



**ENDANGERED
WILDLIFE TRUST**
Protecting forever, together.

PREDATORS and **FARMERS**



“Whenever man engages in a practice which puts the lives or the livelihood of his fellow creatures in jeopardy, he has a moral obligation to examine his motives carefully and to assess the methods he proposes to employ”

- James A. Bateman, 1973

PREDATORS AND FARMERS

A publication of the Endangered Wildlife Trust

DESIGN & LAYOUT BY:

Marion Burger

PHOTOGRAPHS BY:

Albert Froneman: 19a, 27a

Alexander Sliwa: 25b, 29a

Andre' Botha: 3, 8, 17, 20b, 26b, 27b, 28, 43a, 46, 30b

Constant Hoogstad: 16

Deon Cilliers: 35

EWT: 13, 16, 18, 33, 48

Harriet Davies-Mostert: 17

Kelly Marnewick: 38, 44, 45

Johan Weesles: 16b

Lucian Coman: 27a

Mariaan Golding: 29b

Marion Burger: 14b, 22b

Marna Herbst: 18a, 20b

Nigel Dennis: 23b

Phil Perry: 15, 43b, 48

Rob Till: 22, 60

Roger de la Harp: 21b

Shutterstock / iStock / Stockvault / Wikipedia: 8, 10, 12, 14, 18b, 23a, 28, 32, 43, 46, Front (Wild Dog) & Back Cover



**ENDANGERED
WILDLIFE TRUST**

Protecting forever, together.

Published by the Endangered Wildlife Trust © 2012 Johannesburg. www.ewt.org.za
All rights reserved. The information in this booklet may be used freely but only for non-commercial purposes.



CONTENTS

ACKNOWLEDGEMENTS	4
FOREWORD	5
INTRODUCTION	6
THE ROLE OF PREDATORS AND WILDLIFE IN A CHANGING FARMING ENVIRONMENT	7
BENEFITS OF HAVING PREDATORS AND WILDLIFE ON FARMLAND	9
IMPACTS ON FARMERS	11
PREDATORS IN POTENTIAL CONFLICT	12
WILDLIFE CONFLICT MANAGEMENT	31
WILDLIFE CONFLICT PREVENTION: PRINCIPLES AND TECHNIQUES	33
POST-PREDATION: IDENTIFYING THE CAUSE OF DEATH	37
WORKING WITHIN THE LAW	44
CONCLUSION	47
REFERENCES AND FURTHER READING	48
ENDANGERED WILDLIFE TRUST (EWT)	49
USEFUL CONTACTS	50

ACKNOWLEDGEMENTS

This booklet is a revision of the first edition PREDATORS AND FARMERS (ISBN 0 620 17097-2), by Tony Bowland, Gus Mills and David Lawson; and the second edition (2007) by Claudia Hodgkinson, Hayley Komen, Tim Snow and Harriet Davies-Mostert. This third edition, a publication of the Endangered Wildlife Trust, has been edited by Tim Snow, Harriet Davies-Moster, Kelly Marnewick and Brendan Whittington-Jones

The work of all authors, as well as all contributors to this booklet, is acknowledged with gratitude. This book is dedicated to them and their foresight, to provide guidance towards resolution of human-wildlife conflicts.

We also acknowledge the conservationists, farmers, landowners and various specialists whose work and inputs, however small, have made this booklet possible. We specifically thank the late Abrie Maritz, Adri Barkhuysen, Andre Botha, Prof. Graham Alexander, the late Hannes Stadler, Pat Fletcher, Yolan Friedmann, and Dr. Nick King and Brendan Whittington-Jones for their significant contribution and editorial comments in various previous editions.

Clive Walker and Struik Publishers generously provided all the spoor diagrams. Distribution maps were provided by the Conservation Breeding Specialist Group (CBSG) Southern Africa and the Endangered Wildlife Trust.

*A huge thank you to all photographers who contributed material to this publication.
They are acknowledged on the inside front cover.*

FOREWORD

The title of this publication says it all. Farmers and Predators, not Farmers or Predators, or Farmers versus Predators. Both parties utilise the land for their survival and both parties have been doing so for millennia. Both parties can, and do benefit each other and yet both parties mostly fear each other for the perceived damage they may wreak on each other instead of paying respect to the value each one brings. As the 'higher' species in the chain, we humans can do a lot more to create much needed harmony between man and predator and this publication aims to support this process. As wild spaces diminish and populations of our wildlife shrink in accordance with the pressures resulting from an expanding human presence, we can no longer afford to regard carnivores as vermin and keep devising methods to exterminate and destroy them.

Carnivores are among the most threatened species in Africa today and it is our duty to create a world that is tolerant of, and accommodates the full spectrum of these critically important animals in balanced and functioning ecosystems. Conflict with carnivores can largely be prevented and many farmers have been doing this successfully for centuries. There is both ancient wisdom and emerging knowledge and along with innovative technology, options now exist to support farming practices that do not result in losses for either farmer or carnivore.

Balance and knowledge are key to this equitation and we hope, through the revised version of this important publication, that we will increase both elements in a sector that is so important to our economy, to our livelihoods and our environment. The Endangered Wildlife Trust is deeply grateful to all who contributed to this publication and to all the farmers whose knowledge and wisdom has been captured in these pages to assist and inspire others. We believe that a world in which Farmers and Predators co-exist in harmony and in service to each other is possible and we offer this publication in contribution towards making this happen.

Yolan Friedmann
CEO

A handwritten signature in black ink, appearing to be 'Yolan Friedmann', written over a horizontal line.

Endangered Wildlife Trust

INTRODUCTION

In Southern Africa, there are many species that have for a long time been labelled as “problem animals” or “vermin”. In the past, hatred towards those species developed to such a point, that all predators were believed to be a problem to livestock and humans and needed to be removed. This resulted in many predators, scavengers and other animals been irrationally and relentlessly persecuted and exterminated, with devastating impacts on the environment and its ecology. Unfortunately, many farmers today still hold this prejudiced view and continue to use undesirable methods when dealing with wildlife-human conflict.

Times have changed, as has legislation; and we have entered a new era of wildlife-human conflict management where an integrated or holistic approach towards solving these problems needs to replace old, outdated, prejudiced and unacceptable methods of dealing with conflicts.

The understanding of wildlife livestock predation in our society is changing and so is public perception of it. A meeting of experts in this field, held at Ganzekraal in the Western Cape in April 2006, concurred that wildlife and their activities often seriously reduce farming profits, but that proactive prevention of conflict needs to be foremost, with legal, rational and well-considered management of predation being the only practical option available. The principle that only specific individuals of a species can be designated as problematic, rather than populations of species as a whole as well as no longer promoting or utilising lethal and/or injurious techniques to kill or capture such individuals, are key to future wildlife-human conflict management.

Conflict with predators is an inherent risk of animal husbandry and the intention of this booklet is to empower farmers by providing reliable, objective and useful information to resolve these conflicts by applying the best practices available and where...

... PREVENTION IS THE CURE

Prevention of wildlife conflict is the responsibility of every farmer and the overall approach should be to minimize human-wildlife conflict situations, by employing an integrated or holistic approach to address such conflict situations.

Green Labelling

A future incentive for farmers is being investigated, where premium prices may be earned for agricultural produce if ecologically responsible management has been practiced on the farm. This will apply to farmers who apply certain best practices to prevent stock losses due to predators. For instance, accreditation will be given to stock farmers who produce wool and meat in an environmentally friendly manner, by implementing measures to prevent livestock predation and adapting their farming practices in line with a specific code of conduct or protocol that is industry-driven and recognised. Consumers are becoming increasingly aware and responsible regarding the products they choose to purchase. Green labelling is not a new concept, and marketing and awareness around green-labelled products to consumers, is a key component of this project.

More information on Green Labelling and Best Practice can be obtained from the EWT-Wildlife Carnivore Conservation Programme (CCP) and CapeNature.

THE ROLE OF PREDATORS AND WILDLIFE IN A CHANGING FARMING ENVIRONMENT

Their positioning at the top of the food chain makes carnivores ecologically important. They play a vital role in controlling and managing prey populations by cropping sick, weak or otherwise compromised animals. In this way they may also prevent areas from becoming over-utilised. Any disturbance in the ecosystem will filter through to the animals at the top, thus making carnivores more vulnerable than other species. It is not by coincidence that many carnivore species are amongst the most threatened.

Most predators are limited by their food supply, which means that they are unlikely to eliminate prey populations. The balance between predator and prey is a dynamic one and has had a marked effect on the evolution of both. The strong, the quick and the efficient survive, while the weak and slow are eliminated.

Predators also affect one another through competition. In the case of closely related species, the larger usually dominates the smaller species, keeping its numbers in check. For example, with the severe persecution of wolves in North America the Coyote has expanded its range. Similarly, there are strong indications that Caracal have become dominant predators following the eradication of Leopard from many parts of southern Africa.

As natural habitats become altered and fragmented by human activity, predators are increasingly under pressure to meet their survival needs. This has significant effects on the ecology of these animals, and has resulted in people eliminating predators to protect their livelihoods. "Blanket" control measures are often used, with devastating effects on populations. These however, have been proven to be ineffective, as predators are territorial and killing and removing territorial adult individuals simply opens up the habitat for new nomadic individuals. This could lead to an increase in predation, and doesn't solve the problem, but makes it worse.

Some farming practices, such as open or free-ranging extensive farming systems, may maintain predator numbers perceived to be higher than desirable. During late winter and spring the natural prey available to predators is often low. It is at this time of the year that natural mechanisms reduce predator numbers to levels prescribed by the availability of natural prey: old, weak and less fit predators simply perish and fewer young survive. However, it is also at this time of the year that most major synchronised lambing takes place on sheep farms.

Predators, hard pressed for sustenance, will readily use this artificial food source if the livestock remain unprotected, and this accounts for the seasonal nature of predation. Should a flock be unprotected during this vulnerable period, not only will the stock owner suffer potential losses, but the artificial food source may ensure that many more predators survive this naturally lean period, thereby contributing to unnaturally high predator numbers in the following season. For every year that the farmer supplies predators with this ready food source in late winter, the stock loss problem is compounded. It stands to reason then that it is of vital importance to protect flocks at lambing time.

Cattle are generally too large to be attacked by any but the largest predators. Genetic manipulation of cattle by farmers, by artificial insemination or putting a heifer to a bull that is too large, often produces calves that are too large for a natural calving, and it is in these cases where a cow

experiences calving difficulty that she may be attacked by smaller predators. Individual predators that are continuously exposed to unprotected stock may develop a habit of taking advantage of this ready food source. Any farming operation needs to take precautions to protect livestock from predators.

Understanding predator biology and behaviour enables farmers to adjust their farm management and to plan their operations to enable conflict prevention. It also helps to improve the efficiency and selectivity of management and reduce undesirable ecological consequences of indiscriminate predator removal. The need to understand natural patterns and to define predation problems is an important aspect of farm management.



BENEFITS OF HAVING PREDATORS AND WILDLIFE ON FARMLAND

The misguided concept that all predators are bad and should be killed wherever they are found, has led to the widespread extermination of large predator populations, causing severe secondary consequences such as increases in smaller carnivores, and it is alarming that this idea is still prevalent in the minds of some farmers today. Predators have a valuable role to play on farms.

Research on the different predators that occur on farmlands has revealed that the major prey items of some predators are rodents and insects. Predators thus perform a vital role in regulating the numbers of these potentially harmful species. Without predators, rodent numbers may rise to levels where severe crop damage can occur and this can cause substantially greater financial loss than predator attacks on small stock. High numbers of rodents may also adversely affect veld condition and regeneration by the consumption of vast quantities of grass seeds.

Birds of prey also take significant numbers of rodents. Guineafowl and other game birds provide a free insect control service. Vultures clean up carcasses from the veld, playing a key role in preventing the spread of stock disease. Antelope and other small game provide a natural food source for predators and reduce the likelihood of attacks by predators on domestic livestock. Rodents, hares, dassies and insects, which form the major part of the diet of the predators most often accused of stock killing, can remove a great deal of grazing that would normally be used by sheep. So, for example, if a jackal kills one sheep and the farmer responds by poisoning all predators on his farm, he may actually be reducing his income more by allowing the rodents, hares, dassies, and insects to build up, so removing grazing for a greater number of sheep than were killed by the predators. By implication, a far broader and holistic analysis of wildlife damage is required, where the environment and the spectrum of inter-specific interactions are considered, to achieve a sustainable solution based on damage prevention.

Wildlife species are the natural prey of carnivores, so eliminating predation is not possible and the rancher must accept that a certain amount of losses to carnivores is inevitable. However, there are ways to minimise predation by adapting management practices. Rare and expensive species that are farmed semi-intensively like black Impala, white Blesbok, Roan and Sable should be kept in predator proof camps. Here, the maintenance of the fences is of critical importance because porous fences, or those with inadequate external electrification, could result in carnivores getting trapped inside the camp. It is important that any electrification, especially trip wires, is installed on the outside of the fence to prevent carnivores getting in. When species are kept outside of their natural distribution range, for example, Blesbok in Limpopo and North West Province, it must be recognised that these animals are particularly susceptible to predation and impacts could be high. When placing artificial waterholes on cattle and game farms, it is important to put them far away from any fences, as carnivores will use fences to their advantage and chase animals that congregate around waterholes into fences to catch them. This results in several animals being killed or injured and the fence being damaged. Large carnivores play a valuable role in the ecosystem by leaving carrion in the veld for the smaller carnivores to feed off. This minimises the probability of animals like jackals killing lambs and calves. Large carnivores also regulate populations of smaller carnivores by competitive exclusion and are an important part of any functioning wildlife ecosystem.

Predators, in their position at the apex of the food pyramid, soon show the effects of environmental degradation by declining in numbers. The presence of a variety of predators is indicative of a balanced system resulting from wise land use management. The presence of

predators ensures that wildlife remains fit and healthy, by maintaining game numbers and ensuring that the weak and unhealthy individuals do not survive to reproduce. Predators therefore play a vital role in maintaining ecosystem health.

This pivotal role, plus the aesthetic value and tourist appeal that predators offer may instil in the farmer the satisfaction of knowing his activities are in harmony with nature and therefore more sustainable in the long-term.



IMPACTS ON FARMERS

There is no doubt that certain predators will prey on unprotected stock such as sheep, goats and calves, and sometimes even adult cattle. Substantial losses can be incurred by the farmer if preventative measures, proper farm management and deterrents are not implemented properly. This can result in real financial losses.

The level of livestock loss varies considerably from farm to farm, region to region; and may even depend on farm management techniques. Few formal and accurate records exist, and the topic often leads to heated argument or debate. The crux is that a loss factor for predation should be incorporated into the farmer's financial plan, as is the accepted norm for disease, climate, theft and other causes of loss; and accurate records and on-the-ground management can be of much benefit.

The economic impact of predation on individual farmers comprises direct and indirect costs. Direct costs are defined as the loss of the market value of the stock killed, veterinary care for injured stock, replacement of breeding stock, and reduced profits. Indirect costs relate to the costs of measures taken to protect stock from attacks such as locking up stock at night, disease spread in kraals, fleece damage owing to animals being kept closely confined and so on. These expenses are of course far wiser investments than spending money after predation on poisons, and other lethal and non-target specific measures.

Wildlife conflict prevention measures and techniques should be implemented to reduce both direct and indirect costs. Before implementing any measures, it is essential that the stock owner conduct a detailed cost-benefit analysis to determine the real effect of predation and the cost of these measures to his/her operation. The cost of wildlife conflict prevention measures should not exceed estimated losses through predation.

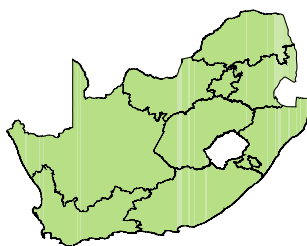
The farmer may be able to accept certain levels of predation by improving productivity and income in other areas of the operation, for example, lambing percentages. However, it is usually the case that some form of farm management, livestock protection and/or predator exclusion is necessary. This may be as simple as establishing secure lambing areas on a sheep farm. Further wildlife conflict prevention principles and techniques are discussed in chapter 7.

PREDATORS IN POTENTIAL CONFLICT

The following section describes various predators and indicates their potential impacts to farmers, what benefits they may offer the farmer, and what their conservation status is, e.g. whether they are threatened and in need of special protection. The Conservation Status for each species has been extracted from the South African National Red Data Book.

HIGHER CONFLICT POTENTIAL

Refers to those species where both the impact to the farmer and the frequency of the conflict are potentially high.



4.5-8.5cm long

DOMESTIC DOG

Canis familiaris

Afrikaans: Hond. Zulu / Xhosa: Inja.

Conservation status: Not applicable

Shoulder height: 300-750+ mm

Mass: 5-70 kg

Key identification features: Occur in a wide variety of breeds, shapes and sizes but usually unmistakable.

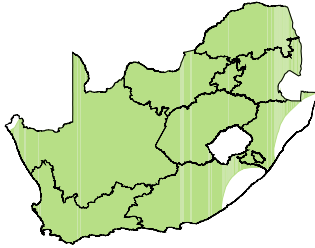
Natural diet: Omnivorous.

Habits: Domestic dogs come in a wide variety of shapes, sizes, and temperaments, but all are derived from a single wild genetic source. These deep-seated instincts reassert on occasion and dogs begin killing livestock. Stock killing is not confined to stray dogs; very often the well-fed family pet will venture into the pastures at night on a killing spree. Dogs often increase their destruction by operating in packs.

Benefits and potential impacts: Watch-dogs and pets, but can become clandestine stock-killers.



4.5-5cm long



CARACAL

Caracal caracal

Afrikaans: Rooikat. Zulu: Ndabushe. Xhosa: Nghawa.
Tswana: Thwane.

Conservation status: Least Concern

Shoulder height: 450 mm

Mass: Up to 20 kg

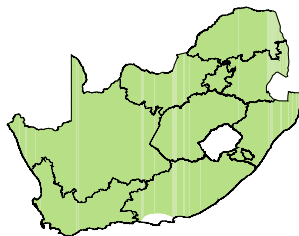
Key identification features: Short reddish-brown coat with a white chin, throat and belly. Has a narrow black line running from each eye to the nose. The body is long and slender with long legs, a short tapering tail and highly tufted ears.

Natural diet: Small to medium-sized prey including the young of larger antelopes, young baboons, Vervet Monkeys, small carnivores, dassies, hares, rodents, birds and reptiles.

Habits: Caracals are widespread and common in South Africa. Though they can tolerate arid conditions they have a preference for areas where more adequate cover is available. They are predominantly nocturnal even in undisturbed areas. Average home range size is approximately 24 km².

Nomadic individuals may disperse over 130 km from their birthplace. They are normally terrestrial but are adept climbers and scale trees easily. Caracals are solitary animals, males and females appear to associate for a short mating period only. Kittens are born all year round with a peak in the summer months. Litters of between two and four are born in disused aardvark holes, hollow trees, or similar cavities.

Benefits and potential impacts: Keeps hare, dassie and rodent numbers down. Some individuals may develop a taste for domestic stock.



BLACK-BACKED JACKAL

Canis mesomelas

Afrikaans: Rooijakkals. Zulu: Mpungutshe. Tswana: Phokojwe. Shangaan: Impungutshe.

Conservation status: Least Concern

Shoulder height: 400 mm

Mass: 7-9 kg

Key identification features: Grey to silver, or reddish-brown fur, with a distinctive black saddle and black-tipped tail (the tail of the Side-striped Jackal is white-tipped).

Natural diet: Opportunists. Mainly small animals, carrion, occasionally small or young antelopes, insects, eggs, fruit, reptiles.

Habits: Black-backed Jackals have a wide habitat tolerance and can be found throughout most of southern Africa from arid zones in Namibia to montane areas of Natal. They are very wary and cunning and are not easily trapped. They exhibit both diurnal and nocturnal activity. They rest in holes in the ground, rock crevices or piles of boulders or may lie up in thick underbush or tall grass.

Home-range size is about 18 km² and nomadic individuals can move long distances (100 km) when dispersing. They may be solitary, occur in pairs or in family groups. Mated pairs are territorial, both males and females mark and defend the territory. Females have on average five pups from July to October, in holes (dens) in the ground. Both males and females take part in rearing and feeding the young. At about 14 weeks of age the young leave the den and forage with their parents.

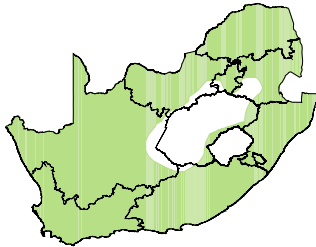
Benefits and potential impacts: Suppress rodent and insect populations. Will prey on small, young livestock especially sheep during the vulnerable lambing period. Such predation is easily combated by guard-dogs, corralling, etc.

LOWER CONFLICT POTENTIAL

Refers to those species where either the impact or the frequency of the conflict is likely to be low, but that may occasionally cause localised damage.



6.5-9cm long



LEOPARD

Panthera pardus

Afrikaans: Luiperd. Zulu, Shangaan, Xhosa: Ingwe.
Tswana: Inkwe.

Conservation status: Least Concern

Shoulder height: 600 mm

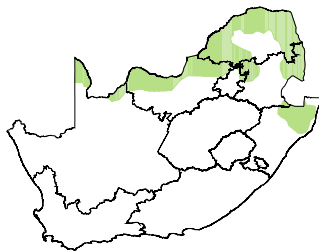
Mass: 20-75 kg

Key identification features: Elongated muscular body with relatively short legs. Colour varies from light tawny to deep yellow, with dark spots on their face, head, throat, chest and legs. Body is covered in “rosettes” (the Cheetah has spots). The head is larger in proportion to the body than the Cheetah and the ears are short and rounded. Lacks the facial “tear-drop” markings of the Cheetah as well as the rings around the end of the tail.

Natural diet: Medium-sized and small animals. Tends to be more catholic than the Cheetah. Partial to baboons.

Habits: Leopards have a wide habitat tolerance, being found in all habitats from semi-desert to forest. They are nocturnal and strictly solitary except when mating, or when females are supporting dependent young. Their secretive behaviour enables them to inhabit areas close to human development. Territories vary in size from 20-200 km² depending on food availability. Males generally have larger territories than females. Leopards breed at any time of the year, with usually two to three cubs in a litter. The cubs become independent at 15-18 months of age.

Benefits and potential impacts: Competes with Caracal, may prey on jackals and other smaller predators. Where natural populations remain, Caracal and jackal numbers are significantly lower. May prey on stock in areas with low densities of natural prey. Significant economic benefits from ecotourism and trophy hunting.



6.5-9cm long

CHEETAH

Acinonyx jubatus

Afrikaans: Jagluiperd. Zulu: Ihlosi. Shangaan: Khankankha. Tswana: Lengau.

Conservation status: Vulnerable

Shoulder height: 850 mm

Mass: 50 kg

Key identification features: Tall and slender with evenly spaced, circular spots over a tawny, cream background. The spots are solid, unlike the leopard whose spots form a ring. Small, rounded face, with black tear marks running from the corner of the eye to the corner of the mouth. Spots change to rings at the end of the tail.

Natural diet: Medium-sized antelope including Impala, Bushbuck, Kudu. Small mammals, ground living birds including Common Ostrich. Exclusively fresh meat.

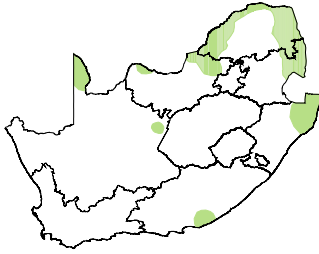
Habits: Confined mainly to the larger reserves and protected areas in southern Africa, except for parts of the Limpopo, Northern Cape, North West Province, Namibia, Botswana and Zimbabwe where they occur naturally outside protected areas. They have large home ranges 9 000 ha – 50 000 ha and are sparse in number. Prefer open savannah or plains habitat, but can survive in fairly dense woodland. They are mainly diurnal but will move and hunt at night. Females are solitary, raising their 1-6 young alone. Once they have left their mother at 15-18 months, sibling groups remain together until the females come on heat, when they become solitary. Males may be solitary or form coalitions of up to four members.

Benefits and potential impacts: Economic benefits from eco-tourism and possibly trophy hunting. May prey on unprotected small stock. Are timid and present no threat to humans.





12cm long



AFRICAN LION

Panthera leo

Afrikaans: Leeu. Zulu: Ngonyama. Shangaan: Nghala.
Tswana: Tau.

Conservation status: Vulnerable

Shoulder height: Up to 1.25 m

Mass: Up to 235 kg

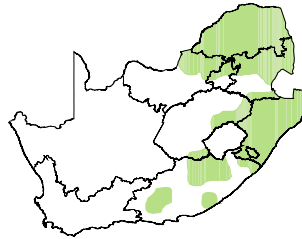
Key identification features: The largest African carnivore. Light tawny brown coat, and males have manes which can be tawny to black. Unmistakable but spoor is sometimes confused with smaller cats such as caracal.

Natural diet: Large and medium-sized mammals, but anything from mice to Cape Buffalo, even young Elephants.

Habits: Mainly confined to the larger national parks and game reserves in southern Africa. Nocturnal, social carnivores, living in prides of 2-10 females and cubs, with or without a group of 1-4 males. Some groups are nomadic. Births are non-seasonal, usually 2-4 per litter, although the females of a pride often breed at the same time. Occupy a territory but do not necessarily wander together.

Benefits and potential impacts: Eco-tourism potential and trophy hunting. Generally incompatible with stock farming in southern Africa. May prey on livestock if distribution overlap but distribution is generally confined to larger conservation areas.





AFRICAN WILD CAT

Felis sylvestris

Afrikaans: Vaalboskat. Zulu: Mpaka.

Tswana: Phage. Shangaan: Mphaha.

Conservation status: Least Concern

Shoulder height: 350 mm

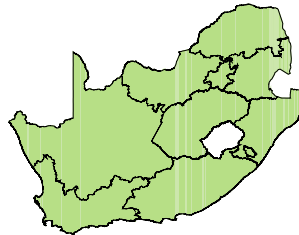
Mass: Male, 5 kg; female, 4 kg

Key identification features: Wide diversity of colouration: typically sandy or light brown with overlying tabby pattern. Distinctive black stripes on legs and tail. Can be confused with domestic cat.

Natural diet: Mainly rodents. Also birds, reptiles, insects, frogs, spiders, scorpions, hares, fruit.

Habits: Wide habitat tolerance. Nocturnal and solitary. Terrestrial, but can climb well when chased or hunting. Takes cover in thick vegetation, holes or rock crevices. 2-5 young born from September to March in holes in the ground and raised by the mother. Pure-bred African Wild Cats are thought to be becoming scarce, as the species readily interbreeds with domestic cats.

Benefits and potential impacts: Keeps rodent and hare numbers down. May raid poultry but does not prey on stock.



SERVAL

Leptailurus serval

Afrikaans: Tierboskat. Xhosa: Hlosi. Zulu: Ndlozi.

Tswana: Tadi.

Conservation status: Near Threatened

Shoulder height: 550 mm

Mass: Male, 11 kg; female, 9 kg

Key identification features: Pale-yellow coat with solid black spots and bands (variable). The tail has several rings and a black tip. Slender and long-legged with a small head and broad ears. The fur is long and dense.

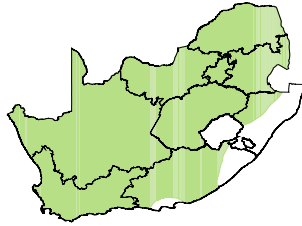
Natural diet: Rodents, especially vlei rats (*Otomys* species). Also birds, insects, reptiles, fish, duiker, vegetable matter.

Habits: Found in grassland and savanna, especially near marshy areas. Usually nocturnal and solitary. Sometimes seen in pairs, or female with 1-3 young. Will readily hunt in swampy areas which are avoided by other cats. Pounce on their prey which they locate by hearing. Lie up in long grass or bush clumps, only climb trees when chased. Young, born in summer, are reared by the mother.

Benefits and potential impacts: Keeps rodent numbers down. Occasionally raids poultry but does not kill small farm stock.



3cm long



SMALL-SPOTTED GENET

Genetta genetta

Afrikaans: Kleinkol-muskejaatkat. Shangaan: Nsimba.
Shona, Tswana: Tsimba.

Conservation status: Least Concern

Total length: 0.95m

Mass: 1,8 kg

Key identification features: Long lean body on short legs. Yellowish fur with dark spots on body. Tail has distinctive black and white rings. Smaller than Large-spotted Genet, with more distinct markings.

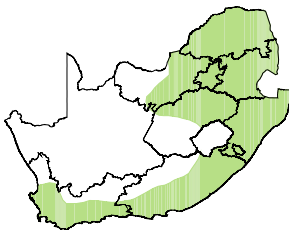
Natural diet: Insects, rodents, spiders, birds, reptiles, frogs, centipedes, fruit, scorpions.

Habits: Found in arid regions and dry savanna. Nocturnal, solitary or in family groups. Terrestrial, but very good tree climbers. Take refuge in holes in the ground, in trees or in hollow logs. 2-4 young are born during summer.

Benefits and potential impacts: Regulates rodent and insect populations. May raid poultry and bush kitchens.



3cm long



LARGE-SPOTTED GENET

Genetta tigrina

Afrikaans: Rooikol-muskejaatkat. Tswana: Tshipa.

Conservation status: Least Concern

Total length: 1 m

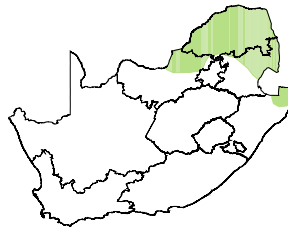
Mass: 1, 8 kg

Key identification features: Long lean body on short legs. Yellowish fur with dark spots on body. Tail has distinctive black and white rings. Larger than Small-spotted Genet and coat markings less distinct.

Natural diet: Mice, insects, reptiles, frogs, birds, invertebrates, wild fruit.

Habits: Found in moist regions, forest and woodland. Strictly nocturnal and solitary. Excellent climbers. Shelter in holes in the ground, in trees, in farm outbuildings and rock crevices. 2-5 young are born in summer and remain in the nest until ready to leave their mother.

Benefits and potential impacts: Keeps rodent numbers low, especially around dwellings. May raid poultry.



3cm long

AFRICAN CIVET

Civettictis civetta

Afrikaans: Siwetkat. Shona: Bvungo. Shangaan: Fungwe. Tswana: Tshipaloro.

Conservation status: Least Concern

Shoulder height: 350 mm

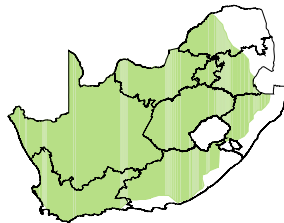
Mass: 11 kg

Key identification features: Short grey fur with black spots and stripes arranged in rows. Face is grey with white muzzle and black markings around the eyes.

Natural diet: Insects, wild fruit, rodents, reptiles, birds, frogs, millipedes, carrion.

Habits: Found in moist savanna. Terrestrial, solitary, nocturnal. Litters of 2-4 are born during summer in disused Aardvark holes or rock shelters. Good swimmers. Distinctive face masks may help Civets to recognize their own kind at close range in the dark. Defecates in middens called civetries, near their foot paths.

Benefits and potential impacts: Regulates insect and rodent populations. May raid poultry and bush kitchens.



5cm long

CAPE FOX

Vulpes chama

Afrikaans: Silwervos.

Conservation status: Least Concern

Shoulder height: 360 mm

Mass: 2, 8 kg

Key identification features: Silver grey back, light yellow flanks and underside, and a black tip to the tail.

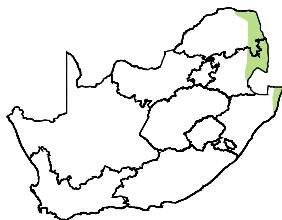
Natural diet: Small mammals, birds, insects, scorpions, reptiles, wild fruits, eggs.

Habits: Found in open grassland or scrub. Nocturnal, solitary when foraging, lies up in holes or long grass. Young are born from August to October in litters of 2-5 and are hidden in burrows. Males help provision the females soon after they give birth. Not dependent on water. Found singularly or in pairs but several may congregate where food is abundant.

Benefits and potential impacts: Keeps rodent and locust numbers down. Can be a problem on sheep farms, but restricted to lambing periods. Losses of newborn lambs have been reported.



5cm long



SIDE-STRIPED JACKAL

Canis adustus

Afrikaans: Witkwasjakkals.

Zulu: Mpungutshe. Shangaan: Hlati. Ndebele: Ikhanka.

Conservation status: Near Threatened

Shoulder height: 380 mm

Mass: 9 kg

Key identification features: Greyish brown in colour, with pale stripes running along the flanks, and a dark tail that has a white tip.

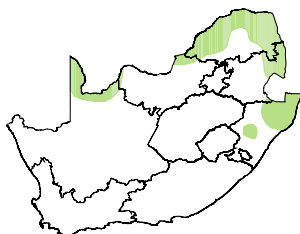
Natural diet: Wild fruits and seeds, rodents, hares, carrion, insects, termites, birds, reptiles.

Habits: Occurs in thickly wooded savanna, nocturnal, terrestrial, normally solitary and lies up in holes in the ground or in the shade of trees. Vocalisation consists of a series of melancholy yaps. 4-6 young are born from August to January in holes. Both male and female carry food to the den for the pups. Dependent on water. Droppings and spoor very similar to that of the Black-backed Jackal but may be distinguished by its straighter bottom edge.

Benefits and potential impacts: Keeps rodent and insect numbers down. Unlike its close relative the Black-backed Jackal it is no threat to domestic stock.



9-11cm long



SPOTTED HYAENA

Crocuta crocuta

Afrikaans: Zulu: Mpisi. Shangaan: Mhisi. Tswana: Phiri

Conservation status: Near Threatened

Shoulder height: 800 mm

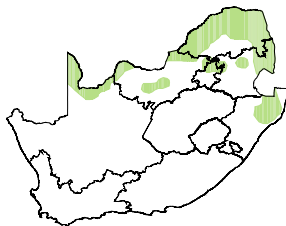
Mass: 50-70 kg

Key identification features: Front legs longer than back legs. Short light-brown coats with black spots that may fade with age (Brown Hyaena has dark shaggy coat). Strong neck and jaws. Larger than Brown Hyaena and ears less pointed.

Natural diet: Medium-sized to large mammals which are killed. Also carrion, bone, small mammals, birds, reptiles, fruit, eggs, insects, garbage.

Habits: Mainly confined to the larger national parks and game reserves. Nocturnal, social animals, usually living in clans of 10-50 individuals depending on food supply. Females give birth to one or two young, often at communal dens. Societies are dominated by a matriarch. The clan makes use of communal dung heaps in their territory.

Benefits and potential impacts: Helps keep the veld clean of diseased carcasses. May kill livestock but distribution is generally confined to conservation areas.



9cm long

AFRICAN WILD DOG

Lycaon pictus

English: Painted Hunting Dog, Painted Wolf Afrikaans: Wildehond. Zulu: Nkentshane. Shangaan: Hlolwa. Siswati: Budzatje.

Conservation status: Endangered

Shoulder height: 750 mm

Mass: 26 kg

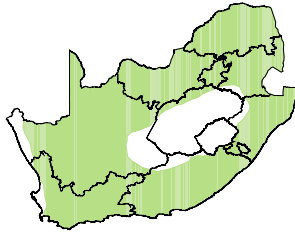
Key identification features: Slender build with long legs. Coat patterns vary widely but usually a combination of tan, white and black patches. Distinctive large round ears. Tails typically white-tipped.

Natural diet: Anything from Scrub Hare to Kudu and Blue Wildebeest, especially Impala, Nyala and Springbok. Almost exclusively eat fresh meat and favour most common medium size antelope.

Habits: Mainly confined to protected areas, but free-ranging packs are also known to occur at low densities on farmland especially in the Waterberg area of Limpopo. Wide habitat tolerance. Crepuscular, highly social animals, usually living in packs of five to 20. Highly mobile, rarely spending long in one area, except for three months of the year during the denning period (usually late May to early September). Usually only the alpha female has pups. Litters average seven to twelve pups but pup mortality is usually high.

Benefits and potential impacts: Eco-tourism potential. May very occasionally prey on livestock, although prefers wild prey and this sometimes leads to conflict with game farmers. Unlikely to cause extensive damage except during the denning season when localised impacts might be high.





HONEY BADGER

Mellivora capensis

Afrikaans: Ratel. Zulu, Siswati: Nsele. Shangaan: Shidzidzi. Tswana: Matswani.

Conservation status: Near Threatened

Shoulder height: 260 mm

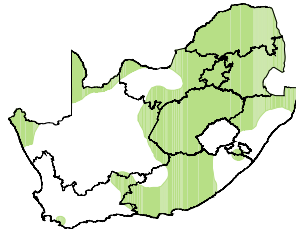
Mass: Males, 9-14 kg; females, 5-10 kg

Key identification features: Stocky robust elongated with short powerful legs. Striking longitudinal silver-grey back strap.

Natural diet: Scorpions, rodents, spiders, reptiles, insects, centipedes, birds, snakes, honey, bees, larvae, frogs, wild fruit.

Habits: Found in all habitat types. Nocturnal in areas of higher human activity, diurnal in remote areas. Solitary but often hunt in pairs. They are powerful diggers with long sharp claws and strong forelegs and their thick loose skin protects them from bites and bee-stings. Normally terrestrial, but will climb trees to reach bee-hives, lizards and birds' nests. Typically one cub in a litter, which may be born at any time of year.

Benefits and potential impacts: Beehives are vulnerable to raiding unless simple, inexpensive protection measures are taken, such as raising hives off the ground. May take poultry, and can easily tear through wire netting with strong, knife-like front claws.



BROWN HYAENA

Hyaena brunnea

Afrikaans: Strandwolf. Tswana: Tlonkana, Phiri.

Conservation status: Near Threatened

Shoulder height: 750 mm

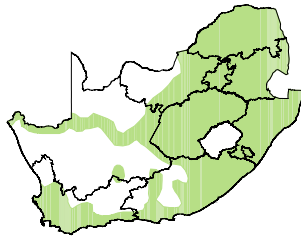
Mass: 40 kg

Key identification features: Front legs longer than back legs. Long shaggy brown/black coat with long pointed ears. Smaller in size than Spotted Hyaena. Front foot spoor much larger than the back spoor, often confused with cheetah spoor.

Natural diet: Mainly carrion, seldom hunts. Also wild fruits, insects, birds' eggs, small mammals.

Habits: The Brown Hyaena is mainly an inhabitant of the drier western regions of the southern African subcontinent. Solitary foragers although they live in clans. Almost exclusively nocturnal, resting in thick vegetation during the day. They cover large distances in search of food, anything up to 60 km in a night. Males may be nomadic, with no fixed territory. Females usually give birth to 2-4 young at any time of the year. The young are kept at a den for about 15 months and the adults in the clan help to feed them by carrying food to the den. From about nine months of age the cubs also begin to forage for themselves. They use communal dung middens near the boundaries of their territories.

Benefits and potential impacts: Cleans up carcasses in the veld and, therefore, cuts down the spread of disease. Competes with jackals for food. Rarely may an individual become a stock-killer. They are efficient scavengers and are particularly susceptible to poison.



CAPE CLAWLESS OTTER

Aonyx capensis

Afrikaans: Groototter. Zulu: Ntini. Tswana: Nyedi.

Conservation status: Least Concern

Total length: 1.3 m

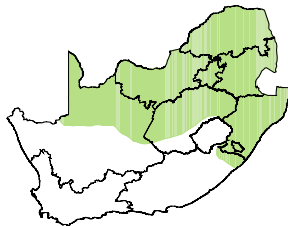
Mass: 15 kg

Key identification features: Generally dark brown in colour, with lighter undersides and sometimes a white streak on the throat.

Natural diet: Mainly crabs and frogs, also fish, aquatic insects and molluscs, very rarely water birds.

Habits: Found in rivers, small streams, lakes, swamps, dams and the sea, they are predominantly aquatic. Active at dawn and dusk (crepuscular), especially at twilight and sometimes at full moon. Generally solitary, but also seen in pairs and family groups, play with each other and inanimate objects. When eating crabs they eat the entire carapace, unlike the Water Mongoose which usually discards the carapace. Litters of two or three have been recorded throughout the year and it is unclear whether breeding is seasonal or perennial. Diagnostic droppings contain fragments of crabs and have a fishy odour. Flattened sand and vegetation patches show where an otter has rubbed itself dry.

Benefits and potential impacts: Eco-tourism potential. Presence generally indicates clean water, a sign of good catchment management. May cause problems in fish farms or with captive wild fowl, but damage is usually minimal and easily resolved by electric fence strand exclusion.



SLENDER MONGOOSE

Galerella sanguinea

English: Black-tipped Mongoose.

Afrikaans: Swartkwasmuishond. Zulu: Chakide. Shangaan: Mangovo.

Tswana: Kganwe.

Conservation status: Least Concern

Shoulder height: 110mm

Mass: Male 640 g; female 460 g

Key identification features: Very long thin body on short legs. Coat yellowish to light brown. Tip of tail is black.

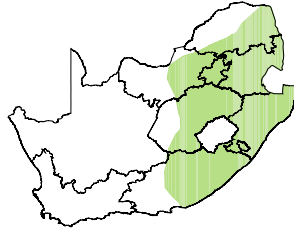
Natural diet: Insects, lizards, rodents, birds, fruit, snakes, frogs.

Habits: Found in both dry and moist grassland and savannah, diurnal, solitary, terrestrial. Shelter in holes in termite mounds or rock crevices or hollow logs. 1-2 young are born during summer.

Benefits and potential impacts: Curbs insect and rodent numbers. May raid poultry. Will scavenge road kills which often results in them becoming road kills.



4cm long



WHITE-TAILED MONGOOSE

Ichneumia albicauda

Afrikaans: Witstermuishond. Zulu, Xhosa: Gqalashu. Tswana: Tshagane. Shangaan: Tlolota.

Conservation status: Least Concern

Shoulder height: 240 mm

Mass: 4, 3 kg

Key identification features: A large long-haired mongoose with grey appearance. The base of the large bushy tail is brown, the remainder is white.

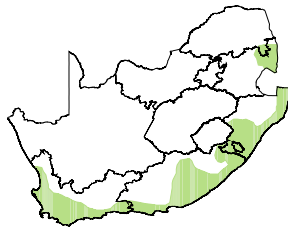
Natural diet: Termites, beetles, grasshoppers, crickets, beetle larvae, frogs, rodents, reptiles, birds, and fruit.

Habits: Found in savannah woodland, grassland, and forest margins. Dependant on water but strictly terrestrial. Nocturnal, solitary or in family parties. Uses holes for shelter. Good diggers, but do not excavate their own burrows.

Benefits and potential impacts: May raid poultry. Has been accused of killing lambs, but there is no evidence for this.



4cm long



LARGE GREY MONGOOSE

Herpestes ichneumon

Afrikaans: Grootgrysmuishond. Zulu: Nhlangala. Tswana: Tshagane.

Conservation status: Least Concern

Total length: 1.1 m

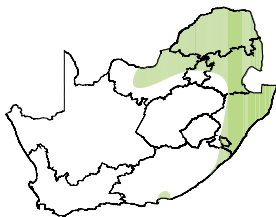
Mass: 3, 2 kg

Key identification features: Elongated body with short black legs. Body covered with long dark grey coarse hair. Tail ends in a black tassel of long hair.

Natural diet: Small mammals, birds, frogs, crabs, fish, reptiles, insects, fruit.

Habits: Prefer humid-sub humid grassland associated with reed beds and swamps, although they wander widely in adjacent dry terrain. They are diurnal, terrestrial and solitary. Readily hunt in shallow water and muddy areas, also dig for prey. Litter of 2-4 probably born in summer.

Benefits and potential impacts: Curbs rodent numbers. Has been accused of killing lambs, but there is no known, documented evidence for this.



SOUTHERN AFRICAN PYTHON

Python natalensis

Length: Maximum length ~ 5 m

Mass: Maximum mass, 60kg

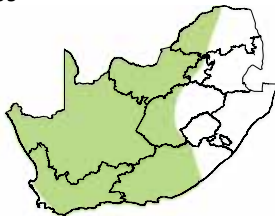
Key Identification Features: Strong, muscular snake with a triangular

head. Eyes are moderate in size with vertical pupils. The head has a dark triangular marking on the crown and there is a dark line from the tip of the snout, which passes through the eye to the back of the head. Body coloration is usually dark brown with grey-brown blotches and dark speckling above with widely spaced dark blotches on the sides.

Natural diet: A wide variety of prey is taken, but warm-blooded species (mammals and birds) appear to be favoured. Has been recorded feeding on duck eggs and will even take carrion on occasions.

Habits: Occurs widely in bushveld, savannah and forest. Non-venomous and prey is killed by constriction. A single meal can exceed the python's own body mass.

Benefits and potential impacts: Keeps rodent and hare numbers down. May raid poultry. Although very large pythons have been recorded eating antelope, young calves and goats, instances of livestock predation are rare and often proven to be highly exaggerated.



SOUTHERN PALE CHANTING GOSHAWK

Melierax canorus

English: Pale Chanting Goshawk. Afrikaans: Bleeksingvalk.

Conservation status: Not threatened

Key identification features: A large, pale grey hawk with long, red legs. The base of the bill, the cere and part of the facial skin is red, while the bill is dark towards the front. It is bigger than the similar Gabar Goshawk and bigger and paler than the Dark Chanting Goshawk.

Natural diet: Small mammals, especially rodents, birds, reptiles and invertebrates. This species will also eat carrion.

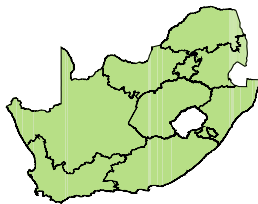
Habits: Pale Chanting Goshawks are found mainly in the Karoo scrubland and Kalahari woodland in the south western parts of southern Africa, as they require open ground with a few hunting perches. The slight nest is made of sticks lined with dung, wool, hair, feathers and other similar materials and is usually placed in a thorny Acacia tree. One or two eggs are laid, with the breeding season reaching a peak in August and September. Two young are often raised successfully.

Benefits and potential impacts: An important rodent controller. Not known to ever take stock animals.

MARTIAL EAGLE

Polemaetus bellicosus

Afrikaans: Breëkoparend.



Conservation status: Vulnerable

Key identification features: This is the largest eagle in Africa. The dark head and chest contrast against the spotted, pale belly.

The species differs from the similar Black-chested Snake Eagle in having a dark underwing and feathered legs.

Natural diet: Hares, Rock Dassies, leguans and game birds are the main prey of this eagle.

Habits: Martial Eagles are found in open country and bushveld throughout Africa. Nests are large stick structures, built under the canopy of a tall tree. One pair may use the same nest for many years. One egg is laid in mid-winter and fledges five months later.

Benefits and potential impacts: Martial Eagles occupy territories of between 100 and 300 km², so ensuring rogue eagles do not enter the area. Rogues may have a greater impact on livestock than the resident pair.



VERREAUX'S EAGLE

Aquila verreauxii

English: Black Eagle.

Afrikaans: Witkruisarend.



Conservation status: Not threatened

Key identification features: The jet-black plumage, white "V" on the back and white rump are diagnostic.

Natural diet: The Rock Dassie comprises 90% of the diet. It will also readily eat carrion.

Habits: The Verreaux's Eagle is found along mountain ranges and rocky outcrops throughout Africa. Nests are built on cliff ledges or boulders and one pair may use the same nest for many years. Two eggs are laid in mid-winter, but only one chick survives, the older one killing its younger sibling.

Benefits and potential impacts: A pair of Verreaux's Eagles are territorial and will usually keep any rogue eagles out of the area. Rogues are usually young, newly dispersing birds, and may have a greater impact on livestock (on new born lambs), than the resident pair, possibly due to inexperience in hunting and desperation for food.



OTHER RAPTORS WITH VERY LOW CONFLICT POTENTIAL

Tawny Eagles, African Hawk Eagles, Wahlberg's Eagles, Booted Eagles, Verreaux's Eagle Owls, Barn Owls and Spotted Eagle Owls occasionally prey on adult poultry, while Gabar Goshawks, Rock Kestrels, Greater Kestrels and Lanner Falcons may infrequently prey on poultry chicks and pigeons. Juvenile or sub-adult individuals of many eagle species are often accused of killing lambs, but this is unsubstantiated and appears to be opportunistic feeding on stillborn or dead animals. Lappet faced, White-backed and Cape Vultures may sometimes kill newborn lambs, particularly if ewes leave these alone and exposed, and Crowned Eagles sometimes come into conflict with stock farmers in the Eastern Cape. Stock protection ensures prevention.

Raptors other than those mentioned above do not predate on livestock or poultry. Instead they benefit farmers by controlling the numbers of their natural prey species such as rodents and insects.

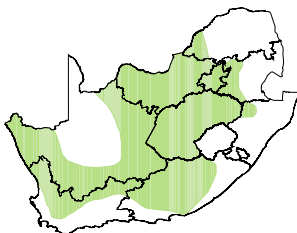


INNOCENT BYSTANDERS

Refers to those species that are often incorrectly accused and persecuted but cause no damage whatsoever.



2.1cm long



BLACK-FOOTED CAT

Felis nigripes

Afrikaans: Swartpoot Wildekat. Tswana: Sabalabolokwane.

Conservation status: Least Concern

Shoulder height: 250 mm

Mass: Male, 1.6 kg; female, 1.1 kg

Key identification features: Yellowish brown fur, varying in shade between individuals, with black bars extending across the shoulders, legs, and tail.

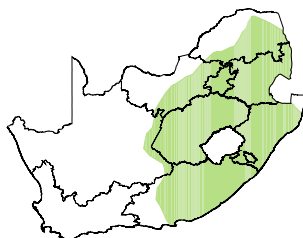
Natural diet: Rodents, spiders, reptiles, insects, birds, birds' eggs.

Habits: Found in arid open country. Nocturnal, solitary and very secretive. Lies up in holes or thick grass. Litter size 1-3. Habits are poorly known.

Benefits and potential impacts: Curbs rodent populations.



4-4.5cm long



SPOTTED-NECKED OTTER

Lutra maculicollis

Afrikaans: Kleinotter. Zulu: Ntini.

Conservation status: Near Threatened

Shoulder height: 300 mm

Total length: 1 m

Mass: 4.5 kg

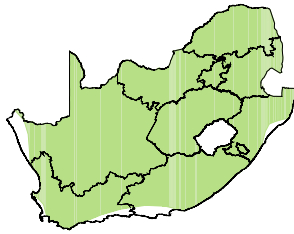
Key identification features: Body is deep brown except for the throat which is a light tan colour and mottled with brown spots. (Cape Clawless Otters lack these spots).

Natural diet: Almost equal quantities of crab and small fish, frogs. Occasionally aquatic insects and birds.

Habits: Found in rivers, lakes and swamps with extensive areas of open water, never far from the shore. Crepuscular. Clear water is important as they hunt by sight. Usually solitary or in family groups of adults and young. They lie up and breed in rocky crevices or holes in riverbanks or reed beds. 1-3 young per litter.

Benefits and potential impacts: Eco-tourism potential. Usually reliant on clear, unpolluted water therefore its presence indicates good catchment management, but may also occur and hunt in turbid water where crabs occur. Prevents overpopulation of fish in dams thereby increasing catch-size. Do not usually take fish larger than 20cm, are thus no threat to fisheries. Adults will defend their young against humans.





AARDWOLF

Proteles cristatus

Afrikaans: Aardwolf. Zulu: Nehi. Tswana: Thukwi. Shona: Mwena.

Conservation status: Least Concern

Shoulder height: 500 mm

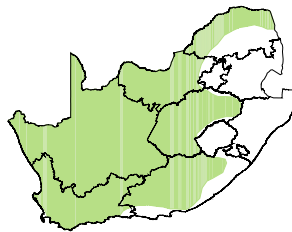
Mass: 9 kg

Key identification features: Front legs are longer than the hind legs. Have prominent crest-like back mane which can be erected if frightened or aggressive. Long yellow-white fur with vertical stripes running down the sides of the body.

Natural diet: Termites, especially snouted harvester termites. Sometimes feeds on spiders, moths, centipedes and ants but teeth are too small to chew on meat.

Habits: Found in all habitats, excluding desert and forest, but dependant on presence of certain termite species which they locate by scent and hearing. Nocturnal, solitary foragers except when accompanied by young. Den in burrows either from other species or excavated themselves. Mated pairs and their most recent offspring occupy and defend territories. 2-4 young are born between October and February. Young emerge from the den at one month, but only forage far at four months and leave their parents' territories after one year.

Benefits and potential impacts: Curbs termite numbers. They have fairly long canine teeth which are so poorly developed that it is most doubtful whether they could even cope with carrion. No evidence exists to suggest that they prey on livestock. May visit carcasses to feed on maggots and hide beetles and therefore wrongly accused of predation.



BAT-EARED FOX

Otocyon megalotis

Afrikaans: Bakoorvos. Northern Sotho: Motlhoše. Tswana: Tlose.

Conservation status: Least Concern

Shoulder height: 300 mm

Mass: 4 kg

Key identification features: Bat-eared Foxes have large, wide ears, a short narrow mouth, and long jackal-like legs.

Natural diet: Insects, especially termites. Also scorpions, rodents, reptiles, fruit, spiders, small birds.

Habits: Found in open grassland. Diurnal in winter and nocturnal in summer, forage in family groups, resting in the open when not breeding. Prey is located by hearing. Breed in burrows which they excavate themselves. Litters of 4-6 are born from October to December. Juveniles suffer heavy mortality from predation when young.

Benefits and potential impacts: Insectivore diet makes them highly vulnerable to poisoning. No records of stock killing.

WILDLIFE CONFLICT MANAGEMENT

It is important that an integrated or holistic management approach to human-wildlife conflict situations be taken, whereby several prevention and management methods are combined and coordinated.

There are no “quick fixes” and no easy answers in human-wildlife conflict management. It is critical to avoid irrational over-reaction to conflict situations, just to solve the problem quickly. In the past, many farmers resorted to indiscriminate use of poison as a quick solution, which resulted in a painful death for many individuals of many different species, most of whom are simple carrion-feeders only. This has caused long-term ecological imbalances and generally exacerbated the predation problem. This practice is no longer legal and is ethically unacceptable.

Wildlife conflict management is complex and requires meticulous attention to the finest details if success is to be achieved. Farmers and land managers should therefore, always view the situation holistically, with long-term solutions as the key to success. A full range of prevention measures should be established and closely monitored.

Prevention techniques are not all equally effective, and therefore, their effectiveness and efficiency should be evaluated for selectivity, skill and labour requirements, cost, availability and time. Implementing preventative methods to protect livestock is a necessity for successful farming. This will bring about a change in management, an adjustment of circumstances, or a reduction of risk and exposure of livestock that prevents future predation.

Success must be measured by reduced losses and increased profits, not by numbers of predator skins in the shed. When individual predators are removed, but the stock remains unprotected, it simply opens the niche for the next predator.

Strategically, an integrated or holistic wildlife conflict management programme should consist of the following steps:

1. Problem definition refers to evaluation of the actual cause of damage and correct diagnosis; the species and individuals responsible, the extent of loss and the nature of the conflict; and other biological and social factors related to the problem.
2. Ecology of the problem species refers to understanding the natural history of the species, especially in relation to the conflict.
3. Control method application refers to taking the information gained from point 1 and 2 to develop an appropriate management program to prevent, alleviate or reduce the conflict.
4. Evaluation of control allows an assessment of the reduction in damage in relation to costs and impact of the control on target and non-target animal populations and the environment.

Implementation of an Integrated- or Holistic Management approach should firstly involve the long-term implementation of preventative measures, accompanied with an adaptation of farm management practices. Should predation take place, meticulous steps should be taken to identify the individual animal causing the damage and a control method, such as cage trapping, decided on that is approved and legal, ecologically acceptable, cost-effective, ethical and humane.

KEY TERMS

Approved or legal: means a method which is applied in accordance with the provisions of any Act or Provincial Ordinance, or any regulations promulgated there under, and in accordance with any instructions and guidelines applicable to any registered remedy or substance which forms part thereof.

Ecologically acceptable: means the method will have minimal detrimental effect on species and the environment; in particular it must not create imbalances which further exacerbate the problems.

Cost effective means: that the cost of control does not exceed the value of the potential losses incurred by the farmer.

Ethical and humane means: that the method is fair and decent and will cause no suffering to the target animal when applied as directed.

Only methods that meet all these criteria are considered desirable methods.

There are many human-wildlife conflict prevention methods to choose from with a clear distinction between those that are preventative and non-lethal i.e. those that control by prevention, protection and aversion and which are encouraged; as opposed to those that are lethal and that are not supported any longer.

Possibly the most important factor to consider in the management of wildlife damage, is whether the management action is effective in the long term, or not. Systems' thinking is an analysis of cause and effect; and by applying this form of analysis to management actions, it becomes possible to make logical deductions about the changes caused in the farm environment by those actions. Centuries of killing predators have been pointless, because predation still happens. Analysis and better consideration of management methods are required.

Prevention is the cure to predation problems, not persecution of predators after the fact. A combination of proper farm management techniques, prevention of access to stock and deterrents is the only long-term solution to predation problems.



WILDLIFE CONFLICT PREVENTION: PRINCIPLES AND TECHNIQUES

There are many methods that can be applied over time to prevent and minimise conflict with predators, and it is extremely important that farmers implement pro-active prevention measures to protect their livestock. Predation is likely at some point unless proactive steps are taken to prevent access to stock. The management of wildlife conflict should be flexible. Farmers should be encouraged to use a combination of farm management techniques and deterrents, work at improving and adapting them to optimise their effectiveness and be constantly open to developing new ways of protecting livestock.

Livestock care and management

It seems obvious that farmers should care for their livestock, yet it so often happens that stock are left far out from the homestead on remote parts of the farm and at risk to theft and predators. Understandably, it is not always possible to enclose stock all the time, but there are periods of the year, such as lambing and calving seasons, when livestock are at a greater risk than normal and where extra care must be taken. In areas of higher risk, the development of secure lambing camps and night enclosures can reduce risk in the longer term.

Wildlife management on the farm

Care for the land, by practicing sustainable farming and by conserving the wildlife and their habitats that occur there, can reduce predator conflicts. Small game and game birds provide the food base for predators. The shooting of small game unnecessarily is foolish, because predators instinctively select natural prey and when that is not available, they may resort to predation on the farmer's livestock. Predators are territorial and killing and removing territorial adult individuals simply opens up the habitat for new nomadic individuals. This could lead to an increase in predation, and doesn't solve the problem, but makes it worse.

By adhering to the recommended stocking rates and carrying capacities of the farm, the farmer creates a healthy natural environment, which will be naturally populated by wildlife which compete for the best habitats. Absence of wildlife and birds of prey can indicate a history of bad veld management or even poison abuse resulting in stock being the only prey available for nomadic predators.

Deterrents

Bell collars and scent collars

These collars are quick and easy to fit and can confuse and deter predators because of the unnatural noise or the human associated scent they exude, provided they are used inconsistently, in conjunction with other methods and at times when the risk of predation to livestock is at its highest, particularly at lambing times. It must be stressed that this prevention technique should be used inconsistently otherwise predators become used to them and hence unafraid. The critical point is that management involvement is required to manipulate the situation in response to predation by either moving some of the livestock to safer



areas or confusing the predator, or both. Once again, these collars are inexpensive, low maintenance, very easy to fit, readily available and developed by farmers for local conditions. However, if used too frequently, they may become an attractant “dinner bell” which indicate where the flock are rather than being a suspicious deterrent.

Cell phone “Veldwagter” collars

This technology employs a transmitter with motion sensing ability. When stock are disturbed and made to run, the sensor activates and places a cell phone call to the farmer from “camp ten”. This enables a farmer to respond to the threat from a predator or stock thief, as and when the stock is being disturbed. These collars are not expensive when compared with potential losses. They allow a rapid response by farmers and can provide protection from stock theft. Their use is unfortunately limited to areas with cellular phone reception and they rely solely on the farmer’s ability to respond to the threat.

Fencing (this includes camps, kraals and night enclosures)

Although expensive, this is a long-term solution. It is however, only as good as the maintenance and as secure as the weakest point. Predators often dig under mesh fences, so it is important to secure the base of the mesh, or even to attach a base mesh at 90 degrees to the fence i.e. flat on the ground, to prevent predators from digging underneath. Adequate and effective overhangs or electrification should be considered, if there are species present which climb over fences. Gates that are left open make the best fence useless. Similarly, gates that are badly hung serve no purpose at all, since the function of the gate is to close the entrance/exit. River crossings and streams are difficult to fence and are damaged after rain, so regular fence maintenance is essential. Good fences are an effective method of keeping predators out.

By building predator-proof fences, the predators are kept apart from livestock. In the long term, fencing is cheaper than potential continued losses. Whilst shepherding or labour costs are incurred, with a need to combat diseases when livestock are confined, the reduced losses balance these costs. On the down side, insecure enclosures may allow predator access, which can result in livestock being “trapped” and more than one animal being killed. Fencing is also expensive in the short term and needs to be budgeted for correctly, with depreciation costs over time.



Frightening Devices

These may include lights and noises, such as FM radios and VHF radio alarm systems, used to frighten and confuse predators away from kraals at night. As with bell and scent collars, it must be stressed that if frightening devices are used frequently, predators will become accustomed to all the “bells and whistles” and become unafraid. Frightening devices can be used effectively around calf or lamb camps at night and if used inconsistently and only for short periods of time. Lights and noises may not work for domestic dogs, as they tend to be used to them. Unfortunately, such devices may also attract thieves who steal lights, radios and livestock.

Guard animals

Several forms of guard animals have been tried with varying degrees of success. These include horses, donkeys, zebras, ostriches, Anatolian guard dogs and others. The principle is that the guard animal is defensive towards the stock, naturally aggressive towards the predators, or both. The Endangered Wildlife Trust’s Livestock Guarding Dog project is highly effective and has reduced losses on farmland considerably. The use of Anatolian shepherd dogs is effective in many applications, both locally and internationally. Guard dogs are themselves predators that territorially mark out and defend their own areas, and therefore are effective in deterring predators and finding sick or dead stock in the veld. Ideally, guard dogs should be raised with the livestock they will protect, so that they form a bond with them. Where suitable dogs are chosen and properly managed, this method is very effective. For further information on guard dogs, www.ewt.org.za.

Other guard animals, such as donkeys, chase or intimidate predators and are formidable opponents against predators. Guard animals are always on duty and therefore are alert to the presence of predators near a herd.



Herdsmen

A diligent and well-trained herder could prove to be invaluable in detecting and preventing potential problems before they take place. On large farms, where livestock roam over large distances unattended, a herder can accompany livestock and be on the look out for any predators. In addition, guard dogs are most effective when they are supervised and managed and therefore

herders can manage and provide a backup to a guard dog in problem situations. The system of shepherding and guard dogs is widely used internationally, and the combination of the two is very effective. Unemployed youth from workers' families or local communities may often be readily available for such employment.

King Collars and "Dead Stop" Collars

These collars were developed by farmers for farmers. The King Collar is a wide, adjustable PVC collar that is fitted to the necks of the entire flock and adjusted once or twice a season. They make it difficult, if not impossible for a jackal to kill a sheep by a throat bite, thus conditioning territorial animals not to attack sheep.

The Dead Stop Collar is a more robust mesh wire collar that protects the flock against attacks by caracal, which because of their jaw and skull structure, may bite through King Collars.

These collars are inexpensive, low maintenance, very easy to fit and adjust, readily available and developed by farmers for local conditions. King Collars may cause skin problems if used continually in wetter climates and not monitored. It has been suggested that the use of these collars may lead to unusual or unconventional predation behaviour, but there is no recorded evidence of this.

Scent marking

Although a rather unconventional technique, predators have been deterred by territorial marking using other scents, such as human urine, which can be collected before the lambing season and then sprayed with a garden spray applicator onto fence posts and at gates.

Stock selection and type

Although "natural" livestock races, like Damara Sheep or Nguni Cattle, are hardy and survive with less management, they do not produce as rapidly as many farmers desire. There is a tendency to breed livestock for greater wool or meat production, at the expense of other behavioural traits. Farmers should take note of ewes or cows that consistently lose their young and these poor mothering characteristics should not form part of the genetic inheritance of a flock or herd. Similarly, hand-reared lambs (hanslammers) can become victims of predators since they do not learn fear and flight from mothers from birth age.

Synchronised lambing and lambing enclosures

In natural systems, wild animals produce young in synchronised seasons linked to rainfall, seasons and nutrition, and this creates a surplus food supply for predators at that time. Predators undergo nutritional stress during winter and the old and weak perish. Obviously, when food is constantly available this does not happen. By applying systems of synchronised breeding and lambing, the farmer reduces the period of vulnerability, especially when small lambs, which are normally the highest risk age class, can be managed with their mothers in the highest security area on the farm.

There are new, innovative conflict prevention techniques being developed all the time, and we appeal to all readers to please share these with us. They can then be included in revisions of this booklet, further helping farmers to manage wildlife conflict in new and interesting ways that promote a healthy coexistence between humans and predators.

POST-PREDATION: IDENTIFYING THE CAUSE OF DEATH

If all available preventative techniques have been tried and tested and the farmer still experiences stock losses, then the correct problem needs to be identified. For the appropriate management or control measures to be initiated, the farmer should always clearly determine the cause of death, to be certain that the stock was in fact predated and did not die from another cause. Predation, poor farm or stock management, human intervention or even disease may be the cause of death, and a few small changes in a system could significantly reduce losses.

It is critical at this stage to avoid biased views about what happened and to follow logical steps to obtain accurate and correct information to assist the farmer in choosing the best course of action

How predators hunt and kill

Prey is killed in various ways. Civets, mongooses and skunks bite into the back of the head and crush their victim's skull. Cats kill small prey by sinking their canines into the neck and forcing apart the vertebrae, or large prey, by strangling or suffocating the victim with a bite directed at the throat or over the mouth and nose. Hyaenas and Wild Dogs usually attack from the rear and kill by disembowelling. Predators kill out of necessity to eat, not out of anger, for sport or to be vindictive. They 'hunt to kill' as part of their daily survival and normal existence.

Carnivores vary greatly in size, have a wide range of diets and hunting methods, and differ in their social behaviour. At one extreme is the solitary Leopard or Caracal, at the other the highly social African Wild Dog. Even members of the same species are able to vary their behaviour to suit different ecological conditions. For example Spotted Hyaenas in the food-rich Ngorongoro Crater in Tanzania live in clans containing up to 80 individuals, which inhabit a territory of 40 km², whereas in the Kalahari where resources are thinly spread, a clan of five may inhabit a territory of 1 500 km². As such, it is illogical to label or target groups or whole taxa as 'problematic'.

The Raptor's Hunting Tools

The length of the hallux or backward-facing toe, and the overall dimensions of a raptor's talons, determines its prey size. Only the very large eagles are equipped to tackle bigger prey such as Steenbok, Bushbuck and Rock Hyrax. Medium-sized eagles and owls usually catch smaller prey; however they may still try to hunt larger prey, especially during times of famine. All raptors are opportunistic feeders and will attack prey that is obviously crippled or ill.

Vultures rely on their powerful beaks for feeding. The Lappet-faced, White-backed and Cape Vulture may attack domesticated mammals if very young lambs, calves or kids are abandoned, or where ewes are weakened through difficult labour. Starving vultures, especially immature birds under stress, are most likely to be responsible for the recorded attacks by vultures on small stock.

Examining the carcass

A number of clues can be used to identify the cause of death. A combination of clues and observations should be used to narrow findings down to a particular species, and further steps taken to identify the individual that was responsible. Clues and observations will include track identification (this needs to be looked at before approaching the carcass), prey size killed and skinning out the neck. Refer to the Predator Identification Table (inside back cover) for observations and clues.

Scavenged versus killed

Various predator species co-exist in many areas and it is possible that more than one species may be seen at a carcass. The fact that a carnivore fed on a carcass does not mean it killed the animal. Species such as the Aardwolf and Bat-eared Fox may often be seen at carcasses where they feed on insects and maggots. Their dentition is not suited to a carnivorous diet and they don't possess the tooth structure or jaw to kill livestock. Hence, they are all too often killed as innocent bystanders. To determine if the carcass was scavenged or killed, further examination of the carcass is needed.

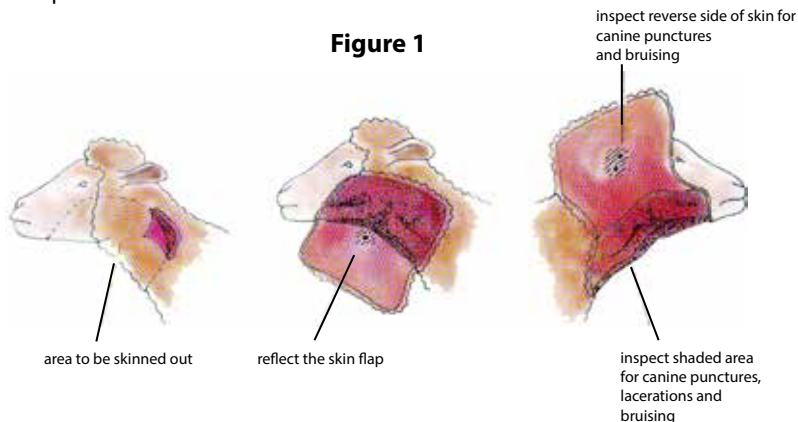
“Skinning out”

The first and most important step is to determine whether the prey animal was killed by a predator, died of other causes or was just fed upon by a scavenger. This is normally quick and easily done by skinning out the throat.

- Always begin skinning on the side of the neck, slightly behind the ear, moving around the throat using the jawline and base of the neck as markers.
- Reflect the skin flap (fig 1) and look for bruising and puncture marks on the reverse side of the skin. Inspect the throat and jaw for bruising and lacerations.
- Skinning the whole carcass is also useful as bites elsewhere on the body are revealed. Take note of where other bite marks are located on the carcass i.e. randomly all over, throat, and back of neck. Compare your “bite/fang location” findings to the predator identification table to assist you in working out which predator could have been responsible for the kill.
- Measure the distance between the **upper canines** on the inside skin flap. The distance between the lower canines will be slightly smaller. Compare your “**bite width**” findings to the predator identification table (pg 54) to assist you in working out which predator could have been responsible for the kill.



Figure 1

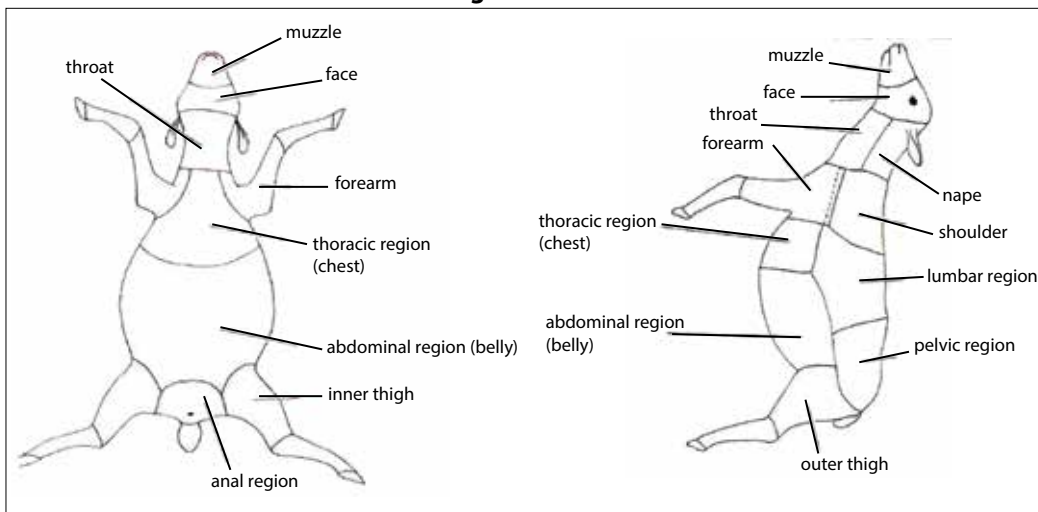


Other clues

Open the larynx and trachea for evidence of foam which indicates that the animal was alive and breathing when injuries occurred. Check inside the mouth for regurgitated rumen contents. To determine if newly born lambs and calves were alive at birth, check whether the hooves show signs of having been walked on, and whether the stomach contains food. Extensive bruising and bleeding around wounds indicates that the animal was killed with cardiovascular systems fully functional. Alternatively, lack of bruising and bleeding indicates that the animal may have been fed on after it was already dead or still born.

If present, these clues indicate that the prey was actually killed and not just fed upon. The stock-owner needs to know this information because it will influence the decision on what action to take. Prey that was fed upon, or in other words scavenged but not killed, warrants a management reaction other than predation prevention or control. Look at which parts of the carcass have been eaten (fig 2) and if there is any other evidence such as plucked fur or wool, torn or eaten face and ears, intact stomach and intestines etc. Different predators have different feeding patterns. Compare your findings to the predator identification table to assist you in working out which predator could have been responsible for the kill.

Figure 2



Inspection and autopsy of raptor kills

Again, an autopsy will reveal the state of the carcass. Blood around puncture wounds indicates that the animal may have been the victim of a predator and was killed by penetrating canine teeth or talons. With an eagle there are seldom more than two puncture marks. The position of these may reveal more, as eagles tend to grab their victims on the upper neck and head, or on the back, in the vicinity of the kidneys. When impact is the cause of death, there is much bruising and blood under the skin. Puncture marks with no blood indicate that the animal was already dead when the wounds were inflicted and the predator was most likely scavenging. Diurnal raptors and some owls usually pluck their prey before feeding.

Knowing the time of death eliminates certain potential predators, as diurnal raptors do not hunt at night. An eagle, even a large Martial or Verreaux's Eagle, is incapable of flying off with an intact, day-old lamb, unless it was born prematurely and is very small. Almost all eagles, some of the goshawk and buzzard species and certain owls are secondary scavengers. Thus, a raptor feeding on a carcass is not necessarily the original predator, but simply an opportunistic scavenger.

Size of prey

The size of the prey/carcass, whether small, medium or large, can provide clues to what predator was responsible for the killing. Predator feeding patterns can differ according to prey size, and as a rule of thumb, the larger the prey size killed, the larger the predator that killed it. However, this is not always the case and the size of the carcass found should be used in conjunction with other clues. Compare your "prey size" findings to the predator identification table (pg 54) to assist you in working out which predator could have been responsible for the kill.

Specific predator behaviour

Only six predators are responsible for the vast majority of livestock conflict in southern Africa. Human thieves should not be overlooked. Stock predation by Leopard, Cheetah, and Brown Hyaena is limited, highly localised and restricted to certain well-defined areas. Predation by Domestic Dogs, Black-backed Jackal and Caracal is widespread.

Individual predators, which change their natural behaviour and adopt a taste for livestock, may become a problem. This may be as a result of advanced age, injury, eviction from a territory, starvation of an evicted individual, or because stock are easier to kill than wild, natural prey. To resolve this conflict it is important to look at any underlying farm management problems or weak points in preventative or exclusionary devices that might be resulting in predation of livestock.

Domestic Dogs

Lack of control of domestic dogs by owners can cause huge stock losses. Dogs owned by farm labourers are often used to hunt game on the farm for the pot and this is exacerbated by the failure by many landowners to address this.

Clues that the carcass was killed by domestic dogs include:

- Very small lambs are often bitten on the chest, back or head.
- Large lambs or sheep are bitten anywhere on the body.
- Bites may be seen on the hamstrings, head, ears, neck or flanks.
- The kill is generally untidy, seldom a clean, neat kill like that of natural predators
- The carcass may be dragged to and fro.
- Usually more than one sheep is killed or maimed, but occasionally only one.
- The distance between upper canine teeth for dogs in the size range up to fox terrier and spaniel is 30 to 40 mm; 33 to 36 mm for border collies and 36 to 60 mm for larger dogs in the greyhound to mastiff size range.
- A variable amount of meat is eaten, from nothing to large amounts, usually more than that taken by jackal or Caracal.
- Feeding is often from the rear, but large pieces may be ripped from the carcass.
- Large bones are chewed or eaten.
- Chunks of wool may be strewn about (not a neat plucking like the Caracal).

Control measures: Farm dogs should be enclosed at night and not allowed to wander. They should be supervised and correctly fed to prevent them becoming a problem.

Black-Backed Jackal

They are opportunistic feeders, normally feeding on small animals of the region. In arid areas insect prey predominates; in higher rainfall grassland areas rodents form the bulk of their diet. Carrion is taken readily, except in areas where aversion to poisoned meat has occurred, and therefore benefits the farmer in cleaning up the veld of carcasses.

Clues that the carcass was killed by a Black-backed Jackal include:

- Usually only one victim killed.
- Throat bite with distance between upper canine teeth 23 to 29 mm apart.
- Feeding is usually on the flank between the hip and bottom ribs.
- Usually only a small amount eaten, but this varies with breeding cycle.
- Eats soft internal organs and may puncture the stomach of prey.
- Carcass is not moved from the kill site.
- Kill mainly lambs.
- Pups leave the den from late August to mid February – may coincide with spring lambing.

Control measures: Black-backed Jackals seldom enter cage-traps, and management measures should therefore employ appropriate exclusion systems, such as bells, smell or protection collars and guardian animals.

Caracal

Normal prey is small to medium sized animals, including lambs of larger antelope, young baboons, monkeys, dassies, hares, rodents, small carnivores, reptiles and birds. Caracals benefit the farmer by playing a valuable role in environment by controlling rodent, dassie and hare numbers.

Clues that the carcass was killed by Caracal include:

- Lambs or sheep may be killed.
- It is seldom that more than one victim is killed at a time, but this may occur when kittens leave the den with the female (midsummer to early spring). Occasionally when prey are trapped in a kraal and do not flee, many may be killed.
- The victim is killed either by a bite to the throat or the back of the neck.
- Tooth marks may be found in either or both positions. Distance between upper canines is 24 to 30 mm.
- Claw marks are sometimes visible.
- If the victim has been disembowelled, then although soft organs may have been eaten, the stomach is left un-punctured and placed aside.
- The hind legs and inner hind legs are the most frequently chosen meat, but brisket and shoulder may also be taken. The shoulder is sometimes neatly removed.
- Wool, fur or feathers may be plucked from the prey.
- The rib ends may be chewed. Large bones are never eaten, a very clear differentiation from domestic dog kills.
- Prey may be partly covered with vegetation debris or soil.

Control measures: Caracal can develop a taste for stock, but this can be avoided if the correct preventative methods to protect stock, such as fencing and kraaling, have been implemented. Caracals readily enter cage traps which have been properly set and problem individuals can therefore be readily captured and relocated.

RAPTORS

Eagle Predation

The larger eagle species of relevance are Martial Eagles and Verreaux's Eagles. Martial Eagles are mostly found in the areas away from mountains, while Verreaux's Eagles are associated with mountainous areas. Both species occasionally predate small stock lambs and kids. Prey size is small, usually animals younger than four days old and weighing less than 5 kg. The following markings on the prey carcass are indicative of eagle predation:

Head: A single puncture mark on the top of the head and below on the throat.

Neck: A single puncture mark on either side of neck or puncture marks on the neck and throat.

Shoulders: Puncture marks on or just behind the shoulder blades on both sides of the body, or top and bottom entrance marks.

Back: A single puncture mark on either side of vertebrae, in the kidney area.

Raptors sometimes hide their prey under a bush or tree. Also look for the following signs of feeding:

- eagles pluck hair or wool from the feeding entrance area;
- they mostly begin feeding on the carcass from just behind the front limbs, working their way towards the head;
- they sometimes open the carcass through the small opening just behind the last rib bone and below the spinal column;
- they eat the lungs, heart and other organs through the cavity, and sometimes pull the intestines through the cavity;
- they excavate meat from under the skin and from between the ribs of the carcass;
- they sometimes break a rib bone or two, near the point where the ribs are connected to the spinal column (sharp pointed ends); and
- Eagles never tear the stomach wall.

Just as not all humans are thieves, similarly not all individuals of a species cause damage on farmland. Proactive management, prevention measures and damage controls should aim at an individual. Control efforts and preventative techniques should be as target selective as possible, because indiscriminate techniques, such as the use of poisons and other methods, can rapidly lead to shyness and avoidance toward the methods applied. Most animals are far more intelligent than we believe them to be, and need to be so to survive. They learn very fast from farmers' mistakes, as is borne out by the failure of control measures in the past.

Killing a predator in order to reduce the loss of livestock is not a long-term solution to any wildlife conflict problem. The loss of livestock often increases once the "culprit" has been removed from the system, as a vacuum is created and then filled by new animals that move into the area. It is again recommended that preventative techniques to prevent and reduce wildlife conflicts be implemented. Please refer to Chapter 7.



WORKING WITHIN THE LAW

In order that human-wildlife conflicts are resolved within legal parameters, it is important to be aware of current legislation. Under this legislation various species, formally known as “problem animals”, are now protected species. To facilitate understanding, the following is extracted from the NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (ACT 10, 2004)

“Chapter 7...

87. Purpose of Chapter

The purpose of this Chapter is to provide for the regulation of the issuing of permits authorising-

- (a) restricted activities involving specimens of-
 - (i) listed threatened or protected species in terms of section 57(1); ...

57. Restricted activities involving listed threatened or protected species

- (1) A person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7.
“restricted activity”-

- (a) in relation to a specimen of a listed threatened or protected species, means
 - (i) hunting, catching, capturing or killing any living specimen of a listed threatened or protected species by any means, method or device whatsoever, including searching, pursuing, driving, lying in wait, luring, alluring, discharging a missile or injuring with intent to hunt, catch, capture or kill any such specimen;“...

From this legislation it is clear that to hunt, kill or trap any protected species requires a permit for which a farmer would need to apply, via the relevant authority. This places a responsibility on conservation authorities to assess the needs of the applicant and to issue a permit within a reasonable time period, to avoid continued damage or loss being incurred by the applicant. It is assumed that at this stage, the inspector would require physical evidence of

preventative measures to avoid wildlife conflicts. The message is clear. Farmers need to put measures in place to prevent or minimise exposure of their livestock to the risk of predation. The legislation indicates a paradigm shift from lethal controls, or killing of predators, to a standpoint of flock and herd protection and thus conflict avoidance.

Farming is a business, so a farmer has to protect his property and stock if he intends to stay in business; and that is the crux of the matter. It is alarming how many lethal devices are still freely and readily available. Many of these are brutal and violent and are considered inhumane and unacceptable.



Methods previously practiced which are now prohibited in terms of the legislation are:

- Hound or dog packs which pursue and kill predators.
- Gin traps or leg hold traps. These traps are extremely hazardous to non-target animals and their use is prohibited under provincial conservation ordinances as well as new, national legislation.
- "Coyote getter" devices. These are trigger devices which fire a toxin into the mouth of a predator when pulled. In terms of new Firearms Control Act (Act 60, 2000), these are now seen to be a 'fire-arm' and this makes it illegal to set these devices without a license and trainers must be accredited. If not used correctly, "getters" are very un-selective and only 10% of animals killed are 'target- animals'. NB. Fire-arms may also not be left unattended – so it will be impossible and impractical for any landowner to use these devices LEGALLY!
- Poison baits.

Secondary Poisoning

The use of poison to control predators is prohibited. Not only does it cause damage to the environment, but many animals, including scavengers, are poisoned. Species such as Bat-eared Fox, Serval, Aardwolf and vultures are often killed in this way, causing devastating long-term impacts to the environment. Vultures are one example of a valuable species that the farmer would want to see on his/her farm. They clean up carcasses and meat from the veld that would otherwise be potential hosts for many diseases. Being scavengers of the veld, they are often the first to arrive at a carcass or bait. If poison baits or carcasses are placed out in the veld to control predators, a whole host of valuable species, including vultures, will be targeted and unethically killed.

Livestock Protection Collars (Poison collars)

Livestock Protection collars resemble a halter with sachets containing a toxin. Their use is controlled by the Hazardous Substances Act (Act 15, 1973) which specifies conditions of sale and use, as well, as by whom they may be used. Farmers must familiarise themselves with legislation to avoid undertaking illegal activities and take precautions to protect their livestock.

Cage traps

The practice of trapping is defined as a restricted activity in legislation and permits are therefore required. Cage traps themselves are not lethal to the predator; in fact they merely contain or restrain an animal until the farmer gets to the cage. The farmer then decides whether he has his target animal or not and then either releases the non-target visitor, or transports the captured individual to the nearest protected area.

Cage traps are particularly successful for capturing caracal, dogs and various other small carnivores, but not jackals, which very seldom enter these traps. Non-target animals captured should



be released unharmed. When stray dogs are the target problem animal, much less attention to detail is required, because being domestic animals which are accustomed to humans, they are not suspicious and readily enter these traps. Smaller traps of similar design can also be used for small carnivores such as genets, which may cause problems if fowl runs are not adequately secure. Cage trap plans and permits are available from most conservation offices. Legislative control of cage traps was initiated so that the potential for inhumane treatment of captured animals, by torture or mistreatment, could be prevented, as this is definitely not accepted.

Raptors

It is relatively easy to rehabilitate a raptor that has taken to hunting livestock, using a bal-chatri trap. A bal-chatri is a wire cage containing live bait, used to trap birds of prey. This should be set up in the area where the livestock is being preyed. The raptor is caught and released at the same place. The raptor then associates the bait, in this case livestock, with the unpleasant experience of being caught and handled, and will in future avoid livestock predation. It is important that the bait used is the target species for which a solution to the predation is sought. Also, never move a caught raptor away from where it was caught, as raptors, especially breeding pairs, settle within fixed territories. The entire ecosystem is disrupted when the pair bond is broken, and a gap is created that could be filled by rogue eagles, so worsening the problem.

A permit must be obtained from the conservation authorities before a bal-chatri trap may be set (Sec 57 applies). It is advisable to engage the services of a licensed bird ringer, to ensure a successful capture and release. The bird can then also be ringed for later identification.



This short booklet should be seen as an overview and guideline. Much more information is available. There is no substitute for experience and proficiency in these methods and principles can only be attained by experience. Attend courses, read the literature and spend time in the field gaining practical experience and learning from experienced workers. Remember that PREVENTION IS THE CURE.

Other Helplines available:

1. EWT: + 27 (0)82 802 6223

2. Cape Nature (Western Cape Province) Helpline:

Technical Advice: +27 (0)22 931 2900

Scientific Advice: +27 (0)21 866 8000

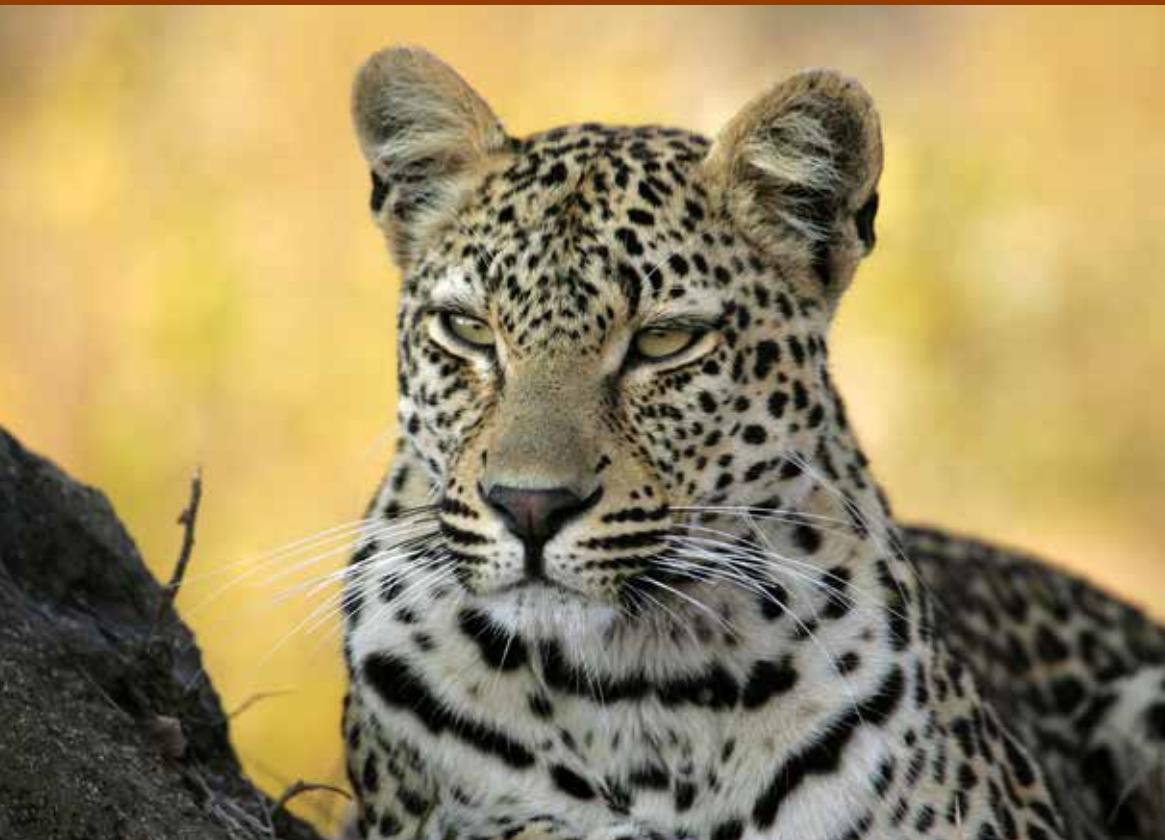
FURTHER CONTACTS ON BACK PAGE

DISCLAIMER

THE ENDANGERED WILDLIFE TRUST WILL NOT BE HELD RESPONSIBLE FOR ANY CONDITION/S THAT MAY ARISE FROM ANY ACTION OR FROM ANY WILDLIFE PREDATOR MANAGEMENT SYSTEM OR METHOD DISCUSSED IN THIS GUIDE. IT REMAINS THE SOLE RESPONSIBILITY OF THE STOCK FARMER TO USE PRODUCTS LEGALLY AND STRICTLY ACCORDING TO THE INSTRUCTIONS PROVIDED WITH SUCH PRODUCTS.

REFERENCES AND FURTHER READING

1. Bekker, F., Bowland, T., Brand, D., Davies, R., Steyn, P., Verreyne, E. *Innocent Until Proven Guilty/ Onskuldig tot Skuldig Bewys*.
2. Boshoff, A., Brown, C.J., Davies, R., Van Jaarsveld, J., 2006. *Eagles & Farmers/ Arende en Boere*. Endangered Wildlife Trust and SA Eagle. Revised version.
3. Butchart, D., 1994. *Vultures and Farmers/Aasvoels en Boere*. Vulture Study Group, Johannesburg.
4. Friedmann, Y. & Daly, B. (editors) 2004. *Red Data Book of the Mammals of South Africa: A conservation assessment*. CBSG South Africa, Conservation Breeding Specialist Group (SSC/IUCN), Endangered Wildlife Trust, South Africa.
5. Hockey, P.A.R., Dean, W.R.J. and Ryan, P.G. (eds), 2005. *Robert's Birds of Southern Africa, 7th ed.* The Trustees of the John Voelcker Bird Book Fund, Cape Town.
6. Schumann, M., 2004. *Integrated Livestock and Predation Management: A Farmer's Guide*. Cheetah Conservation Fund, Namibia.
7. Smithers, R.H.N. 1983. *Mammals of the Southern African Subregion*. University of Pretoria, Pretoria.
8. Walker, Clive., 1996. *Signs of the Wild*. Struik Publishers, Cape Town.



ENDANGERED WILDLIFE TRUST (EWT)

Founded in 1973, the EWT conserves threatened species and ecosystems in southern Africa. The EWT identifies priority conservation needs, and establishes and facilitates dedicated, multi-stakeholder Programmes to carry out the EWT's activities including research, mitigating threats to species, sustainable natural resource management and development, increasing environmental awareness, and advocacy.

Our Vision Statement

"A healthy planet and an equitable world that values and sustains the diversity of all life"

Our Mission

The Endangered Wildlife Trust is dedicated to conserving threatened species and ecosystems in southern Africa to the benefit of all people.

The Trust aims to increase awareness among all the people of southern Africa. Our unique magazine, VISION, provides news and articles on the Trust's activities, and a perspective on African conservation issues. The EWT has produced several information booklets including Predators and Farmers, Eagles and Farmers, Cranes and Farmers and Vultures and Farmers. Please contact the EWT if you require further information about obtaining these products.



USEFUL CONTACTS

SOLUTIONS

EWT Carnivore Conservation Programme:
Kelly Marnewick kellym@ewt.org.za
Derek van der Merwe derekv@ewt.org.za
Tel: + 27 11 372 3600

“Dead Stop Collar”: Klaas Louw
Cell: 072 424 7752

“King Collar”: Gray King
Tel: (046) 685 9645

Protect-A-Lamb
Eddie Steenkamp
Tel: (022) 723 1842
SMS Warning System
Phillip Lotter
Tel: (028) 212 3346

FORUMS/TRUSTS

Cape Leopard Trust
Quinton Martins
Tel: (027) 482 2785

Wild Dog Advisory Group (SA)
c/o Endangered Wildlife Trust
Tel: (011) 372 3600
Website: www.wagsa.org.za

CONTACT DETAILS OF PROVINCIAL CONSERVATION PERMIT AND ENFORCEMENT OFFICERS

GAUTENG

Dept of Agriculture, Conservation, Environment and Land Affairs
PO Box 8769, Glencairn Building ,
(17th Floor), 73 Market Street,
JOHANNESBURG, 2000

Tel: 011 - 355 1225

Fax: 011 - 355 1239

Lydia Onsongo; E-mail: Lydia.Onsongo@gauteng.gov.za

Permit Officer: Head of permits office Leon Lotter Tel 011 355 1457

Enforcement Officers:

Stony Steenkamp – 083 599 5424;

Jacques du Toit - 083 308 1366 tel office 011 390 1721

General investigations: Cornia Hugo – 084 588 2357 office 011 355 1257;
Reinett 011 355 1695; 011 355 1464

Hunting officer: Dirk Boshoff – 083 532 6246 24 hour no. 082 759 0078;

Patience & Violet general permits office: 011 355 1202; 011-355 1457

MPUMALANGA

Mpumalanga Parks Board, Private Bag X11338, Halls Gateway, NELSPRUIT, 1200

Tel: 013 - 759 5329/5300

Fax: 013 - 759 5490

E-mail: Ludwich.swart@mtpa.co.za

Permit Officer: Blackie Swart – 083 628 1851; Dries Pienaar – 083 626 6811

Enforcement Officer: Juan de Beer – 083 628 1827 tel. office 013 759 5 333

Hunting officer: Riaan de Lange – 083 626 6312; Tel 013 759 5336 Fax 013 755 3787

NORTH WEST

Department of Agriculture, Conservation and Environment

Private Bag X125, Agri Centre Room E37,

Dr James Moroka Drive,

Mmabatho, 2735

Tel: 018 - 389 5331

Fax: 018 - 389 5640

E-mail: bdiole@nwpg.gov.za

Permit Officer: Stephen Motleagi; Switchboard 018 389 5111

Enforcement Officer: Basi Dirole – 018 – 389 5717; 082 331 9759; bdiole@nwpg.gov.za

North West Parks Board enforcement officer:

Rusty Hustler - 083 469 3242 , rhustler@nwptb.co.za

Daan Buijs – 018 389 5652; 083 320 2727; dbuijs@nwpg.gov.za;

Tharina Boshoff – 018 389 5083; 082 877 8261;

Bettie Swart – 082 347 8991;

Willem Boshoff - 082 806 8836;

Thumeka Ntloka - 084 581 6175 tntloko@nwpg.gov.za

EASTERN CAPE

Dept of Economic Affairs, Environment and Tourism

Private bag X , The Business Village C5, Bisho 5605

Tel: 040 - 609 4620

Fax: 040 – 609 4700

E-mail: noluthando.bam@deaet.ecape.gov.za

Permit officer: Noluthando Bam 040 609 4706

Enforcement Officer: Jaap Pienaar

Tel. office: 040 609 4706

E mail: jaap.pienaar@deaet.ecape.gov.za

WESTERN CAPE

CapeNature, Private Bag X29, Belmont Office park, Belmont Road,
RONDEBOSCH, 7701,

Tel: 021 659 3418

Fax: 021-659 3415

E-mail: Dhignett@capenature.co.za

Permit Officer: Deon Hignett

Enforcement Officer:

Paul Gildenhuys – 082 551 8312

Danelle Kleinhans 021 659 3420

NORTHERN CAPE

Northern Cape Nature Conservation Service

Private Bag X6102, 224 Du Toitspan Road

KIMBERLEY

8300

Tel: 053 – 807 4800

Fax: 053 - 831 3530

E-mail: cscholtz@grand.ncape.gov.za;

dpaulse@half.ncape.gov.za

Permit Officer: Colette Scholtz;

David Paulse 053 – 807 4811; fax 053 – 832 1035

Enforcement Officer: Hendrik Cloete - 073 286 0998

FREE STATE

Dept of Environmental Affairs and Tourism

PO Box 517, 73 Aliwal Street

BLOEMFONTEIN

Omni Building, (Ground Floor, Room 50), 9300

Tel: 051 – 400 9527

Fax: 051 – 400 9523

E-mail: nel@dteea.fs.gov.za

Permit Officer: Diana Nel

Enforcement Officer: Werner Boing – 082 789 4468

tel. office 400 9535; fax 400 9538;

boing@dteea.fs.gov.za

Hunting officer: Hannes Blom – 083 632 3992

tel. office: 400 9518;

blomhannes@hotmail.com

KWAZULU NATAL

KwaZulu Natal Wildlife, Queen Elizabeth Park
PO Box 13053, Duncan Mackenzie Drive,
CASCADES, Montrose
3202, Pietermaritzburg
Tel: 033 - 845 1968
Fax: 033 - 845 1747
E-mail: permits@kznwildlife.com ;
sharronh@kznnncs.org.za
Permit Officer: Sharron Hughes;
Wendy 845 1324;
Noeleen 845 1320
Enforcement officer: Rod Potter 082 772 8343

LIMPOPO

Dept of Finance, Economic Affairs and Tourism
PO Box 55464,
Corner Dorp and Suid Streets
Polokwane
0700
Tel: 015 - 295 9300
Fax: 015 - 295 5018
E-mail: VonWellHM@ledet.gov.za ;
Deon 082 802 1242; Deon@ledet.gov.za
Head of permit office Sam Makhubele - 082 904 5874)
Enforcement Officers: Riaan de Jager – 082 809 8927;
Philip Monyepao – 082 330 6325

SOUTH AFRICAN NATIONAL PARKS




























Corporate Investigation Services
Krugers National Park
SKUKUZA
Tel: 013 735 5109
Cell: 082 804 7895
E-mail: kenm@sanparks.org

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM (DEAT)

Private Bag X447, PRETORIA, 0001

Sonja Meintjes
Deputy Director: Compliance (Biodiversity)
Tel: 012 310 3545 Fax: 012 320 7026
Cell: 082 655 4711
E-mail: smeintjes@deat.gov.za

Magdel Boshoff
Assistant Director: Compliance (Biodiversity)
Tel: 012 310 3534 Fax: 012 320 7026
Cell: 083 952 2334
E-mail: mboshoff@deat.gov.za

		Conflict Potential	Tracks	Prey Location	Prey size	Claw Marks	Stomach & Intestines
	Domestic Dog	Higher	 Front  Rear	Anywhere	0-400 kg	None	Partly eaten/ ripped/strewn about
	Caracal	Higher	 Front  Rear	In grass/ hole/inder bush	10-25 kg	4 short	Intact/disembowled
	Black-Backed Jackel	Higher	 Front  Rear	Anywhere	0-50 kg	None	Partly eaten/ripped/strewn about
	Cheetah	Lower	 Front  Rear	Under bush/in grass	Over 10 kg	1 long	Intact/disembowled
	Leopard	Lower	 Front  Rear	In tree/ grass/hole	Over 10 kg	4 short	Intact/disembowled
	Brown Hyena	Lower	 Front  Rear	In bush/ hole	0-50 kg	None	Partly eaten/ripped/strewn about
	Spotted Hyena	Lower	 Front  Rear	At kill site, in grass	0-400 kg	None	Partly eaten
	Lion	Lower	 Front  Rear	Anywhere	All sizes	Claw marks on belly	Fully eaten
	Wild Dog	Lower	 Front  Rear	No remains	0-400 kg	None	Fully eaten




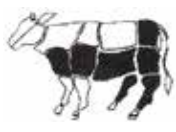














Raptors - Conflict Potential: Very Low

Larger raptors may prey on poultry or weak, newborn lambs or kids. A raptor feeding on a carcass is not necessarily the original predator, but simply an opportunistic feeder.

Vultures - Conflict Potential: 0

Although you may see vultures soaring above your dead livestock or eating it, they are probably not responsible for killing it. It is extremely rare that a very hungry vulture will kill a weak, newborn lamb or kid. They are usually on a carcass because they have chased away the original predator.

* This table was taken from the Integrated Livestock and Predator Management: A Farmer's Guide © CCF 2004

	Fang/Location	Bite Width	Parts eaten	Bones	Other Evidence
	All over-random bites	36-58mm 3 fingers		Long bones chewed	Wool, fur skin and remains scattered. No marks on throat. Face and ears chewed or thorn.
	Mostly throat/back of neck	29-32mm thumb length		Rib ends chewed off	Wool, fur pulled out and scattered. Does not eat skin or guts. Red hair on prey skin.
	Side of neck and lower jaw, hindquarters of large prey	19-21mm thumb width		Rib ends chewed off	Face and ears chewed or torn. Forearms of larger prey may be separated from carcass. Meat taken leaving skin flap.
	Throat	36-39mm 3 fingers		Rib ends chewed off	Does not eat skin or guts
	Back of neck, throat	40-46mm 4 fingers		Rib ends chewed off	Fur, wool pulled out and scattered. Does not eat skin or guts.
	Huge fang bites in back of skull. Hindquarters of medium - large prey	47-58mm 4 fingers		Skull crushed	Wool, fur, skin and remains scattered. Bites on rump. Only crushed bones, wool, hooves, blood and guts remain. ears torn or chewed off.
	First flanks, then udder and back	4 fingers		All bones crushed	Messy carcass remains. With a large pack, no evidence remains.
	Throat	75mm		Large bones intact	Massive tissue damage.
	All over	Thumb length		No remains	No evidence remains.

Bat-Eared Fox



Aardwolf



Black Footed Cat



Spotted Necked Otter



Conflict Potential: 0

These small predators are sometimes thought to be a threat to stock, but their dentition is not suited to a carnivorous diet and they don't possess the tooth structure or jaw to attack livestock.



ENDANGERED WILDLIFE TRUST

Private Bag X11

Modderfontein, 1645

Tel: +27 11 372 3600 Fax: +27 11 608 4682

www.ewt.org.za