zambia. Yet the African elephant is declared an 'endangered species'.

These examples strongly support the idea of classifying wild animal *'populations'* according to some kind of status classification – similar to that which the IUCN currently assigns to *'species'*. It is imperative, in fact, that this be done – because *ONLY THEN* can the management implications that are inherent in those classifications be correctly, and most appropriately, applied to individual populations.

This is precisely what the management ladder assumes – describes – and achieves.

25

Judgement in management

IT is quite natural for the numerical status of wild animal populations to change from season to season, or, more significantly, over longer periods of time. This means that the wildlife manager must re-assess the status of each wild animal population under his control *every year*, and he must re-adjust their relative positions on the management ladder to ensure that he applies – *to each population* – the most appropriate management strategy *for that season.*

It is quite conceivable that an animal population – for example, a population of wild ducks – may be very numerous one year, during which year it can be extensively utilised (hunted). And then, the very next year – perhaps because of a bad breeding season – the birds may have become very scarce. When this happens it might be appropriate to reduce the permissible hunting bag limits – until the population recovers; or to impose a longer term hunting moratorium.

On the other hand, if preservation management techniques that have been applied to an unsafe population of wild animals are successful, it can be shifted progressively down the management ladder – to columns 10, 9 or 8 – as may be appropriate, as its status improves (Figure 25.1).

Nevertheless, to *correctly* assess all the variables involved requires a fine degree of qualified judgement – and the application of an exquisite management craft.

One of the most fundamental and important prerequisite judgements in management was introduced in Chapter 19. It is the imperative to conceive of wildlife management *at the population level* – rather than in terms of the species' global status. The need to create a new 'population' dimension to the international wildlife status classification criteria, therefore, is one of the obligatory starting points in the formation of the desirable new international wildlife management culture.

The respective management needs of the many different populations of white rhinoceros in Africa is a very good example supporting the view that management should be directed at a species' separate populations.

The southern race of white rhino now numbers some 4 000 (plus) individuals – and it is considered to be safe. Most populations of this subspecies are, therefore, being managed – *correctly* – accord-

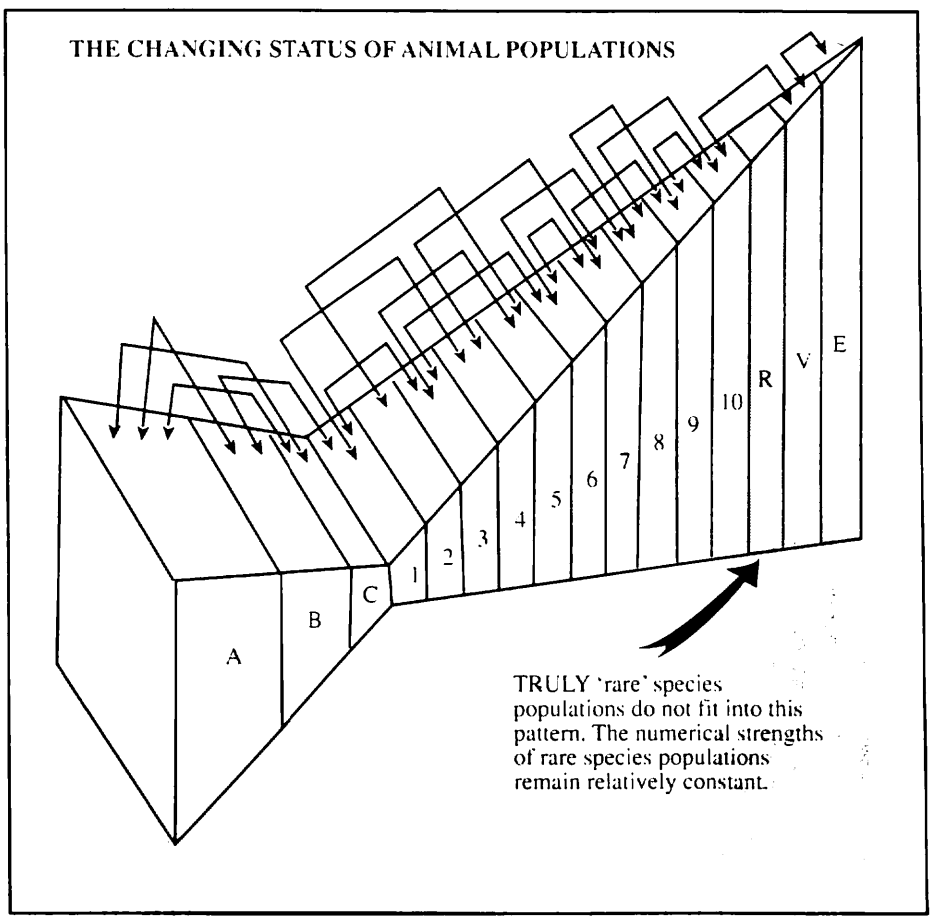


Figure 25.1 The changing status of animal populations
In this diagram the management ladder is being used to portray the changing status of the collective populations of different SPECIES in a game reserve – over time. As the positive and negative pressures exert themselves on the populations of a given species, so their positions on the management ladder will change. Only truly rare species will maintain their positions.

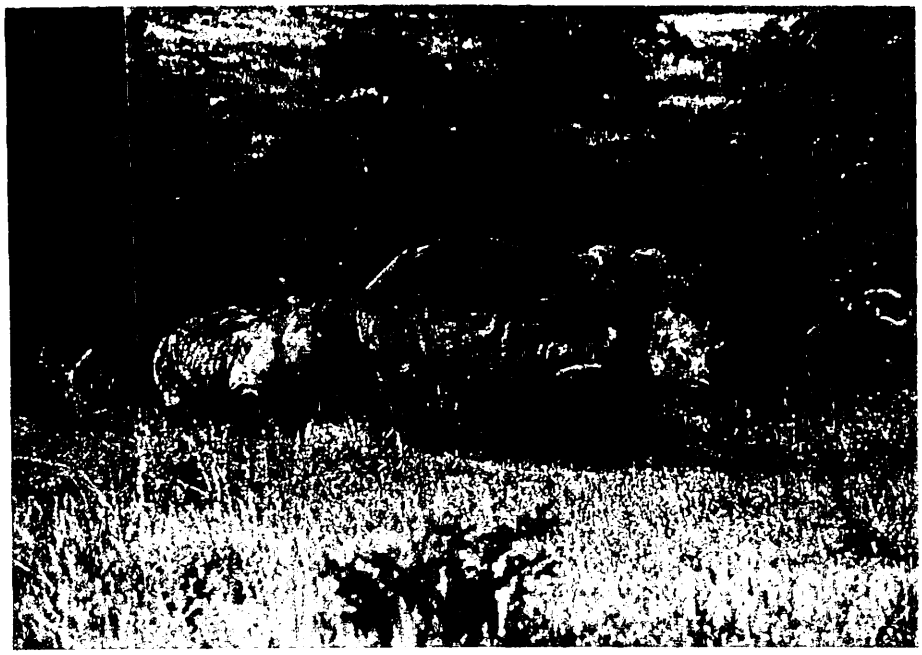


Figure 25.2 White rhino are breeding exceptionally well in southern Africa
The southern race of white rhino is thriving in Zimbabwe, Namibia, and South Africa. They are doing so well in Kruger National Park, in fact, they will probably have to be culled there – to protect their grassland habitats – in the not too distant future.
Photo: *Natal Parks Board*

ing to the principles of *conservation* management. Indeed, several trophy animals are shot from these populations each year by high-fee-paying hunters. And despite this hunting pressure, the populations are increasing rapidly. What is more, white rhinos are expected to become so numerous in South Africa's Kruger National Park during the first decade of the next century, that the national parks authorities there will have no option but to annually cull them in large numbers.

On the other hand, a relic group of about twenty individuals now represents the smaller northern race of this species. And they are all located in one sanctuary – Zaire's Garamba National Park. There are, in addition, 14 live specimens in zoos around the world.

The northern white rhino subspecies, therefore, is now reduced to just one population in the wild; it is very low in number; and it is not immune to poaching. It is truly, therefore, *critically* endangered. And the few animals that remain are correctly being afforded the highest degree of preservation management possible in the national park.

It would undoubtedly be a more appropriate strategy *at this stage*, however, to completely remove the surviving animals from the wild, and to confine them to a *totally* safe locality – there to increase their numbers in protective captivity. But the Zairean government is not keen on this idea. The government's attitude has been considered by some people to be a case of mis-directed national pride – and by many others to be an example of very poor wildlife management judgement.

Nevertheless – even if the northern race of white rhinos was clearly slipping towards extinction – it would make no sense at all to apply preservation management strategies to the southern white rhino populations. How could 'preserving' healthy and expanding white rhino populations in South Africa possibly help save Zaire's relic white rhinos? One would think that even a simple half-wit could be made to understand the logic in refuting such a suggestion.

Yet, this is *precisely* what the delegates to CITES 1989 did when they voted to place the African elephant – *as a species* – onto the CITES Appendix I list. The imposition of an international ivory trade ban, therefore, is another example – and it is a good example – of very poor wildlife management judgement.

ALL wild animal populations are in a constant state of flux – due to the exigencies of local climates; the interaction of competitive species; the effects of changes to their habitats; the effects of predation, parasitism and disease; *and* as a result of management applications by man. The numerical strength of each population is, therefore, always either increasing or decreasing – rarely is it static. And its general health and vigour pulses with the positive or negative factors that influence its fecundity, and that affect the survival of individuals.

In a *community* of *different* species populations, their relative status is also in a state of perpetual ebb and flow. The respective and relative positions of each population on the management ladder shifts, therefore, year by year; and their appropriate annual management needs vary accordingly.

Figure 25.1 should be visualised as reflecting the dynamically changing status of the many populations of *different* species – as will occur, for example, in a single game reserve. The intensity of preservation management that is applied to any one of these populations – of whatever species – or the degree of conservation management that it deserves – will vary with its progression up or down the ladder. The judgement required to place *ALL* these populations in the correct positions on the management ladder, therefore, is patently a critical factor in the practice of wildlife management.

The constantly changing status of different interacting wild animal populations is a manifestation of the dynamism of the biosphere itself. The management of these populations, therefore, should be afforded the same elasticity that nature herself enjoys when balancing her posi-

IUCN for the world's national parks. They boldly state that it is tantamount to the 'benign neglect' of the most valuable wild natural resources on earth - most of which are contained within national park systems.

The decision to *NOT* interfere in the population dynamics of wild animals and their habitats in national parks, however, is just as much an artefact of man as one that prescribes the opposite. It is purely *a subjective human value judgement* that has been imposed on the world's national park systems. It is simply a 'policy' that has been designed by a group of people of like mind - by people who have been trained in the same 'school of thought' - which is the same thing as saying they have been *indoctrinated* with the same subjective principles. And it is enforced by indoctrinated administrators who have the authority to put it into effect.

But there is nothing at all 'natural' about the 'minimal interference' edict; nor is it scientifically objective; nor is it, indeed, *justifiable* under today's circumstances.

Nevertheless, hands-off management is often the preferred option that is applied to all kinds of wildlife sanctuaries - sometimes absolutely - sometimes with very subjective deviations when overt management action *cannot* be avoided.

A major disadvantage of hands-off management is that when it is applied consummately, the more sensitive plant and animal species in a national park are maintained under a *constant* state of negative pressures: either through being constantly eaten too much by excessive numbers of animals - in the case of plants; or as a consequence of significantly heavy competition - in the case of animals. Such plants and animals, therefore, can be readily eliminated - in a single exceptional 'bad' year - from game reserves that practice this kind of management.

In many national parks, therefore, it is *highly probable* that hands-off management will cause the local extinction of *some* sensitive plant and animal species - over time; and/or it will maintain them locally in an unsafe state.

To confirm this state of affairs, a recent IUCN publication had this to say on the subject:

> *'While it may be true that no protected area is ever large enough to retain its full biological diversity once it becomes isolated from other similar habitats (and it is as well to realise this and expect some species losses), this does not mean that even small areas will not protect some of the component species, often with reduced niche competition (which can favour rare species).'*

In this incredible statement, the IUCN clearly state their understanding that 'species losses' can - *and probably will* - occur in national parks if hands-off management is applied. Yet the union persists in recommending it!

There are many more negative effects that result when hands-off management is applied to modern game reserves. Some of these effects have not yet been properly described; others have not even been considered. Nevertheless, there are clear indications that some very potent, but intangible, stress factors come into play when animal populations saturate their habitats - and when emigrants cannot disperse effectively. These become particularly manifest when game reserves are fenced, or when they are surrounded by hostile human developments - which achieves the same end result.

Many modern game reserves in the developed world - certainly in Africa south of the Zambesi river - meet one or the other of these criteria. In these cases, game-proof fences *totally* eliminate any possibility that emigrants can disperse effectively - as did the reedbuck from Natal's farmlands, for example. Fences also exclude any possibility that new immigrants from outside the sanctuary can join the populations of animals that exist within them. And human developments on the boundaries of game reserves - especially intensive agricultural or human settlement developments - seriously inhibits the operation of both these mechanisms, even when fences do not exist.

Elephant, for example, will voluntarily vacate their habitats when invading human populations achieve *average* densities of about 15 people per square kilometre. Other species will do so when human populations reach greater or lesser densities - or when adverse habitat changes wrought by man reach certain thresholds. This is a manifestation of the powerful natural 'comfort zone' mechanism that maintains a *species' lebensraum* in communities of species - which was explained in Chapter 30. In this case, one of the species - the dominant species - happens to be man.

It is inconceivable, therefore, that emigrant animals will voluntarily vacate their game reserve sanctuaries, and move into adjacent human-dominated environments that violate their natural comfort zone thresholds - even when their own habitats are thoroughly congested. The *lebensraum* regulating mechanism is clearly more influential on wild animal behaviour when it applies to a hostile species, therefore, than when it applies to individuals in a population.

When population reduction is not practiced in game reserves that are fenced - or whose wild animal populations are 'boxed-in' by human developments outside - the adverse effects of the resultant population congestion can be profound. Sometimes this takes the obvious and simple form of over-population. Sometimes, however, the effects are far more difficult to diagnose - and so also to ameliorate - because they are expressed in the form of intangible and abstrusive stress forces.

There are two good examples of this somewhat chimerical phenomenon.

The last remaining Javan rhinoceroses live as one population in the island's Udjong Kulon National Park. They have increased over the years and are now thought to number some 60 animals in total. They are 'managed' according to the principles of hands-off management.

These rhinos share their habitat with several other species one of which, the banteng - a type of wild cattle - seriously compete with the rhinoceros for food; and they share many of the same parasites. The banteng numbered only about 200 animals in the reserve in 1970; but it had increased to over 1 000 fifteen years later. Furthermore, researchers have shown that the now excessive numbers of banteng have affected the physiognomic character of the habitats in this sanctuary - by retarding tree growth, and by changing other vegetation patterns.

Three things have happened to this

Figure 36.5 An endangered Javan rhinoceros dies to a 'mysterious disease'
In late 1981, six Javan rhino carcasses were found in the Udjung Kulon National Park (there may have been others). Their deaths were put down to some unknown 'mysterious' disease. The author believes they probably died from stress-related causes associated with the population's maintenance at the ECC of its limited habitat. There are direct parallels between this die-off, therefore, and the 46 black rhinos that died in South Africa's Hluhluwe Game Reserve in 1961.
Photo: *WWF International.*

sanctuary, therefore, that have had an effect on the Javan rhino: The rhino population has, apparently, 'stabilised' at about 60 animals; the habitat has changed in character – and continues to change – as a result of Bateng habitat utilisation; and a greatly enlarged Bateng population is seriously competing with the rhinoceros for primary habitat resources.

Two things can be fairly safely assumed from this scenario: having apparently 'stabilised' the rhino population has clearly reached the ECC of its habitat; and the rhinos' habitat ECC has been, and continues to be, consistently reduced as a consequence of increasing numbers of banteng. There is nowhere for emigrant rhinoceroses to go, so they remain within the population – under adverse levels of high intraspecific, *and* interspecific, stress. And somewhere, somehow, under these conditions, *something* has had to 'give'.

In 1981/82 *'at least'* six Javan rhinos died of what was called *'a mysterious disease'*. If the truth be known – because it is really very difficult to know *exactly* what goes on in an animal population living in a dense jungle habitat – there were probably *more than six* animals that died that season. And, what is more, it is probable that a trickle of animals die of this 'mysterious disease' *every* year – but their carcasses are rarely found.

An almost parallel situation has occurred in South Africa's Natal Hluhluwe game reserve[1] – which is *completely* ring fenced *and* surrounded by dense human habitation. In 1960 this game reserve was almost entirely covered in dense acacia thorn thicket – which was an ideal habitat for its then estimated population of 300 black rhinoceroses. The game reserve was not popular with game viewing tourists, however, because of the thick bush – the visitors could never see any wild animals when they visited the sanctuary. So the Natal Parks Board *purposefully* set about opening up the habitats – to satisfy the demands of the tourists.

This was effected – initially – by using chemical herbicides to kill off the acacias

1. The Natal Parks Board does not practice hands off management in any of the game reserves under its control. This fact, nevertheless, does not detract from what happened to the Board's black rhinoceros population in Hluhluwe game reserve.

and other woody plants in designated areas. Then grazing animal populations were significantly reduced - which thickened up the grass sward. And finally, severe, hot fires were continuously applied to kill off young and regenerating woody plants. And the fires also ate away the thicket edges. Thus, over the years, those young trees that survived the repeated holocausts - and in the absence of competition from the woody plants that had been killed off by the fires - grew out to maturity. It is also a fact, however, that this period *also* coincided with one of the natural cyclic vegetation growth phases that occur in Hluhluwe - when *some* of the acacia tree species were in the process of automatically maturing, *en masse*, anyway. So nature leant a hand in the process, too.

Twenty-five years later, the habitats in Hluhluwe game reserve were a lovely mosaic of grassed valleys - with scattered pockets of thickets - game viewing was optimal - and the tourists were happy.

In terms of what the habitat manipulation did to the ECCs of the game reserve's black rhino habitats, however, the story is far less attractive. What happened, in fact, was that, throughout the years of *purposeful* thicket reduction, the ECCs of the black rhino habitats were progressively, consistently, and substantially reduced.

The black rhinos' initial response to this deliberate man-induced change to their habitat was manifested by a die-off of 46 animals during the period July to October 1961 - that is, during the very first dry seasonal 'bottle-neck' period that occurred immediately following the first series of overt actions to reduce their habitat cover. It is quite possible - even probable - that even more animals died but were not found.

The dead animals were not all old individuals. They came from an across the board representation of all sex and age classes in the population. Furthermore, autopsies revealed that they had all been in apparently good physical health prior to their deaths. Some people believed that the dead animals had somehow been belatedly poisoned by the chemical herbicides. But, in fact, nobody has ever really been able to ascertain their actual cause of death. The final diagnosis was 'death due to mysterious unknown causes'.

Nobody, apparently, ever considered the possibility that the management action to reduce the habitat cover at Hluhluwe would lower the game reserve's black rhino carrying capacity. Neither, apparently, did anybody ever seriously consider that there was a link between the habitat changes that took place and these strange deaths - because the habitat management activity was allowed to continue! Finally, nobody seemed to have given any thought to the possibility that the habitat had been initially saturated with black rhinoceroses, and that something would have to 'give' when the habitat's ECC had been reduced.

In fact, in retrospect, is seems quite certain that no one gave any thought *at all* to the effect the habitat changes would have on Hluhluwe's black rhinos.

The dramatic *sudden* death of such a large number of animals was never again repeated at Hluhluwe - but twenty-five years later the game reserve's black rhino population had been reduced to some 70 individuals - and South African society demanded to know the reasons why. The reason, of course, was because, throughout this long period - as the habitat's ECC was being progressively and ever more greatly modified - *especially* by man - black rhinos had been dying. But the excessive mortality went practically unnoticed until the syndrome was very well advanced.

There is no other explanation. From 1960 onwards, black rhinos had died off - each and every year - at a rate that corresponded with the change in the habitat's lowered ECC. Consequently, it can be concluded that, because there were 70 animals in the population in 1985, this number represented the ECC of the game reserve's black rhino habitat *at that time* - 25 years after the whole sequence of events was begun.

A small number of black rhinos were admittedly captured and moved out of the game reserve during this period, too - but any gaps these infinitesimal removals created would have been immediately filled by subadults. For the purpose of trying to evaluate what actually happened to Hluhluwe's black rhino - overall - therefore, the small number of animals that were captured and removed can be ignored.

Interpreted in terms of the thesis presented in this book, it can be said that over this protracted period of time all black rhinos that were surplus to the needs of Hluhluwe's constantly diminishing population, became vagrants - and they died within the game reserve boundaries. This does *not*, of course, mean *just* the approximate 230 animals that are known to have disappeared between 1960 and 1985, but, *additionally*, the 8 - 10 percent annual increments of whatever the standing population was in each one of those twenty-five years, too.

But how, and why, did these animals die? They died, of course, from stress-related factors. And the stress itself was undoubtedly caused by the very intangible *lebensraum* population regulation mechanism that is clearly very strongly operative in the black rhino species.

Another model will most easily, and graphically, demonstrate how these unseen tensions develop under such circumstances. Consider Hluhluwe game reserve as being represented by the same polished table top that was used in the population model described in Chapter 27. In this case, however, the edges of the table represent the game reserve's boundaries; and the magnetised steel cubes represent individual black rhinos.

In this special case, foot-high plank walls are affixed to all four edges of the table. This barrier represents the game-proof fence that surrounds the game reserve - although it could equally well represent the unseen but nonetheless still strongly inhibiting human 'presence' that might just as forcibly ensconce another game reserve.

The magnetised steel cubes are added as in the previous manner - but, in this case, when the table top has reached saturation point, none of the cubes can fall off the table edge - in other words, they cannot be pushed out of the game reserve. Irrespective of this fact, after every breeding season more and more animals are added to the population. So more and more magnetised steel blocks have to be continually added to the table top.

It requires little imagination to understand the intense magnetic tensions that will be generated between the steel blocks on the table under such conditions. Neither does it require much creative thought to extrapolate this scenario into the real world – to understand the intangible tensions that are created within and between populations of wild animals, and between communities of different species of wild animals, in game reserves that are maintained under such congested conditions.

Nevertheless, it is apparent that some species populations are able to process a considerable degree of such tension – but only at the cost, among other things, of an over-use of the habitat's primary resources – and an eventual population crash[2]. Other species – like the black rhino – do not seem to have this ability. And they die from various intrinsic stress factors – which might well be hormonal in nature.[3]

The adverse effects of hands-off management, therefore, are far from being merely hypothetical. It is consequently very puzzling that such an august body as the IUCN should still advocate this type of management for the world's game reserve national parks.

This story, however, does not end here. The subject of black rhino management is taken up again in Chapter 38.

2. The population crash syndrome is discussed in Chapter 39.
3. An investigated example of this syndrome, and how a change in hormonal balances can cause death in excessive animal populations, is explained in Chapter 44.

lations of a so-called endangered 'species'. It is clearly preferable to *IN*-active, hands-off, preservation management where, *at best*, a status quo in the safety-ranking of the original population is maintained – and where, *at best*, only minimal breeding stock is released to establish a few *unsafe* populations of the species in other sanctuaries.

Unfortunately, administrators, politicians, wildlife managers, and nature-lovers in the general public, alike, all tend to become ultra-cautious in their attitudes when it comes to the management of a 'species' that has been declared 'endangered' – or even just 'vulnerable'. Yet it must be quite clear from the explanation offered in this chapter that the *over-protection* of totally safe populations of endangered 'species' can be very counter-productive. It is a sad fact that, as a consequence of this timidity, man has *created* situations that have actually *caused* the endangerment of some 'species', and he has unnecessarily *prolonged* the endangered status of many others.

The management needs of unsafe 'species' – particularly of the so-called endangered 'species' – should be above parochial, personal, provincial, national and organisational interests. Concern for the endangered 'species' themselves should be paramount. There are, however, countless examples where this is not the case.

It is probably true to say that – human nature being what it is – the people involved with *any* wildlife issue more often than not consider their own personal interests and beliefs, or the interests of the organisations they serve, in preference to those of the wild animals they purport to care so much about. This statement applies to lowly managers in game reserves and national parks in the field, to their superordinates, and right through the public spectrum of special interest groups to the animal rights activists. This reality of human nature adds a further dismal dimension to the tragedy of the declining populations of our endangered 'species'.

Unsavoury though this revelation may *now* be to some older wildlife agency administrators, the following story is a classical example of this sad human behaviour pattern.

In 1960, when Natal's provincial Hluhluwe Game Reserve contained some 300 black rhinos, the South African National Parks Board requested of the Natal Parks Board a few pairs of black rhinos for introduction to the Addo Elephant National Park. At that time, the request was refused because the Natal authorities were, apparently, not prepared to release *any* of these very valuable animals to any other wildlife authority *'until the animals had increased in number'*. No-one at that time seemed to realise that they could *not* increase any more in number because, in Hluhluwe, anyway, they had saturated their habitat. Paradoxically, that same year, the Natal authorities began the long term habitat modification programme in Hluhluwe that eventually reduced the habitat's black rhino carrying capacity from 300 animals to 70.

The current hierarchy of the Natal Parks Board are, today, very sensitive about these facts – and individuals within the Board offer alternative arguments, firstly, to excuse their not having supplied Addo National Park with black rhinos in 1960; secondly, to question the accuracy of 1960 black rhino population figure of 300 – which detail is really immaterial to the argument anyway; and, thirdly, to *otherwise* explain away the habitat changes that have taken place in Hluhluwe – by playing down the effect of man's overt management of the habitats, and by over-emphasising the effects of natural vegetation maturation.

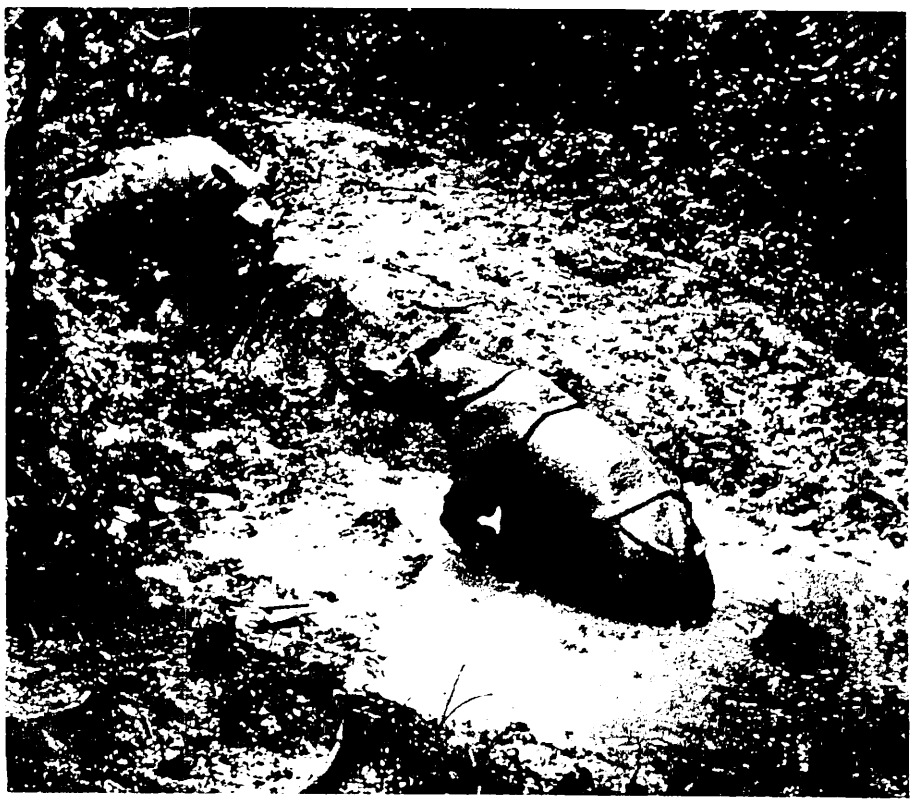


Figure 38.2 The 'highly endangered' Javan rhinoceros. Is the over-protection of its single safe population hindering the species' recovery? *The last remaining Javan rhinoceroses on earth now number some 60 individuals. They live as one population – which is maintained in typical national park fashion at the ECC of its habitat – in the isolated Udjung Kulon National Park on the western tip of the island of Java.* Photo: *WWF International.*

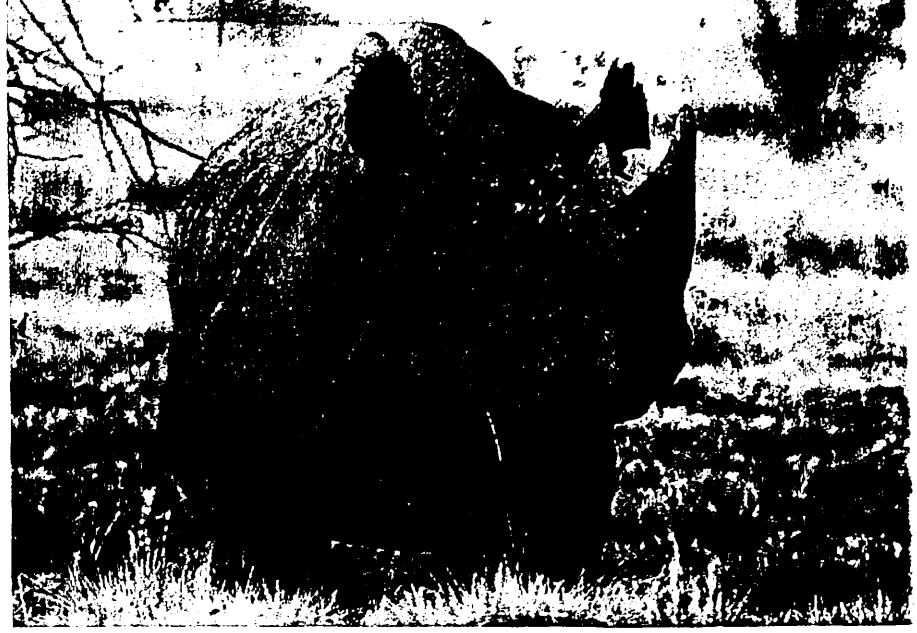


Figure 38.3 The black rhinoceros. Pro-active management in southern Africa has put this species back on the road to a rapid recovery
The black rhino – once the object of provincial jealousies in South Africa – is now being pro-actively managed in the best interests of the species. Not one black rhino population in South Africa is endangered.
Photo: *Rick Mathews.*

Why can't they just say: 'In those days we didn't have the experience we have today – and we made many mistakes. *In essence*, what you say is true – but we wouldn't make the same mistakes today.'? Most reasonable people would accept such an honest attitude.

Nevertheless, the bald, historical facts tell the true story.

In the event, the South African National Parks Board obtained black rhinos from East Africa, and successfully released two pairs into Addo Elephant National Park in 1964. It is interesting to record that these animals increased six-fold in the following twenty-five years. This, however, is the reason why Addo Elephant National Park, today, contains a population of black rhinos of the East African sub-species.

In retrospect, if the Natal Parks Board had given the South African National Parks Board *HALF* of Hluhluwe's black rhinoceroses in 1960 – that is, 150 animals – and if the bulk of those animals had been released into Kruger National Park that same year, Kruger's black rhinoceros population would today number well in excess of 2 000 animals. Furthermore, had no man-made habitat changes taken place in Hluhluwe at all, the remnant population of black rhinoceroses in that game reserve would have returned to 300 animals well before the end of the 1960s decade.

Happily, in much more enlightened recent years, the management of South Africa's several safe populations of black rhinos has become a fully cooperative national effort that is of mutual concern to *ALL* the country's official wildlife agencies. Nevertheless, *totally* bold conservation management strategies – as advocated in this chapter – are *still* not being *fully* applied. Nevertheless, what is happening today is a *vast* improvement over what pertained in 1960. Unfortunately, this state of affairs has come about – *not too late* – but 30 years *after* it should have been first applied. And, characteristically, it has *only* come about as a *reaction* to the endangerment crisis that has enveloped the black rhino populations elsewhere on the continent!

Hind-sight, they say, is the only *truly* exact science!

Nevertheless, the new cooperative wildlife management mood in South Africa has, thankfully, happened – and, hopefully, the authorities have learned a valuable lesson from their past mistakes.

The wildlife authorities in South Africa – or in any other country of the world, for that matter – will not do full justice to *any* of their endangered 'species' until they abandon the tired philosophy of hands-off management; and until they begin to *pro-actively* manage these species – *boldly* – on the specific merits of their individual populations.

Concurrent with the application of pro-active conservation management strategies to any safe population of an endangered 'species', the wildlife manager should continue to strive to enhance all the positive factors that affect that population, and to reduce, or to eliminate, all the negative ones – just as he would do had the population been unsafe. *Nothing should be left to chance.* In this respect, *particular* attention should be paid to predator populations. The very important predator aspect of herbivore population management is discussed in Chapter 45.

Figure 40.18 Capture darts are very versatile
Darts can also be used for the capture of several large antelope species. Here the author removes a dart from the rump of a sable antelope bull he has just immobilised.
Photo: *Bob Thomson.*

Figure 40.19 Many wildlife managers prefer to use individual crates - rather than communal crates - for transporting darted animals
When large adult animals - especially horned males - are darted it is often better to crate them individually. Here two tranquillised sable antelope are being loaded onto a small truck in separate crates.
Photo: *The author.*

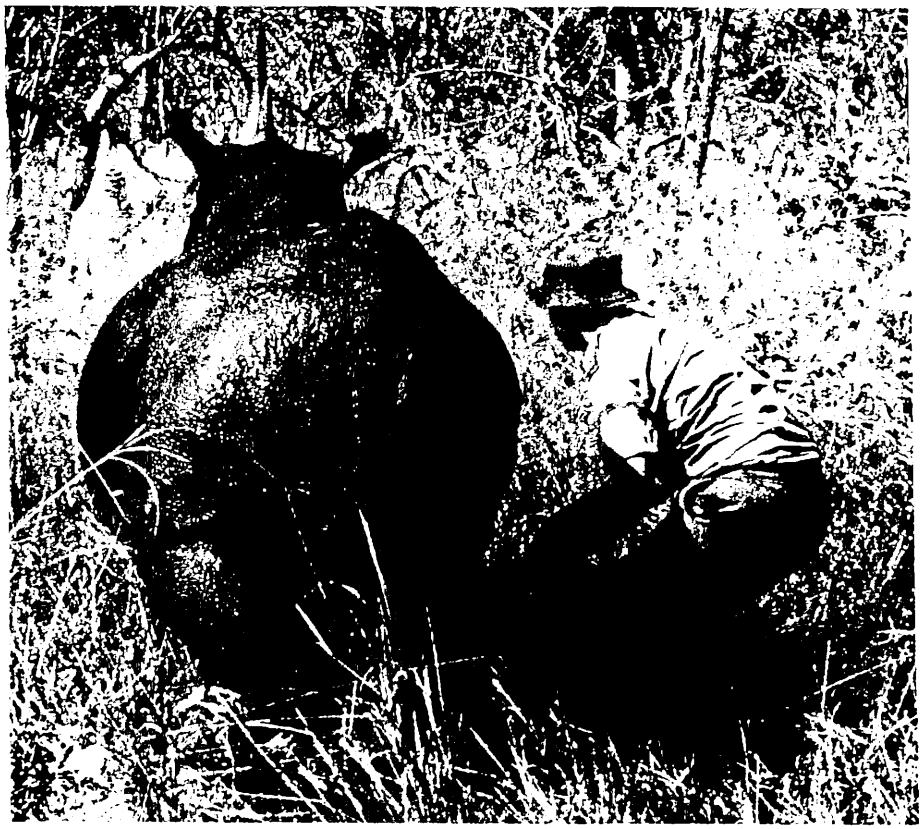


Figure 40.20 Black rhino capture was developed to a high degree of perfection in Zimbabwe in the 1960s and 1970s
The author roping a semi-drugged black rhino. This was the beginning of the easy part of the capture exercise. Getting the dart into the rhino in the first place was the most dangerous and difficult part. Four of the author's friends and colleagues were gored during capture operations.
Photo: *Zimbabwe Herald.*

Figure 40.21 The sleigh was an indispensible piece of equipment under the rugged capture conditions experienced in Zimbabwe
The next part of the exercise was to load the rhino onto a sleigh – and secure it in position on the platform.
Photo: *Rupert Fothergill.*

Figure 40.22 Waiting for the recovery lorry to arrive
1964. Early days – when the capture equipment was made by Mr Heath-Robinson. The author with a drugged rhino tied to a make-shift sleigh. Note the thick Zambesi jesse thicket in the background.
Photo: *Rupert Fothergill.*

Figure 40.23 ***The conditions under which black rhinos were captured in Zimbabwe - and the places from which they were extracted - during the 1960s and 1970s - were unbelievable***
The author supervising the loading of a black rhino cow and her 20 month old calf on the 4x4 field recovery lorry. There was only one such lorry and the capture team had to 'make-do' no matter what the circumstances.
Photo: *The Zimbabwe Herald.*

Figure 40.24 ***The construction of the rhino holding pens in the field was a major undertaking in itself***
In the field, the rhinos were accommodated in pole stockades. The poles of the wall were sunk into 3 foot deep trenches in the ground. Adult black rhinos are immensely strong and they cannot be contained in insubstantial enclosures.
Photo: *The Zimbabwe Herald.*

Figure 40.25 Transportation crates, being made only of the hardest and strongest wood, were expensive to construct. This one was donated by the South African Timber Company
Black rhinos were transported in only the stoutest wooden crates which were strapped with thick steel bands. Despite the strength of these crates they were often very severely damaged by truculent bulls.
Photo: *The author.*

Figure 40.26 The morning after a tiring 600 mile journey
A black rhino and her calf being released into their new home in the Gonarezhou National Park, 1970. Eighty one black rhinos were released into this game reserve. The last black rhino was killed in this area – before it was protected – in 1934.
Photo: *The author.*

Figure 40.27 A good example of second order thinking
Dr Bruce Thatcher, an American hunter, stands proudly behind his first white rhino bull in Pilanesberg National Park. Dr Thatcher had only darted this animal (under the supervision and guidance of an experienced game ranger), however, and it was released into another national park which was being stocked with white rhino. This is an excellent example of second-order thinking – when funds are short, getting hunters to pay for the privilege of catching (not killing) such animals for management purposes. So, if any reader has a spare US $10 000 lying around . . .
Photo: *Rick Mathews.*

43

Wildlife economics

WILDLIFE economics is a new science in the field of wildlife management. Nevertheless, all the signs point to the fact that it will develop into one of its most important cornerstones.

Traditionally, wildlife has never been expected to pay its own way. In every country of the world the general public have come to expect that their governments *must* and, what is surprising, that they *should* pay for the maintenance of their wildlife resources. They reason that wildlife is, after all, part of their national heritage, so it is only right that it be 'conserved' at the cost of the tax-payer.

Cliche's in this context abound.

King George VI once expressed the view that wildlife was not ours to dispose of as we pleased, but was in trust. In July 1987, his grandson, His Royal Highness Prince Charles, said of this remark:

> *'I personally don't aim to let him (his grandfather) down. But you have to keep struggling to persuade people that unless the effort (to 'conserve' wildlife) is made there will be very little left. It is a bore. I know it is. But it is essential to do so for our children and our grandchildren.'*

Wildlife is looked upon by most people in the First World as it is portrayed in glossy tourist brochures - beautiful and sacrosanct. Most First World people also sincerely believe that it is immoral for anyone to 'make money' out of wild animals. Yet few of these same people have such strong moral views about chopping down trees to 'make money'. They don't seem to realise that the sometimes destructive manner in which trees are cut down causes deforestation which totally destroys the habitats upon which many wild animal species depend.

Paradoxically, the same people who one day may buy furniture made from trees cut down in an equatorial forest will, the very next day, join an animal rights demonstration protesting against the trade in parrots that once lived in those same forests. They will do this because they have been brain-washed into believing that the trade in parrots is causing their extinction - and they will give no thought to the fact that the cutting down of the forest trees is infinitely more harmful to the parrots than is the trade.

Despite the often irrational and dogmatic viewpoints of the animal rights organisations that think otherwise, there is a rapidly growing understanding that the laws of economics can actually *help* wildlife in, not all, but many fields of 'conservation' endeavour.

The cost of preserving many vitally important but threatened habitats, and of many critically endangered 'species', will, perhaps, *always* remain a financial burden on society. On the other hand, many other unsafe 'species' - and most safe 'species' - may have a very much brighter, and a much more management-cost-effective future, if price tags were to be placed around their necks; and if they were to be traded, under strictly controlled conditions, in the open market place.

Certainly, in the face of man's burgeoning population growth, and his constant demands for more and more land on which to make a living, the undoubted *only* way to secure a future for commercially viable safe 'species' is to treat them as wild profit-making 'products of the land'. It is much more preferable that man should exploit the potentials of safe wild animal populations, *on a sustained yield basis*, than that he destroy their habitats, and that he develop the land they once occupied, for alternative agricultural purposes. But the protectionists will never be persuaded to understand and accept this.

At the 1987 CITES meeting held in Ottawa, Canada, animal protectionists proposed a *total* international ban on the movement of *any* rhinoceros product across international borders. This proposal was made, ostensibly, to help endangered rhino species - everywhere - but, particularly, to help save the besieged black rhino. It was also - not just coincidentally, either - a subtle ploy to stop the hunting of white rhinos, because such a ban would have included even legally procured hunting trophies obtained from the safe white rhino populations of southern Africa.

The southern African states, as might have been expected, objected to this proposal on the grounds that such a ban would effectively prohibit the legal trophy hunting of the safe white rhino; and that it would negate all the many benefits this activity brought to the species - and to the southern African region. Clearly, no international hunter would come to Africa to hunt a white rhino unless he could take the animal's trophy back home with him. It was explained - by the Zimbabwe delegation - that the white rhino is one of the 'big five' trophy animals and, as such, it is a major draw card that brings many international hunters to southern Africa every year.

Indeed, the prices that hunters are prepared to pay for the privilege of hunting a white rhino; coupled with the value of the other species hunters purchase when

accepting a hunting package that includes a white rhino; coupled also with the very high daily fees hunters are charged for their safaris, has enhanced *private* wildlife 'conservation', generally, in the whole of southern Africa. And it can be said that the white rhino has been the economic flagship of this desirable development.

Purely financial implications, for example, have encouraged many private land-owners in South Africa, in Zimbabwe, and in Namibia, to convert their cattle ranches and their farms into game ranches; and to invest their money, not in crop production, or in cattle, or in sheep, but in the procurement of white rhinos and other game animal breeding stock. They have not, however, done this for any altruistic reasons - such as a desire to help the white rhino out of a possible extinction rut; that has happened as an incidental spin-off in the process. They have done this because they recognise that the hunting safari business, when a white rhino can be included in a hunting package deal, is a sound financial investment. Indeed, at the beginning of the 1990s, of the 4 200 white rhino extant in South Africa, some 800 were being maintained on privately owned land.

Therefore, as a direct consequence of their recognition of the value of the hunting safari industry, hard-nosed businessmen have caused the white rhino species to expand its range significantly in southern Africa. What is more, many habitats that had been modified by past farming and cattle ranching practices are now reverting to their original wild state; the other species that are included in the hunting packages are expanding their range, too; and the new natural habitats are once again - and quite incidentally - supporting a wide range of other non-huntable wild animal species that had been pushed out by the previous agricultural land-use practices.[1]

It was pointed out at the CITES meeting, therefore, that the protectionists' proposal would not only prohibit the hunting of white rhinos in southern Africa - which would entirely remove the business incentive to maintain this valuable species on private land - but all the associated 'conservation' benefits would disappear, too. And that the game ranches, on which the hunting of white rhinos and other game animals took place, would undoubtedly be returned to a conventional type of agricultural land use. The land owners, after all, still have to make a living from their land!

The motion was, thankfully, defeated.

The hard currency value of many wild animal species, therefore, is a great incentive for wildlife managers in the private sector to invest land, money and time in their proper management. There are countless examples to verify this fact. The pro-active management strategy that favoured the expensive tsessebe in the commercially-orientated Pilanesberg National Park, and that purposefully contained the population numbers of its less valuable but more successful competitor, the red hartebeest, has already been explained. Exactly the same procedure could be applied, commercially, to many other uncommon and financially valuable animal species by private entrepreneurs. This, however, will *only* happen if these animals can be hunted, or if they can be bought and sold to best advantage, on an open commercial live-sale market.

The protectionists are horrified by this idea. They call it grossly immoral, and a shocking example of man's 'greed' for money. *But it works!* Many wild animal species - and their vital habitats - are being properly maintained as a consequence of economic reality. And that fact cannot be ignored. If the profit-motive can provide practical and feasible answers to the problems that currently beset many wild animal species, then surely that is preferable to society fumbling along in its first order thinking mode - and finding no answers at all? The protectionists, however, would rather force the whole of society to plough dismally through life finding no answers - because they themselves wish to wallow in a rut of Utopian idealism.

The financial-incentive approach, in fact, could *particularly* benefit many unsafe 'species'. If, for example, breeding stock of such animals were to be made available to selected and properly experienced private investors - for purchase at the animal's real commercial value - it is a foregone conclusion that

Figure 43.1 The white rhino - the financial flagship of southern Africa's huge privatised 'conservation' drive
This SCI 'gold medal' white rhino bull was shot by an American trophy hunter on a private game ranch in Namibia. The white rhino - as a hunting trophy animal - is responsible for the truly huge expansion of private game ranch holdings in southern Africa over the past twenty years.
Photo: *Volker Grellmann.*

1. Statistics released in December 1991 revealed that there was 2,8 times MORE private land under commercial wildlife management 'use' in South Africa than there was protected 'conservation' land held under state control - including the national parks.

the quality of the purchaser's pro-active production management of those animals would be of the highest possible order. Indeed, it would likely be impeccable. Furthermore, if such animals *were* made commercially available, their scarcity, and their special status, would boost their value on the live animal market. This, in turn, would yet further reinforce the motivation for a businessman to protect them, and to manage them correctly.

This proved to be the case when the Natal Parks Board sold its first breeding unit of five young black rhinos to a private game rancher in 1990. The prices obtained were twice the real value of the animals sold.

What is not, perhaps, generally appreciated, is the fact that when a businessman game rancher makes a heavy financial investment in wild animal breeding stock, he will obviously have a very much stronger *personal* interest in managing those animals properly, than will even the most dedicated of public servant game rangers.

In fact, government employed wildlife management staff have no real personal financial stake *at all* in the animals they have been employed to manage. Nevertheless, even after having said that, it must be acknowledged that government game rangers are normally truly *very* dedicated people. They most certainly do *try* to manage these animals to the best of their abilities - but the constraints of the sometimes idealistic policies within which parameters they simply *have* to work, often do not permit them to attain truly desirable goals. What is more, civil servant game rangers receive a salary at the end of each and every month, irrespective of the effectiveness of their management effort - and their mental processes are often bugged, one way or another, with varying degrees of wasteful hands-off management idealism.

The economic survival of the private wildlife management entrepreneur, on the other hand, depends *entirely* upon his financial and management effectiveness. The private game rancher will, under no circumstances, therefore, entertain *any* kind of thought about inefficient hands-off management. His *entire* effort will be directed towards achieving pro-active 'production' hands-on management of the highest order and effectiveness.

The use of the profit incentive, therefore, has a potential in the field of preservation management that is as yet untested and untapped.

It is a foregone conclusion, of course, that any attempt to integrate economics with wildlife 'conservation' will be impeded by the irrational and emotional activities of the animal rights organisations. And many smoke-screens will be laid across whatever paths might lead to its achievement. Nevertheless, experience has proved that wherever the profit motive is the inducement, the prospects for the successful achievement of desirable wildlife management objectives in the private sector are very good indeed. The idea, after all, is based upon centuries of well tried economic reality. If society would only discard its moral aversions to 'hanging price tags about wild animals' necks, therefore, many currently unsafe 'species' could be immediately set on the road to rapid recovery.

The example of the white rhinoceros in southern Africa, as a whole, is an excellent case history illustrating this point. And what is just starting to happen to the black rhino in South Africa is another. The vicuna is yet another good example - although very significant improvements to the management strategies being currently applied to the vicuna would still further enhance the status of this species in the wild.

Vicuna live in the high Andes mountains of South America and they once numbered in their millions. They produce what has been described as the finest wool in the world and, being wild, in earlier days they were killed in order that they could be sheared. Because of this

Figure 43.2 Evidence of the Animal Rightists' influence in the IUCN
'The saving of the Vicuna from the brink of extinction has depended largely on protection for utilization. There may be controversy about whether this is humane but it has certainly proved to be effective conservation'.

This photograph and caption was extracted from the IUCN publication 'Managing Protected Areas in the Tropics'. The hesitancy with which the Union acknowledges the effective role that economics can play in wildlife management is manifested in the caption. The careful wording of the caption is also a clear reflection of the great influence that the Union's animal rights members have had on the thought processes of the other members; and it is an example, too, of how some IUCN members defer to the protectionists in their ranks. *Reproduced with permission: IUCN & WWF International.*

they were reduced to some 6 000 animals before being, very appropriately, placed under a preservation management regime.

In Peru alone the vicuna now number between 40 000 and 50 000 animals. And today they are captured, sheared and released every two years. They thus provide a continuous supply of wool. Just as it was the value of their wool that caused their decimation in the past, therefore, today it is the value of that same commercial commodity that is proving to be their salvation. Except for the fact that the vicuna produce this expensive wool, the local *campesinos* would have exterminated the species a long time ago – because vicuna share the same range with the peasants' domestic stock, and they compete with their domestic animals for common habitat resources.

Figure 43.1 has been extracted from the IUCN publication 'Managing Protected Areas in the Tropics'. The remarks recorded under this photograph are a reason for concern – because they exemplify the underlying reluctance of at least *some* IUCN officials to accept the economic realities of today's wildlife scenario. Unfortunately, remarks such as these – that directly pander to animal rights ideologies – encourage other people to entertain similarly negative perceptions.

The National Parks Board of the Republic of Bophuthatswana in southern Africa – which controls Pilanesberg National Park – is run as a statutory body. It is currently provided with an annual financial grant from the government to supplement revenues accrued from non-consumptive tourism; from hunting; from the sale of live wild animals; and from the sale of the products of culled animals. It is a principal objective of the Board to one day completely finance itself from these revenue earning sources.

In the late-1970s Pilanesberg comprised only derelict private farms and vacated tribal areas – the vegetation and the soils of which had been greatly abused for many years. Few wild animals were then extant in the area. The newly proclaimed game reserve, therefore, before it could become operative, had to be game-fenced; it had to be restocked with wild animals; all evidence of past human habitation had to be removed; and a tourist infrastructure had to be established. This change began during the latter years of the 1970s.

The more common – and less expensive – species of wild animal were immediately stocked at approximately the 50 percent level of their habitat ECCs. This enabled the management staff to begin harvesting these species a year or two after their initial introduction.

The less common – and more expensive – species were stocked in much smaller numbers and, as was expected, they have increased much more slowly. Ten years after their initial introduction, however, some of these species have entered the surge phase of their population growth patterns. So it can be confidently expected that sometime during the 1990's they will begin to contribute to the game reserve's economy.

A full spectrum of southern African game animal species has been introduced to Pilanesberg; including the elephant, the hippopotamus, the black rhinoceros and the white rhinoceros. The only animal that is absent from the range of herbivorous species that, historically, are known to have inhabited the Pilanesberg area, is the roan antelope. Recently sixteen roan were offered to the park at US $8 000 each; but this price was beyond the reach of the park's coffers.

Notwithstanding the fact that the more valuable animal species had not yet come 'on stream' in Pilanesberg, the game reserve realised a revenue return of some US $350 000 in the 1986/87 financial year – only its sixth year in operation – from its game management activities alone. These activities included trophy hunting, the capture and sale of live animals, and the sale of the products of culled animals. In a few years time – when the full spectrum of species will be involved – it is expected that revenue from these management activities will exceed US $1 million at current market prices. This will be enough to administratively maintain the 200 square mile game reserve without calling upon government for financial assistance.

There are many complicated financial implications, however, that have to be very carefully considered when economics enters the wildlife management scene.

The white rhino population at Pilanesberg, for example, has been pegged at 200 animals. It is currently increasing at between 7 and 10 percent per annum – which means that each year between 14 and 20 animals *have* to be removed to bring the population back to 200. Each year, therefore, half this number are allocated to be shot by high fee paying hunters. The remainder are captured and either translocated to stock the other three game reserves in Bophuthatswana, or they are sold to private game ranchers.

The hunting price for a trophy white rhino bull in 1987 was US $10 000 – but the hunting package was valued at US $15 000; so *that*, in effect, was what this trophy animal was then worth to the game reserve (excluding several other costs incorporated in the hunting package deal). By comparison non-trophy white rhino breeding stock were sold that year to game ranchers for US $2 000 to US $3 000, each. The next year the value of this breeding stock surged. The price suddenly rose for young white rhinos – of either sex – to US $7 500 each on the open market. This brought the live sale value of young breeding stock into near competition with the huntable trophy adult males. So the wildlife manager at Pilanesberg had to seriously consider increasing the cost of trophy animals to hunters; or to stop trophy hunting altogether until it became a more profitable proposition.[2]

It has been calculated that white rhino bulls reach a maximum trophy size at twelve years of age. After this age their horns gradually become smaller because the rate of horn growth is, thereafter, less than the rate of wear. Twelve years of age, therefore, represents the prime age of a trophy white rhino bull.

When the price of three year old white rhino breeding stock suddenly escalated, therefore, the wildlife manager at Pilanesberg had a problem. He had to decide whether it was financially worth his while to keep young rhino bulls feeding off the game reserve for twelve years – so that he could *then* realise US $15 000 each for them as huntable trophy animals –

2. The average hunting price for a trophy white rhino bull jumped to US $36 000 in 1992, and breeding animals were being purchased for US $12 000 each.

or whether he should allow hunters to quickly shoot off a higher proportion of adult bulls – and allow subadult cows to replace their number. The additional number of cows, of course, would produce many more calves from the same sized population – and these calves could be sold at three years of age for half the price of a trophy bull. The latter alternative seemed the most likely one to provide the wildlife manager with the greatest overall financial return from his white rhino population.

When the Pilanesberg white rhino population was pegged at 200 animals another economic consideration was also investigated: what would be the most financially beneficial animals to maintain in high numbers in the game reserve, the common blue wildebeest, or the white rhino?

Wildebeest eat the same basic grass species as does the white rhino – so they are competitors in this respect. In fact, it was calculated that five adult wildebeest eat the same amount of food as one adult white rhino. Consideration was, therefore, given to the possibility that it may be economically more attractive to reduce the number of white rhinos in the game reserve, and to increase the numbers of common blue wildebeest.

The respective value of one white rhino compared to five blue wildebeest was not, however, the simple equation that it might seem.

Wildebeest are normally pubertal at two years of age and they give birth for the first time at age three – sometimes age two. White rhinos, on the other hand, become pubertal at about six or seven years of age and give birth for the first time at about eight or nine years of age. What is more, wildebeest cows produce a calf *every* year once they are mature – whereas white rhino cows produce a calf only once in every three years. So a substantial number of wildebeest can be bred from five new-born male and five new born female calves, in the time span it would take one new born male and one new born female white rhino to produce a single offspring.

Despite this, however, when the value of the two adult white rhinos, and their calf, was compared with the value of the theoretical wildebeest herd that had grown from the original ten animals, the white rhino *still* proved to be the most financially viable proposition. The reverse situation was then considered; should the common blue wildebeest population be reduced so that more white rhinos could be accommodated in the game reserve?

The bottom line in a game reserve national park like Pilanesberg, however, is not *just* the financial value of its game stocks. However, even within this narrow field, there are many other factors to consider, too. For example, game ranchers normally want to buy a preponderance of females when they purchase white rhino breeding stock – so there will likely *always* be a surfeit of bulls in the game reserve. Also, a reasonable proportion of the game reserve's white rhino population *must* comprise mature bulls anyway – and they have to be steadily replaced by younger bulls to keep the population vigorous. So a certain number of rhino bulls will *always* be available for hunters to shoot.

The hands-off management alternative – to allow the mature rhino bulls to become senile and to die a natural death – of course, would be a gross waste of an extremely valuable and renewable financial asset. It is also contrary to the game reserve's wildlife management policy.

Another factor for consideration was that both wildebeest *and* white rhinoceros, irrespective of the fact they are competitors for food, or whether the one is more financially valuable than the other, are *both* extremely important components of the species spectrum. And they *both* contribute to the enjoyment of the game viewing tourist.

Rather than *maximising* the financial returns from his wild animal populations, therefore, the quasi-government wildlife manager at Pilanesberg was encouraged to rather *optimise* the potentials of these resources. And to do this he had to carefully weigh the various benefits associated with *all* his diverse objectives, one against the other.

In a game reserve national park where non-consumptive tourism is a major feature, the maintenance of a good variety of wild animal species will always be a major management objective. A private landowner, on the other hand, who concentrates on providing hunters with particular top quality trophies – or who, perhaps, 'farms' his game animals to provide breeding stock for other game ranchers – will have entirely different objectives. Unlike government professionals, therefore, commercial wildlife managers will equate their wildlife management practices very closely to the financial implications of their respective objectives.

Most national park systems around the world are constituted government departments; and their staffs are civil servants whose thought processes and actions are controlled by the bureaucratic machine within which they are required to operate. The Zimbabwe Department of National Parks and Wildlife Management is one such example – but it is little different to many similar government departments elsewhere in the world. Civil services are, after all, very similar where ever they may be.

Each year in Zimbabwe the wildlife department is granted a monetary allocation that normally bears no resemblance to the financial needs of the organisation. Furthermore, this budget prescribes the activities of its staff by being rigidly divided into sub-sections – for example, monies are provided for government transport costs; private transport costs; road construction; maintenance of tourist facilities; permanent staff and temporary labour wages; and so forth. No transfers of monies between the different 'votes' is permitted.

As happens in most civil service bureaucracies, how the necessary work programmes are implemented on the ground – or whether they are implemented at all – is of less consequence to the detached senior civil servants in the government treasury department – who control the purse strings – than how and when the funds are being spent. These officials are, for example, really *only* concerned that there should be no over-expenditure at the end of the financial year. Economic efficiency – or fundamental administrative effectiveness – are not considerations at all. An officer is deemed to be 'good with money', for example, if he evenly regulates his expenditure during the financial year so that, at the end of it, *ALL* his 'votes' are equally depleted; and if he returns the absolute

minimal amount of his allocated funds to government.

Nevertheless, game rangers – being dedicated to their profession – *always* seem to stretch the dollars by begging, borrowing and stealing matériel to get their jobs done. It is not uncommon, therefore, to hear a wildlife management organisation being referred to as the 'underpants department' – because their game ranging staff are always 'on the bum'.

The revenue derived from whatever source in a government-controlled national parks department does not accrue to the game reserve that earned it, nor even to its parent department. It is absorbed into the government central revenue fund which helps to finance the government's overall next year's budget. There is, therefore, *absolutely no incentive* for the staff of any government department to be financially efficient – or effective; and wastage is consequently often disgraceful.

When their organisations consistently derive no material benefits from the revenue they earn, after a while, the staff of government wildlife departments become inured to leaving thousands of dollars worth of game products in the field – to rot – simply because it is not worth their while to recover them.

Towards the end of one financial year in Zimbabwe, for example, when his station's annual allocations were all but exhausted, the author shot five elephant bulls in protection of a veterinary game fence – about fifty or so miles away from his home station. He had no money left on his government transport vote so he could not recover the valuable hide. Pleas to his head office for additional funds fell on deaf ears. Instead, he was *warned* that government finances were very tight that year, and under no circumstances could he overspend his allocation.

The cost of the lorry transport to recover the hide and the meat of the dead elephants would have been some US $40. The value of the hide, alone, was worth about US $6 000 to US $7 000. Nevertheless, no additional funds were provided and, although the ivory was subsequently collected from the carcasses, the valuable hide, and the meat, were not.

There are countless similar examples of gross financial inefficiency in government wildlife departments – and they occur across the length and breadth of Africa. When it is considered that national parks organisations are *forever* crying 'poverty' – and that the senior staff of these organisations are *always* appealing to the public for more and more funds to put into practice particular pet 'conservation' projects – this wastage of resources must be seen as nothing short of criminal. Furthermore, appeals to the public for donations can only be considered deceitful.

When the reader next hears a public appeal for funds by wildlife authorities, therefore, he should not precipitously dip his hand into his pocket. He should think very seriously about what these organisations could do for themselves – financially – with just a simple change of bureaucratic attitude.

Consider the economic returns, for example, that could be obtained from the pro-active hands-on management of the 16 000 or so elk that die during the periodic winter kills that occur in Yellowstone National Park in the USA. And the loss of the very valuable Rocky Mountain Bighorns that suffer regular suppressive competition from the superabundant elk – as a consequence of that national park's hands-off management policy.

In the case of India, consider the value of the vagrant tigers that are killed in intraspecific conflicts, or by man, in and around that country's Royal Bengal Tiger Reserves.

And in Africa, consider the revenue that that continent's elephants, its black and white rhinos, its buffaloes, its lions, and its ubiquitous leopards, could generate if only the national park authorities would change their archaic management philosophies.

The public *attitude* – that wildlife is *not* a commercial commodity – has *en-*

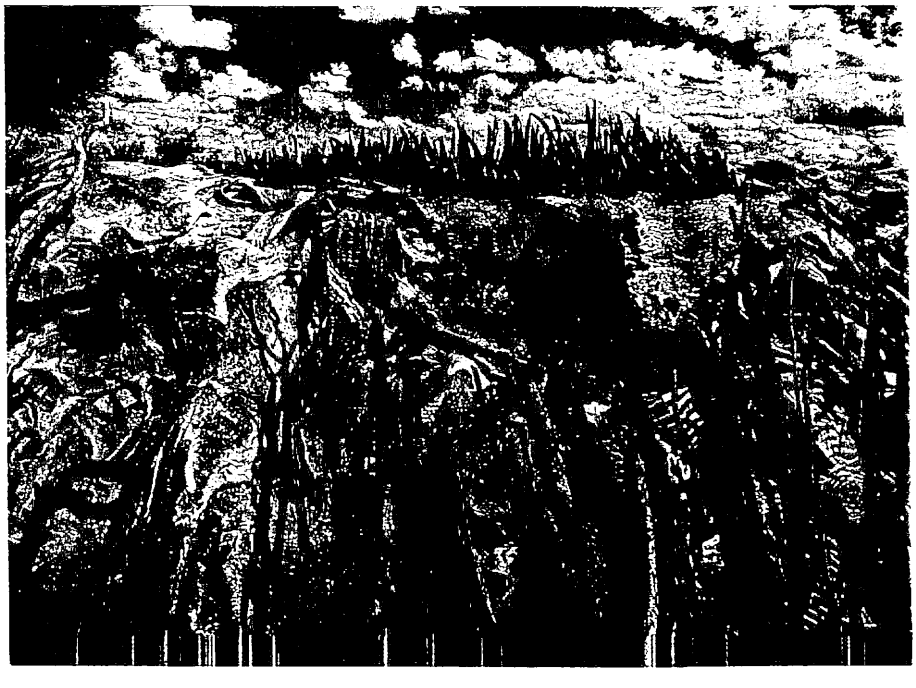


Figure 43.3 Following the 'conservation' scandal of the century – her ivory bonfire – Kenya here prepares to set alight her first rhino horn pyre
Everyone has heard of the 12 tons of ivory – valued at US $3 million – that Kenya burned ostentatiously to impress upon the world their belief that the ivory trade should be suppressed. Here Kenya burns the horns of 283 rhinos – valued on the wholesale market at US $425 000 – together with other valuable trophies – with similar intent. Yet Kenya is not averse to holding out the begging bowl for its 'conservation' needs – nor is it embarassed about recommending imposing a tax on its tourists to help 'save' Kenya's wildlife!
Photo: *Peter Beard.*

The author (front) catching a black rhino in Rhodesia (now Zimbabwe) 1970. He was involved with the capture, translocation and reintroduction of 140 black rhinos between 1964 and 1973.
Photo: *Zimbabwe Ministry of Information.*

Twenty years ago the African black rhino was said to number 65 000. Due to poaching they had been reduced to 3 500 by 1990. North of the Zambesi river they have been extirpated, or they are otherwise unsafe. In South Africa, however, all populations are safe – many doubling their numbers every 8–10 years.
Photo: *R. de la Harpe. Natal Parks Board.*

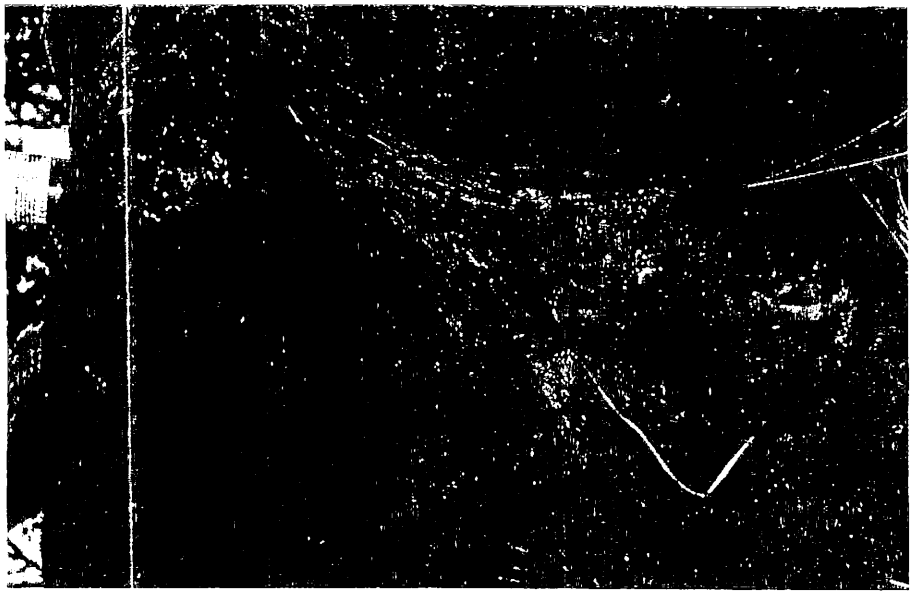
The white rhino had been reduced to less than 50 animals by 1930 – as a result of uncontrolled hunting. Thanks to their preservation management – by the Natal Parks Board – they now number over 4 000 animals in southern Africa; and they are now considered to be quite safe.
Photo: *R Gush. Natal Parks Board.*

In Namibia's Koakoveld black rhinos were said to number 1500 in the early 1970s. Poachers had reduced them to 350 by 1990. In an effort to combat poachers those remaining are being captured and dehorned. This may work in such a reduced population - where territories are non-limiting - but it would result in the deaths of bulls in saturated habitats (unless every bull in the population was dehorned on the same day - which is not possible).

Photo: *Dirk Heinrich*

A dead black rhino bull in Pilanesberg National Park - 1989. Note the horn wound in the neck. This animal was one of three newly introduced bulls that were killed by resident dominant bulls within days of their release. Two cows released at the same time had no trouble assimilating into the resident population.

Photo: *Bob Keffen. Bophuthatswana National Parks Board.*



Horn wounds in the groin of one of the rhino bulls killed in Pilanesberg. In saturated habitats dehorned rhino bulls will be at a very great disadvantage in the bull hierarchy. And cows will be unable to defend their calves against hyena attack - which means dehorning might save the adults from poachers but it will lose the calves to predators.

Photo: *Rick Mathews Bophuthatswana National Parks Board.*

In the wild, the situation is quite different. New males introduced to a population that has an established hierarchy, and in which the breeding territories are all occupied, will be at a decided disadvantage. In order for the newcomer to introduce his genes to the population he will have to usurp a dominant resident male, and he may not succeed – he may be killed; or he may be seriously injured; or he may simply be evicted from the population and become an expendable vagrant.

On the other hand, it should be possible to introduce females to such a managed population without disrupting the existing social order at all. Females will not challenge the male hierarchy; they do not need breeding territories; and they will not have to fight other females to secure a place in which to live. All each female will have to do, in fact, is simply to occupy one of the several vacant home ranges.

Pilanesberg National Park experienced this precise phenomenon in 1989 – when three young bulls, and two young cows, were added to the game reserve's existing black rhino population. At that time, the resident population in Pilanesberg – which has a calculated carrying capacity of 60 – 80 animals of this species – numbered some 30 – 40 individuals. Conflict arose *immediately* between the new bulls and the established bulls. And two of the newly introduced males were found dead – killed by the resident bulls – within ten days of their introduction. The carcass of the third introduced bull was found three months later. It had been dead for about three months. The two cows, on the other hand, have been seen frequently. They have settled down well without *any* apparent conflict.

In unmanaged populations which are maintained at the ECC's of their habitats, however, a different strategy may have to be used to ensure the success of even female introductions. For example, if it is intended that ten new females should be introduced to an established population, it may be necessary to first remove *at least* ten adult females from the recipient population – to forcibly create vacant home ranges. Indeed, a reciprocal exchange of young adult females between populations would probably be the best way to accomplish genetic exchanges in *both* populations.

The potential genetic impact new females will have on the population may not be as immediately dramatic as that of a new male – *IF* the introduction of the male was successful. But the outcome of the females' genetic contribution, *in the long term*, is far more certain. It is appropriate, therefore, that wildlife managers consider such matters when devising ways and means of introducing new blood to their wild animal herds.

This message, however, has still not been properly considered – or accepted – by many wildlife authorities.

It has already been explained how, in the early 1960s, two pairs of the East African black rhino subspecies came to be introduced to South Africa's Addo National Park. They have been kept genetically 'pure', and today they number some 30 animals. The South African National Parks Board are now concerned about the in-breeding that is taking place in this population, and suggestions have been made to the effect that bull exchanges should be made with Kenya or Tanzania.

The lesson of the recent Pilanesberg black rhino introductions has clearly not been recognised. This *must* be the case – for it is inconceivable that it has been ignored.

Certainly, the suggestion that new *bulls* should be introduced to the Addo black rhino population takes no cognizance of the fact that the social organisation of a black rhino population is *strongly* characterised by a potent rank structure amongst the bulls. Nor does it acknowledge the fact that the most dominant bulls are strongly territorial. It also takes no account of the fact that serious conflicts occur commonly, and constantly, between black rhino bulls in *any* population – as they jockey for rank, or as they fight over territories. Death often results from these disputes, and serious injuries are not uncommon. As the Pilanesberg example illustrates, however, females rarely fight amongst themselves.

Figure 47.2 Wildlife managers must be aware of the dangers inherent in the practice of introducing new bulls to established populations of aggressive wild animals
One of the three introduced black rhino bulls that were killed within days of their release by resident dominant bulls in Pilanesberg National Park.
Photo: *Mike Bromwich.*

Although the Addo black rhino population may well be below its optimum habitat ECC numbers – and there just *may* be vacant territories in the habitat – it would, nevertheless, *still* be prudent to 'play it safe'. It would be *much safer* to exchange cows than bulls. Hopefully, by the time this introduction idea reaches fruition – and black rhino breeding stock exchanges between South Africa and East Africa become politically acceptable again – the South African authorities will have reviewed their ideas about what sexes should be exchanged.

Overall, the subject of genetics remains confusing to most people because its operation *in the wild situation* is so varied and changeable – and because its positive and negative aspects are often difficult to define with certainty. Furthermore, there is no scientific agreement to support many of the specific points of view that are expressed on this complex subject.

To gain a better general perspective regarding what wildlife managers should or should not do in this respect, therefore, it is necessary to refer back to what happens in the wild.

Under natural circumstances, genes are distributed between populations as a consequence of the eviction of animals from one population and their acceptance by another. Most such emigrants/immigrants are young animals which have not yet developed their full potentials – so the contribution they will make to their new populations is as random as it is uncertain. It is a matter of *pure chance*, therefore, whether their genetic inputs to the population will be beneficial or deleterious. And *that* fact is something everyone tends to forget.

Under wild and natural conditions the genetic transfers that occur when two parents conceive – when an animal from one population breeds with an animal from another population – is *totally* fortuitous. Natural selection – through the rank and dominance structures that occur in many populations – does, of course, greatly influence the *quality* of young animal produced. But mutant genes, especially, just 'happen'.

The *artificial* introduction of new blood into what might subjectively be considered to be genetically stagnant populations, therefore, *might* produce positive results, negative results, a bit of both – or no apparent change at all. This, however, is precisely what happens under totally natural conditions when non-selective emigration, and non-selective immigration, effect genetic transfers between wild populations.

Unless the wildlife manager has a specific objective in his breeding programme – such as, a desire to breed black or white animals; or big-horned, or big-bodied, animals – random introductions will not be out of place. Indeed, if his plan is simply to obviate the possibility of his wild animal populations becoming adversely 'in-bred', it is probable that no real harm will result from animal introductions that generally just broaden their genetic foundations. And it is possible that *some* good will result. He must always remember, however – especially if the animals to be introduced come from a *totally* different environment – that there is the chance the introduced genes will have a deleterious effect. And, of course, there is a possibility that the new animals will simply die.

No matter what the initial outcome of even radical genetic exchanges might be, however – in time – nature will sort out the genetic conundrum in her own methodical fashion. Natural selection will *ultimately* correct whatever genetic 'mistakes' man might unconsciously make.

When man artificially causes genetic transfers between wild animal populations today, therefore, despite all the many advantageous and innovative scientific advances that have been made in wildlife management practices in recent years, he *still* cannot confidently predict the outcome. Artificial genetic transfers between managed wild animal populations is, therefore, like buying pigs in pokes.

and other woody plants in designated areas. Then grazing animal populations were significantly reduced - which thickened up the grass sward. And finally, severe, hot fires were continuously applied to kill off young and regenerating woody plants. And the fires also ate away the thicket edges. Thus, over the years, those young trees that survived the repeated holocausts - and in the absence of competition from the woody plants that had been killed off by the fires - grew out to maturity. It is also a fact, however, that this period *also* coincided with one of the natural cyclic vegetation growth phases that occur in Hluhluwe - when *some* of the acacia tree species were in the process of automatically maturing, *en masse*, anyway. So nature leant a hand in the process, too.

Twenty-five years later, the habitats in Hluhluwe game reserve were a lovely mosaic of grassed valleys - with scattered pockets of thickets - game viewing was optimal - and the tourists were happy.

In terms of what the habitat manipulation did to the ECCs of the game reserve's black rhino habitats, however, the story is far less attractive. What happened, in fact, was that, throughout the years of *purposeful* thicket reduction, the ECCs of the black rhino habitats were progressively, consistently, and substantially reduced.

The black rhinos' initial response to this deliberate man-induced change to their habitat was manifested by a die-off of 46 animals during the period July to October 1961 - that is, during the very first dry seasonal 'bottle-neck' period that occurred immediately following the first series of overt actions to reduce their habitat cover. It is quite possible - even probable - that even more animals died but were not found.

The dead animals were not all old individuals. They came from an across the board representation of all sex and age classes in the population. Furthermore, autopsies revealed that they had all been in apparently good physical health prior to their deaths. Some people believed that the dead animals had somehow been belatedly poisoned by the chemical herbicides. But, in fact, nobody has ever really been able to ascertain their actual cause of death. The final diagnosis was 'death due to mysterious unknown causes'.

Nobody, apparently, ever considered the possibility that the management action to reduce the habitat cover at Hluhluwe would lower the game reserve's black rhino carrying capacity. Neither, apparently, did anybody ever seriously consider that there was a link between the habitat changes that took place and these strange deaths - because the habitat management activity was allowed to continue! Finally, nobody seemed to have given any thought to the possibility that the habitat had been initially saturated with black rhinoceroses, and that something would have to 'give' when the habitat's ECC had been reduced.

In fact, in retrospect, is seems quite certain that no one gave any thought *at all* to the effect the habitat changes would have on Hluhluwe's black rhinos.

The dramatic *sudden* death of such a large number of animals was never again repeated at Hluhluwe - but twenty-five years later the game reserve's black rhino population had been reduced to some 70 individuals - and South African society demanded to know the reasons why. The reason, of course, was because, throughout this long period - as the habitat's ECC was being progressively and ever more greatly modified - *especially* by man - black rhinos had been dying. But the excessive mortality went practically unnoticed until the syndrome was very well advanced.

There is no other explanation. From 1960 onwards, black rhinos had died off - each and every year - at a rate that corresponded with the change in the habitat's lowered ECC. Consequently, it can be concluded that, because there were 70 animals in the population in 1985, this number represented the ECC of the game reserve's black rhino habitat *at that time* - 25 years after the whole sequence of events was begun.

A small number of black rhinos were admittedly captured and moved out of the game reserve during this period, too - but any gaps these infinitesimal removals created would have been immediately filled by subadults. For the purpose of trying to evaluate what actually happened to Hluhluwe's black rhino - overall - therefore, the small number of animals that were captured and removed can be ignored.

Interpreted in terms of the thesis presented in this book, it can be said that over this protracted period of time all black rhinos that were surplus to the needs of Hluhluwe's constantly diminishing population, became vagrants - and they died within the game reserve boundaries. This does *not*, of course, mean *just* the approximate 230 animals that are known to have disappeared between 1960 and 1985, but, *additionally*, the 8 - 10 percent annual increments of whatever the standing population was in each one of those twenty-five years, too.

But how, and why, did these animals die? They died, of course, from stress-related factors. And the stress itself was undoubtedly caused by the very intangible *lebensraum* population regulation mechanism that is clearly very strongly operative in the black rhino species.

Another model will most easily, and graphically, demonstrate how these unseen tensions develop under such circumstances. Consider Hluhluwe game reserve as being represented by the same polished table top that was used in the population model described in Chapter 27. In this case, however, the edges of the table represent the game reserve's boundaries; and the magnetised steel cubes represent individual black rhinos.

In this special case, foot-high plank walls are affixed to all four edges of the table. This barrier represents the game-proof fence that surrounds the game reserve - although it could equally well represent the unseen but nonetheless still strongly inhibiting human 'presence' that might just as forcibly ensconce another game reserve.

The magnetised steel cubes are added as in the previous manner - but, in this case, when the table top has reached saturation point, none of the cubes can fall off the table edge - in other words, they cannot be pushed out of the game reserve. Irrespective of this fact, after every breeding season more and more animals are added to the population. So more and more magnetised steel blocks have to be continually added to the table top.