

## History, Current Status and Conservation of Large Mammalian Predators in Cape Province, Republic of South Africa

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### ABSTRACT

*The status and distribution of the six large mammalian carnivore species known to occur in the Cape Province are presented. This is compared with their past distribution and status. Current threats to the various species are detailed. The hunting dog *Lycaon pictus* is extinct as a breeding species and three species are only represented by small populations in the Kalahari Gemsbok National Park; lion *Panthera leo*, cheetah *Acinonyx jubatus* and the spotted hyaena *Crocuta crocuta*. The leopard *Panthera pardus* is represented by small populations in the Kalahari Gemsbok National Park and Southern and Western Cape Province. The brown hyaena *Hyaena brunnea* is represented by a population of some 170 individuals in the Kalahari Gemsbok National Park and smaller, scattered populations on privately owned land in two areas. The setting up of sanctuary areas for the leopard and the brown hyaena in suitable areas is suggested.*

### INTRODUCTION

Six species of large mammalian carnivores have been recorded in the Cape Province in historical times; lion *Panthera leo*, leopard *Panthera pardus*, cheetah *Acinonyx jubatus*, spotted hyaena *Crocuta crocuta*, brown

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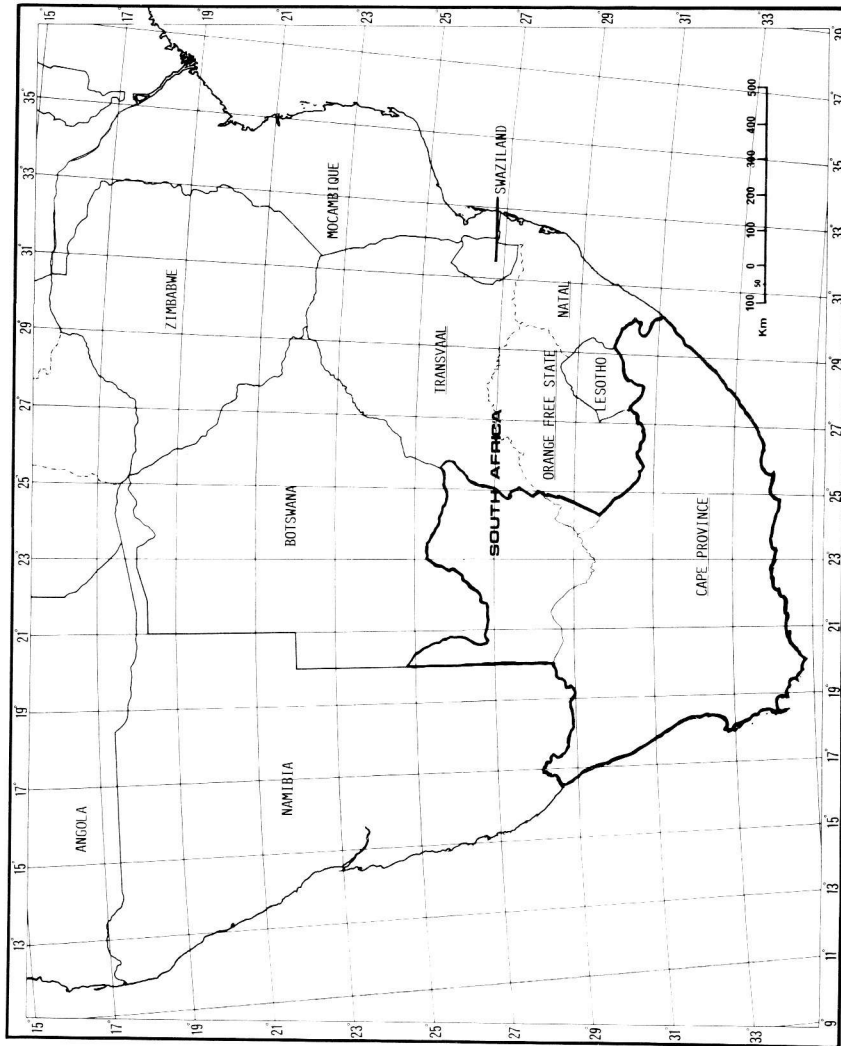
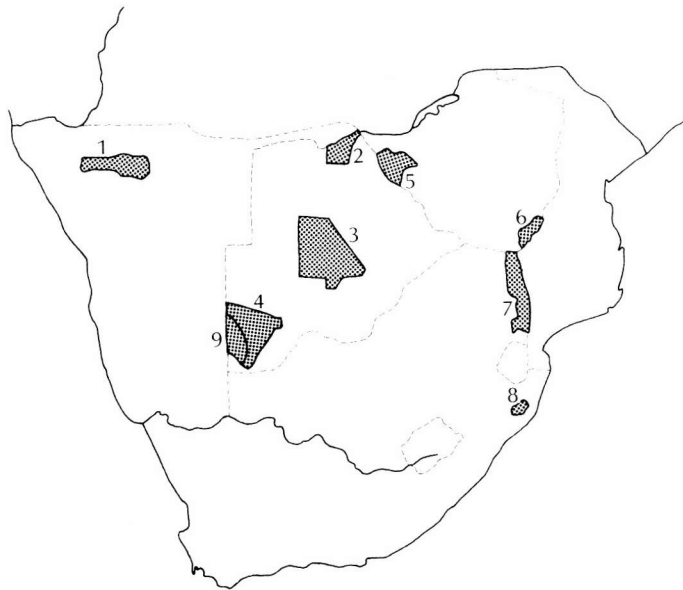


Fig. 1. The location and extent of the Cape Province.

hyaena *Hyaena brunnea* and the hunting dog *Lycaon pictus* (Skead, 1980).

This paper summarises the available information on the history and current status of each species in the Cape Province and considers strategies for their conservation. The Cape Province constitutes the most southerly portion of the Republic of South Africa and is approximately 700 000 km<sup>2</sup> in area (Fig. 1). The locations of the protected areas of significant large carnivore concentration in southern Africa are shown in Fig. 2. The seven National Parks situated in the Cape Province cover some 10 090 km<sup>2</sup> of which 9590 km<sup>2</sup> is made up by the Kalahari Gemsbok National Park (KGNP). There are 19 Provincial nature reserves covering 947 km<sup>2</sup>. Reserves thus total 11 037 km<sup>2</sup> or 1.57% (1.37% is taken up by the KGNP) of the surface area of the Cape Province. In addition more than 1500 km<sup>2</sup> fall under the jurisdiction of the Department of Environmental Affairs as nature reserves and wilderness areas.



**Fig. 2.** Reserves containing significant large carnivore populations in Southern Africa. The wilderness areas of northern Zimbabwe have not been included. *Key:* 1. Etosha (Namibia); 2. Chobe/Moremi; 3. Central Kalahari; 4. Gemsbok (Botswana); 5. Wankie; 6. Gona-re-zhou (Zimbabwe); 7. Kruger; 8. Umfolozi/Hluhluwe; 9. Kalahari Gemsbok (South Africa).

## METHODS

All published information on the large carnivores in the Cape Province was reviewed and synthesised. In addition original data on the current status of the species in the unprotected areas of the Province were extracted from Cape Department of Nature and Environmental Conservation records and recent information on these species in the KGNP.

## RESULTS

In general large carnivores proved to be incompatible with the advance of settled agriculture. Skead (1980) has discussed the historical distribution of the larger carnivores in the Cape Province in some detail and it is clear that all were widespread. The lion, spotted hyaena and cheetah are currently restricted to the KGNP and the adjacent Gemsbok National Park (26 600 km<sup>2</sup>) in Botswana. There are estimated to be approximately 140 lions (Mills *et al.*, 1978), 85 spotted hyaenas and 60 cheetahs (Mills, in press) in the KGNP. To the best of our knowledge numbers of these species in the KGNP are not declining, but the long-term survival of such small populations in isolation depends on the maintenance of the southern Kalahari conservation areas as a single unit. Any developments that would tend to isolate these populations, such as the deproclamation of the adjacent Gemsbok National Park or the erection of a fence along their common border, could severely endanger the survival of these species in the Cape Province. Hunting dogs are only encountered very sporadically in the KGNP (Mills, in press).

The only development which could improve the conservation status of the lion, cheetah, spotted hyaena and hunting dog in the Cape Province in the future would be the creation of a new protected area large enough to maintain breeding populations of the species. Soulé & Frankel (1981), referring to larger mammals, consider 50 effective breeding individuals as the minimum number before 'artificial gene flow' from other populations must be introduced to prevent genetic deterioration. Only where the effective breeding population exceeds 500 do they consider that the unit can be considered viable. In South Africa the smallest isolated breeding population of lions existing naturally is that re-established in the 900 km<sup>2</sup> Hluhluwe-Umfolozi Game Reserves Complex in Natal (Anderson, 1980).

This population has, however, to be managed intensively and its long-term viability is questionable and genetic management will probably have to be undertaken in the future.

The area most suited to the establishment of a large carnivore reserve in the Cape Province is the Karoo (central arid plains). Practical and political considerations would not allow for the putting aside of a large enough area for this purpose. Even though much of the Karoo biome is marginal agricultural land it has already suffered major degradation through agricultural use (Acocks, 1975) and it is unlikely that political pressures against the displacement of farmers could be overcome, even if economic and conservation considerations indicate its desirability.

### **Leopard *Panthera pardus***

The present distribution of the leopard in the Cape Province is probably similar to its past distribution but in some areas, notably the Northern and Eastern Cape and Namaqualand, it is now sparsely distributed and probably in many cases dispersive individuals are involved (Stuart & Heineken, 1977; Stuart, 1981) (Fig. 3). The KGNP supports a viable leopard population of perhaps 100 individuals (Mills, in press) but the highest density leopard population in the Cape Province is probably to be found in the coastal mountain chain, extending from Van Rhynsdorp in the northwest to King William's Town in the east (Stuart, 1981). A measure of protection is also afforded by the State Forest conservation areas, primarily those conserving the water catchment zones of the coastal mountain chain. Skead (1980) is of the opinion that the whole of the Great Karoo might have been well populated by leopards in the past, and he lists several documented leopard occurrences in this region to support his assertion. The lack of knowledge of the leopard in the Cape Province makes the estimation of numbers virtually impossible. A total of 110 leopards were killed legally in the Cape Province (that is, permits were issued by the Cape Department of Nature and Environmental Conservation) between 1977 and 1980. The majority of these were in the South West Cape (Departmental records). An unknown number of leopards are killed illegally each year.

The leopard is a problem predator in parts of the Cape Province and as such, control is exercised when stock is killed. The payment of stock-loss compensation on a province-wide basis and the placing of a total ban on leopard hunting is impractical. The implementation of such legislation

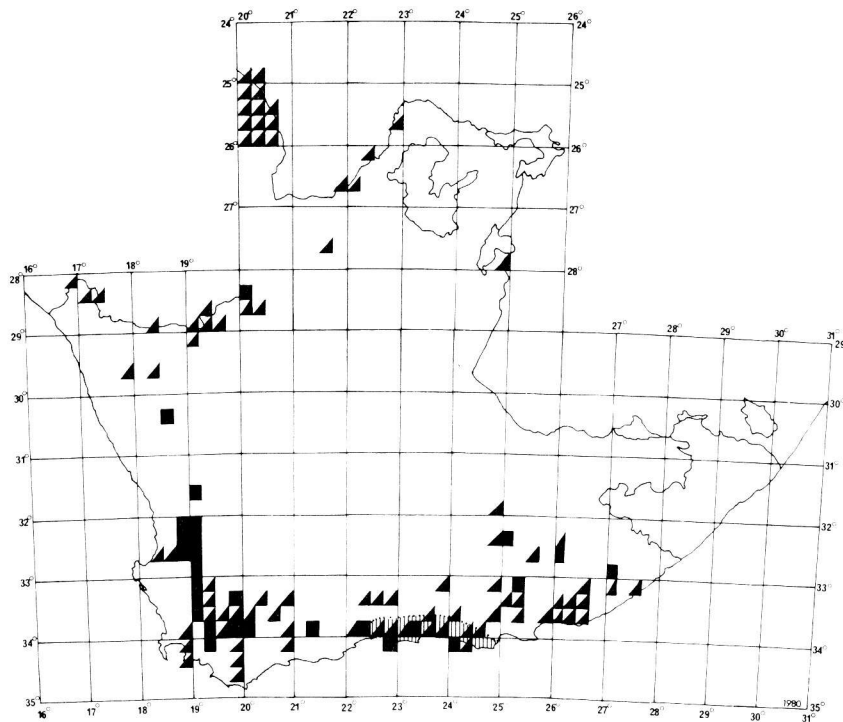


Fig. 3. The recent distribution of the leopard in the Cape Province, and the location of the proposed sanctuary area.

would probably result in a dramatic increase in the illegal hunting of leopards by farmers.

To ensure the continued presence of an established and relatively undisturbed leopard population the concept of 'safe-zone' or 'open sanctuary' should be considered for the species in the Southern Cape Province. No land purchase would be necessary and normal human activity would be unaffected, but it would be possible to ensure the species survival in a carefully monitored area (See Fig. 3). The compactness and size (ca. 4500 km<sup>2</sup>) of the proposed sanctuary (Stuart & Heinecken, 1977) would facilitate management of the leopard population within its boundaries and the current policy of the authorities could be continued in the rest of the Province. Some of the factors contributing to the suitability of the proposed sanctuary are the large tracts of State-owned land within its proposed boundaries, minimal conflict with farming activities and the

favourably disposed conservation attitude of the majority of landowners in this area (Stuart, unpublished records).

The paying of compensation for proven stock losses is seen as an integral part of the 'safe-zone' concept, but this aspect would require careful planning and application. Problems to be solved would include who would make the final decision on such payments, the handling of the compensation fund and to what level stock predation by a leopard would be tolerated before that animal was culled.

#### **Brown hyaena** *Hyaena brunnea*

The brown hyaena is confined to the southwest arid and adjacent drier parts of the southern savanna biotic zones (von Richter, 1972). The brown hyaena was formerly distributed throughout the Cape Province but this has been markedly reduced since the advent of European settlement in the area (Fig. 4). Actual historical records are few (Skead, 1980) and confusion in the literature makes it difficult, in many cases, to determine whether in fact the brown or spotted hyaena is referred to. The post-1960 distribution is presented in Fig. 5.

Because of its nocturnal and secretive habits it is difficult to assess the status of the brown hyaena over much of its range. Viable populations which enjoy at least partial protection exist in the southern Kalahari, part of which includes the Kalahari Gemsbok National Park (Mills, 1981), the Central Kalahari Game Reserve, Botswana (Owens & Owens, 1978), the coastal regions of the southern Namib Desert (Skinner & van Aarde, 1981) and probably Kaokoland (Viljoen, 1980), and the Etosha National Park in South West Africa/Namibia (von Richter, 1972), as well as perhaps southern Angola (Huntley, 1974). Furthermore, in parts of the central and northern Transvaal breeding populations occur (Skinner, 1976) and sporadic records from the Natal Drakensberg, the northern Natal coast (I.A.W.M., personal observations), and the Orange Free State (Bester, 1982) may represent small breeding populations.

Based on the records made of the species since the beginning of 1967, the brown hyaena is now restricted to that portion of the Cape Province north of the Orange River, the northern coastal areas of Namaqualand and the Richtersveld, with a few isolated records in the Eastern Cape.

The maximum current range of this hyaena in the Cape Province, excluding those areas where it is believed only dispersing animals occur from time to time, represents less than 25% of its former range. On the

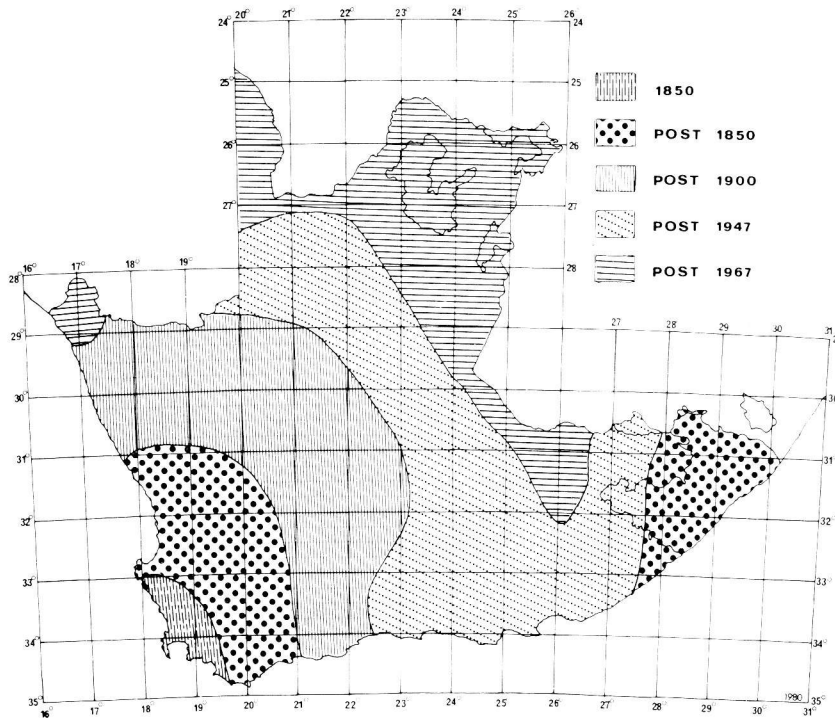


Fig. 4. The estimated reduction of brown hyaena distribution in the Cape Province.

basis of the records available it would appear that the species was probably still occupying at least 75% of its former range at the turn of the century, and the greatest reduction in range has occurred since then. It should be emphasised that the long-distance wanderings of dispersing individuals will tend to give an exaggerated picture of the species range at any one time.

According to work undertaken in the KGNP an estimate of the area's brown hyaena population is 170 individuals (Mills, 1981). The future of this population is secure as long as no radical change occurs that affects the ecological viability of the KGNP as a whole.

It is undesirable for the only viable population of brown hyaena in the Cape Province to be concentrated within a single conservation area. It is, therefore, worthwhile to consider alternative options for the conservation of this species in the Cape Province.

Three options which exist for the conservation of the brown hyaena in the Cape Province are:



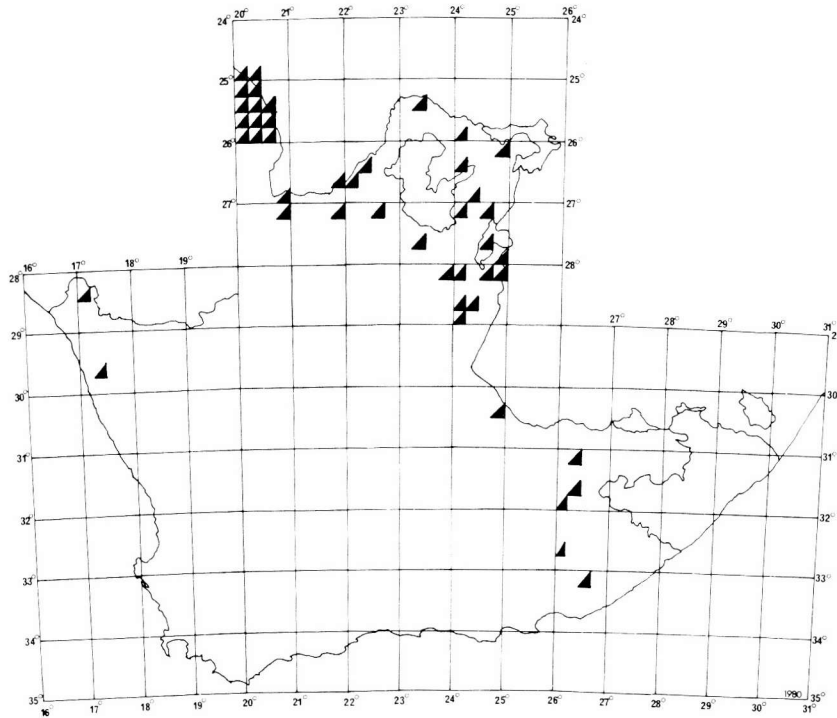


Fig. 5. The recent (post-1960) distribution of brown hyaena in the Cape Province. Those localities to the south of 29° South are most likely vagrants.

- (1) Establish new conservation areas within the Province, large enough to carry genetically viable populations of the species (cf. von Richter, 1974).
- (2) Introduce 'minimum size' breeding populations to the existing and future small conservation areas within the species' former range throughout the Province. The genetic viability of this 'small park' population would depend on strategic translocation exercises being undertaken at intervals in perpetuity. This would pose considerable technical problems and with our present state of knowledge genetic deterioration could be anticipated. The maintenance of this species on small reserves as a practical proposition has been suggested by Mills (1976).
- (3) Conserve the brown hyaena on privately owned ranchland.

Although the first option is undoubtedly the most desirable it is unlikely that new conservation areas of the required size will be procured

by the authorities in the Cape Province. Work undertaken by Mills (1982) and Owens & Owens (1978) indicates that extremely large areas are required for the conservation of genetically viable breeding populations.

The second option, that is the keeping of brown hyaena on a number of small reserves, has all the weaknesses inherent in a policy of allowing the species to be conserved in zoological gardens, while having none of the latter option's convenience.

The final option, that of conserving the brown hyaena on privately owned ranchland, holds the most promise for ensuring the long-term survival of the species in the Cape Province (Fig. 6). The brown hyaena has been shown to be almost exclusively a scavenger and a poor hunter (Skinner, 1976; Mills, 1978; Owens & Owens, 1978). Mills (1976) stated, 'Brown hyaenas are the best adapted of Africa's large carnivores to live side by side with man particularly in cattle and crop-farming areas'. Both Mills (1976, 1982) and Skinner (1976) give examples of this coexistence. One of the authors (I.A.W.M.) is aware of several farmers in the Vryburg

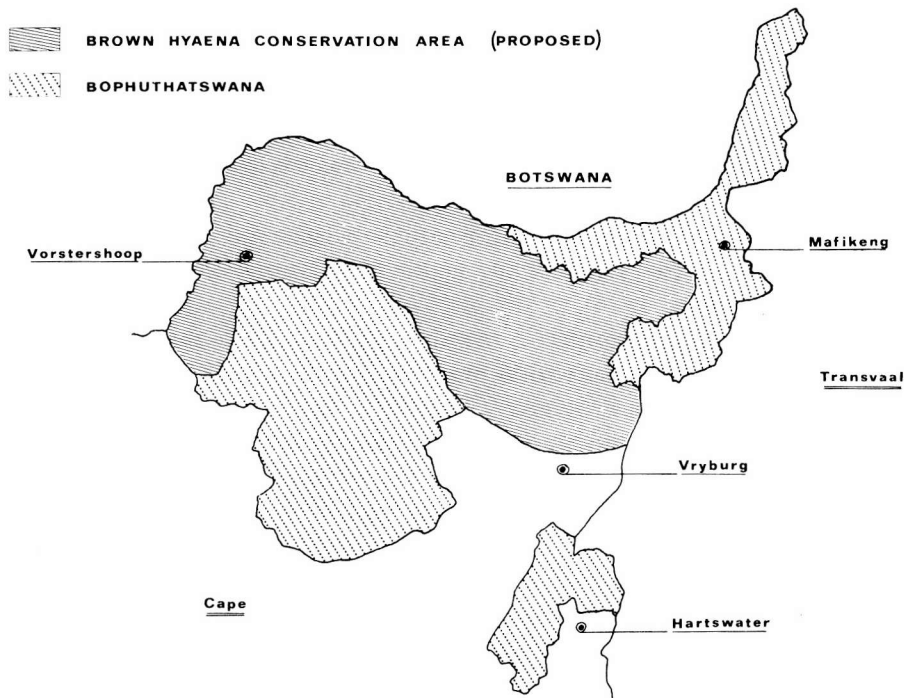


Fig. 6. The location of the proposed brown hyaena sanctuary.

district, in the Northern Cape, who have brown hyaenas on their farms. Brown hyaenas on four of the farms were killed during predator control operations aimed at black-backed jackal *Canis mesomelas*. The increasing area of land being devoted to game farming in this area (I.A.W.M., personal records) lends itself to brown hyaena conservation.

In order to maximise the chances for survival in the farming areas of the Northern Cape, the following course of action is suggested:

- (1) Aim a large scale education programme at the landowners of the Northern Cape.
- (2) Declare a large area in the portion of the region which has been defined as only being suitable for extensive cattle production (Agricultural Economics Map of the Republic of South Africa, 1965) a brown hyaena conservation area.
- (3) Undertake an intensive survey to define precisely the current extent and location of the brown hyaena population in the Northern Cape.

In the proposed sanctuary area the use of non-selective predator control methods ('coyote getter', gin trap and strychnine) should be banned. As in the case of the leopard, a system of controlled reimbursements for proven cases of stock losses could be instituted in this area. The cost of the implementation and management of this scheme would be minimal when compared with the cost of buying a similar sized area, even if the latter were feasible.

## CONCLUSIONS

Of the six large carnivore species in the Cape Province, little can be done to improve the conservation position of the lion, cheetah, hunting dog and spotted hyaena, because of their incompatibility with man outside large conservation areas. There are, however, possibilities for the leopard and the brown hyaena if the implementation of the sanctuary or 'safe-zone' concept can be achieved.

The introduction of large carnivores onto small-area reserves is of limited conservation value and should be seen as a low-value exercise. The purchase of large tracts of land or the expansion of existing reserves seems unlikely.

An essential aspect of large carnivore conservation in the Cape

Province, particularly for the leopard and brown hyaena, is the development of public awareness of the ecological importance and compatibility with man's interests of the conservation measures outlined in this paper. To this end large allocations of suitably qualified staff and money for conservation education in the Cape Province is of the utmost importance.

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