NATIONAL ACTION PLAN
FOR THE CONSERVATION OF CHEETAHS
AND
AFRICAN WILD DOGS IN SOUTH SUDAN

South Sudan Wildlife Service

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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 cheetahs 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 globally threatened species are often the first to disappear. South Sudan supports populations of both cheetahs and wild dogs, but the challenge to their conservation remains lack of knowledge about their numbers and distribution. However, South Sudan is likely to be globally important in the conservation of these species due to the relatively low human population density and the space consequently available to these species. The conservation of these species is being planned together because of the wide overlap in their conservation needs, particularly in the area of spatial ecology.

This national action plan for their conservation is the first step in a programme to manage and conserve South Sudan's large carnivore species. A number of South Sudan's important wild dog and cheetah populations straddle international boundaries. Transboundary management in collaboration with Kenya, Uganda and Ethiopia therefore likely to be needed to conserve both species in South Sudan in the long term.

The South Sudan Wildlife Service (SSWS) is the appropriate authority to oversee the implementation of this action plan, in partnership with a number of NGOs, including the Wildlife Conservation Society Sudan Program.

– CHAPTER 2 –
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 cheetahs 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 cheetahs – particularly susceptible to the destruction and fragmentation of habitat – are often the first species to disappear. Despite their globally threatened status (wild dogs are listed as endangered and cheetahs as vulnerable (IUCN, 2006a)), their ecological importance as top carnivores (Woodroffe & Ginsberg, 2005b), and their 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 cheetahs and wild dogs:

(1) The species' massive area requirements mean that conservation planning is needed on a daunting spatial scale, rarely seen before in terrestrial conservation.

(2) Information is lacking on the species' distribution and status, and on the tools most likely to achieve effective conservation.

(3) 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 cheetahs because the threats and conservation challenges are likely to be different. Against this background, conservation issues associated with wild dogs and cheetahs are being addressed together because, despite being taxonomically quite different, the two species are ecologically very similar and hence face very similar threats.

2.2 Planning large carnivore conservation in South Sudan

The national action plan for cheetah and wild dog conservation in South Sudan is the first of a suite of strategic plans for the conservation and management of the country's large carnivore species. A conservation action plan for Lion is currently under development. These strategies are being developed within a common framework and together, are intended to achieve:

(i) numerically viable and ecologically functional populations of all large carnivore species native to South Sudan;

(ii) numerically viable and ecologically functional populations of key wild prey species within South Sudan; and

(iii) a reduction of human-carnivore conflict in South Sudan

2.3 National planning within a rangewide context

This national action plan for the conservation of cheetahs and wild dogs in South Sudan was developed as part of a Rangewide Conservation Planning Process for these two species. Recognising the serious conservation issues facing cheetahs and wild dogs, 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 process to plan for the species' conservation across their combined geographic range. This process, conducted in close partnership with government conservation authorities, aims to develop a coordinated array of national conservation action plans for all range states, nested within broader regional strategies.

The Rangewide Conservation Planning Process has six stated objectives:
(1) To foster appreciation for the need to conserve wild dogs and cheetahs, 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 cheetahs, including corridors connecting important conservation areas.
(4) To prepare specific global, regional and national conservation action plans for both cheetahs and wild dogs.
(5) To encourage policymakers to incorporate wild dogs' and cheetahs' conservation requirements into land use planning at both national and regional scales.
(6) To develop local capacity to conserve cheetahs and wild dogs by sharing knowledge on effective tools for planning and implementing conservation action.
(7) To foster collaborative management and conservation of these species amongst range states, particularly in the case of transboundary populations.

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 conservation organizations. Close involvement of government representatives was considered absolutely critical since these are the organizations with the authority to implement any recommendations at the management and policy levels. While the process will eventually cover the entire geographic range of both species, the large number of range states involved means that productive discussion and interchange would be very difficult to achieve at a single workshop covering all regions. Workshops are therefore being conducted at the regional level, covering eastern, southern, and west-central Africa for cheetahs and wild dogs together, and North Africa and Asia for cheetahs only (wild dogs being absent from this last region). Although the species' extensive area requirements demand conservation planning on a very large spatial scale, wildlife conservation policy is formulated, authorized and enforced at the national level. It is critical, therefore, that conservation planning be enacted at this level, and national workshops were considered a vital component of the rangewide process. Each regional workshop is therefore being followed immediately by a national workshop in the host country. Hence, the eastern Africa regional workshop was followed by a Kenya national workshop. As well as providing an opportunity to develop a national conservation action plan for the two species, this workshop allowed delegates from other countries in the region (invited to attend as observers) to acquire the experience needed to prepare national workshops in their own range states. This process will eventually lead to the development of national action plans for all range states.

2.4 Biology and conservation needs of African wild dogs

African wild dogs are highly social members of the caned 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., 2007c) 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 (Girman et al., 1997a), 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 (other than cheetahs), wild dogs tend to avoid areas of high prey density (Mills & Gorman, 1997), apparently because larger carnivores prefer such areas (Creel & Creel, 1996). Lions *(Panthera leo)* and 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 100km2 (Fuller et al., 1992a) and home ranges average 600-800km2 per pack in eastern Africa (Woodroffe & Ginsberg, 1998), with some packs ranging over areas in excess of 2,000km2 (Fuller et al., 1992a). Both wild dogs and cheetahs 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 cheetahs. and wild dogs in comparison with their
energy needs. Wild dogs are recorded as having greater needs than cheetahs 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 (often 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 kilometers (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 decolonize
remote areas when opportunities arise. Wild dog populations in different regions of Africa are morphologically and genetically different, but no subspecies are recognized (Girman & Wayne, 1997b; 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 (see Figure 4.1). The first Africa-wide status survey for wild dogs was conducted in 1985-1998 (Frame & Fanshawe, 1990), and this was updated in 1997 (Woodroffe, Ginsberg & Macdonald, 1997b) 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 et al., 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, 1997a). 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 in comparison with most other species (cheetahs 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., 2007c). Wild dogs seldom kill livestock where wild prey remain at even comparatively low
densities (Rasmussen, 1999; Woodroffe et al., 2005c), 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).

2.5 Biology and conservation needs of cheetahs

The cheetah is one of the most unique and specialized members of the cat family. It can reach speeds of over 100km/hour (Sharp, 1997), making it the fastest creature on land. However, despite their specialized hunting strategy, cheetahs are habitat generalists, ranging across a wide variety of habitats, from desert

through grassland savannahs to thick bush (Myers, 1975).Cheetahs 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 animals, 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 then defend against male intruders (Caro & Collins, 1987a).

In the Serengeti ecosystem in northern Tanzania and southwestern Kenya, male territories average 50km2, whilst females and males without territories cover around 800km2 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, 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 greatest 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 (S. Durant unpublished data). Demographic parameters are available for only a small number of populations: mean and variance of birth and survival have only been published from the long term study in the Serengeti National Park, Tanzania (Durant, Kelly & Caro, 2004), whilst mean birth and survival rates are available from ranch lands in Namibia (Marker et al., 2003a). Cheetahs are predominantly diurnal, although hunting at night is not uncommon (Caro, 1994). Cheetahs hunt by a stealthy stalk followed by a fast chase. Because of their unrivalled speed and acceleration, cheetahs 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)*. Cheetahs 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. Like wild dogs, but unlike most other large carnivore species, cheetahs tend to avoid areas of high prey density, probably because larger 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 also kill cubs and will steal kills from cheetahs.

Cheetahs used to be widespread across Africa, and across Asia as far east as India. However, today there are no cheetahs 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 populations are concentrated in sub-Saharan Africa. The first status survey for cheetahs was conducted 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 current knowledge of global status was collated in 1998 (Marker, 1998). However accurate information on status and densities is 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 at small "hotspot" localities, making estimating numbers additionally problematic at the broader scale (Durant et al., 2007).

Like wild dogs, and probably because of similar tendencies to avoid larger predators, cheetahs live at low densities with recorded levels ranging between 0.3 and 3 adult cheetahs/100km2 (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 that these estimates do not reflect true density,

as individuals counted may roam outside the survey area (highlighting a general problem with surveying cheetah populations; see Bashir et al., 2004). Home range size has been found to vary from 50km2 for territorial males in the Serengeti (Caro, 1994) to over 1,000km2 in Namibia (Marker et al., in press). Like wild dog home ranges, cheetah ranges are much larger than would be predicted from their energy needs (Figure 2.1). Because they can traverse such large areas, cheetahs can also disperse long distances, and have been recorded as moving hundreds of kilometers (S. Durant unpublished data). This makes it difficult to determine whether occasional cheetah sightings in an area represent transient individuals or a resident population. However, this ability to disperse enables cheetahs to decolonize new areas fairly easily should they become available. Global population size has been 'guesstimated' at 14,000 (Myers, 1975) and 'less than 15,000' (Marker, 2002). The species is listed as vulnerable according to IUCN red list criteria (IUCN, 2006a). Although the published population size estimates do not suggest a decline, there is a consensus among the world's cheetah experts that such a decline has occurred, either because the 1970's figure was an underestimate, or because the latter figure 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., 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 to capture and use cheetahs for hunting (Divyabhanusinh, 1995). Today, lethal control, due to perceived or actual conflict with livestock or game ranching, also plays an important role in the decline of the species in sub-Saharan Africa (Marker et al., 2003b; Myers, 1975).

2.6 The eastern Africa regional workshop

Figure 2.2 Delegates to the conservation planning workshop for African wild dogs and cheetahs in eastern Africa, held at Mpala Research Centre, Kenya in February 2007.

The eastern Africa regional workshop on conservation planning for cheetahs and wild dogs was held on 1st-6th February, 2007, at Mpala Research Centre in Kenya. It was attended by 28 delegates including government and NGO representatives from southern Sudan, Ethiopia, Uganda, Kenya and Tanzania, and species specialists from Botswana, Namibia, Kenya, Tanzania, USA and UK (Figure 2.2). Data were also contributed by a participant from northern Sudan, who was prevented from attending by a US trade embargo against the Government of Sudan. The eastern 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 fairly minor modifications, to develop national action plans for the species' conservation.

2.7 The South Sudan national workshop

The South Sudan national workshop on conservation planning for cheetahs and wild dogs was held April 2009 at Oasis Hotel, Juba. It was attended by 32 participants including Government of Southern Sudan (GOSS) officials, South Sudan Wildlife Service (SSWS) staff, NGO representatives, as well as representatives from Uganda Wildlife Authority (UWA). Names and contact details of participants are presented in Appendix 1 .

Figure 2.3 Delegates to the conservation planning workshop for Cheetah and African wild dogs in South Sudan, held at Oasis Hotel, Juba in April 2009.

2.8 Structure of this report

Chapters 3 and 4 of this report present details of the status and distribution of cheetahs and wild dogs, respectively, in South Sudan and neighbouring countries. Chapter 5 describes the threats to both species. The data presented in these chapters were collated in the course of the regional workshop and presented to participants in the national workshop for discussion and updating. Chapter 6 describes the development of the national conservation action plan in the course of the national workshop. This national plan was developed by presenting the regional strategy to participants in the national workshop, and seeking their approval to use the regional strategy as a template for the national action plan. When this approach was agreed, national participants modified and expanded the regional strategy, adding details to produce a South Sudan-specific national action plan. The agenda for the workshop is presented in Appendix 2, and a logical framework table of the national strategic plan is provided in Appendix 3.

– CHAPTER 3 –

THE DISTRIBUTION AND STATUS OF CHEETAHS IN SOUTH SUDAN

3.1 Historical distribution

Cheetahs are widely distributed in Southern Sudan, although at low densities. They are habitat generalists, able to persist in a wide array of environmental conditions as long as prey are available, ranging from desert to reasonably thick bush. Human population is still sparse in Southern Sudan and was further dispersed due to the civil war. Patterns of human settlement are therefore unlikely to have played much part in modifying cheetah distribution in recent years. The species' currently known distribution is shown in Figure 3.1.

Figure 3.1. Current distribution of cheetah in Southern Sudan (Marked in Orange)

The highest cheetah densities have been recorded in wooded savannah (Caro,1994; Marker et al., in press). 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 that harbour large numbers of other large carnivores are similar to densities in relatively degraded habitat where prey densities are low and larger carnivores have been excluded. This is because the best habitats attract the highest densities of competing carnivores. It unlikely, therefore, that cheetahs were ever abundant, despite their widespread distribution.

3.2 Transboundary Distribution

Most of South Sudan's known cheetah ranges lie on its international boundaries, the most important ones being the Boma National Park, which lies on the Eastern border with Ethiopia and the Elemi region which borders the Omo National Park in Ethiopia and the Turkana plains in NW Kenya. Smaller, but equally important ones are the Lontoto National Park and Kidepo Game Reserve, which are contiguous with the Garamba National Park and the Kidepo Valley National Park in Congo and Uganda respectively. This calls for urgent transboundary cooperation between conservation authorities on the survey and management of cheetah populations. This is particularly important in the Elemi region, which is marked on the map as an important cheetah habitat, but is the subject of territorial altercations between Kenya and South Sudan.

3.3 Conclusions

As in other parts of Africa, there is an urgent need to incorporate cheetah conservation and habitat connectivity into land use plans in South Sudan. This is particularly important in reference to the rapid development of infrastructure after the end of the civil war. Boma National Park in the west of the country is likely to be the most important protected cheetah habitat, but it is important to plan for the conservation of cheetahs in community lands as well. In Kenya, Ethiopia and Tanzania, it has been noted that significant proportions of cheetah populations live outside protected areas. The same might be true in South Sudan with sightings reported from Pibor, Kapoeta and Elemi. There is an urgent need to survey the cheetah habitats outside protected areas. It is apparent from the cheetah distribution map that survey and monitoring effort is biased towards the WCS 'conservation landscape' that includes Boma National park and the Elemi area.

The top priority for South Sudan is the identification of non-protected cheetah habitats and the maintenance of connectivity between them. These conservation measures need to be put in place as soon as possible, before habitat is irretrievably fragmented and lost, as has been the case in several other cheetah habitats in East Africa. Reintroduction is not, therefore, a priority for conservation of cheetahs in South Sudan in the medium term. This indicates the irreversible nature of the decline in the distribution of cheetahs. Once the habitat is lost, it is very difficult to recover it, demonstrating the importance of ensuring that planning for cheetah is considered as South Sudan embarks on rapid infrastructure development after the end of the civil war.

– CHAPTER 4 –

THE DISTRIBUTION AND STATUS OF AFRICAN WILD DOGS IN SOUTH SUDAN

4.1 Historical distribution

Although the highest wild dog densities have been recorded in wooded savannah (Creel et al., 2002), populations have been recorded in habitats as diverse as short grasslands (Kuhme, 1965), montane forest (Dutson et al., 2005), and mangroves (Figure 4.1). Hence, it is likely that wild dog distribution in South Sudan was not limited or influenced by the change of biomes from arid, to semi-arid and wetlands. proportions of natural habitats.

Figure 4.1 – Wild dogs live in a wide array of habitats from montane forest (upper left, showing wild dogs in the Harenna forest in Ethiopia) and swamp margins (upper right) to desert (centre), semiarid areas (lower left) and even, occasionally, mangrove forest (lower right, showing wild dogs swimming off the coast of Lamu District in eastern Kenya).

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

4.2 Current distribution

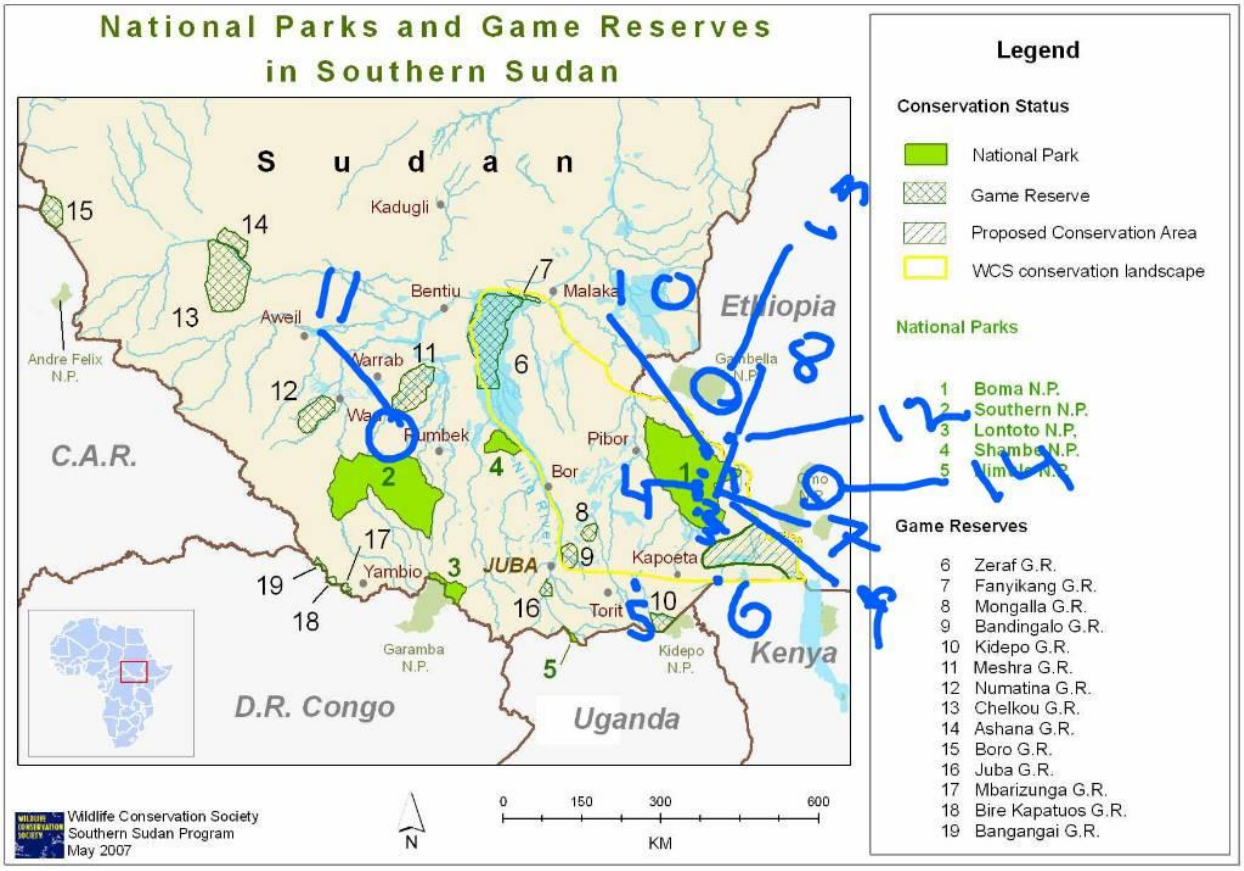

Figure 4.2 Current distribution of wild dogs in South Sudan (marked in blue)

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. 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: for example the large numbers of records from the Boma National Park reflects the number of workshop participants from the area and the amount of monitoring activity therein, being part of a WCS conservation landscape.

Much of South Sudan is classifiable as 'unknown' habitat, because it has not been surveyed for Wild dogs, and opportunistic observations are rare due to absence of tourist activities. Compilation of more complete data from these areas is one of the priorities detailed in this National Action Plan.

- CHAPTER 5 -
THREATS TO WILD DOG AND CHEETAH POPULATIONS IN SOUTH SUDAN

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 those threats and hence to achieving conservation objectives.

Global threats to wild dog and cheetah populations have been assessed previously (Bartels et al., 2001, 2002; Marker, 1998; Woodroffe et al., 2007a; Woodroffe et al., 1997a; Woodroffe et al., 2004). However, one conclusion of these assessments is that threats vary between regions. For the purposes of conservation planning for South Sudan, we therefore used data on threats to Kenyan wild dog and cheetah populations, contributed by participants in the regional workshop, and reviewed by the local (Sudanese) participants in the national workshop. Participants in the regional workshop were asked to list the factors most likely to threaten each population, and to provide evidence that each factor represented a threat. Participants then identified the constraints acting to prevent alleviation of these proximate threats: for example, if accidental snaring was identified as a proximate threat to a particular population, lack of capacity to control illegal snaring might constrain alleviation of the threat.

This information was reviewed and collated separately for wild dogs and cheetahs. However, as the threats identified were almost identical for the two species, they are discussed together.

5.2 Threats

1. Legislation and policy

Illegal trade – both of live animals and parts (lions and cheetahs)
Lack of management plan (all)
Competition with livestock for space in certain areas (lack of land use planning) (all)
Competition between herbivores and livestock grazing – encroachment by livestock (all)
Absence of policy (all)
Infrastructure development (lack of land use planning) (all)
Existing laws that do not meet the values of animals – insufficient punishment for killing carnivores (all)
Legislation not clear about utilization (all)
Insufficient community involvement (all)
Underfunded Ministry (all)
Inadequate budget distribution, e.g. for salaries (all)
Weak institutional framework for law enforcement (all)

2. Law enforcement

Intentional killing for traditional use (cheetahs and lions)
Wire snares (all)
Ineffective law enforcement (all)

3. Education and awareness
Fires set by people (all)
Illegal harvest (cheetahs and lions)
Lack of awareness of conservation needs (all)
Traditional lion hunting for prestige (lions)

4. Conflict and persecution
Indiscriminate killing – kill carnivores when encounter them (all)
Conflict due to livestock depredation and retaliatory killing (all)

5. Broader wildlife issues
Prey depletion (all)
Habitat destruction (all)
Human population growth (all)
Drought (all)
Competition with larger carnivores (cheetahs and wild dogs)

6. Capacity development
Lack of training (all)
Lack of trained manpower (all)
Lack of field facilities (all)
Lack of monitoring (all)
Lack of transport facilities (all)
Lack of foreign support and engagement (all)

5.3 Constraints on alleviating threats
Conserving cheetah and wild dog populations requires mitigating the threats listed above, on a very large spatial scale. Participants in the regional workshop therefore identified the barriers to achieving this outcome. These constraints were classified into four categories: political, economic, social and biological. Once again, results for cheetahs and wild dogs were extremely similar. Political constraints included lack of land use planning, insecurity in some ecologically important areas, and lack of political will to foster cheetah and wild dog conservation. Economic constraints included lack of financial resources to support conservation, and lack of incentives for local people to conserve wildlife. Social constraints included negative perceptions of wild dogs and cheetahs, lack of capacity to achieve conservation, lack of environmental awareness, rising human populations, and social changes leading to subdivision of land and consequent habitat fragmentation. These potentially mutable human constraints contrast with several biological constraints which are characteristic of wild dogs and cheetahs and cannot be changed: these included the species' wide ranging behaviour, their negative interactions with other large carnivores, and their susceptibility to infectious disease.

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5.5 Conclusions

Data indicate that both the proximate and ultimate threats faced by cheetahs and wild dogs are very similar. Indeed, these threats are similar to those faced by all large carnivores in Africa; however wild dogs' and cheetahs' extremely wide-ranging behaviour makes them acutely sensitive to these threats and means that the threats need to be addressed 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. For this reason, participants in the process decided to formulate a single conservation strategy for the two species, rather than one for each species.

– CHAPTER 6 –
STRATEGIC PLAN FOR CHEETAH AND WILD DOG CONSERVATION IN SOUTH SUDAN

6.1 Background

The strategic plan for wild dog and cheetah conservation in South Sudan was developed using a process which was deliberately participatory and consensus driven, involving as many stakeholders as was practicable. This approach was taken both to ensure that the expertise and knowledge of all participants informed the plan, and also to ensure that the plan would be jointly owned by relevant institutions and individuals, facilitating its implementation. As described in Chapter 2, the national strategy for wild dog and cheetah conservation in South Sudan was developed within a broader regional context. A strategic plan for the species' conservation in eastern Africa was developed first, by a team of participants from across the region, including representatives of governmental authorities, relevant NGOs, and species specialists. From within Kenya, this regional workshop involved several high-level participants from KWS, as well as the African Wildlife Foundation, African Wild Dog Conservancy, Cheetah Conservation Fund Kenya, Mara Carnivore Conservation Project, and the Samburu-Laikipia Wild Dog Project.

The eastern Africa regional strategy was then presented to a larger group of stakeholders, along with the background data used to construct it, at a South Sudan national workshop held at Oasis Hotel, Juba in April 2009. Delegates to this national meeting are listed in Appendix 1, and the agenda for the meeting is provided in Appendix 2. Participants in the national meeting were asked to consider whether the regional strategy could be used as a template for developing the national strategy and this approach was formally adopted by the participants.

6.2 Structure of the strategic plan

Following strategic plans established for other species in Africa (IUCN, 2005, 2006b), the Kenya national plan had five key components:
(1) A long-term vision for the species' conservation
(2) A medium-term goal for the strategic plan
(3) A number of objectives which together address the proximate and ultimate threats to the species' conservation
(4) Several targets to address each objective
(5) A list of activities to address each target

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 reflect an optimistic, but realistic, view of the future of cheetah and wild dog conservation and should provide a source of inspiration.

The vision developed for the regional strategy was "To secure viable and ecologically functional cheetah and wild dog populations as valued components of development in eastern Africa". This vision was carefully worded to reflect: (i) the need to conserve viable populations, that is, relatively large populations which are able to persist in the long term; (ii) the need to conserve ecologically functional populations, that is, populations exposed to as full a range as possible of ecological challenges to which they would have been subjected in their evolutionary history, including their natural predators, parasites and prey, across a range of natural ecosystems; (iii) the need to conserve the species as valued components

of development, that is, within a context of human development which acknowledges the economic, cultural and ecological value provided by cheetahs and wild dogs.
This vision was broadly accepted by participants in the South Sudan national workshop. In particular, it was noted that, within South Sudan, this view of wild dogs and cheetahs as 'valued components of development' incorporates reduction in conflict between people and wildlife, and promotion of economic benefits from wildlife, in a sustainable manner. Importantly, it indicates that the conservation needs of cheetah and wild dog will be incorporated into the rapid post-war development of South Sudan's infrastructure
The vision of the national strategy is therefore:

Vision:

To secure viable and ecologically functional cheetah and wild dog populations as valued components of development in South Sudan

6.2.2 The Goal

The goal was intended to reflect what the strategic plan should accomplish in a shorter time period than that identified for the vision – around 10-20 years. The goal should thus be realistic and achievable. It should also be broadly measurable, in that it should be possible to know when it has been achieved. The goal therefore needs to be more clearly defined than the vision, although it should support the vision statement. The goal agreed for the eastern Africa regional strategy was "To reverse declines and improve the status of cheetah and wild dog populations and their habitats across eastern Africa".
Participants in the South Sudan national workshop broadly agreed with this goal. They noted that, within South Sudan, improving the "status" of these two species refers not only to their biological status (e.g. numbers, distribution) but also to their perception by people within South Sudan through education programmes, which are critical to their conservation. Participants also noted a clear need for better information on the two species' distribution, abundance and population trends to identify target areas for cheetah and wild dog conservation action.
The goal of the national strategy is therefore:

Goal:

To reverse declines and improve the status of cheetah and wild dog populations and their habitats across South Sudan

6.2.3 Regional Objectives

The problem analysis described in section 5.4 was used to develop objectives for the eastern Africa strategic plan. The proximate and ultimate threats to the species' persistence, and constraints on the species' conservation, were grouped into six themes:
(1) Coexistence: This theme covers problems relating to the coexistence of people and domestic animals with cheetahs, wild dogs and their prey.
(2) Surveys and information: This theme concerns problems arising from a lack of information about cheetahs and wild dogs including information on range, population status, habitat and management.
(3) Capacity development: This theme includes problems arising from insufficient capacity such as manpower, resources, training and equipment.
(4) Policy and legislation: This theme covers problems arising from a lack of or inappropriate policies and legal frameworks within the wildlife sector.
(5) Advocacy: This theme comprises problems arising from a low public importance attached to cheetah and wild dog conservation. This category largely addresses policy and legislation issues outside the remit of

the group, i.e. outside the remit of the government wildlife sectors, and hence falling under other ministries. This includes critically important issues such as land use policy and development.
(6) the translation of the regional strategy into national action plans and subsequent implementation at the national level.
These themes were used to develop objectives for the regional strategy, ensuring that all issues identified in the problem analysis were addressed by the objectives, and that no objective addressed issues not identified by the problem analysis. All of the objectives developed for the regional strategy were adopted for South Sudan's national action plan, with the exception of the last, which deals with national planning; this was fulfilled by development of the Kenya national plan. Hence, the objectives of
the South Sudan national action plan were:

Objective 1:
Develop and implement strategies to promote coexistence of cheetahs and wild dogs with people and domestic animals

Objective 2:
Provide relevant stakeholders and managers with scientific and timely information on the status of and threats to cheetah and wild dog populations

Objective 3:
Strengthen human, financial and information resources for conserving cheetahs and wild dogs in collaboration with stakeholders

Objective 4:
Review and harmonize existing legislation, and, where necessary, develop new legislation, for conservation across cheetah and wild dog range at national and international levels

Objective 5:
Mainstream cheetah and wild dog conservation in land use planning and its Implementation.

Objective 6:
Formulation and endorsement of national action plans and subsequent implementation of the prescribed activities.

Under Objective 1, participants noted that within South Sudan, the "people" with whom cheetahs and wild dogs must coexist are not only local communities but also private landowners, infrastructure developers, and other users of lands which support wildlife.
Under Objective 2, participants noted the direct translation of this regional issue to the South Sudan situation, where there is a widely-recognized need for better information on cheetah and wild dog distribution and status.
Under Objective 4, participants noted that, within South Sudan, local as well as national legislation would be important in implementing cheetah and wild dog conservation. There is very little specific wildlife legislation currently in place in South Sudan, and this is an urgent need. Since transboundary management is likely to be very important to conserve these two species in South Sudan, it is important that legislation be formulated in the context of new and existing international treaties.
Under Objective 5, participants noted the need to make cheetah and wild dog conservation central to any land use plans developed in relevant areas of South Sudan.

6.2.4 Targets, activities, timelines, actors and indicators

Once the objectives were agreed, targets were developed to meet the objectives. Each objective was associated with a number of targets, each of which specified a way in which progress would be made towards achieving the objective, and on what timescale. Targets were devised to ensure that if all targets under an objective were met, then that objective would be met. The targets set for the South Sudan national action plan were slightly modified from those identified for the eastern Africa regional strategy. Each target was, in turn, associated with a number of activities. Activities are highly specific and describe exactly what projects need to be completed to achieve the targets and thus, in turn, the objectives. Once again, activities for the South Sudan national action plan were modified from those devised for the regional strategy. Additionally, for each activity within the national action plan, a timeline was set, and the institutions best placed to perform the activity (actors) were specified.

– CHAPTER 7 –
IMPLEMENTATION OF THE NATIONAL ACTION PLAN

While cheetahs and wild dogs are unique among African carnivores in their requirement for extremely large areas of contiguous wildlife-friendly habitat, it is clear that many of the activities recommended in this strategic plan will also benefit other species which face similar direct and indirect threats: this includes lions, leopards and hyaenas. These other species can be conserved in areas somewhat smaller than those needed by cheetahs and wild dogs (Woodroffe et al., 1998), but otherwise face similar threats. Hence, cheetahs and wild dogs are likely to act as good 'umbrella species' for planning the conservation of all the large carnivores, determining the spatial scale across which conservation activities must be implemented. Implementing this strategy will require a focus on lands outside protected areas, since the majority of wild dog and cheetah range falls on such community or privately owned land. It would not be possible to conserve viable populations of either species solely within South Sudan's protected area system: most of the parks are simply too small to support these wide-ranging species. Several of South Sudan's important wild dog and cheetah populations occupy transboundary areas, and long term conservation will depend upon activities occurring not only within South Sudan, but also in neighbouring countries. The Convention on the Conservation of Migratory Species of Wild Animals (CMS) provides one means for coordinating transboundary management, and Kenya indicated its interest in using this approach to the CMS Council immediately after the national workshop Since SSWS is wildlife authority in South Sudan, this is the appropriate body to oversee implementation of the national action plan. Indeed, many of the actions proposed in this strategy involve SSWS in various different roles. SSWS has expressed its intention to establish a Carnivore Working Group (CWG), and this is a vital step in ensuring implementation of this plan, and those to be developed in future for other carnivore species.

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APPENDIX 2: AGENDA FOR THE NATIONAL WORKSHOP

–AGENDA –

Day 1, 1st April, 2009

Participants arrive in Juba

18:30 Ice-breaker: drinks and pizza

Day 2

9:30 Official welcome
H.E. Minister of Wildlife Conservation and Tourism, GOSS

9:40 Introductions
All participants

9:55 Background, goals, agenda and outputs from this meeting, in the context of developing national strategies for wildlife conservation in Southern Sudan
Martin Ring Malek, Ministry of Wildlife Conservation and Tourism

10:05 Background, goals, agenda and outputs from this meeting and introduction to the strategic planning process for the conservation of cheetah, wild dogs and lions
Sarah Durant, Tanzania Carnivore Centre

10:20 Biology and conservation of cheetahs – an overview
Sarah Durant, Tanzania Carnivore Centre

10:40 COFFEE

11:00 Biology and conservation of African wild dogs – an overview
Amy Dickman, Ruaha Predator Project

11:20 Biology and conservation of lions – an overview

Christine Breitenmoser, IUCN Cat SG

11:40 Overview of protected areas and wildlife in Southern Sudan
Major Gen. Geraldo Wol, MWCT

12:00 Present and discuss national and regional distribution map for cheetahs
Paul Peter Awol, WCS Southern Sudan

12:15 Present and discuss national and regional distribution map for wild dogs
Luka Ipota, New Sudan Wildlife Conservation Organization

12:30 Present and discuss national and regional distribution map for lions
Malik Marjan Doka, University of Massachusetts/BWTC

12:45 LUNCH

14:00 Present and discuss recent surveys and existing data on cheetah, wild dog, and lion populations and priorities for future surveys.
Falk Grossmann, WCS Southern Sudan

14:15 Participants work on updating distribution maps for all three species
Facilitated by Christine Breitenmoser and Falk Grossmann

15:45 TEA

16:15 Presentation of updated maps of national distribution and status
Workshop participants

17:00 Updated maps finalised

17:30 END OF FIRST DAY

Day 3

09:00 Present, review and discuss threats to cheetah populations in Southern Sudan

09:30 Present, review and discuss threats to wild dog populations in Southern Sudan

10:00 Present, review and discuss threats to lion populations in Southern Sudan

10:30 COFFEE

Presentations on tools for cheetah, wild dog and lion conservation

11:00 Tools for surveying carnivores at the national level – experience from Tanzania
Sarah Durant, Tanzania Carnivore Centre

11:30 Tools to mitigate conflict between carnivores and livestock farmers
Amy Dickman

11:50 Conservation programs and strategies contributing to large carnivore protection in Southern Sudan currently being developed by the MWCT, WCS and other partners. *Lt. General Frazer Tong,, MWCT and Dr. Paul Elkan, WCS Southern Sudan*

12:20 **National action plan for the conservation of cheetahs and wild dogs**
Present and discuss regional logframes for wild dog and cheetah conservation. Review vision and goal and set in national context
Discussion by all participants, facilitated by Sarah Durant and Amy Dickman

12:20 LUNCH

14:00 **National action plan for the conservation of cheetahs and wild dogs**
Review objectives and set in national context
Discussion by all participants, facilitated by Sarah Durant and Amy Dickman

15:00 TEA

15:30 Review activities for regional cheetah and wild dog strategy and determine objective based working groups to flesh these out, develop indicators, and identify responsible parties and timeframes
Discussion by all participants, facilitated by Sarah Durant and Amy Dickman

17:30 END OF SECOND DAY

Day 4

National action plan for the conservation of cheetahs and wild dogs cont.

9:00 Working groups develop specific (site-specific where appropriate) activities
Working groups

10:30 COFFEE

11:00 Working groups continue develop specific (site-specific where appropriate) activities
Working groups

11:30 Working groups report briefly on progress
Working groups

12:00 Continue in working groups; include indicators, timelines and actors
Working groups

13:00 LUNCH

14:00 Present, review, discuss, and finalize log frame for national strategy
Discussion by all participants, facilitated by Sarah Durant and Amy Dickman

15:00 Discussion of next steps and assignment of tasks
Discussion by all participants, facilitated by Sarah Durant and Amy Dickman

15:30 TEA

16:00 **National action plan for the conservation of lions**
Present and discuss regional logframes for lion conservation - review all aspects including vision, goal, and objectives and set in national context
Discussion by all participants, facilitated by Sarah Durant and Christine Breitenmoser

17:00 Briefly review activities for regional lion strategy and determine working groups to flesh these out, develop indicators, and identify responsible parties and timeframes
Discussion by all participants, facilitated by Sarah Durant and Christine Breitenmoser

17:30 Cheetah and Wild dog Workshop Ends

APPENDIX 3: LOG FRAME OF THE NATIONAL ACTION PLAN FOR CONSERVATION OF CHEETAH AND WILD DOG IN SOUTH SUDAN

Vision:
To secure viable and ecologically functional cheetah and wild dog populations as valued components of development in South Sudan

Goal:
To reverse declines and improve the status of cheetah and wild dog populations and their habitats in South Sudan

THEME: Coexistence				
Objective: Develop and implement strategies to promote coexistence of cheetah and wild dogs with people and domestic animals				
Target	Activity	Rank	Responsible party	Time Frame
1.1 *Sustainable tools to reduce wild dog and cheetah impacts on livestock developed and disseminated across Southern Sudan*	1.1.1 Identify areas where cheetah and wild dog populations are significantly threatened by conflict with pastoralist communities	FIRST	CWG, Relevant NGO's Communities	3 years
	1.1.2 Circumstances that contribute to livestock depredation by cheetah and wild dogs in the identified areas within one and a half years	SECOND	MWCT, CWG, NGO's Communities	1.5 years
	1.1.3 Develop effective strategies for disseminating existing information on reducing cheetah and wild dog impacts on livestock to relevant parties across Southern Sudan	THIRD	MWCT, CWG, NGO's Communities	6 months

	1.1.4 Work with communities in affected areas to develop and implement the most effective livestock husbandry strategies to reduce depredation by cheetah and wild dogs	FOURTH	MWCT, CWG, NGO's, MARF, Communities	6 months
1.2 *Initiate and maintain programmes for local people to derive sustainable economic benefits from cheetah and wild dog presence and their prey in selected areas of Southern Sudan within three years*	1.2.1 Identify areas across Southern Sudan where ecotourism could effectively assist cheetah and wild dog conservation through sustainable economic benefits for local communities, and hence improving tolerance of both species	FIRST	MWCT, CWG, NGO's Communities	3 years
	1.2.2 Encourage sustainable ecotourism programmes and the distribution of their revenue to appropriate parties in cheetah and wild dog range within three years	SECOND	MWCT, CWG, NGO's Communities	3 years
	1.2.3. In areas of Southern Sudan where ecotourism is unlikely to provide sufficient benefits, investigate alternative options for generating revenue which encourage cheetah and wild dog conservation.	THIRD	MWCT, CWG, NGO's Communities	3 years
	1.2.4 Work with communities in affected areas to develop and implement the most effective livestock husbandry strategies to reduce depredation by cheetah and WD	FOURTH	MWCT, CWG, NGO's Communities	3 years

1.3 *Awareness creation programmes relevant to cheetah and wild dog conservation developed in key areas within three years*	1.3.1 Identify target areas and audiences best placed to influence cheetah and wild dog conservation within one year	FIRST	MWCT, CWG, NGO's Communities	1 year
	1.3.2 Investigate local traditions, knowledge and cultural values relevant to cheetah and wild dogs and incorporate into outreach programmes and strategies within one year	SECOND	MWCT, CWG, MIB, MCY, NGO's, Universities Communities	1 year
	1.3.3 Tailor existing outreach materials for cheetah and wild dog conservation to local conditions in Southern Sudan and disseminate within two years	THIRD	MWCT, CWG, MIB, MCY, NGO's, Universities	2 years
1.4 *Programmes to reduce indiscriminate hunting and illegal off take of wild ungulates implemented in affected areas within three years*	1.4.1 Identify areas where wild dog or cheetah populations are significantly threatened by accidental snaring within six months	FIRST	MWCT, CWG	6 Months
	1.4.2 Identify areas where prey loss contributes to conflict between pastoralists and cheetah or wild dogs, or directly undermines the viability of wild dog or cheetah populations within one year	SECOND	MWCT, MARF, CWG, NGO's	1 year
	1.4.3 Support the implementation of measures to reduce indiscriminate hunting and/or illegal off take in identified areas within three years	THIRD	MWCT, CWG, NOG's	3 years
1.5 *Develop holistic caned disease management strategies in key-areas of Southern Sudan within three years*	1.5.1 Identify areas where wild dog populations are significantly threatened by caned disease within one year	FIRST	MARF, CWG, NGO's Communities	1 year
	1.5.2 Work with livestock and/or veterinary departments to encourage domestic dog vaccination and husbandry within identified areas within three	SECOND	MARF, CWG, Universities Communities	3 years

	years			
	1.5.5 Evaluate the conservation potentials of vaccinating free ranging wild dogs caned disease	Fifth	EWCA ,RRG& others	2 years

THEME: Surveys and information				
Objective 2: Provide relevant stakeholders and managers with scientific and timely information on the status of, and threats to, cheetah and wild dog populations				
Target	Activity	Rank	Responsible party	Time Frame
2.1 *Surveys and monitoring to evaluate presence, trends and threats in key cheetah and wild dog ranges initiated and maintained*	2.1.1 Conduct surveys to determine presence or absence in areas identified as unknown, possible and connected ranges in Southern Sudan initiated within three months and maintained continuously	FIRST	Protected Area personnel, CWG, State Directors	Ongoing, long term; annual reporting
	2.1.2 Within known resident ranges, initiate and maintain monitoring activities to determine population trends and threats within the range, within two years and maintain	SECOND	Protected Area personnel, CWG, State Directors	Ongoing, long term; annual reporting
	2.1.3 Within known resident ranges, conduct research to establish demographic and threat status, within one year and maintain	THIRD	Protected Area personnel, CWG, State Directors	Ongoing, long term; annual reporting
2.2 . *Strategies for disseminating information relevant to cheetah and wild dog conservation to all key stakeholders across Southern Sudan developed and implemented within one to five years*	2.2.1 Design a reporting mechanism for each Southern Sudan state i.e. annual/quarterly reports, meetings, documentation, records and/or other media to disseminate information relevant to cheetah and wild dog conservation – continuous.	FIRST	Head of CWG	Ongoing
	2.2.2. Establish a standardized database format to facilitate the collection and sharing of data within two to three years	SECOND	Head of CWG	2-3 years

THEME: CAPACITY BUILDING				
Objective 3: Institute and strengthen human, financial and information resources for conserving cheetah and wild dogs in collaboration with all stakeholders				
Target	**Activity**	**Rank**	**Responsible party**	**Time Frame**
3.1 *A cheetah and wild dog 'business plan' for Southern Sudan developed within one years*.	3.1.1 Identify individuals within and outside the Ministry to undertake the activities under 3.1 in Southern Sudan	FIRST	MWCT, Different institutions and individuals	1 year
	3.1.2 Review existing and possible revenue streams for cheetah and wild dog conservation within one year	SECOND	MWCT, CWG, Consultants, Individuals	1 year
	3.1.3 Produce and disseminate the cheetah and wild dog 'business plan' for Southern Sudan within two years	THIRD	CWG, NGO's	2 years

	3.1.4 Look for sources of funding within and outside Southern Sudan	FOURTH	MWCT, WCS/ZSL, NGO's Individuals	Ongoing
3.2 *Have extension, enforcement, and monitoring personnel trained and equipped to operate within 50% of the cheetah and wild dog populations' ranges within three to five years*	3.2.1.Immediately initiate activities to address urgent issues affecting cheetah and wild dog conservation (such as trafficking) wherever they are known to occur	FIRST	SSWS (LED, ED), CWG	3 years
	3.2.2 Strengthen collaboration in monitoring of resident and connecting range for cheetah and wild dogs	SECOND	CWG, Relevant institutions	3-5 Years
	3.2.3. Initiate outreach and request information in unknown areas within one year	THIRD	CWG, State Directors	
	3.2.4 Complete a Training and Resource Needs Assessment in each state in Southern Sudan (this could happen within National Workshops) within one	FOURTH	CWG, WCS/ZSL	1 year

	year			
	3.2.5 Integrate Business Plan, Training Needs Assessment and Action Plan within two years	FIFTH	CWG	2 years
	3.2.6. Establish a cheetah and wild dog monitoring unit in the Ministry of Wildlife Conservation and Tourism to co-ordinate the activities of cheetah a	SIXTH	CWG	2 Years
	3.2.7.Identify and employ a full time cheetah and wild dog specialist (including community-scouts, parabiologists, community liaisons) in each target population within two years	SEVENTH	CWG	
	3.2.8. Create training opportunities for Southern Sudanese nationals in carnivore conservation at various levels to maintain sustainability of the programme	EIGHTH	CWG, Relevant NGO's	

THEME: Legislation				
Objective 4: Review and harmonies existing legislation, and, where necessary, develop new legislation, for conservation across cheetah and wild dog range at the Southern Sudan level				
		Rank	Responsible party	Time Frame
4.1 *Gaps in information on positive and negative effects of hunting on cheetah and wild dog conservation which can assist in policy evaluation and development are identified within two to three years*	4.1.1. Collect information pertaining to cheetah and wild dog population trends and known threats across regional and international areas under different types of hunting policies across Southern Sudan within two years	FIRST	MWCT, CWG	2 Years
	4.1.2 Produce a review document on Southern Sudan protected species and its implications for cheetah and wild dog conservation within one year	SECOND	MWCT, CWG	1 Year

4.2 *Information on the extent of illegal wildlife-related activities within cheetah and wild dog ranges for relevant authorities to strengthen policy/law enforcement and quality tourism provided within two years*	4.2.1 Develop standardized methodologies to collect information on cheetah and AWD conservation within resident range within two years	FIRST	MWCT, CWG	2 years
	4.2.2 Collect spatially explicit information on the magnitude of illegal activities relevant to cheetah and wild dog conservation within key resident range and include within a Southern Sudan database within two years	SECOND	CWG and partners	
	4.2.3. Quantify the impacts of insensitive tourism on cheetah and wild dogs inside and outside protected areas and use to develop outreach materials to raise awareness about cheetah- and wild dog-friendly observation practices within one to three years	THIRD	CWG, DWM	
4.3 *Explicit information provided to the management authorities to support identification and prioritization of corridor and dispersal areas for improved connectivity of cheetah and wild dog ranges within three*	4.3.1. Determine the spatial extent of corridor and dispersal areas between resident, possible and unknown ranges within three years	FIRST	CWG, Partners, and DWM	3 years

years				
	4.3.2 Determine threats, habitat quality, and the extent of suitable habitat in and surrounding corridors and dispersal areas within three years	SECOND	CWG, Partners, and DWM	3 years

THEME: Land Use Planning				
Objective 5: Mainstream cheetah and wild dog conservation in land use planning and its implementation.				
Target	Activity	Rank	Responsibility	Time-Frame
5.1 *Overseeing government authorities and local communities and other stakeholders within cheetah and wild dog resident and connecting ranges are made aware of the importance of cheetah and wild dog populations within two to three years*	5.1.1. Initiate and implement visiting programme to regional and local government offices, lodges and universities to present and distribute summary of cheetah and wild dog conservation issues, posters and this strategic plan within one year	FIRST	CWG, County committees	1 year
	5.1.2 Convene a 'conservation-caucus' type body in each state and county (payam and boma) (e.g. like the environmental conservation committee in Tanzania) within one and a half years	SECOND	CWG and partners	1 and a half years
5.2 *A land use plan for cheetah and wild dog resident and connecting range outside protected areas compatible with the species' conservation established within five years.*	5.2.1. Identify priority areas to be incorporated into land use plans within one year	FIRST	CWG	1 Year
	5.2.2. Strongly encourage governments to strengthen the legal mandate for land use planning within one to five years	SECOND	MWCT	1 Year
	5.2.3 Complete individual village (community or private land owner) land use plans within two years	THIRD	MWCT, GOSS, Local communities, State line ministries	2 Years
	5.2.4 Integrate village and community plans into cross-sectoral (and species) plans such as conservancy or wildlife management areas within five years	FOURTH	CWG, Communities	5 Years

5.3 *Awareness is raised among relevant donors and civil society about cheetah and wild dog populations, the effects of land use on them, and the economic and conservation consequences within two to three years*	5.3.1. Initiate poster campaigns to raise awareness of cheetah and wild dog conservation within their range, including possible and connecting areas within one year	FIRST	CWG, States, WCEU	1 year
	5.3.2 Promote representation of cheetah and wild dog conservation issues in mass media in Southern Sudan within one year	SECOND	Media, WCEU	1 Year
	5.3.3 Develop and maintain cheetah and wild dog literature and information repositories (e.g. online and in country) within one year	THIRD	CWG, Boma Wildlife Training Center	1 Year

THEME: Advocacy				
Objective 6: Promote the development and implementation of national conservation programmes for cheetah and wild dogs, by government and other stakeholders				
		Rank	Responsible party	Time Frame
6.1 *National action plans for cheetah and wild dog conservation for Southern Sudan to be endorsed by the Ministry of Wildlife within six months*	4.1 Establish a carnivore conservation programme in Southern Sudan within one year	FIRST	CWG	1 Year
	6.1.2 Establish a working group to implement carnivore conservation programme within one year	SECOND	DGWC	1 Year

	6.1.3 Prepare and organize a stakeholders meeting throughout Southern Sudan to identify national priorities for cheetah and wild dog conservation within 2 years	THIRD	Head of CWG	2 Years

APPENDIX 4: ABBREVIATIONS USED IN THIS DOCUMENT

The following abbreviations and acronyms are used in this document:
AWF African Wildlife Foundation
CMS- Convention on the Conservation of Migratory Species of Wild Animals
CSG Canid Specialist Group (part of SSC)
CWG – Carnivore Working Group
DDC- Drylands Development Centre
DGWC- Director General of Wildlife Conservation
DWM- Department of Wildlife Management (Within SSWS)
ED- Education Department (Within SSWS)
EWCA- Ethiopian Wildlife Conservation Authority
FAO-UN Food and Agriculture Organization
FZS- Frankfurt Zoological Society
GOSS- Government of South Sudan
KWS- Kenya Wildlife Service
LED- Law Enforcement Department (within SSWS)
MOU- Memorandum of Understanding
MWCT- Ministry of Wildlife Conservation and Tourism
MARF- Ministry of Animal Resources and Fisheries
MIB- Ministry of Information and Broadcasting
MCY- Ministry of Culture and Youth
NC- National carnivore conservation coordinator
NGO Non-Governmental Organization
SSC- Species Survival Commission (part of IUCN)
SSWS-South Sudan Wildlife Service
TRAFFIC-Trade Records Analysis of Flora and Fauna in Commerce
UNEP United Nations Environment Programme
WCEU-Wildlife Conservation Education Unit
WCS Wildlife Conservation Society
WWF World Wide Fund for Nature
ZSL- Zoological Society of London

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