Regional Conservation Strategy for the

Cheetah and African Wild Dog

in Southern Africa

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Endorsements

We hereby declare that we endorse the regional conservation strategy for cheetah and African wild dog in Southern Africa

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Namibia

Signature .... **Date** ....
Malawi

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IUCN Species Survival Commission

REGIONAL CONSERVATION STRATEGY FOR THE CHEETAH AND AFRICAN WILD DOG IN SOUTHERN AFRICA

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– CHAPTER 1 –

SUMMARY

The African wild dog (*Lycaon pictus*) and the cheetah (*Acinonyx jubatus*) present major challenges for conservationists in the 21st Century. All large carnivores need large areas to survive; yet wild dogs and cheetah range more widely, and hence need larger areas, than almost any other terrestrial carnivore species anywhere in the world. As human populations encroach on Africa's last wild areas, these two threatened species are often the first to disappear.

Southern Africa supports globally important populations of both cheetah and wild dogs. This regional plan is part of a programme to develop action plans for the species' conservation across their geographic range, conducted as a collaboration between national wildlife authorities across southern Africa and the Cat and Canid Specialist Groups of IUCN/SSC. Given wild dogs' and cheetah's similar ecological needs, it makes sense to plan their conservation together. Moreover, management enacted for these two species will also benefit similar species such as lions, leopards, and hyaenas, though the converse is not necessarily the case given wild dogs' and cheetah's requirement for far more extensive areas of wildlife-friendly habitat.

Both wild dogs and cheetah have experienced major contractions in their geographic range within southern Africa, with resident populations known to remain in just 21% (cheetah) and 12% (wild dogs) of their historical range within the region. However, for much of the region (30 – 40%) there are no reliable data available regarding the status and distribution of the two species.

Protected areas are very important for the conservation of both cheetah and wild dogs, but the majority of animals reside outside the protected areas which are the focus of most conservation effort. Three quarters of cheetah resident range, and two thirds of wild dog resident range, falls on community and private lands. Given this knowledge it is unlikely that populations inside protected areas would be viable if isolated from unprotected lands, and conservation activity outside protected areas is absolutely critical for the long-term survival of these two species both inside and outside reserves.

The main threats to the survival of cheetah and wild dogs in the region were identified to be habitat loss and fragmention, conflict with livestock and game farmers, loss of prey populations, accidental snaring, road kills, small population sizes, infectious diseases (mainly wild dogs) and hunting for live trade and skins (mainly cheetah). The strategic plan developed provides a framework to alleviate these threats and to ensure the survival of the two species in the region.

Several important wild dog and cheetah populations straddle international boundaries. Trans-boundary management is therefore likely to be needed for conserving both species in the long term. A number of areas were identified where participants felt that it would be possible to restore both species, these focussed predominantly on protected areas that have been poorly managed in the past decade but where improved management is now taking place. However, these recoverable areas were relatively small and the strategic plan therefore focuses on securing the remaining populations, with restoration as a lower priority.

The strategic plan for the species' conservation in southern Africa recognises the need to (i) build capacity within the region in all fields related to the conservation of cheetah and wild dog, (ii) improve knowledge of the conservation biology of both species, (iii) ensure that information collected is made available to all stakeholders, (iv) minimise conflict and promote coexistence between cheetah,

wild dogs and people; (v) minimise the adverse effects of land development and promote best land use practice for cheetah and wild dogs, (vi) ensure that political commitment is obtained; (vii) review, and where necessary revise, existing legislation and policy at international, national and local levels; and (viii) promote the development and implementation of national conservation plans for both species. This last point is important because almost all conservation effort is enacted within national policies, under the jurisdiction of national wildlife authorities. For this reason, the regional strategy was deliberately developed in a format that would facilitate translation into national conservation action plans.

– CHAPTER 2 –

BACKGROUND AND INTRODUCTION

2.1 Background

The African wild dog (*Lycaon pictus*) and the cheetah (*Acinonyx jubatus*) present major challenges for conservationists in the 21st Century. Both species were formerly widely distributed in Africa, but both have experienced dramatic reductions in numbers and geographic range in recent decades (Ray, Hunter & Zigouris, 2005). All large carnivores need large areas to survive; yet wild dogs and cheetah range more widely, and hence need larger areas, than almost any other terrestrial carnivore species anywhere in the world. As human populations encroach on Africa's last wild areas, wild dogs and cheetah – particularly susceptible to the destruction and fragmentation of habitat – are often the first species to disappear.

Despite their threatened status (wild dogs are listed as endangered and cheetah as vulnerable, IUCN, 2006a), ecological importance as top carnivores (Woodroffe & Ginsberg, 2005), and value to Africa's tourism industry (Lindsey *et al.*, 2007), to date remarkably little conservation action has been implemented for these two species. The majority of Africa's protected areas are too small to conserve viable populations, and active conservation efforts on unprotected lands have hitherto been restricted to a handful of projects.

Three factors have hindered conservation activity for cheetah and wild dogs:
- The species' massive area requirements mean that conservation planning is needed on a daunting geographical scale, rarely seen before in terrestrial conservation.
- Information is lacking on the species' distribution and status, and on the tools most likely to achieve effective conservation.
- Capacity to conserve these species is lacking in most African countries; expertise in managing more high-profile species such as elephants and rhinos may not be transferable to wild dogs or cheetah because the threats and conservation challenges are different.

Recognising these concerns, in 2006 the Cat and Canid Specialist Groups of the IUCN/SSC, in partnership with the Wildlife Conservation Society (WCS) and the Zoological Society of London (ZSL), initiated a Rangewide Conservation Planning Process for wild dogs and cheetah. The two species were addressed together because, despite being taxonomically quite different, they are ecologically very similar and hence face similar threats.

The Rangewide Conservation Planning Process has six stated objectives:

(1) To foster appreciation for the need to conserve wild dogs and cheetah, particularly among conservation practitioners in range states.

(2) To collate information on wild dog and cheetah distribution and abundance on an ongoing basis, in order to direct conservation efforts and to evaluate the success or failure of these efforts in future years.

(3) To identify key sites for the conservation of wild dogs and cheetah, including corridors connecting important conservation areas.

(4) To prepare specific global, regional and national conservation action plans for both cheetah and wild dogs.

(5)   To encourage policymakers to incorporate wild dogs' and cheetah's conservation requirements into land use planning at both national and regional scales.

(6)   To develop local capacity to conserve cheetah and wild dogs by sharing knowledge of effective tools for planning and implementing conservation action.

A key component of this process is a series of workshops, bringing together specialists on the species' biology with conservation managers from governmental and non-governmental organisations. Close involvement of government representatives was considered absolutely critical since they represent the organisations with the authority to implement any recommendations at the management and policy levels. While the process will ultimately cover the entire geographic range of both species, the large number of range states involved means that productive discussion and interchange would have been very difficult to achieve at a single workshop covering the whole area. Workshops are therefore being conducted at the regional level; this report presents the outcomes of the second regional workshop, covering southern Africa; the first workshop, for eastern Africa, was held in February 2007. Details of the meeting's objectives and participants are presented in section 2.4 below.

Since wildlife conservation policy is formulated, authorised and enforced at the national level, it is critical that conservation planning be enacted at this level. The development of national plans, through national workshops, is thus a vital component of the Rangewide Conservation Planning Process. Each regional workshop is therefore followed immediately by a national workshop in the host country, to which delegates from other countries in the region are invited as observers. This is intended to provide preparation for the organisation of national workshops in other range states, leading to national workshops and the development of national action plans for all range states. The southern Africa regional workshop described herein was followed by a Botswana national workshop; outcomes from the Botswana workshop are published separately.

2.2   Biology and conservation needs of African wild dogs

African wild dogs are highly social members of the canid family. Packs cooperate to hunt their prey (Creel & Creel, 1995), which consists mainly of medium-sized ungulates (particularly impala, *Aepyceros melampus*) but may range in size from hares (*Lepus* spp) and dik diks (*Madoqua* spp, Woodroffe *et al.*, 2007b) to kudu (*Tragelaphus strepsiceros*) and even, occasionally, eland (*Taurotragus oryx*, Van Dyk & Slotow, 2003). Packs also cooperate to breed, with usually only one female and one male being parents of the pups, but all pack members contributing to pup care (Malcolm & Marten, 1982). As females have never been observed to raise pups to adulthood without assistance from other pack members, packs, rather than individuals, are often used as the units of measuring wild dog population size.

Unlike most carnivore species (apart from cheetah), wild dogs tend to avoid areas of high prey density, apparently because larger carnivores prefer such areas (Creel & Creel, 1996; Mills & Gorman, 1997). Lions (*Panthera leo*) and spotted hyaenas (*Crocuta crocuta*) both represent important causes of death for adult and juvenile wild dogs (Woodroffe *et al.*, 2007a).

Probably because of this tendency to avoid larger predators, wild dogs live at low population densities and range widely. Population densities average around 2.0 adults and yearlings per 100km^2 (Fuller *et al.*, 1992a) and home ranges average 450-650km^2 per pack in southern Africa (Woodroffe & Ginsberg, 1998), with some packs ranging over areas in excess of 2,000km^2 (Fuller *et al.*, 1992a). Both wild

dogs and cheetah occupy home ranges larger than would be predicted on the basis of their energy needs (Figure 2.1).
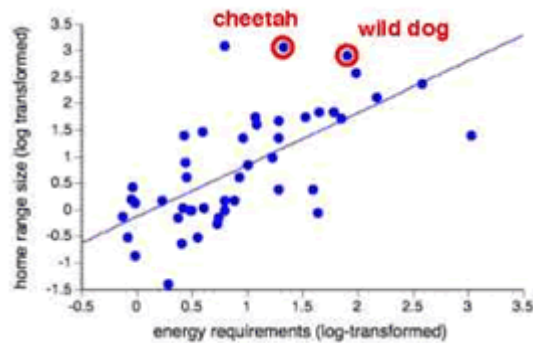

Figure 2.1 *The relationship between energy requirements and home range size in multiple carnivore species, showing the large home ranges occupied by cheetah and wild dogs in comparison with their energy needs. Wild dogs are recorded as having greater needs than cheetah because the social unit is a pack rather than an individual. Data are from Gittleman & Harvey (1982).*

Most new wild dog packs form when young animals (usually but not always in their second year, McNutt, 1996) leave their natal packs in same-sex dispersal groups, and seek new territories and members of the opposite sex. Such dispersal groups may travel hundreds of kilometres (Fuller *et al.*, 1992b), and have been recorded in areas very remote from resident populations (Fanshawe *et al.*, 1997). This dispersal behaviour can complicate the interpretation of distribution data, as sightings of small groups of wild dogs do not necessarily indicate the presence of a resident population. However, the behaviour does allow wild dogs to recolonise unoccupied space when opportunities arise.

Wild dog populations in different regions of Africa are morphologically and genetically different, but no subspecies are recognised (Girman & Wayne, 1997; Girman *et al.*, 1993). Wild dogs are habitat generalists, and have been recorded in habitats as diverse as wooded savannah (Creel & Creel, 2002), short grasslands (Kuhme, 1965), montane forest (Dutson & Sillero-Zubiri, 2005), montane moorland (Thesiger, 1970) and mangroves.

The first status survey for wild dogs was conducted in 1985-8 (Frame & Fanshawe, 1990), and this was updated in 1997 (Fanshawe *et al.*, 1997) and 2004 (Woodroffe, McNutt & Mills, 2004). These surveys revealed substantial loss and fragmentation of wild dog populations, with the species extirpated across most of western and central Africa, and greatly depleted in eastern and southern Africa. However distribution data, which were collated mainly by exhaustive postal correspondence, were somewhat biased towards protected areas with little information available from unprotected lands. By 1997, wild dogs had disappeared from most of Africa's protected areas, persisting only in the largest reserves (Woodroffe & Ginsberg, 1998). In 2004 the species was estimated to number fewer than 6,000 adults and yearlings (Woodroffe *et al.*, 2004). The species is listed as 'endangered' by the IUCN (IUCN, 2006a).

Wild dogs' decline has been related to their limited ability to inhabit human-dominated landscapes. Where human densities are high and habitat consequently fragmented, wild dogs encounter hostile farmers and ranchers, snares set to catch wild ungulates, high speed traffic, and domestic dogs harbouring potentially fatal diseases (Woodroffe & Ginsberg, 1997). While these threats are common among large carnivores, wild dogs' low population densities and wide-ranging behaviour mean that they are both more exposed to, and more susceptible to, these human impacts than are most other species (cheetah being a possible exception).

Despite these human impacts on their populations, wild dogs can coexist successfully with people under the right circumstances (Woodroffe *et al.*, 2007b). Wild dogs seldom kill livestock where wild prey remain at even comparatively low densities (Rasmussen, 1999; Woodroffe *et al.*, 2005b), and traditional livestock husbandry is a highly effective deterrent (Woodroffe *et al.*, 2006). Tools have been

developed to reduce the impacts of conflicts with game and livestock ranchers, accidental snaring, and road accidents, although safe and effective tools to manage disease risks are still under development (Woodroffe *et al.*, 2005a).

2.3   *Biology and conservation needs of cheetah*

The cheetah is a unique and specialised member of the cat family. While running down its prey, it can reach speeds of 64 miles per hour (103 km per hour, Sharp, 1997), making it the fastest creature on land. However, despite their specialised hunting strategy, cheetah are habitat generalists, ranging across a wide variety of habitats, from desert through grassland savannas to thick bush (Myers, 1975).

Cheetah have a social system unlike that of any other cat species. Cheetah females are tolerant of other females, and do not maintain territories, having large overlapping home ranges instead (Caro, 1994). Females are highly promiscuous, with high levels of multiple paternity within litters and no evidence of mate fidelity (Gottelli *et al.*, 2007). Cheetah males are often social, forming permanent coalitions of two or three, usually brothers, which stay together for life (Caro & Durant, 1991). Males in groups are more likely than single males to take and retain territories, which they defend against male intruders (Caro & Collins, 1987). In the Serengeti ecosystem in northern Tanzania, male territories average 50km^2, whilst females and males without territories move over 800km^2 every year (Caro, 1994). This system, where males are social and hold small territories, and females are solitary moving across several male territories annually, is known in no other mammal species (Gottelli *et al.*, 2007).

Cheetah females are able to give birth to their first litter at two years of age, after a three-month gestation (Caro, 1994). The cubs are kept in a lair for the first two months of their life, while their mother leaves them to hunt every morning and returns at dusk (Laurenson, 1993). Cheetah cub mortality can be high: in the Serengeti, mortality of cubs from birth to independence was 95% (Laurenson, 1994). There, cubs died mostly because they were killed by lions or hyaenas: mothers cannot defend cubs against these much larger predators (Laurenson, 1994). Cubs may also die from exposure or fire, or from abandonment if their mother is unable to find food. If they survive, the cubs will stay with their mother until they are 18 months old, after which they will roam with their littermates for another six months (Caro, 1994). The longest recorded longevity in the wild is 14 years for females and 11 years for males; however females have never been recorded as reproducing beyond 12 years (Durant unpublished data). Demographic parameters are available for only a small number of populations: mean and variance of birth and survival have been published from the long term study in the Serengeti National Park in Tanzania (Durant, Kelly & Caro, 2004), whilst mean birth and survival rates are available from ranch lands in Namibia (Marker *et al.*, 2003b).

Cheetah are predominantly diurnal, although hunting at night is not uncommon (Caro, 1994). They hunt by a stealthy stalk followed by a fast chase. Because of their unrivalled speed and acceleration, cheetah can hunt successfully even if they start a chase at a much greater distance than bulkier and heavier large cats, such as lions and leopards (*Panthera pardus*). They take a wide variety of prey, depending on habitat and geographic location, but they prefer prey of 15-30kg: the size of a Thomson's gazelle (*Gazella thomsonii*) or impala.

As with wild dogs, and unlike most other large carnivore species, cheetah tend to avoid areas of high prey density, probably because other large carnivore species are found in these areas (Durant, 1998, 2000). Lions have been documented to be largely responsible for the high mortality of cheetah cubs

observed in the Serengeti (Laurenson, 1994), and will also kill adults, whilst hyaenas can kill cubs and will steal kills from cheetah.

Cheetah used to be widespread across Africa and across Asia as far east as India. However, today there are no cheetah left in Asia except for a small population in Iran, and only a few populations remain in north and west Africa. Most of the remaining cheetah are concentrated in sub-Saharan Africa. The first status survey for cheetah was in the early 1970s (Myers, 1975), later surveys of selected countries were conducted in the 1980s (Gros, 1996, 1998, 2002; Gros & Rejmanek, 1999), and a summary of global status was collated in 1998 (Marker, 1998). However, accurate information on status and densities are extremely difficult to collect for this species, which is shy and rarely seen across most of its range. Furthermore, the ranging patterns of the species incline it to cluster in areas that become temporarily favourable habitat (due to the absence of competitors and availability of prey), making estimating numbers additionally problematic (Durant *et al.*, 2007).

Like wild dogs, and probably because of similar tendencies to avoid larger predators, cheetah live at low densities with recorded densities ranging between 0.3-3 adult cheetah/100km^2 (Burney, 1980; Gros, 1996; Marker, 2002; Mills & Biggs, 1993; Morsbach, 1986; Purchase, 1998). Although markedly higher estimates have been documented in some areas, it is likely these estimates do not reflect true density, as individuals counted may roam outside the survey area (highlighting a general problem with surveying cheetah, see Bashir *et al.*, 2004).

Home range has been recorded as ranging from 50km^2 for territorial males in the Serengeti (Caro, 1994) to over 1,000km^2 in Namibia (Marker *et al.*, 2008). Like wild dogs, cheetah home ranges are much larger than would be predicted from their energy needs (Figure 2.1). Because they can range across such large areas, cheetah can also disperse widely, having been recorded as moving over much more than one hundred kilometres (Durant unpublished data), making it difficult to determine whether occasional cheetah sightings in an area represent transient individuals or a resident population. However, this ability to disperse enables cheetah to recolonise new areas fairly easily if and when they become available.

The species is listed as vulnerable by the IUCN red list (IUCN, 2006a). Global population size has been 'guesstimated' at 14,000 (Myers, 1975) and 'less than 15,000' (Marker, 2002). Although these population size estimates do not suggest a decline, the consensus view among the world's experts on the species is that there has been a decline, either because the 1970s estimate was an underestimate or because the later estimate was an overestimate. Certainly the distribution of the species has contracted markedly from its historical range. Declines have been largely attributed to habitat loss and fragmentation (Marker *et al.*, 2003a; Marker *et al.*, 2003b; Myers, 1975). The disappearance of the species from across nearly its entire Asian range was in part also due to the habit of the Asian aristocracy of capturing and using cheetah for hunting (Divyabhanusinh, 1995). Today, in sub-Saharan Africa, lethal control due to perceived or actual conflict with livestock or game ranching also plays a strong role in the decline of the species (Marker *et al.*, 2003a; Marker *et al.*, 2003b; Myers, 1975).

2.4   *The southern Africa regional workshop*

The southern Africa regional workshop on conservation planning for cheetah and wild dogs was held on 3-8th December, 2007, at Jwana Game Park, Jwaneng, Botswana. It was attended by 28 delegates including government and NGO representatives from Angola, Botswana, Namibia, Malawi, Mozambique, South Africa, Zambia and Zimbabwe, and species specialists from Botswana, Namibia, Mozambique, South Africa, Zambia, Zimbabwe, Kenya, Tanzania, Switzerland, and

UK (Figure 2.2); the delegates' names, affiliations and contact details are provided in Appendix 1. No government representatives were available from Angola

Figure 2.2 *Delegates to the conservation planning workshop for African wild dogs and cheetah in southern Africa, held at Jwana Game Park, Jwaneng, Botswana in December 2007 (a full list of participants is provided in Appendix I).*

The southern Africa workshop had two principle objectives: to collate information on wild dog and cheetah status and distribution within the region, in a format that could be used to inform conservation planning, and to prepare a regional strategic plan for the species' conservation. The strategic plan was designed to form a template which could be used, with minor modifications, to develop national action plans for the species' conservation within the broader southern African region.

Chapters 3 and 4 of this report present details on the status and distribution of cheetah and wild dogs, respectively, in southern Africa. Chapter 5 describes the threats to both species. Chapter 6 describes the conservation strategy developed for the region by workshop participants. The agenda for the workshop is presented in Appendix 2, the methods used to collate the data are outlined in Appendix 3, and a logical framework table of the strategic plan is provided in Appendix 4.

– CHAPTER 3 –

THE DISTRIBUTION AND STATUS OF CHEETAH WITHIN SOUTHERN AFRICA

3.1   Historical distribution

In the past, cheetah were broadly distributed within southern Africa, absent only from the desert regions on the western coast of what is now Namibia. Cheetah are habitat generalists, able to persist in a wide array of environmental conditions as long as prey are available, ranging from the Sahara desert to reasonably thick bush. Before human activity modified substantial proportions of southern Africa's natural habitats, cheetah were presumed to have occupied nearly the entire region, bounded to the east by the Indian Ocean and to the west the dry coastlands of present day Namibia (Figure 3.1a). However, this generally accepted historical map of cheetah distribution (Myers, 1975) was developed from what was known about preferred habitat of cheetah at that time, together with a map of known habitat distribution. Whilst the habitat maps have not altered greatly, much more is known about the habitat preferences of cheetah today, modifying the presumed previous historic range. Participants in the workshop agreed that cheetah were probably never present in desert region along the coastline of Namibia and Angola. These areas were excluded from the historical range of the species (Figure 3.1b).
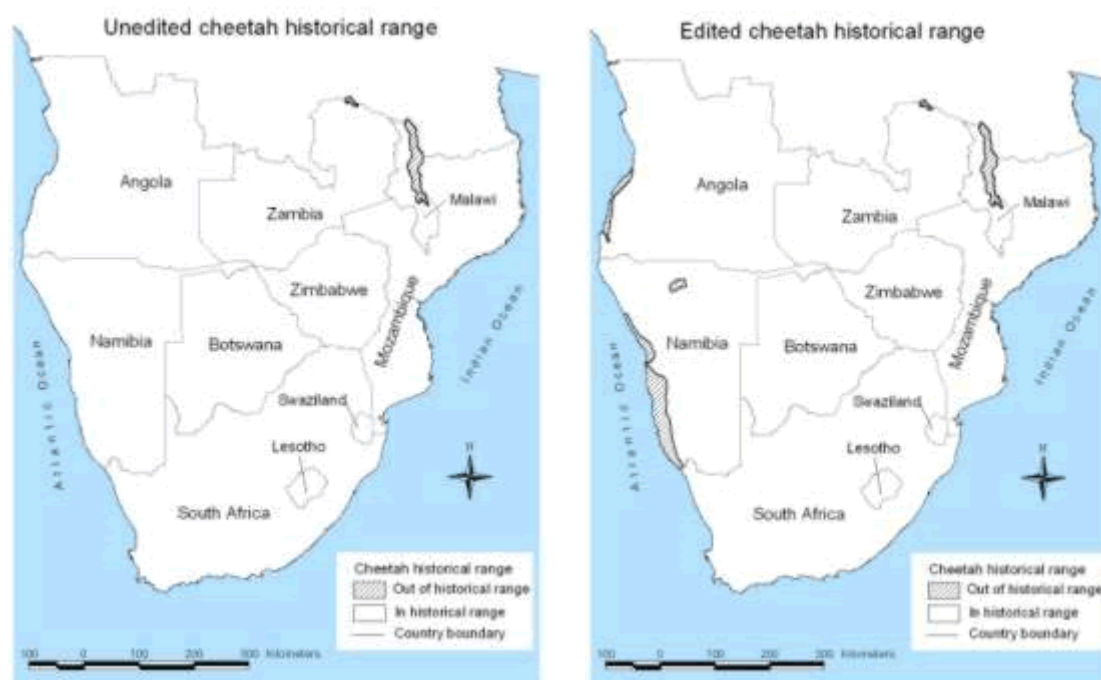
a)   b)

Figure 3.1 *Cheetah historical range, prior to the impact of human activity, a) as previously documented prior to this workshop (Myers, 1975) and b) after revision during the workshop.*

The highest cheetah densities have been recorded in wooded savannah (Caro, 1994; Marker *et al.*, 2008). However, the species lives at low density wherever it occurs, partly because it comes into competition with other large carnivores, such as lions and spotted hyaenas (Durant, 1998). Because of this, cheetah densities in pristine wilderness areas that harbour large numbers of other

large carnivores are similar to densities in relatively degraded habitat where prey densities are low and large carnivores have been excluded. This is because the best habitats attract the highest densities of competing carnivores. It unlikely, therefore, that cheetah were ever abundant, despite their broad geographical distribution.

3.2   Current distribution
3.2.1 Point location data
Mapping of current distribution undertaken at the workshop was informed by maps of recent and historical data on cheetah locations (mainly sightings) compiled prior to the workshop (Figure 3.2, Appendix 3). A sighting observation shows that cheetah have definitely occurred in a particular area, but does not signify whether there is a resident breeding population or whether the sighting involved transient individuals. Repeated sightings in a particular area are likely to indicate a resident population. The absence of sighting information in an area can mean one of two things: either there are no cheetah in the area, or there are cheetah in the area but they have not been recorded. The latter explanation is likely to be valid in areas where there are few observers, as this provides little opportunity for recording cheetah, and is a likely explanation for the absence of recent sightings from much of Angola, Zambia and Mozambique (Figure 3.2).
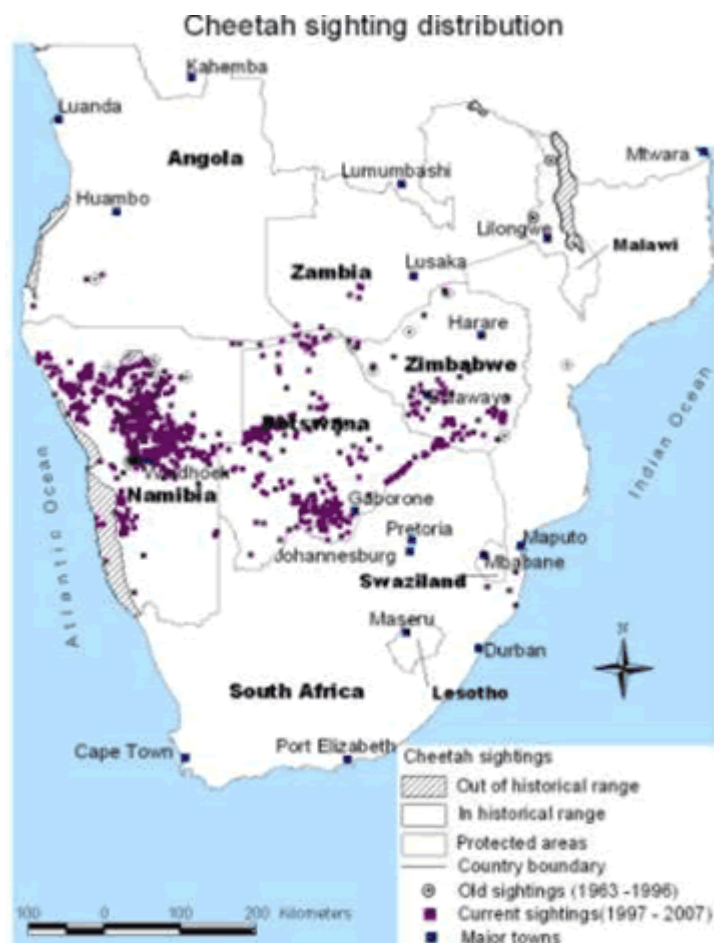
Figure 3.2 Sightings of cheetah across the region including both old (1963 – 1996) and recent (1997 – 2007).

3.2.2 Categories of current geographical range
Since cheetah distribution is imperfectly known across the region, the mapping process recognised six categories of current geographical range (Figure 3.3). These categories are almost identical to those used for wild dogs (see chapter

4). Further details on range definitions are provided in Appendix 3.
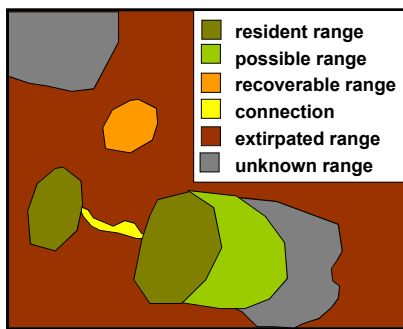
Figure 3.3 *Possible dispositions of different types of geographic range on an imaginary map*

(1)   <u>Resident range</u>: land where cheetah are known to be still resident

(2)   <u>Possible range</u>: land where cheetah may still be resident, but where residency has not been confirmed in the last 10 years.

(3)   <u>Connecting range</u>: land where cheetah may not be resident, but which dispersing animals may use to move between occupied areas, or to recolonise extirpated range. Such connections might take the form of 'corridors' of continuous habitat or 'stepping stones' of habitat fragments.

(4)   <u>Unknown range</u>: land where the species' status is currently unknown and cannot be inferred using knowledge of the local status of habitat and prey. <u>Extirpated range</u>: land where the species has been extirpated. This can be further divided into:

(5)   <u>Unrecoverable range</u>: land where habitat has been so heavily modified (e.g. by cultivation or urbanisation) or fragmented as to be uninhabitable by resident cheetah for the foreseeable future.

(6)   <u>Recoverable range</u>: land where habitat and prey remain over sufficiently large areas that either natural or assisted recovery of cheetah might be possible within the next 10 years if reasonable conservation action were to be taken.

3.2.3 Current distribution across different range categories

Figure 3.4 shows cheetah geographic range as mapped by workshop participants in 2007, according to the six categories above; Table 3.1 presents the same data in a quantitative format.

The current geographic distribution of cheetah is greatly reduced in comparison with their historical distribution. Cheetah are known to be resident in only about 21% of their historical range, and are possibly present in another 7% of their historical range. Even if all the areas where cheetah could possibly be present turn out to hold resident populations, this still represents an apparent loss of approximately two thirds of their historical range, whilst, if the possible areas are shown not to hold resident populations, there could be a loss of nearly 80% of historical range.

It was acknowledged during the meeting that there was a large area of southern Africa (40%) where the status of cheetahs is unknown. Although it is unlikely that all this unknown area would contain resident populations of cheetahs, it was agreed that the extent of resident range is likely to increase once information is available from these currently unknown areas.
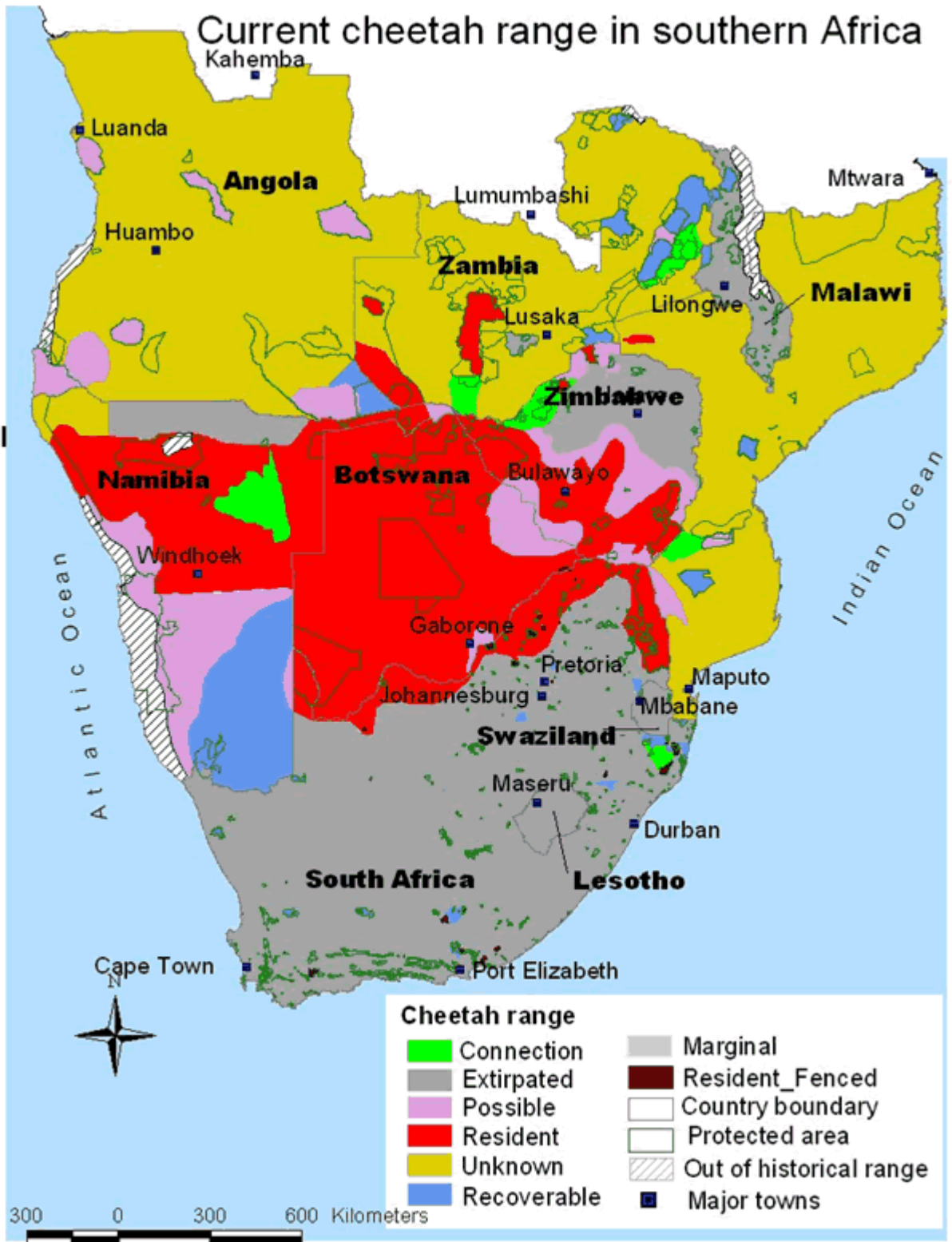
Figure 3.4 *Cheetah distribution in southern Africa (2007) as mapped by participants at the workshop. Protected areas shown in this map include national parks, game reserves and conservation areas, and are all within IUCN Categories I-IV.*

Table 3.1 *Distribution of cheetah in range states within southern Africa (note percentage sub-totals and totals were calculated as the total land area estimated to be in each category of cheetah range in 2007, divided by the total land area falling inside historic cheetah range).*

Country	Historic range (km²)	Area (km²) and % of historical range falling in each range category											
		Resident		*Possible*		*Connecting*		*Unknown*		*Recoverable*		*Urecoverable*	
		km²	%	km²	%	km²	%	km²	%	km²	%	km²	%
Countries represented at the workshop													
Angola	**1,104,026**	0	0.0	90,222	8.2	0	0.0	998,944	90.5	14,860	1.3	0	0.0
Botswana	**572,702**	532,801	93.0	39,901	7.0	0	0.0	0	0.0	0	0.0	0	0.0
Malawi	**87,092**	0	0.0	0	0.0	0	0.0	0	0.0	5,717	6.6	81,375	93.4
Mozambique	**732,001**	2,417	0.3	14,759	2.0	8,487	1.2	696,855	95.2	9,483	1.3	0	0.0
Namibia	**752,406**	317,919	42.3	144,265	19.2	33,775	4.5	31,863	4.2	152,745	20.3	71,837	9.5
South Africa	**1,346,705**	145,815	10.8	0	0.0	4,835	0.4	0	0.0	16,815	1.2	1,179,240	87.6
Zambia	**679,190**	46,680	6.9	3,238	0.5	24,759	3.6	561,799	82.7	37,284	5.5	5,431	0.8
Zimbabwe	**372,169**	132,931	35.7	93,259	25.1	17,463	4.7	0	0.0	0	0.0	128,517	34.5
Sub total	*5,646,291*	*1,178,563*	*20.9*	*385,643*	*6.8*	*89,320*	*1.6*	*2,289,461*	*40.5*	*236,904*	*4.2*	*1,466,400*	*26.0*
Countries not represented at the workshop													
Swaziland	**18,241**	0	0.0	0	0.0		0.0	0	0.0	0	0.0	18,241	100.0
Lesotho	**33,868**	0	0.0	0	0.0		0.0	0	0.0	0	0.0	33,868	100.0
Sub total	*52,109*	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*	*0*	0.0	*52,109*	*100.0*
Grand total	**5,698,400**	**1,178,563**	**20.7**	**385,643**	**6.8**	**89,320**	**1.6**	**2,289,461**	**40.2**	**236,904**	**4.2**	**1,518,509**	**26.6**

Overall, cheetah were agreed to be extirpated across a minimum of 27% of their historical range in southern Africa, most of this extirpated area occurring in the heavily populated country of Malawi, and the intensively agricultural country of South Africa. However, cheetah were also recorded as absent from areas in Zambia (the Luangwa protected area complex) and in Mozambique (Zinave, Bauhine and Gorongosa National Parks) where they had been recorded to be present relatively recently. The extent of extirpated range is almost certainly an under-estimate for reasons similar to those described for the estimate of resident range. That is, it is likely that a high proportion of the 'unknown' range, and a proportion of the 'possible' range, no longer supports cheetah (although assessment of recoverable status also need to be carried out). Most of the extirpated range was considered unrecoverable; exceptions are protected areas in Zambia and Mozambique where cheetahs used to occur, and a large swathe of southen Namibia which participants thought could be repopulated under the right management conditions.
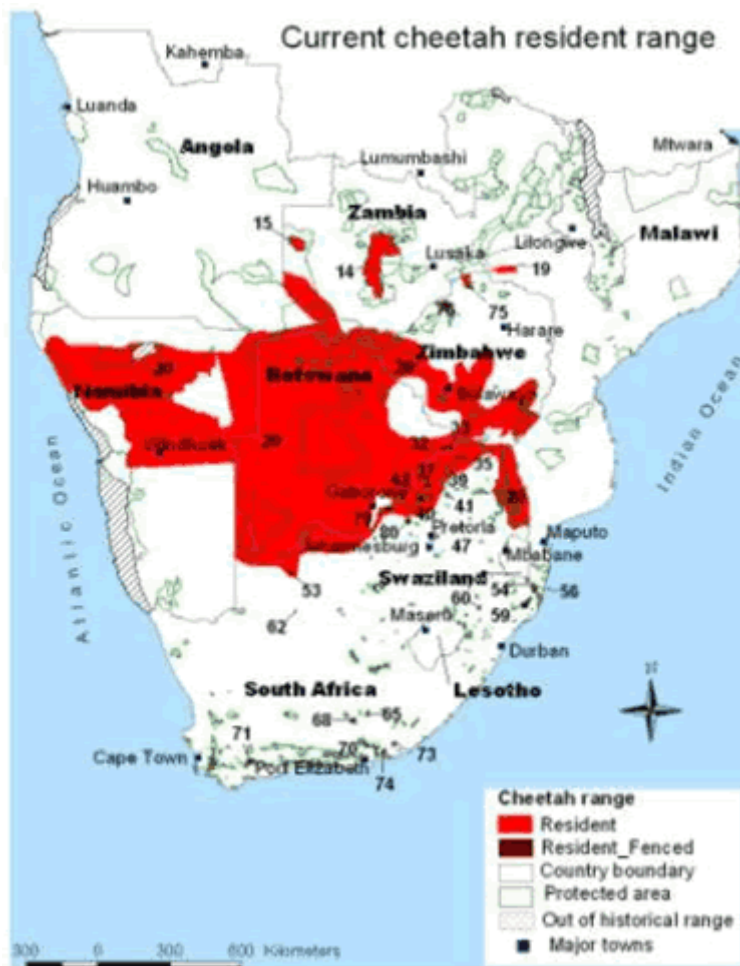
Figure 3.5 *Areas of resident cheetah range in southern Africa, as identified by workshop participants.*

A small, but important, 1.6% (89,320km2) of historical range is considered potentially significant for cheetah conservation because it connects areas of resident or possible range. The largest known resident population of cheetah in southern Africa extends across five countries, and the connecting range identified was included in recognition that some resident populations outside this main resident population are likely to either already be connected, or to have potential

for connection. It was acknowledged that as data become available for unknown areas, the extent of connecting range is likely to increase. Connecting range, by definition (Section 3.2.2), is believed not to contain resident populations and hence is likely to be highly threatened.

Table 3.2 *Areas in southern Africa considered by participants to support resident cheetah populations in unfenced areas. Population estimates are derived from a number of different methodologies and have a very wide margin of error. Locations are shown in Figure 3.5.*

Name	Country	Trans-boundary?	Area (km²)		Population estimate (adults)	
			Total	*Protected*	*Total*	*Protected*
Bot/Nam/SA /Za/Zim	Botswana, Namibia, South Africa, Zambia and Zimbabwe	Yes	1,141,124	231,327	6,000	1,200
Kafue	Zambia	No	20,745	20,745	200	200
Liuwa Plains	Zambia	No	2,899	2,899	20	20
Cabora Bassa	Mozambique	Yes	2,417	0	20	0
Mana Pools	Zimbabwe	No	1,965	1,965	20	20
Matusadona	Zimbabwe	No	1,328	1,328	20	20
	Grand total:		**1,170,479**	**258,264**	**6,260**	**1,460**

population sizes estimated from the size of the polygon using a conservative density of 1 adult per 100km²;

Table 3.2 provides greater detail on the areas of resident range mapped by participants that are unfenced (locations of these areas are shown in Figure 3.5). In South Africa, participants also provided information for 22 fenced reserves with resident populations of cheetahs (see Figure 3.5). These are not included in the table above as the populations in each reserve are isolated from all other cheetah populations, some of which are managed as components of a metapopulation. However, they do constitute important areas for the conservation of the species as a whole. In total, these fenced reserves in South Africa were estimated to hold 200 cheetahs.

The population estimates provided in Table 3.2 must be interpreted with great caution as they were derived using a variety of formal and informal approaches, often on the basis of extremely sparse data; however there are no alternative more accurate data available. It is important to note that in southern Africa one large resident population was identified covering five countries and encompassing an area of over a million km². Only 20% of this area falls under protected land, again emphasizing the fact that conservation action needs to take place outside of protected areas. Only one other resident population identified had an estimated population of cheetahs greater than 200 adults and independent adolescents.

3.2.4 Distribution across protected areas
As is apparent from Figure 3.4, a comparatively small proportion of current geographical range of cheetah falls inside protected areas (Table 3.3). Overall, only about 22% of the total resident range occurs on protected land, with the remaining population, approximately 80%, occurring outside the region's protected area system. This situation represents a real threat to the survival of cheetah in southern Africa as unprotected areas are by no means secure, with heavy pressure on land, and increasing conflict with humans coupled with a declining prey base.

As an example, if all such unprotected lands were lost, the single largest population currently identified (the "Bots/Nam/SA/Za/Zim" population – see Table 3.2) would number around 1200 (rather than ~6000) and would constitute a number of small fragmented sub-populations rather than a single population. Several of these sub-populations would be too small to remain viable and hence would be expected ultimately to become extinct.

Like resident range, the majority of possible range falls outside government-designated protected areas. Apart from the connecting range in the north of Zimbabwe, almost all range connecting resident populations falls outside protected areas, and hence the future of these valuable corridors is unlikely to be secure.

Apart from the south eastern area of Namibia, the recoverable range identified comprises mainly protected areas (Zambia, Malawi, Mozambique and Angola) judged by the participants to be areas where cheetah populations are most likely to recover to historical levels. However, the total recoverable range is a small proportion of the historic range, and conservation efforts are probably better focused on resident range that is outside of the protected area network.

Table 3.3 *Occurrence of areas known or suspected to be important for cheetah conservation in IUCN Category I-IV protected areas. Percentages are calculated as the land area in each category falling inside protected areas, divided by the total land area in that range category.*

| | Area (km²) and % of each range category falling inside protected area | | | | | | | |
| | Resident | | Possible | | Connecting | | Recoverable | |
Country	km²	%	km²	%	km²	%	km²	%
Countries represented at the workshop								
Angola	0	0.0	0	0.0	0	0	14,779	99.5
Botswana	108,455	20.4	0	0.0	0	0.0	0	0.0
Malawi	0	0.0	0	0.0	0	0.0	5,717	100
Mozambique	0	0.0	5,096	34.5	158	1.9	9,483	100
Namibia	36,829	11.6	21,356	14.8	0	0.0	4,652	3.0
South Africa	39,600	27.2	0	0.0	202	4.2	5,902	35.1
Zambia	47,055	100	3,238	100	13,688	55.3	37,330	100
Zimbabwe	29,841	22.4	1,087	1.2	3,048	17.5	0	0.0
Sub total	*261,780*	*22.2*	*30,779*	*8.0*	*17,097*	*19.1*	*77,864*	*32.9*
Countries not represented at the workshop								
Swaziland	0	0.0	0	0.0	0	0.0	0	0.0
Lesotho	0	0.0	0	0.0	0	0.0	0	0.0
Sub total	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*	*0*	*0.0*
Grand total	**26,1780**	**22.2**	**30,779**	**8.0**	**17,097**	**19.1**	**77,864**	**32.9**

3.2.5 Distribution across international boundaries

As shown in Figure 3.5, there is one large resident population of cheetah that spans five international boundaries, incorporating areas of Botswana, Namibia, South Africa, Zambia and Zimbabwe. The total estimated population is 6000, representing 95% of the total resident population in unfenced areas, and 92% of the total resident population of the region. If possible range is included, this resident population would also include southern Angola. This large and highly significant population of cheetahs highlights the importance of the need for transboundary management, and harmonisation of control of threats across international borders.

3.2.6 Distribution across ecoregions

If cheetah are to be conserved across a range of ecosystems, then efforts should be made to ensure that populations encompass a wide range of habitats. Cheetah range (resident, possible and connecting) was therefore mapped with regard to the ecoregions identified by the World Wide Fund for Nature (WWF, Olson *et al.*, 2001). The numbers of resident, possible and connecting range polygons falling entirely or partly within each ecoregion were estimated from the distribution maps (Table 3.4). To account for inaccurate estimation of the boundaries of each ecoregion and range polygon, and to ensure interpretation on a spatial scale relevant to cheetah home ranges, this analysis excludes any part of a range polygon measuring <500km^2. The data presented in Table 3.4 reflect the map shown in Figure 3.6, with one large resident population of cheetahs that incorporates a number of different ecoregions, demonstrating cheetahs' ability to use multiple types of habitat.

The analysis revealed that in the southern African region no single ecoregion appears to dominate cheetah conservation. The largest resident population of cheetahs incorporates 17 ecoregions of which six make up the majority of the area – Namibian savanna woodlands, Kalahari *Acacia-Baikaea* woodlands, Kalahari Xeric savanna, southern Africa bushveld, Zambezian *Baikiaea* woodlands and Zambezian/Mopane woodlands – indicating that the semi-arid areas of the region appear to be the most important habitats for cheetah (Figure 3.6 and Table 3.4). Other important ecoregions where resident populations of cheetah currently exist are the Angolan Mopane woodlands, the Zambezian flooded grasslands, Zambezian halophytics and the Southern Miombo woodlands listed in decreasing order of coverage.

The analysis identified possible populations of cheetah in 11 of the 17 ecoregions where resident populations already occur. It also, importantly, identified possible populations in five ecoregions that did not contain resident populations of cheetahs (Angolan Miombo woodlands, Angolan scarp savanna and woodland, Eastern Zimbabwe montane forest-grassland mosaic, Nama Karoo and Succulent Karoo – Table 3.5, Figure 3.7). This possible range could hold cheetah populations in different ecosystems, and hence should be prioritized for surveys to determine residency.

Connecting range did not include any ecoregions not already included under either resident or possible range.
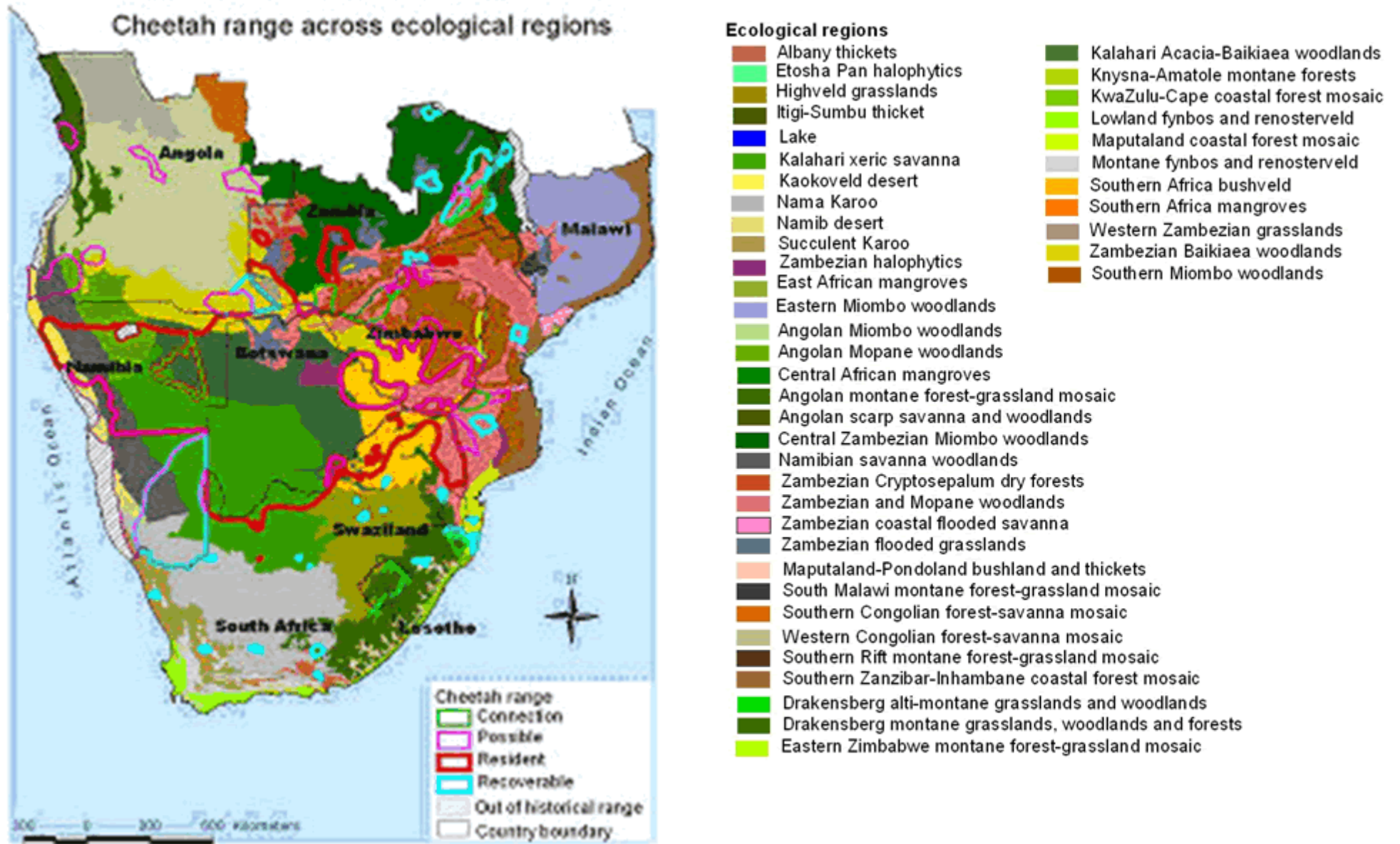
Figure 3.6 *Distribution of cheetah geographic range across WWF ecoregions*

Table 3.4 *Distribution of cheetah range across WWF ecoregions within southern Africa. Data give the number of range polygons, and combined area of land, falling within each ecoregion. Land parcels ≤500km² are excluded, as are land parcels falling within the desert ecoregions of Namibia as it is unlikely cheetah ever reside in these habitat types.*

	Resident range		Possible range		Connecting range	
Ecological region	**number**	**area (km²)**	**number**	**area (km²)**	**number**	**area (km²)**
Angolan Miombo woodlands	0	0	3	23,190	0	0
Angolan Mopane woodlands	1	45,761	2	12,783	0	0
Angolan scarp savanna and woodlands	0	0	1	7,586	0	0
Central Zambezian Miombo woodlands	1	14,027	1	1,552	0	0
Drakensberg montane grasslands, woodlands and forests	4	5,996	0	0	1	4,835
Eastern Zimbabwe montane forest-grassland mosaic	0	0	1	890	0	0
Etosha Pan halophytics	1	2,465	0	0	0	0
Kalahari Acacia-Baikiaea woodlands	2	273,904	2	9,121	1	27,315
Kalahari xeric savanna	1	372,194	3	32,543	1	6,460
Kaokoveld deser	1	15,529	1	5,120	0	0
Montane fynbos and renosterveld	1	632	0	0	0	0
Nama Karoo	0	0	1	5,445	0	0
Namib desert	1	5,598	2	31,390	0	0
Namibian savanna woodlands	1	62,164	2	84,383	0	0
Southern Africa bushveld	3	101,772	3	51,298	0	0
Southern Miombo woodlands	4	20,594	4	43,673	3	17,535
Succulent Karoo	0	0	1	5,707	0	0
Western Zambezian grasslands	2	8,702	0	0	0	0
Zambezian Baikiaea woodlands	2	75,278	4	29,304	1	1,231
Zambezian and Mopane woodlands	4	110,663	8	39,001	5	31,230
Zambezian flooded grasslands	3	34,130	0	0	0	0
Zambezian halophytics	1	21,339	0	0	0	0

Table 3.5 *Polygons of possible range for cheetah which cover ecoregions poorly represented by the resident range (using ≤2 areas of resident range each ≥500km² as a definition of 'poor' representation). Surveys of these areas could be potentially valuable for expanding cheetah conservation efforts to better represent the ecoregions formerly inhabited by cheetah. Locations of the polygons are provided in Figure 3.7.*

Ecological region	Polygon reference number													Representation in resident range
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Angolan Miombo woodlands	X				X		X							0
Angolan Mopane woodlands	X			X										1
Angolan scarp savanna and woodlands						X								0
Central Zambezian Miombo woodlands									X					1
Eastern Zimbabwe montane forest-grassland mosaic			X											0
Kalahari Acacia-Baikiaea woodlands								X			X			2
Kalahari xeric savanna											X	X	X	1
Kaokoveld desert				X										1
Nama Karoo													X	0
Namib desert													X	1
Namibian savanna woodlands				X									X	1
Succulent Karoo													X	0
Zambezian Baikiaea woodlands	X	X	X							X				2
Total ecoregions represented in polygon	**3**	**1**	**2**	**3**	**1**	**1**	**1**	**1**	**2**	**1**	**2**	**1**	**5**	

Bikuar; 2 = Caprivi; 3 = Central Zimbabwe; 4 = Iona; 5 = Kameia; 6= Kisama; 7= Luando; 8 = Mangwe E. Botswana; 9 = Mynyamadzi; 10 = Mucossa; 11 = S Botswana; 12 = SE Namibia; 13 = S W Namibia

Figure 3.7 *Areas of possible cheetah range which fall in ecoregions represented by fewer than three polygons of resident range.*

3.3   Conclusions

The geographical distribution of cheetah in southern Africa has contracted drastically in recent years. Cheetah are now known to inhabit only 21% of their previous historic range as identified by the participants of the workshop. The population is dominated by one critically important, relatively widespread, population which covers five different countries: Namibia, Botswana, Zimbabwe, South Africa and Zambia. There are also four smaller fragmented resident populations in Zambia and Zimbabwe, and a number of managed cheetah populations in South Africa. The resident ranges of cheetah are estimated to hold approximately 6500 cheetahs. However, the population is far from secure, as 78% of cheetah resident range is not protected. There is therefore an urgent need for international cooperation in the conservation of cheetah across the region if the connectivity of the remaining populations is to be maintained. It is a priority to establish whether the unknown range does or does not contain cheetahs, as well as confirming whether or not possible range contains cheetahs. This may open up the possibility of further transboundary range including between Angola and Namibia, Mozambique and South Africa and/or Zimbabwe, resulting in an even greater need for transboundary co-operation in cheetah conservation.

Despite a great deal of information being available for some of the region (namely Botswana, Namibia, South Africa and Zimbabwe) cheetah status is unknown across 40% of the region, and uncertain (considered "possible range") in a further 7%. These areas are priorities for surveys as, until the true extent of the distribution of cheetah is known, it is difficult to plan systematically for the conservation of the species. Many of these possible populations or unknown areas

cross international boundaries, and several of them may serve as linkages between known resident populations and hence are potentially critical for maintaining connectivity between populations.

A number of areas were identified in Angola, Zambia and Malawi, with IUCN protected area status, where it was thought that cheetah populations could recover. The potential for such recovery should be assessed through an increased understanding of the reasons for the initial decline, and whether there has been a reduction of threats to the species. However, a quarter of total historical cheetah range (mainly in Malawi and South Africa) was considered extirpated and unrecoverable. This emphasises the threat of increasing human populations and intensive agriculture to the survival of cheetah populations. Only 21% of historical range is known to have resident populations of cheetahs, although this percentage might increase when surveys have been carried out in possible range areas and areas where the status of cheetahs in unknown. However, much of the unknown range is likely to be devoid of cheetahs given high human populations and intensive agriculture. This demonstrates the importance of ensuring that planning for cheetah conservation be put in place as soon as possible, before habitat is irretrievably fragmented and lost.

– CHAPTER 4 –

THE DISTRIBUTION AND STATUS OF AFRICAN WILD DOGS WITHIN SOUTHERN AFRICA

4.1   Historical distribution

In the past, wild dogs were broadly distributed across southern Africa. Wild dogs are habitat generalists, able to persist in a wide array of environmental conditions as long as prey are available. Although the highest wild dog densities have been recorded in wooded savannah (Creel & Creel, 2002), populations have been recorded in habitats as diverse as short grasslands (Kuhme, 1965), montane forest (Dutson & Sillero-Zubiri, 2005), and semi-desert (Fanshawe, 1997). Before human activity modified substantial proportions of southern Africa's natural habitats, wild dogs would have occupied most of the region, bounded by the sea to the east and south, and by the sand deserts of the Namib to the west.

Today, wild dogs remain uncommon even in essentially pristine wilderness, apparently due to negative interactions with larger carnivores (Creel & Creel, 1996; Mills & Gorman, 1997). Hence, despite their formerly broad geographical distribution, wild dogs were probably never abundant.

The map of wild dogs' historic distribution used in this process was updated in the course of the workshop from a pre-existing map (Figure 4.1). Participants amended the published historic range by excluding the Namib desert. The driest parts of the Kalahari desert, and the margins of the Namib, were designated as "marginal" range: intact wildlife habitat which wild dogs could occupy temporarily but which appeared unable to support resident populations (see below).

Figure 4.1 Wild dog historical range, prior to the impact of human activity, as revised during the workshop.

4.2 Current distribution

4.2.1 Point locations

The first step in mapping wild dogs' current distribution was to collate data on the locations of recent (i.e. during the past 10 years) confirmed records of wild dogs' presence, primarily (though not exclusively) sightings of live animals. The locations of these records are shown in Figure 4.2. These data are highly biased by observation effort and by reporting: for example the large numbers of records from western Botswana reflect the presence of a PhD student studying wild dogs in that area. By contrast, there are far fewer reports from Angola, and much of Mozambique, where no formal monitoring of wild dogs is underway. Despite the very uneven distribution of observation and reporting, the point locations shown in Figure 4.2 suggest that wild dogs' current geographic distribution, as estimated in 2007, is greatly reduced in comparison with their historical distribution.
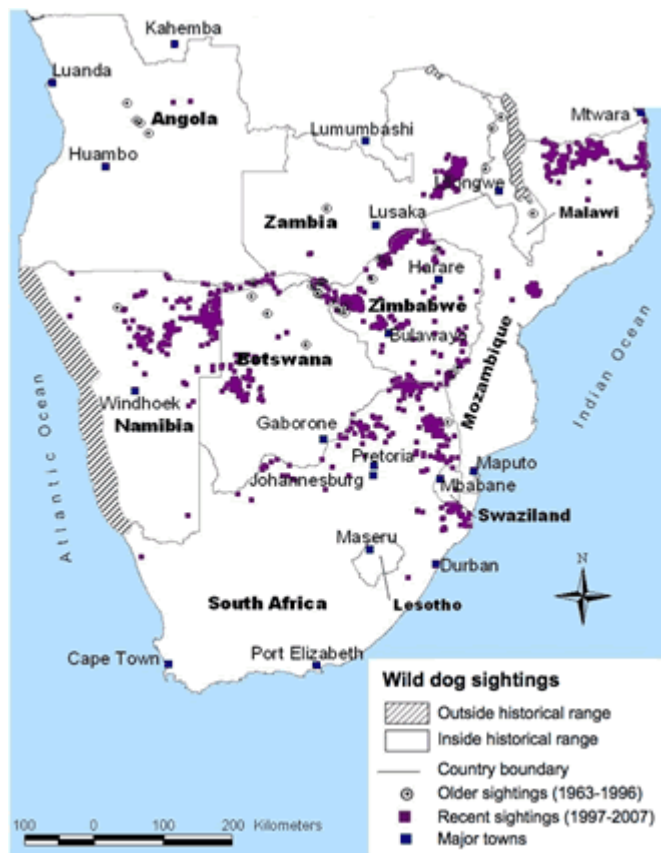
Figure 4.2 – *Locations of confirmed wild dog sightings in 1997-2007, and in previous years (back to 1963).*

4.2.2 Categories of current geographical range

Since wild dogs' distribution is imperfectly known across the region, the mapping process recognised seven categories of current geographical range (Figure 4.3). Further details on range definitions are provided in Appendix 3.

(1)   Resident range: land where wild dogs are known to be still resident.

(2)   Possible range: land where wild dogs may still be resident, but where residency has not been confirmed in the last 10 years.

Extirpated range: land where the species has been extirpated. This can be further divided into:

(3)   Unrecoverable range: land where habitat has been so heavily modified (e.g. by cultivation or urbanisation) or fragmented as to be uninhabitable by resident animals for the foreseeable future.

(4)   Recoverable range: land where habitat and prey remain over sufficiently large areas that either natural or assisted recovery of wild dogs might be possible

within the next 10 years if reasonable conservation action were to be taken.

(5) <u>Connecting range</u>: land where wild dogs may not be resident, but which dispersing animals may use to move between occupied areas, or to recolonise extirpated range. Such connections might take the form of 'corridors' of continuous habitat or 'stepping stones' of habitat fragments.

(6) <u>Marginal range</u>: land supporting intact wildlife habitat, where wild dogs occur intermittently but are known not to be resident, usually because habitat is not suitable.

(7) <u>Unknown range</u>: land where the species' status is currently unknown and cannot be inferred using knowledge of the local status of habitat and prey.
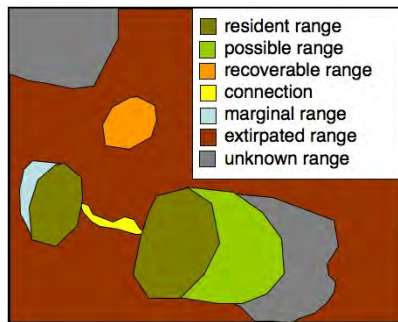
Figure 4.3 *Possible dispositions of different types of geographic range on an imaginary map*

4.2.3   Current distribution across different range categories

Figure 4.4 shows the areas of wild dogs' historical geographic range judged, in 2007, to fall into these seven categories; Table 4.1 presents the same data in a quantitative format. Several important pieces of information are apparent.

First, wild dogs are considered to be still resident in approximately 12% of their historical range. Although this figure represents a 'worst case scenario', it does highlight the major contraction in geographic range that appears to have occurred in this species.

Second, participants considered it possible that approximately 9% of wild dogs' historical range might still support resident populations, and no information on status was available for about a third (34%) of the species' historical range. If even a small proportion of this 'possible' and 'unknown' range still supports wild dogs, the species' status could be more encouraging than the data on resident range would imply. Most of the 'unknown' range falls in Angola, Mozambique and Zambia, highlighting the need for surveys in these countries. Mozambique, Namibia and Botswana contain large areas of 'possible' range. More information on promising survey areas is given in section 4.2.6 below.

Third, wild dogs are considered extirpated across approximately 45% of their historical range (including recoverable, unrecoverable and connecting range). This is almost certainly a substantial underestimate; it is likely that a high proportion of the 'unknown' range no longer supports wild dogs. Of this extirpated range, only 2.1% was considered likely to be able to support wild dog populations in future. The largest tract of such 'recoverable' range falls in, and to the west of, Etosha National Park in Namibia. Wild dogs' history in Etosha is uncertain, and three attempts at reintroduction have failed (Scheepers & Venzke, 1995). However, considerable experience of successful reintroductions has been accumulated since the last attempt (Gusset *et al.*, 2008), and it would certainly be worth considering another attempt if careful evaluations suggested that the habitat was suitable and the causes of wild dogs' original extirpation have been alleviated.

Despite supporting no known resident populations, a further 3% (170,768km^2) of historical range was considered potentially important for wild dog conservation because it connected areas of resident or possible range.

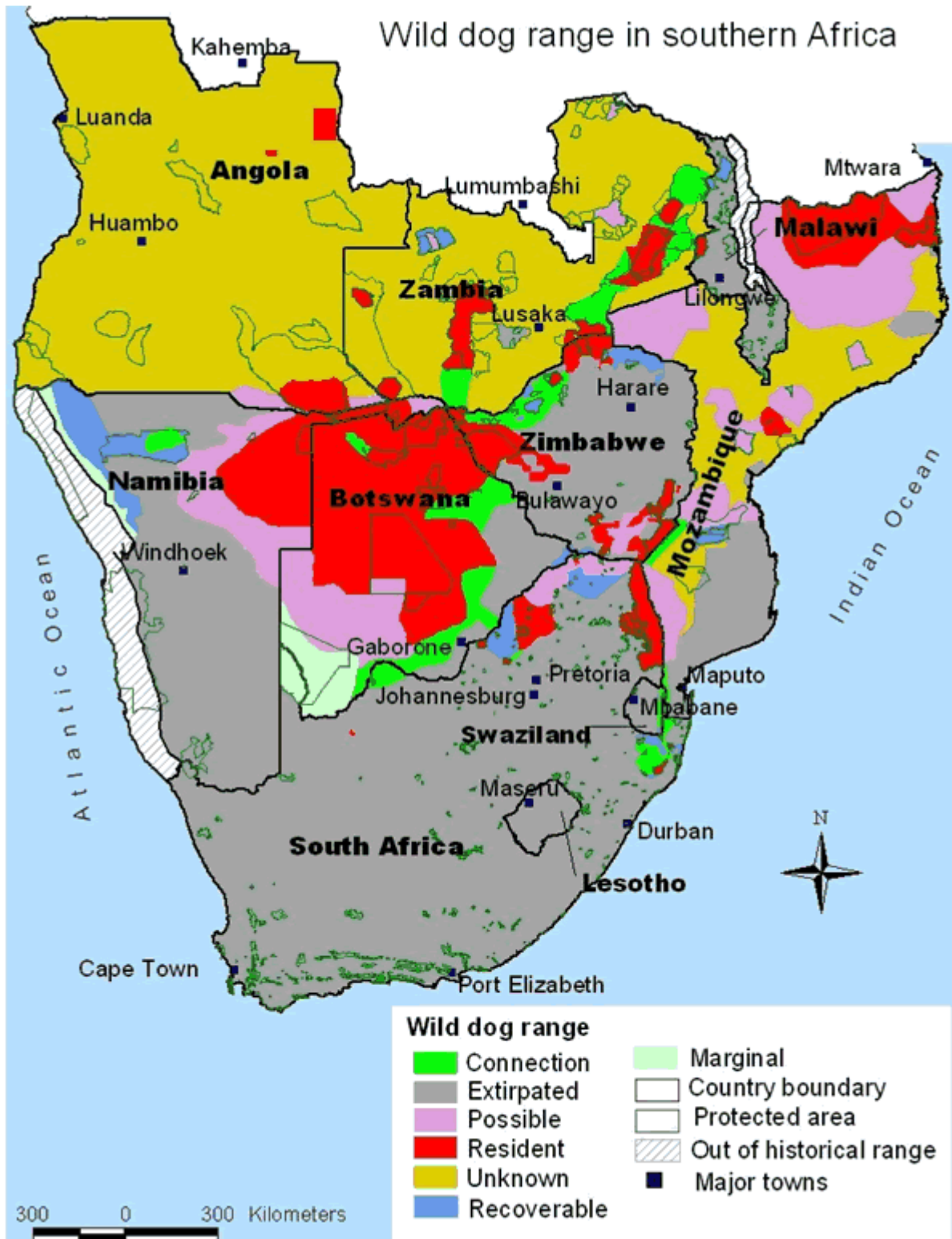**Figure 4.4** *Map of wild dog distribution and status as judged by participants in 2007. Protected areas shown in the map include national parks, game reserves and conservation areas, and are all within IUCN Categories I-IV.*

Table 4.1 *Distribution of African wild dogs in range states within southern Africa (note that percentage subtotals and totals were calculated as the total land area estimated to be in each category of wild dog range in 2007, divided by the total land area falling inside historical wild dog range).*

Country	Historical range* (km²)	marginal range* (km²)	resident km²	resident %	possible km²	possible %	Unrecoverable km²	Unrecoverable %	recoverable km²	recoverable %	connecting km²	connecting %	unknown km²	unknown %
			Area (km²) and % of historical range falling in each range category											
Countries represented at workshop														
Angola	1,116,942	0	9,099	2.6%	14,116	1.3%	0	0%	0	0%	0	0%	1,073,242	96.1%
Botswana	529,067	43,634	301,284	56.9%	93,084	17.6%	69,429	13.1%	2,231	0.4%	63,039	11.9%	0	0%
Malawi	87,092	0	2,110	2.4%	0	0%	81,375	93.4%	3,607	4.1%	0	0%	0	0%
Mozambique	731,977	0	88,268	12.1%	255,155	34.9%	126,195	17.2%	6,389	0.9%	7,320	1.0%	248,650	34.0%
Namibia	670,631	0	94,766	14.1%	81,313	12.1%	435,536	64.9%	94936	14%	6,846	1.0%	0	0%
South Africa	1,336,800	9,890	44,371	3.3%	22,171	1.7%	1,224,419	91.6%	28,793	2.2%	17,046	1.3%	0	0%
Zambia	679,190	0	60,511	8.9%	8,929	1.3%	5,443	0.8%	5,981	0.9%	53,052	7.8%	545,274	80.3%
Zimbabwe	372,168	0	72,772	19%	8,621	2.3%	258,288	69.4%	14,906	4.0%	20,672	5.6%	0	0%
Sub-total:	*5,523,866*	*53,531*	*673,181*	*12.2%*	*483,389*	*8.8%*	*2,200,684*	*39.8%*	*156843*	*2.8%*	*167,975*	*3.0%*	*1,867,166*	*33.8%*
Countries not represented at workshop														
Swaziland	18,241	0	0	0%	0	0%	14,795	81.1%	653	3.6%	2,792	15.3%	0	0%
Lesotho	33,868	0	0	0%	0	0%	33,868	100%	0	0%	0	0%	0	0%
Sub-total:	*52,108*	*0*	*0*	*0%*	*0*	*0%*	*48,663*	*93.4%*	*653*	*1.3%*	*2,792*	*5.4%*	*0*	*0%*
Grand total:	5,575,974	53,531	673,181	**12.2%**	483,389	**8.7%**	2,249,347	**40.3%**	157,496	**2.1%**	170,767	**3.1%**	1,867,166	**33.5%**

*marginal range was not included in the historical range

Table 4.2 *Areas in southern Africa considered by participants to support resident wild dog populations. Population estimates are calculated using a number of different methodologies and have a very wide margin of error. Locations are in Figure 4.5.*

Name	Country	Area (km²)		Trans-boundary?	Population estimate	
		total	*protected*		*adults*	*packs*
Botswana/NE Namibia/S Zambia/ W Zimbabwe/ S Angola	Angola/Botswana/ Namibia/Zambia/ Zimbabwe	433,586	125,066	yes	4,570†	550†
Cacolo-Saurimo	Angola	9,099	0	no	50†	4†
Kasungu NP	Malawi	2,110	2,110	possibly	14†	2†
Niassa-Quirimbas	Mozambique**	81,991**	44,321**	yes	472†**	48†**
Marromeu	Mozambique	6,280	49	no	41†	3†
Kruger/SE Zimbabwe	South Africa/Zimbabwe	41,317	28814	yes	342†	39†
Pilanesberg NP††	South Africa	407	407	no	7†	1†
Hluhluwe-iMfolozi Park††	South Africa	989	989	no	41†	6†
Madikwe GR††	South Africa	600	600	no	15†	2†
Greater Waterberg Region††	South Africa	15,752	1,116	no	15†	3†
Thanda GR††	South Africa	23	0	no	7†	1†
Mkhuze GR††	South Africa	242	242	no	6†	1†
Venetia Limpopo Nature Reserve††	South Africa	313	0	no	5†	1†
Tswalu Kalahari Reserve††	South Africa	246	0	no	3†	1†
Kafue National Park	Zambia	23154	20,746	no	300†	25†
South Luangwa NP	Zambia	21033	15,992	no	100†	3†
North Luangwa NP	Zambia	4,037	4,037	no	40*	4*
Zambezi Valley Complex	Zambia/Zimbabwe	20781	19250	yes	150†	13†
Liuwa Plains	Zambia	2891	2,891	no	30*	2*
Part of Save	Zimbabwe	253	0	no	85†	9†
Bubye-Bubiana	Zimbabwe	6,422	0	possibly	60†	4†
Matusadona	Zimbabwe	1326	1,328	no	18†	3†
	Grand total:	**672852**	**267,967**		**6,371**	**725**

*population sizes estimated from the size of the polygon using a conservative density of 1 adult per 100km² and 12 adults (including yearlings) per pack; †population sizes estimated by delegates using a variety of methodologies; **excludes the part of this population in Selous, in neighbouring Tanzania (as Tanzania is considered to fall in eastern Africa); ††managed as a part of a single South African metapopulation.

4.2.4 Distribution across protected areas

Much of wild dogs' current geographical range falls outside protected areas. This is quantified in Table 4.3. Overall, 62% of resident range, 92% of possible range, 68% of recoverable range and 70% of connecting range is estimated to fall outside government-designated protected areas. Hence, conservation activities outside protected areas are likely to be critical for preservation of this species.

4.2.5 Distribution across international boundaries

As shown in Figure 4.5, several important areas for wild dog conservation traverse international boundaries. Although only four (18%) of the 22 resident populations listed in Table 4.2 are known to be trans-boundary, these include the three largest populations in the region. Together, the transboundary populations represent an estimated 5,534 adult and yearling wild dogs, nearly 90% of the regional total. Beyond the southern African region, the Niassa-Quirimbas area of resident range is contiguous with the population centred on the Selous Game Reserve in southern Tanzania; the entire area covers over 150,000km² and is estimated to support roughly 1,300 adult and yearling wild dogs. Across eastern and southern Africa combined, about 6,800 wild dogs are known or strongly suspected to occur in transboundary populations, over 70% of the total.

The large number of wild dogs resident in transboundary populations highlights the need for trans-boundary management of wild dog conservation in several areas.
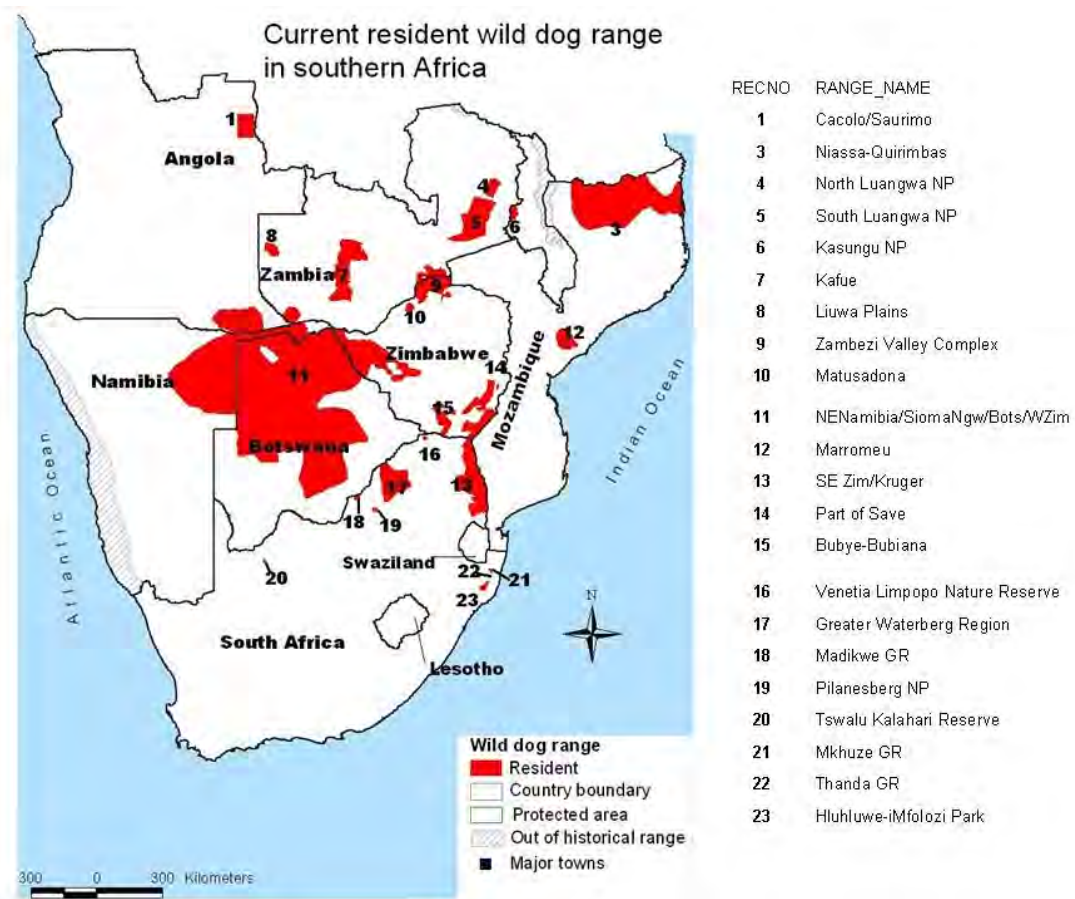

Figure 4.5 *Areas of resident wild dog range in southern Africa, as identified by workshop participants.*

Table 4.3 *Occurrence of areas known or suspected to be important for wild dog conservation in IUCN Category I-IV protected areas. Percentages are calculated as the land area in each category falling inside protected areas, divided by the total land area in that range category.*

	Area (km²) and % of each range category falling inside protected areas							
	resident		possible		recoverable		connecting	
Country	km²	%	km²	%	km²	%	km²	%
Countries represented at workshop								
Angola	20,173	68.2%	3,647	25.8%	0	–	0	–
Botswana	74,392	24.7%	8,640	9.3%	0	0%	2,033	3.2%
Malawi	2,110	100%	0	–	3,607	100%	0	–
Mozambique	44,369	50.3%	13,642	5.3%	6,138	96.1%	34	0.5%
Namibia	11,396	12.0%	757	0.9%	15,351	29.4%	6,476	94.6%
South Africa	27,366	61.7%	639	2.9%	3,094	10.7%	1,185	7.0%
Zambia	55,800	92.2%	8,909	99.8%	5,981	100%	38,695	72.9%
Zimbabwe	29,226	41.9%	47	0.5%	2,584	17.3%	1,916	9.3%
Sub-total	*264,832*	*38.3%*	*36,281*	*7.5%*	*36,754*	*32.2%*	*50,339*	*29.5%*
Countries not represented at workshop								
Swaziland	0	–	0	–	198	30.3%	0	0%
Lesotho	0	–	0	–	0	–	0	–
Sub-total	*0*	*–*	*0*	*–*	*198*	*30.3%*	*0*	*0%*
Grand total:	**264,832**	**38.3%**	**36,281**	**7.5%**	**36,953**	**32.2%**	**50,339**	**29.5%**

4.2.6 Distribution across ecoregions

Figure 4.6 shows the locations of range polygons important for wild dog conservation (resident, possible, recoverable and connecting) across WWF's ecoregions (Olson *et al.*, 2001). Table 4.4 lists the numbers of resident and possible range polygons falling entirely or partly within each ecoregion; as for the analyses of cheetah distribution, to account for inaccurate estimation of the boundaries of each ecoregion and range polygon, and to ensure interpretation on a spatial scale relevant to wild dog ranging, this analysis excludes any part of a range polygon measuring <500km².

Table 4.4 and Figure 4.6 show that the major ecoregions occupied by wild dogs in southern Africa are Kalahari *Acacia-Baikiaea* woodlands, Zambezian Mopane woodlands, Zambezian *Baikiaea* woodlands, Zambezian flooded grasslands, southern Africa bushveld, Central Zambezian Miombo woodlands and Southern miombo woodlands. The diversity of these ecoregions illustrates wild dogs' broad habitat preferences.

The data presented in Table 4.5 are of potential interest for targeting surveys. As with cheetah, there is a need to survey areas in Angola for the presence of wild dogs, as no resident wild dog populations are confirmed within Angolan miombo woodland , although there is possible range within this ecoregion. Likewise, populations of wild dogs may possibly exist in the otherwise under-represented ecoregions of East African Mangroves and Zambezian *Cryptosepalum* dry forests in Mozambique and the Itigi Sumbu thicket in Zambia (Table 4.4). The areas listed in Table 4.5 represent priorities for wild dog surveys, as ecologically important populations may still exist in these areas and need protection.

Table 4.4 shows that, in a few areas, reintroduction might potentially play a role in restoring wild dogs to some ecological settings, since there are areas of recoverable range which fall in ecoregions not represented in the resident or possible range. However, given the massive effort likely to be needed to conserve existing populations, reintroductions are not an immediate priority at the regional

level. Before any reintroductions could be considered in future, further feasibility studies would be vital to confirm that areas designated recoverable range do indeed fall within wild dogs' historical distribution, and remain capable of supporting viable wild dog populations in the long term.

4.3   Conclusions

The geographic range of wild dogs in southern Africa has experienced a substantial contraction over the past one or two hundred years. From a historical distribution formerly covering over 5 million km^2, in 2007 less than 700,000km^2 – 12% of the total – still appears to support resident wild dog populations. In the 10 countries in the region, only 22 populations are known to remain (including seven reintroduced to parts of South Africa, which are managed as a single metapopulation). Of these only four are estimated to number ≥200 adults and yearlings. Most remaining resident populations rely on unprotected, as well as protected, lands for their survival, highlighting the need for conservation efforts outside parks and reserves. Nearly 90% of wild dogs in the region live in populations which span international boundaries; conserving these is likely to require trans-boundary cooperation.

Although the number and geographical extent of known populations is small relative to the species' historic range, there are additional areas that may still support resident populations. Surveys in such areas would be of great value. Although the area of land to be surveyed is daunting, nine areas (in five countries) identified as possibly supporting wild dogs fall within ecoregions which are under-represented by the known resident populations, and surveys in these areas might be particularly valuable.

Only a comparatively small number of locations were identified where recovery of extirpated wild dog populations might be considered. Most of these adjoin areas that are currently occupied and natural recovery is thus potentially possible. Reintroduction is not, therefore, a high priority for conserving wild dogs in the region in the medium term.
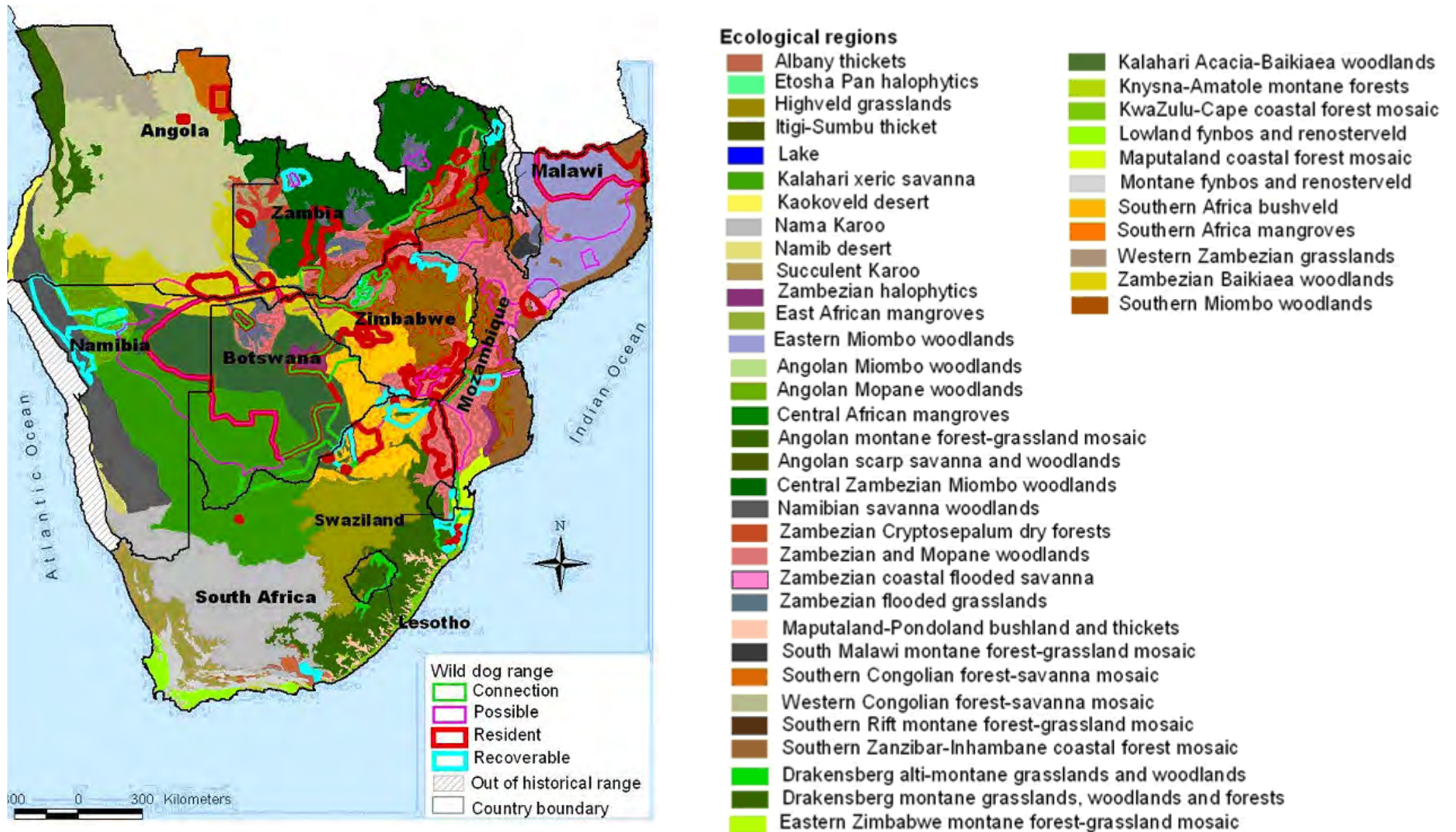
Figure 4.6 *Distribution of wild dog geographic range across WWF ecoregions*

Table 4.4 *Distribution of wild dog range across WWF ecoregions within southern Africa. Data give the numbers of range polygons, and combined area of land, falling within each ecoregion. Land parcels ≤500km² are excluded.*

Ecoregion	Resident range number	Resident range area (km²)	Possible range number	Possible range area (km²)	Recoverable range number	Recoverable range area (km²)
Albany thickets	0	0	0	0	1	1,097
Angolan Mopane woodlands	0	0	1	4,299	2	15,102
Angolan Miombo woodlands	2	1,002	1	919	0	0
Central Zambezian Miombo woodlands	4	21,969	3	2,719	2	4,457
Drakensberg montane grasslands, woodlands and forests	2	1,296	2	2,454	2	4,963
East African mangroves	0	0	4	550	0	0
Eastern Miombo woodlands	2	72,848	4	110,966	0	0
Itigi-Sumbu thicket	0	0	1	881	0	0
Kalahari *Acacia-Baikiaea* woodlands	3	238,345	1	21,945	2	3,756
Kalahari xeric savanna	1	63,974	1	137,270	0	0
Maputaland coastal forest mosaic	0	0	0	0	1	1,536
Namibian savanna woodlands	0	0	0	0	1	36,801
Southern Africa bushveld	7	23,043	1	17,885	3	17,051
Southern Congolian forest-savanna mosaic	1	8,097	0	0	0	0
Southern Miombo woodlands	12	19,059	4	45,550	3	4,790
Southern Rift montane forest-grassland mosaic	0	0	0	0	1	2,360
Southern Zanzibar-Inhambane coastal forest mosaic	2	10,737	7	19,545	0	0
Western Zambezian grasslands	2	4,133	0	0	0	0
Zambezian Mopane woodlands	14	102,519	11	84,932	5	17,051
Zambezian *Baikiaea* woodlands	3	81,733	4	22,197	0	0
Zambezian coastal flooded savanna	1	2,861	3	5,628	0	0
Zambezian *Cryptosepalum* dry forests	0	0	1	893	1	2,135
Zambezian flooded grasslands	7	28,614	4	5,496	0	0
Zambezian halophytics	1	9,406	0	0	0	0

Table 4.5 *Polygons of possible range which cover ecoregions poorly represented by the resident range (using ≤2 areas of resident range within southern Africa, each ≥500km² as a definition of 'poor' representation). Surveys of these areas could be potentially valuable for expanding wild dog conservation efforts to better represent the ecoregions formerly inhabited by wild dogs. Note that the 'Eastern Miombo woodlands' ecoregion is represented by three polygons (totaling 84,347km²) when data from eastern Africa are included; this reduces the priority associated with surveying the Gile area in Mozambique, which falls within this ecoregion. Site locations are shown in Figure 4.7.*

|	**Polygon name**										
Country:	*Mozambique*						*Zambia*		*Angola/Namibia/Botswana*	*Representation in resident range*	
Polygon name:	*Cabodel*	*Cout 4/5*	*Gile*	*Greater Gorongosa*	*Mopeia*	*Niassa-Cabodel*	*Lavushi Manda*	*Nsumbu*	*NE Namibia/SE Angola/Kalagkadi*	*Southern Africa*	*Eastern Africa*
Angolan Mopane woodlands									X	0	0
East African mangroves	X	X			X					0	1
Eastern Miombo woodlands	X		X		X	X				2	1
Itigi-Sumbu thicket								X		0	0
Kalahari xeric savanna									X	2	0
Southern Zanzibar-Inhambane coastal forest mosaic	X	X		X	X	X				2	0
Zambezian coastal flooded savanna		X		X	X					1	0
Zambezian *Cryptosepalum* dry forests							X			0	0
Total ecoregions represented in polygon:	**3**	**3**	**1**	**2**	**4**	**2**	**1**	**1**	**2**	**–**	**–**
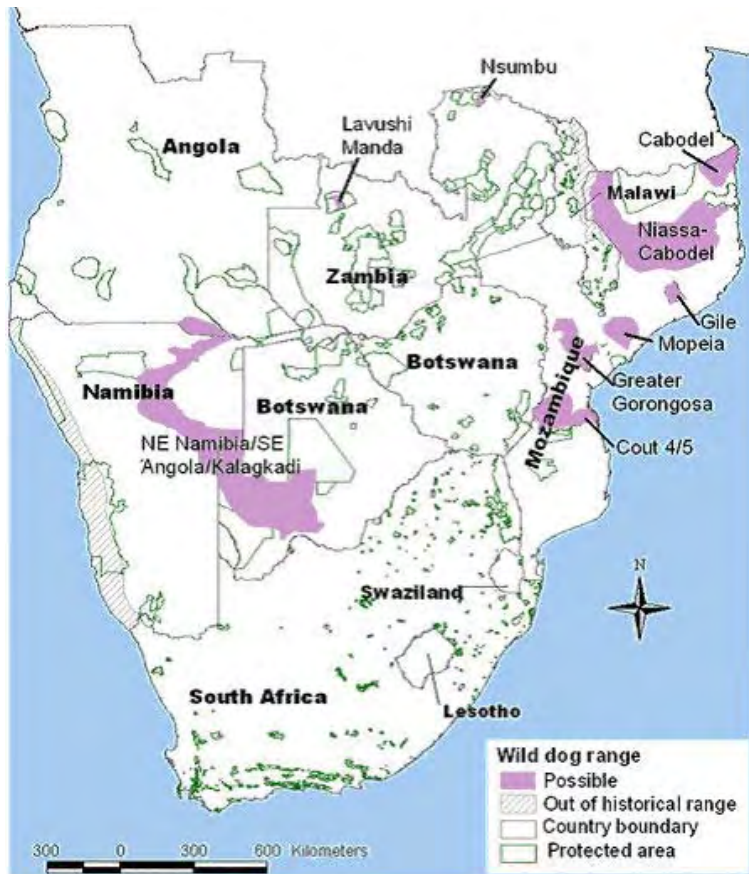
Figure 4.7 – Areas of possible wild dog range which fall in ecoregions represented by fewer than three polygons of resident range within the southern Africa region

- CHAPTER 5 -

THREATS TO WILD DOG AND CHEETAH POPULATIONS
IN SOUTHERN AFRICA

5.1   Introduction

An evaluation of threats to wild dog and cheetah populations is a crucial component of strategic planning for the species' conservation. Understanding the nature of these threats is critical to identifying measures likely to mitigate the threats and hence achieve conservation objectives.

5.2   Proximate threats

Data on threats to known wild dog and cheetah populations were contributed by workshop participants. In addition to mapping known populations, participants were asked to list the factors most likely to threaten those populations, and to provide evidence that each factor represented a threat. This information was then reviewed and collated separately for wild dogs and cheetah (Figure 5.1). However, as the threats identified were almost identical for the two species, we shall discuss them together.

Figure 5.1 Participants collated information on threats to particular populations to achieve an overview of threats to each species within the southern Africa region.

5.2.1 Habitat loss and fragmentation (both species)

Loss and fragmentation of habitat together represent the greatest over-arching threat to both cheetah and wild dogs, which contributes to several of the other proximate threats listed below. Because both species live at such low densities and range so widely, their populations require much larger areas of land to survive than do those of other carnivore species. For this reason, wild dogs and cheetah are more sensitive to habitat loss than are related species. In the long term, conserving viable populations of wild dogs and cheetah is likely to require land areas far in excess of 10,000km^2, unless very intensive management can be maintained. Fortunately, both species have the ability to survive and breed in human-dominated landscapes under the right circumstances; hence the large areas needed for wild dog and cheetah conservation may be protected, unprotected, or a combination of the two. Both species also have excellent dispersal abilities, so that conserving connecting habitat should make it possible to maintain gene flow between populations, and to encourage recolonisation of suitable unoccupied habitat, even in landscapes which have been moderately fragmented.

5.2.2 Conflict with livestock farmers (both species)

Both cheetah and wild dogs are threatened by conflict with livestock farmers in parts of their geographic range. While both species tend to prefer wild prey over livestock, both may kill livestock under some circumstances and are therefore killed by farmers. Such conflict may involve both subsistence pastoralists and commercial ranchers. As neither species regularly scavenges, they are less susceptible to poisoning than are other carnivores such as hyaenas and leopards, but may be shot or speared.

5.2.2 Conflict with game farmers (both species)

Both cheetah and wild dogs are threatened by conflict with game farmers in parts of their geographic range. Since farmed game often represent the two species' natural prey, there are few, if any, measures which can be taken to reduce predation by cheetah and wild dogs. Wild dogs are particularly unpopular with game farmers not only because they take valuable game, but also because their tendency to chase large prey into fences (Van Dyk & Slotow, 2003) can cause serious damage to fences (Lindsey, du Toit & Mills, 2005).

5.2.3 Prey loss (both species)

Both cheetah and wild dogs are highly efficient hunters, able to survive in areas of comparatively low prey density. Nevertheless, loss of prey from some areas, due to hunting, high livestock densities, habitat conversion or veterinary cordon fences may directly impact cheetah and wild dog populations, essentially as a component of habitat loss. Prey loss can also have serious indirect effects, since predation on livestock may become more frequent where wild prey are depleted (Woodroffe *et al.*, 2005b), intensifying conflict with livestock farmers.

5.2.4 Accidental snaring (both species)

Although neither species is regularly targeted by snaring (but see Davies & Du Toit, 2004), both species may become captured accidentally in snares set for other species. Such accidental snaring is a major source of wild dog mortality in many parts of southern Africa (Woodroffe *et al.*, 2007a), and is the most serious threat to wild dog populations in several areas. While effects on cheetah populations are less well quantified, snared cheetah are reported occasionally and snaring may threaten some populations.

5.2.5 Road accidents (both species)

High speed roads represent a threat to both cheetah and wild dog populations. Wild dogs in particular use roads to travel and rest, and are therefore especially vulnerable to road accidents. This is a particular concern where paved roads cross or adjoin major wildlife areas, such as the Lusaka-Mongu road which traverses Kafue National Park in Zambia, and the Bulawayo-Victoria Falls road which traverses wild dog habitat close to Hwange National Park in Zimbabwe. As the region develops and more roads are tarred, this source of mortality could increase unless awareness programmes are instigated (e.g. in northern Mozambique).

5.2.6 Small population size (both species)

Participants identified small population size as a threat to the persistence of several wild dog and cheetah populations in southern Africa. Many of these populations have been reintroduced to small, fenced, areas in South Africa and are intensively managed as part of nationwide metapopulations; without such management few, if any, could be considered viable. However, several very small populations (especially cheetah populations) have persisted in unfenced areas; maintaining connectivity with other suitable habitat will be vital for the conservation of these populations.

5.2.7 Infectious disease (mainly wild dogs)

Infectious disease can have major impacts on wild dog populations. Rabies contributed to the extinction of the wild dog population in the Serengeti-Mara ecosystem in 1991 (Gascoyne *et al.*, 1993; Kat *et al.*, 1995), and there have been several outbreaks documented in southern Africa (e.g. Hofmeyr *et al.*, 2000; Hofmeyr *et al.*, 2004). Canine distemper caused at least one whole-pack death in Botswana (Alexander *et al.*, 1996) and thwarted a reintroduction attempt at Tswalu in South Africa. Both rabies and canine distemper viruses are maintained within populations of domestic dogs (Cleaveland *et al.*, 2000; Cleaveland & Dye, 1995); hence disease risks are likely to be particularly high for wild dogs living outside protected areas. Disease probably represents a smaller threat to cheetahs, although in some areas anthrax has caused substantial mortality (Lindeque, Brain & Turnbull, 1996).

5.2.8 *Hunting for live trade and other uses (mainly cheetah)*

Cheetah are rarely hunted for their fur, or for cultural uses. However, illegal trade in live cheetah has been documented in Botswana, Namibia and South Africa and may be an increasing problem throughout the region. The main sink area for such trade is the captive breeding industry of South Africa. Wild dogs are occasionally taken for cultural uses (especially in Zimbabwe (Davies & Du Toit, 2004) and Malawi), but this is probably too uncommon to constitute a serious threat to population viability.

5.3   Constraints on alleviating threats

Conserving cheetah and wild dog populations requires mitigating the threats listed above, often on very large spatial scales. Workshop participants therefore identified the barriers to achieving this outcome. Once again, results for cheetah and wild dogs were extremely similar.

Identified constraints included lack of political will to foster cheetah and wild dog conservation, political upheaval in some important wild dog and cheetah areas, insufficient funding, lack of capacity, inappropriate legislation, poor land management, and lack of awareness by both governments and the public. These potentially mutable human constraints contrast with several biological constraints which are characteristic of wild dogs and cheetah and cannot be changed: these included the species' negative interactions with other large carnivores, and their ability to kill valuable "game" animals.

This summary of the problems facing wild dog and cheetah conservation was used to inform a problem analysis which was critical for the development of the strategic plan (see Chapter 6). In recent years, tools have been developed to address many of the proximate threats to wild dog and cheetah populations (e.g. Woodroffe *et al.*, 2005a), but the ultimate causes of these threats include problems such as human encroachment on wildlife areas, and lack of conservation capacity, which are common to many species in the region.

Figure 5.2 *– Participants worked together to identify constraints on alleviating threats to*

cheetah and wild dog population.

5.4   Conclusions

Both the proximate and ultimate threats faced by cheetah and wild dogs are very similar. Indeed, these threats are similar to those faced by all large carnivores in Africa; however wild dogs' and cheetah's extremely wide-ranging behaviour makes them acutely sensitive to these threats and means that the threats need to be mitigated over extremely large areas. The similarity in threats faced by the two species also means that, with very few exceptions, conservation activities implemented for either species are likely to benefit both.

– CHAPTER 6 –

STRATEGIC PLAN FOR CHEETAH AND WILD DOG CONSERVATION IN SOUTHERN AFRICA

6.1   Background

The southern Africa Cheetah and Wild Dog Conservation Strategy was constructed during participatory planning exercises which were intermeshed with the review of distribution and status discussed in Chapters 3-5 (see Appendix 3). It was particularly critical that there was high-level governmental representation from the wildlife sector within cheetah and wild dog ranges during this part of the workshop (participants are listed in Appendix 1).
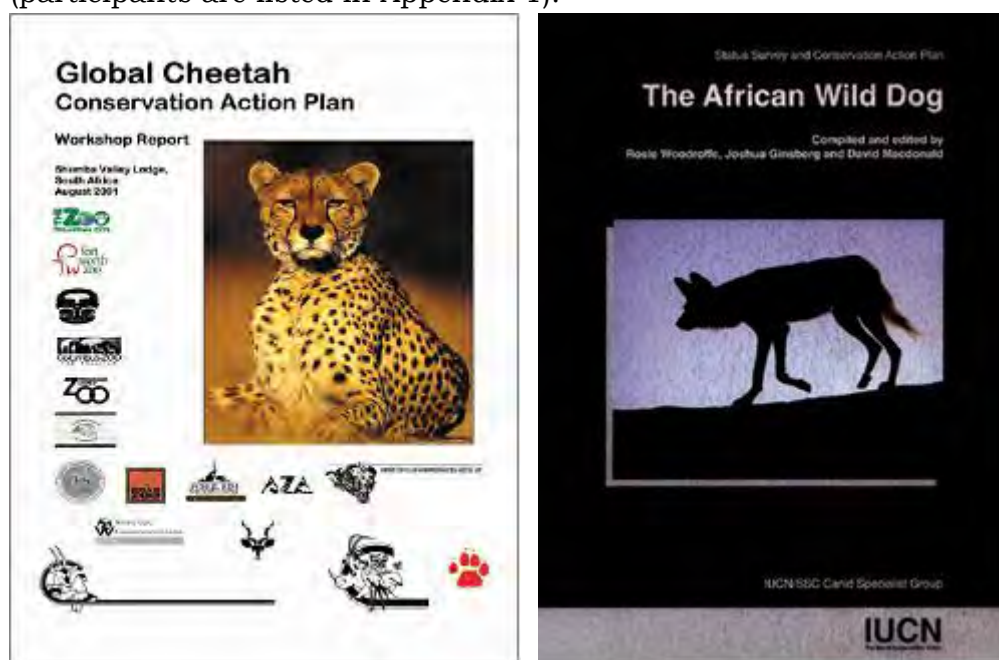
Figure 6.1 *Previous species action plans for cheetah and wild dogs (Bartels et al., 2001; Woodroffe, Ginsberg & Macdonald, 1997).*

The structure and development of the strategic plan followed a process recently developed by IUCN/SSC, and implemented in a similar planning exercise for cheetah and wild dogs in eastern Africa (IUCN/SSC, 2008). This process is clearly illustrated by two recent species strategic plans in Africa: that for the West African Elephant (IUCN, 2005) and the African Lion (IUCN, 2006b). Information from previous action plans for cheetah and wild dogs – the Global Cheetah Conservation Action Plan (Bartels *et al.*, 2001, 2002) and the African Wild Dog Status Survey and Conservation Action Plan (Woodroffe *et al.*, 1997; Woodroffe *et al.*, 2004) – were also critical to the development of the process (Figure 6.1).

The workshop process used here included the following key components:

1. *Engagement of stakeholders*
    Key individuals and institutions best able to implement the plan – including government authorities, species specialists and relevant NGOs – were all involved in the strategic planning process

2. *Summary of knowledge*
    The mapping process within the workshop established up-to-date information on the status and distribution of both species (see Chapters 3-4). This provided

essential information for the development of the strategic plan. Additionally, prior work on conservation tools for mitigating threats (e.g. Woodroffe *et al.,* 2005a) and for population surveys and monitoring (e.g. Bashir *et al.,* 2004) were critical for developing the plan.

3. *Problem analysis*

    A problem analysis was conducted to identify threats, gaps and constraints impacting participants' ability to conserve cheetah and wild dogs. The problem analysis provided information critical for the development of the objectives of the strategic plan.

4. *Strategic plan*

    A cascading plan was constructed, starting at a vision, to a goal, to a series of objectives devised to meet the goal, and then a number of targets and activities to address each objective (Figure 6.2).

Figure 6.2 *The structure of a strategic plan.*

The strategic planning process was participatory and consensus driven, with all stakeholders engaged in the development of the plan. The process was conducted in this way to ensure that the expertise and knowledge of all participants informed the plan, and also to ensure that the plan was jointly owned by relevant institutions and individuals, facilitating its implementation. The plan was intended to be realistic and, because it was regional, to be sufficiently general to allow an easy transfer to national level planning. The specifics of the strategic plan and its development are described below.

6.2   The strategic planning process

The planning process was made up of six key stages:

1. The development of a vision
2. The development of a goal
3. A problem analysis
4. The development of a number of objectives which address the problems identified by the problem analysis
5. The development of a number of targets to address each objective
6. The development of a number of activities to address each target

The development of the strategic plan was intermeshed with the mapping exercise to allow the information on the species' distribution, status and threats to influence formulation of the strategic plan. This approach had the added benefit that it provided the mapping team more time for digitising maps. At the beginning of the workshop, the emphasis was on the mapping, whilst the vision and goal were developed (see Appendix 2 for workshop agenda). Draft maps were thus available by the time the group conducted the problem analysis. In the final phase of the workshop, the emphasis was on developing the strategic plan.

6.2.1 The Vision

A long term vision was developed to form the guiding purpose for the strategic plan over the next 25-50 years. It was intended to reflect an optimistic, but realistic, view of the future of cheetah and wild dog conservation and to provide a source of inspiration.

The vision was initially developed in plenary and revised by a separate working group (in parallel with the mapping exercise) which reported back in plenary to allow substantial discussion and debate. The draft vision was sent back to the working group twice for redrafting after discussion, and many individuals temporarily joined the drafting group when they were not needed in the mapping process. The final draft was then agreed in plenary.

The agreed vision was:

Vision:

Secure viable cheetah and wild dog populations across a range of ecosystems, that successfully coexist with, and are valued by, the people of southern Africa.

This vision was carefully worded to reflect the following points:
- "Viable" populations implies both sustainable and relatively large populations that are able to persist in the long term.
- "Range of ecosystems" was included to reflect that the group agreed that the species should be conserved across a range of habitats, rather than concentrating in a single ecoregion or habitat. This would ensure that each species was exposed to as full a range as possible of ecological challenges to which they would have been subjected in their evolutionary history.
- "Successfully coexist" was included in recognition that the majority of cheetah and wild dog range falls outside protected areas, and hence their long term survival depends on finding means for their coexistence with people.
- That cheetah and wild dogs should be "valued by the people of southern Africa" was included to indicate that cheetah and wild dogs should be 'valued' by people of the region, reflecting different types of value, including economic, cultural and ecological values.

6.2.2 The Goal

The goal was developed in a manner similar to that used for the vision, coincident with the mapping process. The goal was intended to reflect what the group wanted to accomplish in a shorter time period than that identified for the vision – around 10-20 years. The goal was thus intended to be realistic and achievable. It was also intended to be broadly measurable, so that it would be possible to know when it had been achieved. The goal therefore needed to be more clearly defined than the vision, although it should also support the vision statement. The goal was finalised as:

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Goal:

Improve the status of cheetahs and wild dogs, and secure additional viable populations across their range in southern Africa

</div>

As with the vision, the wording of the goal was carefully and deliberately developed to reflect the following:

- "Improve the status" indicated that the group wanted to ensure that conservation of cheetahs and wild dogs is not merely maintained, but is improved. The word 'status' incorporates 'population status' (i.e. population viability, distribution and ecological functionality) as well as 'status' in terms of people's perceptions – which were thought to be often too negative.
- "secure additional viable populations" indicated that the group wanted to increase existing populations, rather than maintain the *status quo*.

6.2.3 The problem analysis

The next major step in the strategic planning process was the development of the problem analysis. Participants were split into four working groups and asked to write out cards to define the main barriers to the conservation of each species. The first two groups identified the main *proximate threats* to the species, i.e. the drivers of extinction such as habitat fragmentation and conflict with livestock farmers. The other two groups identified the main *gaps* and *constraints* hindering mitigation of these threats, such as resource constraints, political frameworks, gaps in knowledge, and lack of capacity. The groups were asked to specify whether the threat, gap or constraint applied to either or both species by writing on a yellow card for a cheetah-specific problem, a pink card for a wild dog-specific problem, or a white card for a problem affecting both species. The cards were then collected together and used to develop a problem tree (Figure 6.3).

Figure 6.3 *The results of the problem analysis. These are provided again in a more readable format in Figure 6.4.*

Where there was overlap in problems (i.e., different cards described roughly the same problem), cards were superimposed on top of each other. Some anthropogenic problems, such as poverty, climate change and human population growth, were considered beyond the remit of the group's influence, although their importance was emphasised and they were included in the background of the problem tree. Likewise, biological factors which influence threats to the species, such as their wide ranging behaviour and susceptibility to disease, were noted but considered immutable. Both these categories of issues were put to the side while the participants concentrated on issues which could be addressed directly or indirectly by the stakeholder group.

There were very few problems judged to be cheetah- or wild dog-specific (Figure 6.4). Disease was listed as a threat that could impact wild dog populations but which was not known to have serious impacts on wild cheetah populations. Likewise, the captive trade and hunting for the skin trade were listed as threats that could impact cheetah populations but which were not known to have major impacts on wild dog populations within southern Africa. Overall, the problem analysis clearly demonstrated that there were very few threats, gaps or constraints which applied to only one of the two species. For this reason, the group decided to develop a single strategy for both species rather than a separate strategy for each. The advantages of a single strategy include greater simplicity and higher conservation leverage due to increased conservation benefits for two species rather than one.
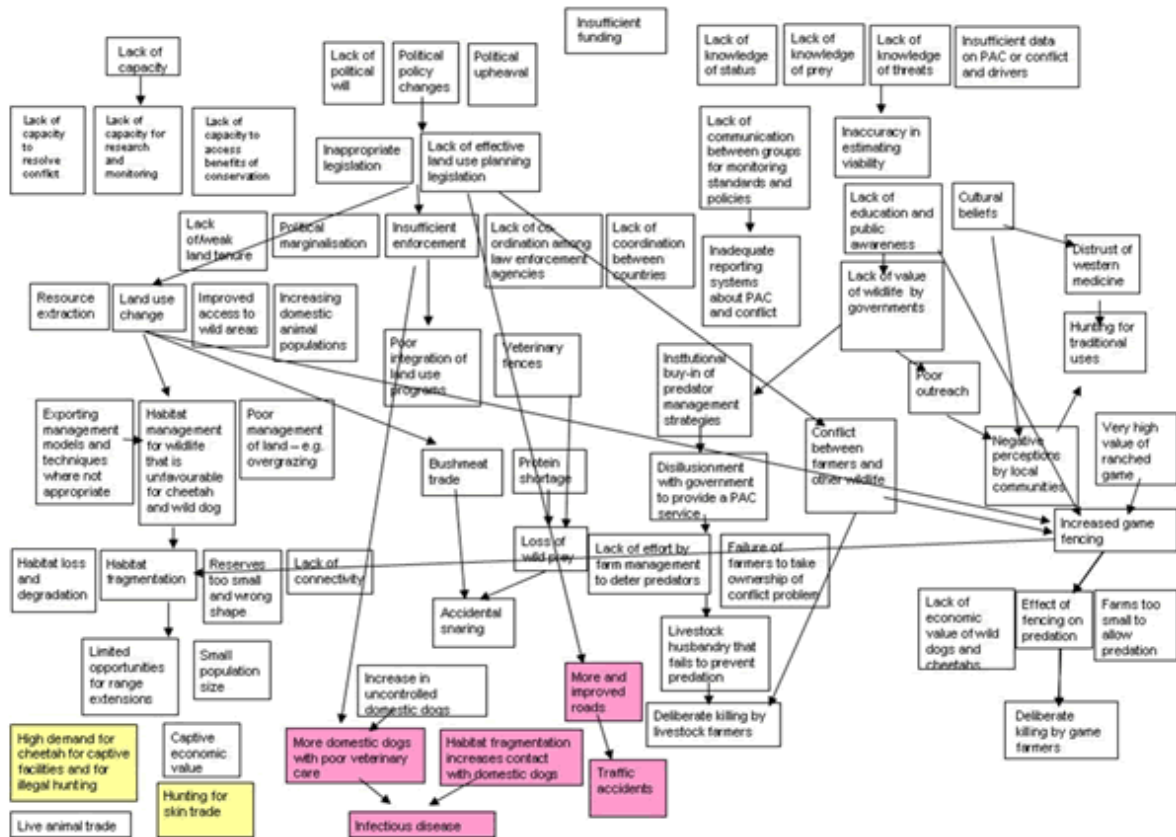
Figure 6.4 *A diagrammatic representation of the problem tree. This is summarised from the original tree shown in Figure 6.3, for greater readability. Yellow boxes refer to cheetah only, pink boxes refer to wild dogs only, and white boxes refer to both species.*

6.2.4 The objectives

The problem analysis was essential to developing the objectives of the strategic plan, as the problems identified could be inverted into solutions to those problems. The objectives fell into eight themes, which encompassed all aspects of the problem tree:

Capacity development:
This theme covers problems relating to the lack of capacity within the region to allow for the effective conservation of the two species, their habitat and prey base.

Objective 1:
Develop capacity in all aspects of cheetah and wild dog conservation in southern Africa

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Knowledge and information

This theme addresses the need for information regarding the conservation of the two species to guide effective management and policy.

Objective 2:
Improve knowledge on the conservation biology of cheetah and wild dog across southern Africa

Information transfer

This theme concerns the need to ensure that all information available is effectively disseminated between stakeholders, and made available to all levels of management.

Objective 3:
Develop and implement mechanisms for the transfer of information relevant to cheetah and wild dog conservation and ensure active commitment of stakeholders

Coexistence

This theme covers problems relating to coexistence of people and domestic animals with cheetah, wild dogs, and their prey.

Objective 4:
Minimise conflict and promote coexistence between cheetah, wild dog and people across southern Africa

Land use

This theme tackles problems arising from disparate land uses, and the impact of difference land uses (both positive and negative) on the survival of cheetah and wild dog.

Objective 5:
Minimise adverse effects of land development and promote and implement best land use practice for cheetah and wild dog conservation

Political commitment

This theme concerns problems arising from a lack of political awareness and commitment to the conservation of cheetah and wild dog. This was a relatively small but nevertheless important theme as, without support from the highest levels, other objectives may not be achievable.

Objective 6:
Obtain political commitment to the conservation needs of cheetah and wild dogs

Policy and legislation

This theme addresses problems arising from a lack of, or inappropriate, policies and legal frameworks within and outside the wildlife sector, and disparities between and within national legislation that need to be addressed for effective conservation of cheetah and wild dogs.

Objective 7:
Review, and where necessary revise, international, national and local legislation, policies and protocols affecting cheetah and wild dog conservation

National planning

This theme concerns the need to ensure that the regional strategy objectives are achieved and are translated into national management plans to enable each country to introduce measures to conserve cheetah and wild dogs.

> **Objective 8:**
> **Facilitate the implementation of the regional strategy and develop and implement national actions plans for the conservation of cheetah and wild dogs in all range states**

The objectives were developed carefully so that, together, they were sufficient to encompass the problem analysis, *i.e.*, there were no problems that were not addressed by these eight objectives. Furthermore, no objective addressed issues that were not identified by the problem analysis.

6.2.5 The targets

Once the objectives were in place, and their wording agreed, targets were developed to meet the objectives. Targets were more specific than objectives, and described how the objectives should be met. Each objective was associated with 1-4 targets, and the targets were devised to ensure that, if all targets under an objective were met, then that objective would be achieved. In other words, each target was necessary to meet the objective, and if all the targets were met then the objective would be achieved. Targets were carefully designed to be 'SMART', that is, they were specific, measurable, achievable, realistic and time-lined. There were a total of 27 targets developed for the final plan:

Capacity development:

> **Objective 1:**
> **Develop capacity in all aspects of cheetah and wild dog conservation in southern Africa**
> **Targets:**
> **1.1** Identify gaps in capacity in all areas of cheetah and wild dog conservation in the region within two years.
> **1.2** Develop and implement one annual law enforcement and conflict resolution training programme in each range state within three years.
> **1.3** Establish a network of programmes and institutions to develop capacity in research, monitoring, education and outreach within one year.

Knowledge and information:

> **Objective 2:**
> **Improve knowledge on the conservation biology of cheetah and wild dogs across southern Africa**
> **Targets:**
> **2.1** Generate and disseminate standardised, quantitative knowledge of conflict, threats and their drivers and mitigation across southern Africa within five years.
> **2.2** Identify and evaluate the efficacy of various mitigation measures (including cost-benefit analysis of techniques) within five years.
> **2.3** Acquire better understanding of dispersal, habitat use and connectivity for cheetah and wild dogs within five years.

2.4 Acquire information about the status and distribution of cheetah and wild dogs across the region, and identify recoverable range that will not be recolonised naturally, within five years.

Information transfer:

Objective 3:
Develop and implement mechanisms for the transfer of information relevant to cheetah and wild dog conservation and ensure active commitment of stakeholders
Targets:
3.1 Identify relevant benefits to local communities, governments and landowners within three years.
3.2 Develop multimedia projects across all regional range states, building on the best existing material, within three years.
3.3 Promote increased national awareness of local threats across range states within two years.
3.4 Promote national species workshops in all regional range states within three years.

Coexistence:

Objective 4:
Minimise conflict and promote coexistence between cheetah, wild dog and people across southern Africa
Targets:
4.1 Reduce deliberate killing of cheetah and wild dogs to sustainable levels in all range states within five years.
4.2 Substantially reduce levels of incidental mortality in cheetah and wild dogs in all range states within five years.
4.3 Raise awareness of issues related to cheetah and wild dog conservation among relevant stakeholders in all range states within three years.
4.4 Measurably increase perceived intrinsic and economic value of cheetah and wild dogs to all stakeholders within five years.

Land use:

Objective 5:
Minimise adverse effects of land development and promote and implement best land use practice for cheetah and wild dogs conservation
Targets
5.1 Evaluate current land use and assess how these relate to cheetah and wild dog conservation by identifying determinants of success, within two years.
5.2 Promote the formation of multi-owner wildlife management units (e.g. conservancies, community parks etc.) by increasing awareness of the potential benefits of such land uses within two years.
5.3 Promote wildlife based land uses and community based natural resource management in areas with potential for cheetah and wild dog conservation within four years.
5.4 Promote effective livestock husbandry and range management; ongoing.

Political commitment:

Objective 6:
Obtain political commitment to the conservation needs of cheetah and wild dogs
Targets:

6.1 A regional agreement to collaborate in conserving cheetah and wild dogs across southern Africa will be signed by all governments by 2010 to coincide with the World Cup.

6.2 Ensure that any outstanding transboundary agreements that will benefit the conservation of cheetah and wild dogs are signed within one year.

Policy and legislation:

Objective 7:
Review, and where necessary revise, international, national and local legislation, policies and protocols affecting cheetah and wild dog conservation
Targets:
7.1 Assessment of the relevance and efficacy of current national, regional and international policies, protocols and legislation pertaining to the conservation of cheetah and wild dogs, including trade in captive animals, within two years.

7.2 Revise policies, protocols and legislation where appropriate within seven years

7.3 Improve the capacity of law enforcement and judicial agencies to implement legislation, policies and protocols relevant to cheetah and wild dog conservation within seven years.

7.4 Attain effective communication and collaboration between all relevant law enforcement and wildlife management agencies across southern Africa within five years.

National planning:

Objective 8:
Facilitate the implementation of the regional strategy and develop and implement national action plans for the conservation of cheetah and wild dogs in all range states
Targets:
8.1 Develop and implement a national action plan for each country within two years.

8.2 Ensure that human and financial resources are made available to facilitate the implementation of the regional strategy within one year.

6.2.6 Activities

The activities formed the final step in the plan, and were even more specific than the targets, listing actions that needed to be carried out to meet each target. As with the targets and their respective objectives, each set of activities was designed to be necessary and sufficient to meet the associated target, and to be 'SMART'. However activities were also sufficiently general to cover the entire southern African region so that they could be interpreted appropriately within national action planning workshops. A total of 56 activities were developed within the strategic plan; they are listed below.

1. Capacity Development

1   Objective: Develop capacity in all aspects of cheetah and wild dog conservation in southern Africa.

1.1.   Target: Identify gaps in capacity in all areas of cheetah and wild dog conservation in the region within two years.

   1.1.1   Activity: Conduct interview and questionnaire surveys to establish current situation and identify gaps for all capacity components within two years, including:

   1.1.1.1   Law enforcement and conflict

   1.1.1.2   Monitoring and research

   1.1.1.3   Education and outreach

1.2.   Target: Develop and implement one annual law enforcement and conflict resolution training programme in each range state within three years.

   1.2.1.   Activity: Develop a list of wildlife and law enforcement training academia/institutions, including curricula, and identify gaps, within six months.

   1.2.2.   Activity: Develop law enforcement and conflict resolution training modules that encompass the range of regional training needs within 18 months.

   1.2.3.   Activity: Activate and source funds to support an annual law enforcement and conflict resolution training programme in each range state within one year.

   1.2.4.   Activity: Develop and implement one annual law enforcement and conflict training programme in each range state within three years.

1.3.   Target: Establish a network of programmes and institutions to develop capacity in research, monitoring, education and outreach within one year.

   1.3.1   Activity: Create a database of institutions and programmes involved in research, monitoring, education and outreach within one year.

   1.3.2   Activity: Establish a committee to drive the development of a regional capacity network within one year.

   1.3.3   Activity: Develop a web portal to provide an interface between network members and the public within one year.

Knowledge and information

2. Improve knowledge on the conservation biology of wild dogs and cheetahs across southern Africa.

2.1. Target: Generate and disseminate standardised, quantitative knowledge of conflict, threats and their drivers and mitigation across southern Africa within five years.

    2.1.1 Activity: Compile available data on conflict, threats and their mitigation and, where possible, collate in standardised formats, from all range states within two years.

    2.1.2 Activity: Identify shortfalls in existing knowledge about conflict, threats and their mitigation for all range states within two years.

    2.1.3 Activity: Initiate studies (field studies, surveys, questionnaires and existing data) to quantify conflict, threats, their drivers and mitigation, and effects on population viability; ongoing.

    2.1.4 Activity: Organise and hold a workshop to collate national information on conflict, threats and their mitigation within two years.

    2.1.5 Activity: Create a regional database of information on conflict, threats and their mitigation for southern Africa within three years.

    2.1.6 Activity: Generate knowledge on present and emerging threats to cheetah and wild dog conservation, including illegal trade.

    2.1.7 Activity: Disseminate knowledge regarding conflict, threats, their drivers and mitigation to all relevant stakeholders within five years.

2.2. Target: Identify and evaluate the efficacy of various mitigation measures (including cost-benefit analysis of techniques) within five years.

    2.2.1 Activity: Initiate multiple studies across the region on the efficiency of various mitigation measures and their cost-benefit ratios; ongoing.

    2.2.2 Activity: Collate and analyse all data from above in consultation with involved parties

2.3 Target: Acquire better understanding of dispersal, habitat use and connectivity for cheetah and wild dogs within five years.

    2.3.1 Activity: Initiate field studies on dispersal mechanisms in both species, including factors influencing dispersal success, within five years.

    2.3.2 Activity: Initiate studies on cheetah and wild dogs feeding ecology in different areas in relation to potential range within five years.

2.4 Target: Acquire information about the status and distribution of cheetah and wild dogs across the region, and identify recoverable range that will not be recolonised naturally, within five years.

    2.4.1 Activity: Contribute to the ongoing cheetah and wild dog atlas; ongoing.

    2.4.2 Activity: Develop standardised monitoring and field techniques for cheetah and wild dog studies and publish a handbook within three years.

    2.4.3 Activity: Initiate surveys in unknown and possible range to assess population status and distribution for cheetah and wild dogs within five years. Initiate surveys in unknown and possible range to assess population status and distribution for cheetah and wild dogs within five years.

    2.4.4 Activity: Assess and identify recoverable range for factors likely to influence recolonisation (natural or artificial) within two years.

    2.4.5 Activity: Maintain and expand long term monitoring programmes of cheetah and wild dog populations in resident range; ongoing.

Information transfer

> **3** **Develop and implement mechanisms for the transfer of information relevant to cheetah and wild dog conservation and ensure active commitment of stakeholders.**
>
> **3.1. Target:** Identify relevant benefits to local communities, governments and landowners within three years.
>
>   **3.1.1** **Activity:** Conduct literature review to consolidate information on potential benefits of cheetah and wild dog conservation across the region within one year.
>
>   **3.1.2** **Activity:** Hold meetings and workshops with communities, then landowners, then government, to collect information to identify relevant incentives and benefits within three years.
>
> **3.2. Target:** Develop multimedia projects across all regional range states, building on the best existing material, within three years.
>
>   **3.2.1** **Activity:** Develop web based interactive reporting of sightings, data, findings and activities relevant to cheetah and wild dog conservation, within one year.
>
>   **3.2.2** **Activity:** Develop and use posters, leaflets, radio, TV, video, pictures and theatre groups to disseminate information locally within two years.
>
>   **3.2.3** **Activity:** Develop and distribute standardised forms across range states to collect information on cheetah and wild dog distribution, especially in areas where information gaps occur, within three years.
>
> **3.3 Target**: Promote increased national awareness of local threats across range states within two years.
>
>   **3.3.1 Activity:** Establish competitions, essays, etc. in schools and groups to enhance and highlight conservation education.
>
>   **3.3.2 Activity:** Develop curricula regarding cheetah and wild dogs and integrate with activities of youth conservation clubs (e.g. Chongololo in Zambia, Malihai in Tanzania and Wildlife Club in Botswana).
>
>   **3.3.3 Activity**: Encourage sponsorship of sports teams, clubs and groups named after cheetah and wild dogs at all levels.

Coexistence

4 **Objective: Minimise conflict and promote coexistence between cheetah, wild dogs and people across southern Africa**

    4.1 **Target**: Reduce deliberate killing of cheetah and wild dogs to sustainable levels in all range states within five years.

        4.1.1 **Activity:** Clarify and monitor extent of deliberate killing of cheetah and wild dogs in all range states within three years.

        4.1.2 **Activity:** Clarify and lobby for enforcement of laws pertinent to killing of cheetah and wild dogs across range states within one year.

        4.1.3 **Activity:** Identify conflict areas and clarify extent of actual versus perceived losses caused by cheetah and wild dogs, on an ongoing basis.

        4.1.4 **Activity:** Educate relevant stakeholders about livestock husbandry practices proven to reduce depredation, within one to three years.

        4.1.5 **Activity:** Implement human-wildlife conflict rapid response teams to react quickly and effectively to conflict situations, across all range states within two years.

        4.1.6 **Activity:** Initiate programmes to combat negative perceptions of cheetah and wild dogs in all range states within one year.

    4.2 **Target:** Substantially reduce levels of incidental mortality in cheetah and wild dogs in all range states within five years.

        4.2.1 **Activity:** Clarify and monitor extent of incidental mortality of cheetah and wild dogs in all range states within three years.

        4.2.2 **Activity:** Substantially reduce snaring mortality of cheetah and wild dogs through initiatives such as anti-poaching efforts and community conservation, within five years.

        4.2.3 **Activity:** Where appropriate, initiate programmes known to be effective at managing diseases that threaten cheetah and wild dog population viability, within five years

        4.2.4 **Activity:** Implement targeted, enforceable programmes which reduce road mortality of cheetah and wild dog within five years.

        4.2.5 **Activity:** Identify and remove, as much as possible, sources of snare wire; ongoing

        4.2.6 **Activity:** Encourage land use practices (e.g. conservancies) which promote large, continuous tracts of fence-free habitat, within three years.

        4.2.7 **Activity**: Promote and implement land use practices compatible with cheetah and wild dog conservation, within five years.

    4.3 **Target***:* Raise awareness of issues related to cheetah and wild dog conservation among relevant stakeholders in all range states within three years.

        4.3.1 **Activity**: Develop and disseminate education and awareness material, building on best existing material, for both adults and children in all range states within two years.

        4.3.2 **Activity**: Create and implement multimedia programmes to raise awareness and understanding of cheetah and wild dog conservation in all range states within two years.

        4.3.3 **Activity**: Sensitise leaders to the value of cheetah and wild dog conservation; ongoing.

    4.4 **Target***:* Measurably increase perceived intrinsic and economic value of cheetah and wild dogs to all stakeholders within five years.

        4.4.1 **Activity**: Quantify and monitor the perceived intrinsic and economic value of cheetah and wild dogs to all stakeholders; ongoing.

        4.4.2 **Activity**: Develop appropriate value-added activities, such as hunting and tourism, in all range states within five years.

        4.4.3 **Activity**: Investigate and highlight cultural values of cheetah and wild dogs across all range states within two years.

        4.4.4 **Activity**: Where relevant, develop self-sustaining community schemes that offset the costs of, and internalise the responsibilities for, conflict within three years.

        4.4.5 **Activity**: Where appropriate, develop income generation and capacity development projects linked to cheetah and wild dog conservation, within three years.

Land use

5 Objective: Minimise adverse effects of land development and promote and implement best land use practice for cheetah and wild dog conservation.

5.1 Target*: Evaluate current land use and assess how these relate to cheetah and wild dog conservation by identifying determinants of success, within two years.

5.1.1 Activity: Identify key regional stakeholders responsible for determining current and future land use strategies, within one year.

5.1.2 Activity: Produce a document illustrating examples of land use strategies associated with successful cheetah and wild dog conservation from each country in the region, within two years.

5.2 Target*: Promote the formation of multi-owner wildlife management units (e.g. conservancies, community parks etc.) by increasing awareness of the potential benefits of such land uses within two years.

5.2.1 Activity: Gain consensus on minimum required size of game farms, conservancies, community parks etc. for effective cheetah and wild dog conservation, within one year.

5.2.2 Activity: Develop an information booklet detailing conservancy models and illustrating the potential benefits of conservancies to commercial and communal landholders compared with game fenced farms within one year.

5.2.3 Activity: Identify key role players in each country able to drive the development of multi-owner wildlife management units, within one year.

5.2.4 Activity: Identify potential strategies to promote multi-owner wildlife management unit formation (e.g. through tax breaks and other economic incentives) and draft proposals for consideration at national cheetah and wild dog workshops within one year.

5.2.5 Activity: Initiate national lobbying efforts to promote the development of multi-owner wildlife management units, targeted at key landholders and government representatives, within two years.

5.2.6 Activity: Monitor the development of multi-owner wildlife management units and their influence on cheetah and wild dog conservation, to permit development of new approaches if necessary; after 5.2.5, ongoing.

5.2.7 Activity: Maintain current resident range, maintain and recover corridors and convert at least 20% of recoverable, possible and/or extirpated range to resident range through surveys and expansion of wild dog and cheetah populations within ten years.

5.3 Target*: Promote wildlife based land uses and community based natural resource management in areas with potential for cheetah and wild dog conservation within four years.

5.3.1 Activity: Identify areas with the greatest potential for wildlife based land uses conducive to cheetah and wild dog conservation in each country, within a year.

5.3.2 Activity: Develop feasibility studies leading to business plans for each country to help achieve the development of wildlife areas to benefit cheetahs, wild dogs and communities, within three years.

5.3.3 Activity: Assist with preparing funding proposals to implement the business plans within one year after their development, i.e. within four years.

5.3.4 Activity: Monitor the development of wildlife based land uses, and their influence on cheetah and wild dog conservation, to permit development of new strategies if necessary after 5.3.3; ongoing.

5.3.5 Activity: Achieve a 20% increase in the area of community land used for wildlife based land uses within ten years.

5.3.6 Activity: Develop a strategy document detailing options for achieving land reform objectives while retaining wildlife based land uses, within two years.

5.3.7 Activity: Lobby to ensure that the retention of wildlife based land use is considered to be a key component of land reform, within two years.

Land use (continued)

> **5.4** **Target**: Promote effective livestock husbandry and range management; ongoing.
>   **5.4.1** **Activity**: Develop and expand current programmes (e.g. Future Farmers of Africa) throughout the region and source funding within a year.
>   **5.4.2** **Activity**: Promote such programmes through existing agricultural, game ranching and community organisations within six months of development of those programmes, i.e. within 18 months.
>   **5.4.3** **Activity**: Initiate training programmes through accredited training facilities to increase the capacity of communities to practice responsible and sustainable range management; initiate within one year, ongoing thereafter.
>   **5.4.4** **Activity**: Assess the effectiveness of new and existing livestock husbandry and range management programmes and disseminate results; ongoing.

Political commitment

6 Objective: Obtain political commitment to the conservation needs of cheetah and wild dogs

  6.1 Target: A regional agreement to collaborate in conserving cheetah and wild dogs across southern Africa will be signed by all governments by 2010 to coincide with the World Cup.

   6.1.1 Activity: Agreement drafted by IUCN/SSC Cat and Canid Specialist Groups based on this strategic plan within six months.

   6.1.2 Activity: Agreement to be presented to national agencies who will then take it to ministers, within six months.

   6.1.3 Activity: Organise a regional state meeting where agreement will be formally signed by the eight countries.

  6.2 Target: Ensure that any outstanding transboundary agreements that will benefit the conservation of cheetah and wild dogs are signed within one year.

   6.2.1 Activity: Identify all outstanding agreements that will benefit cheetah and wild dogs within three months.

   6.2.2 Activity: Lobby for agreements to be signed by mobilising stakeholders and relevant government bodies, within nine months.

Policy and legislation

7 Objective: Review and, where necessary, revise, international, national and local legislation, policies and protocols affecting cheetah and wild dog conservation.

7.1 Target*: Assessment of the relevance and efficacy of current national, regional and international policies, protocols and legislation pertaining to the conservation of cheetah and wild dogs, including trade in captive animals, within two years.*

7.1.1 Activity: Mobilise resources to employ a consultant to carry out an assessment and compile recommendations within 18 months.

7.1.2 Activity: Increase information exchange between range countries and the Coalition Against Wildlife Trafficking (CAWT) to monitor trafficking in cheetah and wild dogs.

7.2 Target*: Revise policies, protocols and legislation where appropriate within seven years.*

7.2.1 Activity: National agencies to draw up and/or amend policies, protocols and legislation where needed, within four years.

7.2.2 Activity: Implement and enact these new and/or amended policies, protocols and legislation; ongoing.

7.3 Target: Improve the capacity of law enforcement and judicial agencies to implement legislation, policies and protocols relevant to cheetah and wild dog conservation within seven years.

7.3.1 Activity: National agencies to prioritise capacity needs to implement legislation, policies and protocols relevant to cheetah and wild dog conservation.

7.3.2 Activity: Mobilise resources required to improve capacity.

7.3.3 Activity: Develop capacity according to priorities set by national agencies within seven years.

7.4 Target*: Attain effective communication and collaboration between all relevant law enforcement and wildlife management agencies across southern Africa within five years.*

7.4.1 Activity: Hold national workshops, with all relevant NGOs and national agencies involved in law enforcement present, within one year.

7.4.2 Activity: Set up national fora to meet regularly every 4-5 months, starting immediately.

7.4.3 Activity: Establish a regional forum of law enforcement agencies and NGOs to meet annually; ongoing.

7.4.4 Activity: Develop and standardise reporting mechanisms and strategies to deal with problem animal control, within one year.

National Planning

8   **Objective: Facilitate the implementation of the regional strategy and develop and implement national action plans for the conservation of cheetah and wild dogs in all range states.**

   8.1   Target: Develop and implement a national action plan for each country within two years.

   8.1.1   Activity: Identify key individuals to facilitate the national action planning process within each country.

   8.1.2   Activity: Hold at least one national action planning workshop in each range state in southern Africa within two years.

   8.1.3   Activity: Produce and have endorsed at least one national action plan within each country, within three years.

   8.1.4   Activity: Implement national action plans; time frame to be decided within national action planning process.

   8.2   Target: Ensure that human and financial resources are made available to facilitate the implementation of the regional strategy within one year.

   8.2.1   Activity: Appoint a volunteer interim coordinator within one month.

   8.2.2   Activity: Identify, appoint and provide an institutional home for the coordinator of the implementation of the regional strategy within one year.

6.3   Conclusions and national planning

The regional strategic plan was developed in a format that could be readily adapted for national implementation, through a national participatory workshop process engaging all national stakeholders including those who attended the regional strategic workshop. Such a workshop would be expected to take about two days. The regional workshop was followed immediately by a national workshop, in this case, for Botswana, in order to demonstrate to all participants how the process was designed to roll out nationally.

The principal steps in translating the regional strategy into a national strategy are as follows:

- Present the regional strategy, along with background information, and request the mandate to use the regional strategy as a template for a national strategy.
- Add comments on the national interpretation of the vision, goal and objectives.
- Within each objective, take each target and activity, and decide whether to adopt or drop it, bearing in mind that some targets and activities may not be relevant to all countries.
- If the target or activity is adopted, then the wording may need to be adjusted where appropriate.
- Timelines, actors and verifiable indicators should be added to each activity.

Great care was taken to ensure that the southern Africa regional strategic plan was well structured, particularly in its vision, goal and objectives, to facilitate its use in developing national strategies. This regional strategic plan translated very well into the Botswana national action plan, which suggested that the participants in the southern Africa regional workshop did their ground-work well.

– CHAPTER 7 –

IMPLEMENTATION OF THE REGIONAL STRATEGIC PLAN

Once the regional strategy was finalised, consideration was given towards how best to implement it. The national action planning process was seen as providing an important mechanism towards national implementation, and this process was incorporated into the plan itself. However, international mechanisms and agreements were also considered important, such as the possibility of listing of both species on the Convention on Migratory Species. Making use of synergies between cheetah, wild dogs and other species was also important. For example, in many areas of southern Africa, Transfrontier Conservation Areas (TFCAs) are being formed with approval from governments. Many of these TFCAs have already been recognised as being important for large carnivore conservation (Great Limpopo TFCA; Limpopo Shashe TFCA; Kavango Zambezi TFCA; Kgalighadi Transfrontier Park). Participants considered it critical that the plan should not sit on a shelf gathering dust but should be relevant and actively used to direct conservation action within southern African cheetah and wild dog range states.

The following process was agreed:
- First draft to participants to review and comment
- Participants' comments incorporated
- Second draft to participants for final acceptance and request endorsement from relevant government ministries
- The first page of the report to be set aside to provide signatures and dates of government endorsement

Governmental representatives present at the regional workshop agreed to assist with the endorsement process and to provide details and addresses of the relevant government departments. The report would then be submitted to IUCN for formal endorsement.

Immediately after the regional workshop, a Botswana national action planning workshop for cheetah and wild dogs was held in Gaborone, Botswana, hosted by the Botswana Department of Wildlife and National Parks. This workshop demonstrated that the regional strategy could be effectively transferred to a national setting, and enabled the swift development of a national action plan with the full participation of a wide range of national delegates.

Implementing the plan will require some financial support. Where possible, this may be provided by national government, but where this is not possible it is envisaged that NGO, bilateral and multilateral donors will prioritise conservation activities undertaken as part of the strategic plan and assist with financial support.

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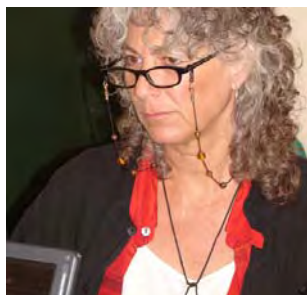
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APPENDIX 2: AGENDA

Monday, 3rd December

All arrive Educational Centre, Jwana Game Park, Jwaneng, Botswana
COACH DEPARTS JOHANNESBURG INTERNATIONAL AIRPORT AT 12 NOON

18:30   "Housekeeping" arrangements
AnnMarie Houser, Cheetah Conservation Botswana

18:35   Icebreaker: drinks followed by dinner
All participants

Tuesday, 4th December

9:00   Official welcome and opening remarks
*Mr Onkokame Kitso Mokaila MP, Minister of Environment, Wildlife and Tourism
introduced by Dr Cyril Taolo, Department of Wildlife and National Parks*

9:20   Welcome from workshop hosts
Staff of Debswana

9:25   Introductions
All participants

9:35   Biology and conservation of cheetahs – an overview
Sarah Durant, Tanzania Carnivore Centre & Zoological Society of London

9:55   Biology and conservation of African wild dogs – an overview
Rosie Woodroffe, Mpala Research Centre & Zoological Society of London

10:15   Rangewide priority setting: how it has been applied to other species
Karen Minkowski, formerly Wildlife Conservation Society

10:30   Strategic planning for conservation: how it has been applied to other species
Sarah Durant, Tanzania Carnivore Centre & Zoological Society of London

10:50   Presentation of the agenda, goals and outputs for this meeting
Rosie Woodroffe, Mpala Research Centre & Zoological Society of London

11:00   COFFEE BREAK

11:30   Presentation of draft maps of cheetah and wild dog status and distribution
Karen Minkowski and Margaret Waweru, Tanzania Carnivore Centre

11:45   Discussion of vision, goals and goal targets for cheetah and wild dog conservation in southern Africa
All participants

12:45   How to go about revising maps of cheetah and wild dog status and distribution
Karen Minkowski and Margaret Waweru, Tanzania Carnivore Centre

13:00   LUNCH

14:00   Three working groups:

Working Group 1	*Working Group 2*	*Working Group 3*
Refine vision and goals for	Revise information on	Revise information on

regional conservation strategy and begin to develop goal targets	distribution and status of cheetahs	distribution and status of wild dogs

17:30 End of day's working – game drive and pre-dinner drinks

19:00 DINNER

_____

Wednesday, 5th December

9:00 Presentation of revised vision and goals, and first draft of goal targets
Working Group 1

9:10 Discussion of revised vision, goals and goal targets
All participants

9:30 Working groups reconvene (group membership can vary within & between sessions)

Working Group 1 Finalise statements of vision, goals and goal targets	*Working Group 2* Continue mapping, synthesis of data, and review of maps for cheetahs	*Working Group 3* Continue mapping, synthesis of data, and review of maps for wild dogs

10:45 COFFEE

11:15 Working groups reconvene (group membership can vary within & between sessions)

Working Group 1 Discuss and develop list of threats to cheetahs and wild dogs drawing on threat data contributed by participants	*Working Group 2* Finalise mapping, synthesis of data, and review of maps for cheetahs	*Working Group 3* Finalise mapping, synthesis of data, and review of maps for wild dogs

13:00 LUNCH

14:00 Presentation on threats to cheetahs and wild dogs in southern Africa
Working Group 1

14:15 Discussion of threats to cheetahs and wild dogs in southern Africa
All participants

15:00 Presentation of finalised goal and vision statements
Working Group 1

15:15 Problem analysis: what hinders achieving these goals?
All participants

17:30 End of day's working – possibility of game drives & pre-dinner drinks

19:00 DINNER

_____

Thursday, 6th December

09:00   Presentation and review of finalised distribution maps. Draw attention to locations of populations relative to ecoregions, international borders, and protected areas. Also highlight congruence – or lack thereof – in wild dog and cheetah distributions
Karen Minkowski, Margaret Waweru, Kirsten Oliver

09:45   Presentation of problem tree and preliminary problem analysis for discussion and revision
All participants

10:30   COFFEE

11:00   Discussion of possible approaches to prioritising populations. Could involve identification of axes for population comparison, their attributes and scales of comparison (e.g. ecoregions, nations)
All participants

12:00   Depending on outcome of previous discussion, may score polygons of resident range according to agreed attributes
Working Group 1:scorings   Working Group 2: weightings

13:00   LUNCH

14:00   Presentation of final problem tree analysis and explanation of how to use the problem analysis to formulate objectives
Strategy drafting team

15:30   TEA

16:00   Depending on outcome of earlier discussions, presentation of preliminary population comparison results, juxtaposition of results for cheetahs and wild dogs, and discussion of how to proceed with comparison at rangewide and national scales. This might potentially include identifying geographical units within which conservation effort may be focused.
All participants

17:30   End of day's working – possibility of game drives & pre-dinner drinks

19:00   DINNER

_____

Friday, 7th December

9:00   Presentation of second draft objectives
Strategy drafting team

9:10   Discussion and modification of draft objectives
All participants

9:20   Working group for each objective improves objective definition and develops list of objective targets
Working groups (one per objective)

10:20   COFFEE

10:40   Presentation of revised objectives and objective targets, and discussion
All participants

12:10   Working groups revise objectives and objective targets

All participants

12:40 Presentation of revised objectives and objective targets
Working groups

13:00 LUNCH

14:00 Identify and develop activities for each objective target in objective-based working groups
Working groups

16:30 Working groups present activities

17:45 Working groups revisit and redraft activities informed by discussion, adding actors and timelines

18:30 Expected finish time; each working group to provide list of activities to Strategy Drafting Team to organize into logical framework

19:00 DINNER

_____

Saturday, 8th December

9:30 Presentation of completed logical framework, followed by discussion
Strategy drafting team

11:00 COFFEE

11:30 Discussion of plans for moving forward, including national action planning
All participants

12:30 Official close of regional meeting
Dr Cyril Taolo, Director of Research, Department of Wildlife and National Parks

13:00 LUNCH

14:00 Depart for Gaborone

APPENDIX 3: MAPPING METHODOLOGY

A3.1 Assessing the species' distribution and status

A3.1.1 Participants in the mapping process

The first step in the conservation planning process involved identifying and inviting participants from Angola, Botswana, Malawi, Mozambique, Namibia, South Africa, Tanzania, Zambia and Zimbabwe. No one was invited from Lesotho or Swaziland, as these countries were known, or strongly suspected, not to support populations of either species.

A3.1.2 Preparing for the workshop

In advance of the workshop, participants provided data on the species' distribution and status, in the form of point locations (described in A3.1.3, below) and range polygons (see A3.1.4). Participants drew upon their own knowledge as well as available data and experience of their colleagues.

Before the workshop the combined geographic data were assembled into a GIS (Geographic Information System) and printed as hard-copy draft maps covering the region that would be reviewed and revised through discussion by the participants at the workshop.
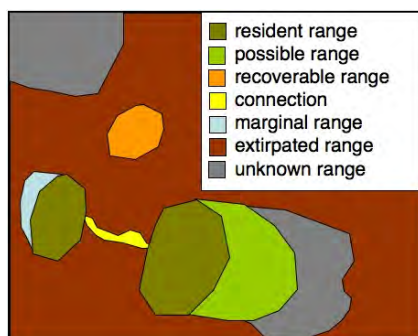
A3.1.3 Point locations

Point locations provided the primary data on which distribution maps were based. A point location is a specific site where wild dog or cheetah presence has been confirmed. Such records included sightings of live or dead animals, field signs such as tracks or scats, attacks on livestock, and telemetry locations. Data associated with each point location included the number of animals seen (if relevant), their age (adult or juvenile), and information on the experience of the person who made the observation (to allow accounting for data reliability). Participants were asked to map locations from the last 10 years, although older data were also informative for areas that had received little recent survey or monitoring effort and to confirm historic range.

A3.1.4 Range polygons

Point locations and other available data indicating the presence of cheetah and wild dogs were used to delineate geographic range polygons. All land formerly occupied by each species was considered to fall inside their respective historical range. For some areas, detailed historical data on distribution were available; elsewhere, historical distribution was estimated based on the species' broad habitat requirements.

Neither cheetah nor wild dogs still occupy all parts of their historical range. Hence, present-day data was used to divide the historical range for each species into several types of range categories (Figure A3.1):

legend:
- resident range
- possible range
- recoverable range
- connection
- marginal range
- extirpated range
- unknown range

Figure A3.1 *Possible dispositions of different types of geographic range on an imaginary map*

- resident range: land where the species was known to be still resident. This recognised the knowledge that both cheetah and wild dogs have excellent dispersal abilities, meaning that not every point location indicates the

presence of a resident population; some may indicate transient dispersing animals. Resident range was defined as areas where (i) the species has been regularly detected over a period of several years; (ii) there was evidence of breeding (e.g. young cheetah cubs sighted, or wild dog pups or dens recorded); and (iii) for wild dogs, there were sightings of complete packs (groups containing members of both sexes, usually >3 animals) rather than small groups (≤3 animals), or single-sex groups, which are likely to be dispersal groups.

- possible range: land where the species may still be resident, but where residency had not been confirmed in the last 10 years. Usually these would be areas which contain suitable habitat and prey, but which have had little or no ground-based surveying in recent years (aerial surveys are unlikely to detect either species). Some areas were considered to constitute possible range because only unconfirmed reports were available (e.g. reports from inexperienced observers) or there were only reports of transient individuals or groups.

- extirpated range: land where the species is currently extinct. This can be further divided into:
  - unrecoverable range: land where habitat has been so heavily modified or fragmented (e.g. by cultivation or urbanisation) as to be uninhabitable by resident animals for the foreseeable future.
  - recoverable range: land where habitat and prey remain over sufficiently large areas that either natural or assisted recovery of the species might be possible within the next 10 years if reasonable conservation action were to be taken. In designating areas of recoverable range, participants were asked to bear in mind that both species live at low densities and travel very widely, so they would rarely be recoverable in small areas (<3,000km^2) unless very intensive management (e.g. predator-proof fencing and active population management) could be implemented.

- connecting range: land where the species may not be resident, but which dispersing animals may use to either move between occupied areas, or to recolonise extirpated range. Such connections might take the form of 'corridors' of continuous habitat or 'stepping stones' of habitat fragments.

- unknown range: land where the species' status is currently unknown and cannot be inferred using knowledge of the local status of habitat and prey.

In addition to these categories, a seventh category was developed in the course of the southern Africa workshop, and used for wild dogs only:

- marginal range: natural habitat used intermittently by wild dogs, but known not to be used regularly, providing no connection to areas of resident, possible or unknown range, and unlikely to be made suitable for use by resident wild dog populations through any reasonable form of management. Such areas are likely to be natural habitats that are only marginally suitable for wild dogs (e.g. desert). Marginal range was not included in the historical range.

In principle, conservation activities for these species (e.g. management interventions, surveys, monitoring) might be conducted in any of these types of geographic range. Even in unrecoverable range, outreach and education activities may be vital for long-term conservation efforts on neighbouring lands.

After mapping each range polygon, participants provided information on land use within the polygon, the size and status of the cheetah or wild dog population it contained (if sufficient data were available), prey availability, and potential threats.

A3.1.5 Reviewing and revising the maps generated prior to the workshop (conducted 4th-5th December)

At the workshop the maps, generated from information submitted by participants prior to the workshop, were reviewed and modified through discussion among participants (Figure A3.2).

Figure A3.2 *Participants update distribution maps for different parts of southern Africa.*

The process of collating data from multiple participants led, in some cases, to substantial changes in the range polygons. In particular, a number of polygons were merged when it became clear that populations mapped by participants from different areas (frequently in different countries) constituted single populations. In such cases, updated data on population size and status, land uses, and threats for the new (merged) polygon were discussed and agreed upon by participants.

This process of review and modification led to a digital map representing consensus among participants of the two species' distribution and status within southern Africa.

A3.1.6 Analyses of data on status and distribution (conducted 5th-6th December)

Once the distribution maps were finalised and agreed upon by participants, these were used to evaluate the proportions of each species' geographic range that fell inside *vs.* outside protected areas. This information helped to direct the strategic planning process by highlighting the importance of both protected and unprotected lands for the future conservation of both wild dogs and cheetah.

Distribution data were also compared with national boundaries and hence used to evaluate the likely importance of transboundary management; once again, this informed the development of the strategic plan.

Participants used the data on likely threats to each wild dog or cheetah population to identify key threats to each species. Working groups (one for cheetah, and one for wild dogs) were convened to discuss and evaluate the evidence that each nominated threat was truly having – or likely to have – an impact on the current or future viability of the population in question. They then collated this information across all populations in the region and identified key threats that affected multiple populations. Results from the two species-specific working groups were very similar and were therefore subsequently combined.

Range polygons were also superimposed upon the WWF ecoregions identified within southern Africa (Olson *et al.*, 2001). Following Sanderson et al. (2002), ecoregions were used to identify the distinct 'ecological settings' within which wild dog or cheetah populations occur. Mapping the species' distribution across these

ecoregions therefore provided one way for participants to distinguish polygons that were potentially ecologically unique (and therefore arguably particularly valuable) because they fell within under-represented ecoregions.

The participants discussed whether it would be valuable, for conservation planners and managers, to use the contributed data to compare and prioritise populations for conservation investment. To illustrate the possible inputs to, and outputs from, such a process, the organisers presented an example which had been prepared in the course of the previous eastern Africa workshop, comparing the seven resident wild dog populations within Kenya. In response to this presentation, government representatives expressed interest in seeing the results of such a prioritisation within national boundaries in southern Africa, as they felt that this could help them organise their own conservation efforts. In addition, several of the species specialists felt that such an exercise would be valuable at international levels to help direct international donor funding to areas particularly important for conservation of the two species; the latter would be similar to the WCS 'rangewide priority setting' exercises previously conducted for other species (e.g. Sanderson *et al.*, 2002). The whole group appreciated the potential complexity of conducting such an exercise, but the species biologists showed particular enthusiasm for developing the process, while managers were more concerned with simply seeing the results. It was therefore agreed that a small group of biologists would take this process forward after the workshop. This is likely to be most valuable if conducted once workshops have been completed for the species' entire geographic ranges, allowing a truly rangewide comparison of populations. Results will be communicated to, and discussed with, all workshop participants.

APPENDIX 4: STRATEGIC PLAN LOGICAL FRAMEWORK

Vision			
Secure, viable cheetah and wild dog populations across a range of ecosystems, that successfully coexist with, and are valued by, the people of southern Africa.			

Goal			
Improve the status of cheetahs and wild dogs, and secure additional viable populations across their range in southern Africa.			

Theme	Objective	Target	Activity
Capacity Development	1. Develop capacity in all aspects of cheetah and wild dog conservation in southern Africa.	1.1 Identify gaps in capacity in all areas of cheetah and wild dog conservation in the region within two years.	Conduct interview and questionnaire surveys to establish current situation and identify gaps for all capacity components within two years, including: 1.1.1 Law enforcement and conflict;
			1.1.2 Monitoring and research;
			1.1.3 Education and outreach.
		1.2 Develop and implement one annual law enforcement and conflict resolution training programme in each range state within three years.	1.2.1 Develop a list of wildlife and law enforcement training academia/institutions, including curricula, and identify gaps, within six months.
			1.2.2 Develop law enforcement and conflict resolution training modules that encompass the range of regional training needs within 18 months.
			1.2.3 Activate and source funds to support an annual law enforcement and conflict resolution training programme in each range state within one year.
			1.2.4 Develop and implement one annual law enforcement and conflict training programme in each range state within three years.
		1.3 Establish a network of programmes and institutions to develop capacity in research, monitoring, education and outreach within one year.	1.3.1 Create a database of institutions and programmes involved in research, monitoring, education and outreach within one year.
			1.3.2 Establish a committee to drive the development of a regional capacity network within one year.
			1.3.3 Develop a web portal to provide an interface between network members and the public within one year.
Knowledge and information	2. Improve knowledge on the conservation biology of wild dogs and cheetah across southern Africa.	2.1 Generate and disseminate standardised, quantitative knowledge of conflict, threats and their drivers and mitigation across southern Africa within five years.	2.1.1 Compile available data on conflict, threats and their mitigation and, where possible, collate in standardised formats, from all range states within two years.
			2.1.2 Identify shortfalls in existing knowledge about conflict, threats and their mitigation for all range states within two years.
			2.1.3 Initiate studies (field studies, surveys, questionnaires and existing data) to quantify conflict, threats, their drivers and mitigation, and effects on population viability; ongoing.
			2.1.4 Organise and hold a workshop to collate national information on conflict, threats and their mitigation within two years.
			2.1.5 Create a regional database of information on conflict, threats and their mitigation for southern Africa within three years.
			2.1.6 Generate knowledge on present and emerging threats to cheetah and wild dog conservation, including illegal trade.
			2.1.7 Disseminate knowledge regarding conflict, threats, their drivers and mitigation to all relevant stakeholders within five years.

Theme	Objective	Target	Activity
Knowledge and information (cont.)	2. Improve knowledge on the conservation biology of wild dogs and cheetah across southern Africa.	2.2 Identify and evaluate the efficacy of various mitigation measures (including cost-benefit analysis of techniques) within five years.	2.2.1 Initiate multiple studies across the region on the efficiency of various mitigation measures and their cost-benefit ratios; ongoing.
			2.2.2 Collate and analyse all data from above in consultation with involved parties
		2.3 Acquire better understanding of dispersal, habitat use and connectivity for cheetah and wild dogs within five years.	2.3.1 Initiate field studies on dispersal mechanisms in both species, including factors influencing dispersal success, within five years.
			2.3.2 Initiate studies on cheetah and wild dog feeding ecology in different areas in relation to potential range within five years.
		2.4 Acquire information about the status and distribution of cheetah and wild dogs across the region, and identify recoverable range that will not be recolonised naturally, within five years.	2.4.1 Contribute to the ongoing cheetah and wild dog atlas; ongoing.
			2.4.2 Develop standardised monitoring and field techniques for cheetah and wild dog studies and publish a handbook within three years.
			2.4.3 Initiate surveys in unknown and possible range to assess population status and distribution for cheetah and wild dogs within five years.
			2.4.4 Assess and identify recoverable range for factors likely to influence recolonisation (natural or artificial) within two years.
			2.4.5 Maintain and expand long term monitoring programmes of cheetah and wild dog populations in resident range; ongoing.
Information transfer	3. Develop and implement mechanisms for the transfer of information relevant to cheetah and wild dog conservation and ensure active commitment of stakeholders.	3.1 Identify relevant benefits to local communities, governments and landowners within three years.	3.1.1 Conduct literature review to consolidate information on potential benefits of cheetah and wild dog conservation across the region within one year.
			3.1.2 Hold meetings and workshops with communities, then landowners, then government, to collect information to identify relevant incentives and benefits within three years.
		3.2 Develop multimedia projects across all regional range states, building on the best existing material, within three years.	3.2.1 Develop web based interactive reporting of sightings, data, findings and activities relevant to cheetah and wild dog conservation, within one year.
			3.2.2 Develop and use posters, leaflets, radio, TV, video, pictures and theatre groups to disseminate information locally within two years.
			3.2.3 Develop and distribute standardised forms across range states to collect information on cheetah and wild dog distribution, especially in areas where information gaps occur, within three years.
		3.3 Promote increased national awareness of local threats across range states within two years.	3.3.1 Establish competitions, essays, etc. in schools and groups to enhance and highlight conservation education.
			3.3.2 Develop curricula regarding cheetah and wild dogs and integrate with activities of youth conservation clubs (e.g. Chongololo in Zambia, Malihai in Tanzania and Wildlife Club in Botswana).
			3.3.3 Encourage sponsorship of sports teams, clubs and groups named after cheetah and wild dogs at all levels.
		3.4 Promote national species workshops in all regional range	3.4.1 Hold annual national workshops with government, researchers and NGOs to inform the conservation management of cheetah and wild dogs; initiate within one year.

Theme	Objective	Target	Activity
		states within three years.	3.4.2 Participate in wider range of meetings and stakeholder interest groups (i.e. those not directly concerned with conservation) to disseminate information about cheetah and wild dog conservation; initiate within one year.
Coexistence	4 Minimise conflict and promote coexistence between cheetah, wild dogs and people across southern Africa	4.1 Reduce deliberate killing of cheetah and wild dogs to sustainable levels in all range states within five years.	4.1.1 Clarify and monitor extent of deliberate killing of cheetah and wild dogs in all range states within three years.
			4.1.2 Clarify and lobby for enforcement of laws pertinent to killing of cheetah and wild dogs across range states within one year.
			4.1.3 Identify conflict areas and clarify extent of actual versus perceived losses caused by cheetah and wild dogs, on an ongoing basis.
			4.1.4 Educate relevant stakeholders about livestock husbandry practices proven to reduce depredation, within one to three years.
			4.1.5 Implement human-wildlife conflict rapid response teams to react quickly and effectively to conflict situations, across all range states within two years.
			4.1.6 Initiate programmes to combat negative perceptions of cheetah and wild dogs in all range states within one year.
		4.2 Substantially reduce levels of incidental mortality in cheetah and wild dogs in all range states within five years.	4.2.1 Clarify and monitor extent of incidental mortality of cheetah and wild dogs in all range states within three years.
			4.2.2 Substantially reduce snaring mortality of cheetah and wild dogs through initiatives such as anti-poaching efforts and community conservation, within five years.
			4.2.3 Where appropriate, initiate programmes known to be effective at managing diseases that threaten cheetah and wild dog population viability, within five years
			4.2.4 Implement targeted, enforceable programmes which reduce road mortality of cheetah and wild dog within five years.
			4.2.5 Identify and remove, as much as possible, sources of snare wire; ongoing
			4.2.6 Encourage land use practices (e.g. conservancies) which promote large, continuous tracts of fence-free habitat, within three years.
			4.2.7 Promote and implement land use practices compatible with cheetah and wild dog conservation, within five years.
		4.3 Raise awareness of issues related to cheetah and wild dog conservation among relevant stakeholders in all range states within three years.	4.3.1 Develop and disseminate education and awareness material, building on best existing material, for both adults and children in all range states within two years.
			4.3.2 Create and implement multimedia programmes to raise awareness and understanding of cheetah and wild dog conservation in all range states within two years.
			4.3.3 Sensitise leaders to the value of cheetah and wild dog conservation; ongoing.
		4.4 Measurably increase perceived intrinsic and economic value of cheetah and wild dogs to all stakeholders within five years.	4.4.1 Quantify and monitor the perceived intrinsic and economic value of cheetah and wild dogs to all stakeholders; ongoing.
			4.4.2 Develop appropriate value-added activities, such as hunting and tourism, in all range states within five years.
			4.4.3 Investigate and highlight cultural values of cheetah and wild dogs across all range states within two years.

Theme	Objective	Target	Activity
			4.4.4 Where relevant, develop self-sustaining community schemes that offset the costs of, and internalise the responsibilities for, conflict within three years.
			4.4.5 Where appropriate, develop income generation and capacity development projects linked to cheetah and wild dog conservation, within three years.
Land use	5 Minimise adverse effects of land development and promote and implement best land use practice for cheetah and wild dog conservation.	5.1 Evaluate current land use and assess how these relate to cheetah and wild dog conservation by identifying determinants of success, within two years.	5.1.1 Identify key regional stakeholders responsible for determining current and future land use strategies, within one year.
			5.1.2 Produce a document illustrating examples of land use strategies associated with successful cheetah and wild dog conservation from each country in the region, within two years.
		5.2 Promote the formation of multi-owner wildlife management units (e.g. conservancies, community parks etc.) by increasing awareness of the potential benefits of such land uses within two years.	5.2.1 Gain consensus on minimum required size of game farms, conservancies, community parks etc. for effective cheetah and wild dog conservation, within one year.
			5.2.2 Develop an information booklet detailing conservancy models and illustrating the potential benefits of conservancies to commercial and communal landholders compared with game fenced farms within one year.
			5.2.3 Identify key role players in each country able to drive the development of multi-owner wildlife management units, within one year.
			5.2.4 Identify potential strategies to promote multi-owner wildlife management unit formation (e.g. through tax breaks and other economic incentives) and draft proposals for consideration at national cheetah and wild dog workshops within one year.
			5.2.5 Initiate national lobbying efforts to promote the development of multi-owner wildlife management units, targeted at key landholders and government representatives, within two years.
			5.2.6 Monitor the development of multi-owner wildlife management units and their influence on cheetah and wild dog conservation, to permit development of new approaches if necessary; after 5.2.5, ongoing.
			5.2.7 Maintain current resident range, maintain and recover corridors and convert at least 20% of recoverable, possible and/or extirpated range to resident range through surveys and expansion of wild dog and cheetah populations within ten years.
		5.3 Promote wildlife based land uses and community based natural resource management in areas with potential for cheetah and wild dog conservation within four years.	5.3.1 Identify areas with the greatest potential for wildlife based land uses conducive to cheetah and wild dog conservation in each country, within a year.
			5.3.2 Develop feasibility studies leading to business plans for each country to help achieve the development of wildlife areas to benefit cheetahs, wild dogs and communities, within three years.
			5.3.3 Assist with preparing funding proposals to implement the business plans within one year after their development, i.e. within four years.
			5.3.4 Monitor the development of wildlife based land uses, and their influence on cheetah and wild dog conservation, to permit development of new strategies if necessary after 5.3.3; ongoing.

Theme	Objective	Target	Activity
			5.3.5 Achieve a 20% increase in the area of community land used for wildlife based land uses within ten years.
			5.3.6 Develop a strategy document detailing options for achieving land reform objectives while retaining wildlife based land uses, within two years.
			5.3.7 Lobby to ensure that the retention of wildlife based land use is considered to be a key component of land reform, within two years.
Land use (cont.)	5 Minimise adverse effects of land development and promote and implement best land use practice for cheetah and wild dog conservation.	5.4 Promote effective livestock husbandry and range management; ongoing.	5.4.1 Develop and expand current programmes (e.g. Future Farmers of Africa) throughout the region and source funding within a year.
			5.4.2 Promote such programmes through existing agricultural, game ranching and community organisations within six months of development of those programmes, i.e. within 18 months.
			5.4.3 Initiate training programmes through accredited training facilities to increase the capacity of communities to practice responsible and sustainable range management; initiate within one year, ongoing thereafter.
			5.4.4 Assess the effectiveness of new and existing livestock husbandry and range management programmes and disseminate results; ongoing.
Political commitment	6 Obtain political commitment to the conservation needs of cheetah and wild dogs	6.1 A regional agreement to collaborate in conserving cheetah and wild dogs across southern Africa will be signed by all governments by 2010 to coincide with the World Cup.	6.1.1 Agreement drafted by IUCN/SSC Cat and Canid Specialist Groups based on this strategic plan within six months.
			6.1.2 Agreement to be presented to national agencies who will then take it to ministers, within six months.
			6.1.3 Organise a regional state meeting where agreement will be formally signed by the eight countries.
		6.2 Ensure that any outstanding transboundary agreements that will benefit the conservation of cheetah and wild dogs are signed within one year.	6.2.1 Identify all outstanding agreements that will benefit cheetah and wild dogs within three months.
			6.2.3 Lobby for agreements to be signed by mobilising stakeholders and relevant government bodies, within nine months.
Policy and Legislation	7 Review and, where necessary, revise, international, national and local legislation, policies and protocols affecting cheetah and	7.1 Assessment of the relevance and efficacy of current national, regional and international policies, protocols and legislation pertaining to the conservation of cheetah and wild dogs, including trade in captive animals, within two years.	7.1.1 Mobilise resources to employ a consultant to carry out an assessment and compile recommendations within 18 months.
			7.1.2 Increase information exchange between range countries and the Coalition Against Wildlife Trafficking (CAWT) to monitor trafficking in cheetah and wild dogs.
		7.2 Revise policies, protocols and legislation where	7.2.1 National agencies to draw up and/or amend policies, protocols and legislation where needed, within four years.

Theme	Objective	Target	Activity
	wild dog conservation.	appropriate within seven years	7.2.2 Implement and enact these new and/or amended policies, protocols and legislation; ongoing.
Policy and Legislation (cont.)	7 Review and, where necessary, revise, international, national and local legislation, policies and protocols affecting cheetah and wild dog conservation.	7.3 Improve the capacity of law enforcement and judicial agencies to implement legislation, policies and protocols relevant to cheetah and wild dog conservation within seven years.	7.3.1 National agencies to prioritise capacity needs to implement legislation, policies and protocols relevant to cheetah and wild dog conservation.
			7.3.2 Mobilise resources required to improve capacity.
			7.3.3 Develop capacity according to priorities set by national agencies within seven years.
		7.4 Attain effective communication and collaboration between all relevant law enforcement and wildlife management agencies across southern Africa within five years.	7.4.1 Hold national workshops, with all relevant NGOs and national agencies involved in law enforcement present, within one year.
			7.4.2 Set up national fora to meet regularly every 4-5 months, starting immediately.
			7.4.3 Establish a regional forum of law enforcement agencies and NGOs to meet annually; ongoing.
			7.4.4 Develop and standardise reporting mechanisms and strategies to deal with problem animal control, within one year.
National Planning	8 Facilitate the implementation of the regional strategy and develop and implement national action plans for the conservation of cheetah and wild dogs in all range states.	8.1 Develop and implement a national action plan for each country within two years.	8.1.1 Identify key individuals to facilitate the national action planning process within each country.
			8.1.2 Hold at least one national action planning workshop in each range state in southern Africa within two years.
			8.1.3 Produce and have endorsed at least one national action plan within each country, within three years.
			8.1.4 Implement national action plans; time frame to be decided within national action planning process.
		8.2 Ensure that human and financial resources are made available to facilitate the implementation of the regional strategy within one year.	8.2.1 Appoint a volunteer interim coordinator within one month.
			8.2.2 Identify, appoint and provide an institutional home for the coordinator of the implementation of the regional strategy within one year.

APPENDIX 5: ACKNOWLEDGEMENTS