LANDOWNER'S GUIDE

Human-wildlife Conflict

Sensible solutions to living with wildlife

CapeNature

CAPE LEOPARD TRUST

LANDOWNER'S GUIDE HUMAN-WILDLIFE CONFLICT

Sensible solutions to living with wildlife

"…the Cape Province is largely subdivided into farms and consequently the farm has become the habitat of surviving forms of wildlife. Wildlife conservation can, therefore, only be effective with the support and good will of the farming community. The South African farmer, the descendent of pioneering stock, is a rugged individualist and the master on his own property. Conservation measures cannot be enforced, they can only be introduced on a basis of cooperation and mutual understanding."

Dr Douglas Hey *(1964), former director of the Department of Nature Conservation in the Cape Province.*

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INTRODUCTION

Nature in its purest form is in perfect harmony - every plant, animal and fungus has a specific place and purpose and forms part of an integrated ecosystem. This ecosystem provides essential services for life, including fresh water, pollination, quality soil and others - all elements required by humans to work the land, produce food and thrive. Ultimately, the persistence of these ecosystem services and the stability of ecosystems depend on the number and variety of species and interactions, also known as biodiversity. However, land is frequently shared by both humans and wildlife. This sometimes leads to conflict, as the needs of people and wild animals are very different.

In southern Africa, some species have historically been labelled as "problem animals" or "vermin". For centuries, agricultural communities have been trying to "control" animals that cause damage to their livestock or crops. Despite these efforts, damage still occurs regularly and in some cases the loss of stock and crops is escalating. In fact, some research suggests that removing "problem animals" may often cause even more problems, and that this method may be one of the least effective approaches towards reducing human-wildlife conflict. Proactive and holistic prevention of potential conflict is key to managing this issue and ultimately to ensuring human-wildlife coexistence. Adopting a proactive and holistic approach towards "farming with nature" not only reduces conflict, but in many cases increases yield and productivity.

As humans and farms navigate this ecosystem that we share with wildlife, farmers play a vital role in promoting human-wildlife coexistence and ensuring that ecosystem processes and services are protected for the future. This guide, developed for the agricultural sector in the Western Cape, provides you with information and tips to effectively deal with conflict and ways to holistically manage your livestock and crops.

THE PROBLEM OF HUMAN–WILDLIFE CONFLICT

Human-wildlife conflict is one of the most pressing issues facing biodiversity conservation and sustainable development, and is growing globally in both frequency and severity as wildlife and humans increasingly compete for space, resources and places to call home. At the 2004 World Parks Congress, it was stated that: “Human-wildlife conflict occurs when the needs and behaviour of wildlife impact negatively on the goals of humans or when the goals of humans negatively impact the needs of wildlife”. Such conflict may occur because a leopard has attacked livestock or a baboon has raided a farmer’s crops, as a result of introducing livestock inside a predator’s home range or establishing croplands where natural veld may have existed. Sometimes, conflict escalates when a person or community seeks to kill the leopard or baboon, or when a person retaliates against the authorities that are in charge of conserving wildlife and its habitat.

In an agricultural setting, continued conflict can logically only culminate in one of three endpoints:

1) The farmer “wins” and wildlife is exterminated locally,

2) wildlife “wins” and the farmer is unable to continue farming profitably or

3) mitigation methods are implemented that enable harmonious coexistence between the farmer and wildlife on his land.

The concept of animal well-being, also known as welfare, is also relevant in human-wildlife conflict scenarios. Well-being includes the ecological, behavioural, physical, and physiological state of health of an animal, as well as their ability to cope with their environment. Each of these may be positively or negatively influenced by human factors, so it is imperative to integrate and account for well-being considerations for humans, livestock, and wildlife across all levels of conflict management.

Human-wildlife conflict is a complex and multi-faceted challenge that requires thoughtful consideration and innovative solutions. Coexistence is not about choosing sides, but about finding common ground where humans and wildlife thrive together.

ROLE OF WILDLIFE ON FARMLANDS

In a healthy and biodiverse ecosystem, every species plays a unique role that sustains life and maintains a delicate balance of nature. When in balance, an ecosystem is more stable and sustainable, able to survive climatic changes and continue providing ecosystem services like grazing and browsing for livestock, clean water, healthy soil with reduced soil erosion, pollinators for crops, reduced pest population explosions, etc., all without costing the farmer a cent.

Wildlife provide ecosystem services

Antelope, hares and dassies, for example, play a key role in seed dispersal. They keep local flora in check by feeding on grasses, leaves, seeds and other vegetation, preventing overgrowth. They also provide resources for other animals – like being a food source for predators, making it less likely that they prey on livestock. Baboons, monkeys, birds and porcupines are also key seed dispersers, consuming fruits and other plant parts and inadvertently transporting seeds within their digestive systems. This helps increase local genetic diversity by spreading seeds to areas far from the parent plant. Baboons also displace rocks as part of their foraging behaviour, by doing so they uncover hidden seeds, tubers and insects, which help with plant distribution and actively shape the intricate web of life, even on farmlands.

Predators as ecosystem stewards

Biodiversity includes large predators (such as leopard), which fulfill an ecologically important role at the top of the food chain. They maintain balance within the ecosystem by controlling populations of herbivores (such as duiker, grysbok and klipspringer) and smaller predators (such as jackal and caracal). In addition, predators reduce disease as they often remove weak or sick animals from the gene pool. Predators that also scavenge (like brown hyaena and jackal) provide a service by cleaning up dead animals, lowering disease transmission and preventing fly and blow fly outbreaks.

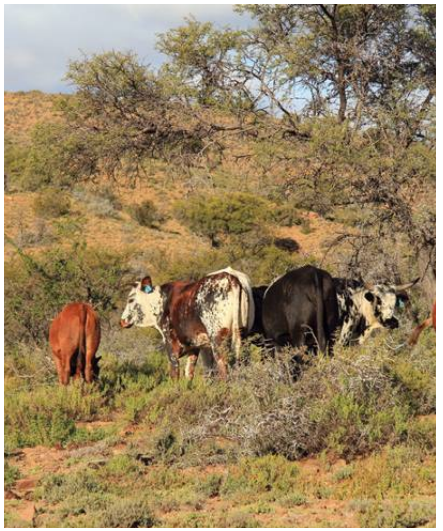
The extermination of predators has many unintended consequences. Predators and prey are in a dynamic balance in a natural system, and removing predators can cause knock-on effects to ripple through the food chain. For example, in the absence of predators, herbivore densities will increase, and fynbos vegetation may become overgrazed or destroyed. Following this destruction of natural food sources, antelopes may move into cultivated areas for grazing, which will in turn increase crop damage. As another example, rodents and insects are major prey for mesopredators like jackal, serval and caracal. Where these predators have been exterminated, rodent numbers may rise to cause severe crop damage, or even damage natural veld by destroying roots and seeds. Finally, predators also compete with one another, and removing the dominant or top predator species can cause an increase in mesopredator numbers.

PRINCIPLES OF HOLISTIC CONFLICT MITIGATION

In general, the best way to mitigate conflict is to prevent losses from occurring in the first place. Proactive measures to prevent or mitigate losses are also generally more cost-effective than reactive measures. Although it is often easier to do less and only respond to livestock losses after they occur, reactive methods generally fail in preventing conflict from happening in the first place. Different preventative methods vary in costs and management implications but also vary in their effectiveness and practicality. This may be influenced by the specific landscape and farming conditions, and may also work differently for different farms, even in the same area. Mitigation methods should also be responsible, in that they should be legal (see "Working with the law" on page 34), ecologically sustainable (minimise disruption to ecosystems), ethical and humane, as well as take the well-being of humans, wild animals and livestock into consideration. When implemented properly, a holistic 'farming with nature' approach will not only reduce conflict, but will provide other benefits such as increasing yield and productivity.

A five-step approach to holistic management is encouraged when addressing a human-wildlife conflict issue

1. The origin of the problems that are being experienced must be **fully understood.**
2. All parties should maintain a tolerant attitude and **respect towards all wildlife** that is causing damage.
3. The problem must be **thoroughly evaluated** and the animal responsible for the damage or losses must be identified correctly.
4. **Mitigating protection measures** should be implemented that are suitable for preventing damage or losses by the identified individual animal responsible.
5. Selective **control methods** should be effectively implemented to address and solve the real problem, with minimal impact on non-target individuals, species and the environment.



Landowners are welcome to contact CapeNature or other relevant conservation organisations in their area (see "Useful Contacts" on page 36) to discuss a holistic and responsible approach to manage the conflict. It is important that landowners and conservation management organisations come together to cohesively implement the principles of holistic management.

POTENTIAL CONFLICT SPECIES IN THE WESTERN CAPE

In the Western Cape, several different animal species can potentially cause conflict with humans in (but not limited to) agricultural areas. The provided list is not exhaustive and approaches to mitigate such conflicts should be tailored on a case-by-case basis, considering the specific species involved, the location and the circumstances of the farmer.

HERBIVORES & INSECTIVORES

ANTELOPE (GRYSBOK, DUIKER, KUDU and other)

Diet: *Grasses, leaves, flowers, small fruit and seeds.*

Preferred habitat: *Varies between species.*

Potential conflict:

- May browse on garden plants and cause crop damage.
- Illegal snares are often set for bush-meat in areas where antelope are common.
- Overconsumption of antelope by using prohibited hunting methods.

Signs:

- Tracks and pellet-like droppings.
- Browsed young leaves and shoots and broken branches.
- Crawl spaces underneath fences or signs where antelope jump over fences

Holistic conflict mitigation methods:

- Suitable fence or electric strands around the property.

Ecological benefits:

- Browsing habits stimulate the growth of plants.
- Serve as natural prey for predators.
- Aid in seed distribution
- Create paths through dense vegetation.
- Recycle nutrients through faeces.

- Scarecrows, radios, LED lights or other wildlife-deterring devices (static repellents).
- Taste aversion, e.g. hot / chilli sauce sprayed on leaves.
- Smell aversion, e.g. cloth dipped in Jeyes Fluid and hung on fence.
- Plant protection placed around saplings/stems.

Interesting facts:

- Antelope can crawl underneath or jump over fences.
- Crop damage occurs mainly at night.
- Antelope diversity and healthy numbers may be an indication of a well-managed ecosystem or farm.

BATS

Ecological benefits:

- Control insect populations such as mosquitoes and crop pests.
- Fulfil ecological roles as pollinators and seed dispersers.
- Assist with the pollination of commercially important crops and trees.

Diet: *Fruit or insects (depending on species).*

Preferred habitat: *Bats may roost under the leaves or bark of trees, within rock crevices and caves, as well as in the roofs of buildings.*

Potential conflict:

- Fouling of walls and floors in farm buildings.
- Damage to fruit crops (fruit-eating bats.

Signs:

- Bat activity and droppings observed above ceilings.
- Fruit bat droppings against walls and regurgitated pellets found under trees.
- Bats exiting from or entering through the eaves of the building.
- Small insect-eating bats flying around at dusk.

Holistic conflict mitigation methods:

- Preventing bats from re-entering roofs must take place when they are not breeding. This can be done as follows:
  - Identify the points where bats enter or exit the roof, typically at dusk or dawn.
  - Attach a piece of shade netting that hangs in front of the entry/ exit holes, forming a flap.
  - This setup allows the bats to exit the roof but prevent them from re-entering, as the shade cloth acts as a barrier.
- Install a bat house/box to provide safe alternative roosting sites.
- Spray garden fruit trees (palm trees, yellowwoods) with registered chemicals to prevent fruit formation and thus keep your walls clean.

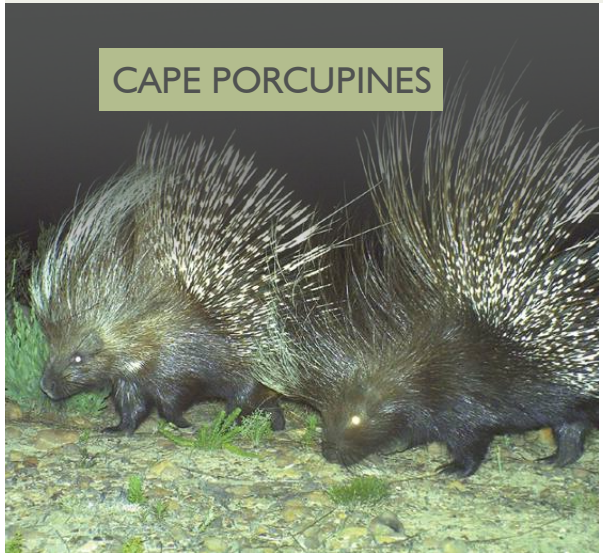
You might consider attracting bats to your property, as they are important pollinators and natural insect controllers. Along with suitable mitigation of potential property damage, the following can be done to attract bats:

- For fruit bats, plant their favourite indigenous trees like Cape ash, tree fuschsia, date palm, yellowwood and wild plum.
- For insect-eating bats, plant indigenous trees and shrubs that promote insect activity in your garden, especially when combined with a water feature. Bats will help manage insect populations, preventing them from becoming problematic.

Interesting facts:

- Bats are the world's only true flying mammals.
- Bats are not blind.
- Insectivorous bats have a sophisticated echolocation system that enables them to hunt mosquitoes and other small insects in the dark.
- Insect-eating bats have the remarkable ability to consume up to twice their body weight in insects in a single night.
- Fruit-eating bats are generally larger than the much smaller insect-eating bats.
- Vampire bats are only found in South America and primarily feed on chickens and cattle.
- South Africa's smallest bat is the Cape serotine bat, weighing in at 6 grams.
- Most parasites carried by bats are host-specific and cannot survive on humans.
- Bats can live for up to 30 years and reproduce slowly, having only 1 to 2 young per year.
- Main threats to bats are habitat destruction and secondary poisoning.

CAPE PORCUPINES



Diet: *Herbivorous, primarily consumes bulbs, roots and bark rather than leaves or grass.*

Preferred habitat: *Found in most habitats where cover and suitable vegetation are available.*

Ecological benefits:

- Aid in seed and bulb dispersal.
- Feeding behaviour provides access to food for other species.

Potential conflict:

- May cause damage to garden plants or root crops.
- May damage PVC water pipes and systems.
- Dig burrows with multiple tunnels that could damage farm roads or vehicles.
- Illegal snares are often set for bush-meat in areas where porcupines are common.

Signs:

- Presence of droppings, tracks and quills.
- Evidence of feeding on bulbs, tubers or roots such as dug-up bulbous plants.
- Bark gnawed off trees and other damage to garden plants.
- Gnawing on PVC water pipes.

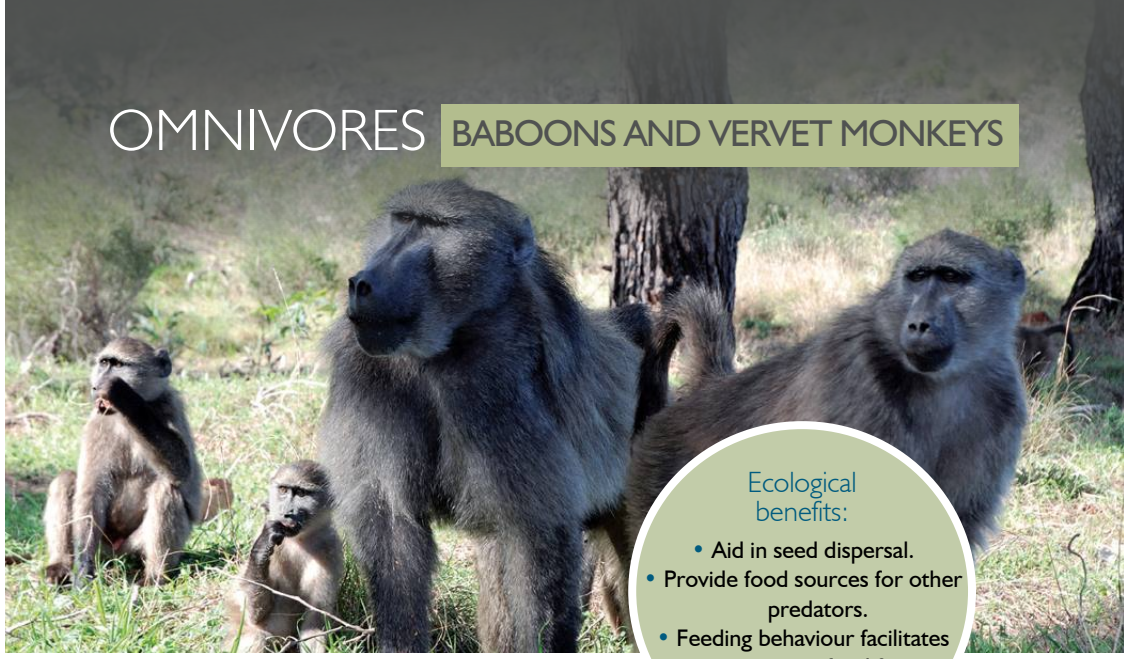
Holistic conflict mitigation methods:

- Protect bulbs with chicken mesh.
- Install electric strands around the garden beds.
- Erect an appropriate fence (must be buried at least 300 mm into the soil).
- Place plastic piping around young saplings.
- Maintain fences by closing gaps or holes to prevent access.
- For damage to PVC water pipes, bury pipes underground, pack tightly with rocks or elevate pipes above ground by placing them on stakes or existing fence lines (at least 500 mm above ground).
- Leave out old, discarded pieces of PVC pipes for porcupines to chew on, to distract them from water pipes.

Interesting facts:

- The Cape porcupine is Africa's largest rodent.
- They do not shoot their quills (spikes).
- Porcupines are strong swimmers.
- Cape porcupines live in small family groups, and are monogamous (mate for life).
- Cape porcupines can travel up to 16 km to find food.
- Exploitation of quills for curios is a growing threat to porcupine.
- Cape porcupines are nocturnal.
- Porcupine incisors never stop growing and they have to chew on material regularly to wear down their teeth.

OMNIVORES BABOONS AND VERVET MONKEYS



Ecological benefits:

- Aid in seed dispersal.
- Provide food sources for other predators.
- Feeding behaviour facilitates access to food for other species.

Diet: *Omnivorous, with a varied diet including leaves, seeds, fruit and insects.*

Preferred habitat: *Baboons inhabit fynbos, savanna and arid biomes, wherever water and trees or cliffs are present. Vervet monkeys thrive in all wooded habitats outside rainforests, particularly riverine vegetation. These two species can share the same habitat.*

Potential conflict:

- Removing of thatching from roofs.
- Entering houses/gardens.
- Opportunistic access to dustbins, vegetable patches, fruit trees and compost heaps.
- Baboons can cause financial loss by damaging crops and infrastructure, and occasionally killing livestock.

Signs:

- Primate tracks and faeces with visible berry pips or seeds.
- Activity during daytime.
- Vocalisations during day or night.
- Signs of predation by baboons include:
  - Bite marks resembling knife cuts.
  - Typically ripping open the stomach to access the "milk stomach" (abomasum).

Holistic conflict mitigation methods:

- Do not leave food out for baboons or habituate them to human presence.
- Keep doors and windows securely closed when baboons or monkeys are present.
- Install baboon-proof bars on windows (spacing no more than 7cm) if keeping windows open is desired.
- Install electrical strands below the thatch rim or cover the thatch in chicken mesh.
- Erect a suitable electric fence around the property/dwelling, orchards and/or crops.
- Cover and lock compost heaps and practice proper, wildlife-proof waste management (can also work for jackals and hyaenas).
- Remove fruit trees from gardens in residential areas.
- Remove bird feeders from gardens.

Baboon-proof bins

Interesting facts:

- Both monkeys and baboons dig up clay and consume small quantities to obtain minerals.
- They breed throughout the year.
- Primate teeth are self-sharpening.
- Baboons and monkeys are diurnal (active during the day and sleep at night).
- Their binocular vision enables them to perceive depth and distance accurately
- Social grooming helps maintain the social structure within the troop.
- Females remain in their natal troops, while the males typically disperse.

HONEY BADGERS

Ecological benefits:

- Exceptional digging ability, making food available to other animals.
- Can catch and eat some of the most venomous snakes.

Diet: *Omnivorous, with a wide-ranging diet that includes rodents, reptiles, small birds, scorpions, spiders, centipedes and other invertebrates. They also consume roots, bulbs, berries and fruits. They often feed on bee colonies causing great damage to hives.*

Preferred habitat: *Found in almost all types of habitats, except for true deserts and lowland rainforests.*

Signs:

- Damaged bee hives.
- Signs of predation by honey badger:
  - Most well-known predation is the killing of domestic fowl and lambs of small stock.
  - In rare cases where honey badgers attack larger livestock like sheep, they may grab onto the wool or fur and start eating without killing the animal, often targeting the face or shoulder.

Holistic conflict mitigation methods:

- Construct sturdy enclosures to keep honey badgers out of chicken runs or coops.
- Install adequate fencing or electric strands to protect small livestock.
- Raise beehives on a solid base at least 900m off the ground, or secure them inside a steel frame to reduce access by honey badgers.
- Install motion-activated lights. Research in Kenya has shown that 400-Lumen motion-activated LED lights are highly effective at deterring honey badgers at night.

Potential conflict:

- Predation on beehives and damage to the hives due to their fondness for bee larvae.
- Occasional attacks on livestock, particularly known in the Overberg area.

Interesting facts:

- Honey badgers are typically solitary, although mothers and offspring may remain together for up to 18 months.
- Males have large home ranges.
- Males weighing between 9-14 kg are generally a third larger than females, who typically weigh between 5-10 kg.
- Honey badgers are often killed through the indiscriminate use of poisons and traps.
- Feeds on honey and bee larvae, hence its scientific name, *Mellivora* meaning “honey-eater”.
- The honey badger possesses formidable strength.
- Support the Badger Friendly Initiative by purchasing honey only from badger- friendly sources.

BUSHPIGS

Diet: *Omnivorous, eating a wide variety of plant, animal and carrion.*

Preferred habitat: *Bushpig prefer wooded habitats and are most active in areas that offer dense cover and a water source.*

**Note that similar signs and conflict may be caused by feral Eurasian wild boar and escaped domestic pigs.*

Potential conflict:

- Crop damage due to messy feeding habits.
- Damage to fences.
- Trampling and burrowing that can cause soil erosion.
- While not primarily predators, bushpigs have been known to occasionally attack and kill domestic livestock (particularly lambs and ostrich chicks).

A radio being used as a deterrent

Ecological benefits:

- Aerate the soil by churning it up to find bulbs and other plant and animal material.
- Feeding behaviour provides access to food for other animals.
- Aid in seed dispersal.

Signs:

- Churned up lawn and flower beds.
- Presence of droppings and tracks.
- Raided refuse containers.
- Clear access/exit routes along and underneath fences.
- Signs of predation or scavenging:
  - May sometimes kill small lambs leaving a very messy site, e.g. carcass pulled apart or dragged short distances.
  - Roll the skin away from the carcass using their nose, looking almost as if it was skinned with a knife.
  - Unable to reach some parts of the meat that specialised carnivores would normally eat.
  - Bones are not eaten.

Holistic conflict mitigation methods:

- Prevent access to gardens by erecting a wall or sturdy fence.
- Place steel electric strands around affected areas.
- Place wildlife-proof refuse bins and manage refuse responsibly.
- Never feed wild animals.
- Crop damage: use a combination of preventive measures such as a radio, flashing lights, electric fencing and smell deterrents.

Interesting facts:

- Bushpigs live in family groups consisting of a dominant sow and several females with their young. Boars are solitary, sometimes forming small boar groups. They visit the sow groups only to mate.
- Although often confused with the warthog, bushpigs are primarily nocturnal and lack the distinct facial warts of a warthog.
- Bushpig can become aggressive if provoked or threatened, especially when there are young piglets.

PREDATORS

BLACK-BACKED JACKALS

Diet: *Omnivorous, including fruit, berries, grass and insects. They are opportunistic scavengers and generalist hunters, taking prey according to availability, with some preference for species that hide their young.*

Preferred habitat: *Prefer open plains with some shrubs for shelter.*

Ecological benefits:

- Are secondary predators and scavengers, contributing to keeping the veld clean by consuming carrion.
- Help suppress rodent and insect populations.
- Play an important role in the eco-system by signalling to vultures that a carcass is safe to feed on.
- In areas where jackals have been removed, caracal populations have increased, leading to conflict.
- Are part of an intricate balance in predation on farmland.

Potential conflict:

- Tend to prey on lambs and occasionally take adult sheep and goats.
- Cows lying down to give birth may be attacked, often resulting in lethal injuries to both the cow and calf.

Signs:

- Jackal tracks are dog-like with visible nail marks in their paw prints. Their track profile is oval, with a longer length than width.
- Their scat is dog-like, often containing insect or plant material, in addition to hair.
- Signs of predation by black-backed jackal:
  - Jackals chase their prey and bite as they run alongside it, resulting in bite marks on the jaw and side of the neck. Often the prey's ears are torn in the process. Bite marks can also occur on the back of the legs and udder.
  - They typically take one animal per kill, unlike some cat species and feral dogs, which may engage in surplus killings.
  - They start eating from the flank, using their longer muzzles to eat the soft intestines and organs first, leaving a characteristic skin flap and causing a "hollowed-out" appearance to the carcass.
  - They may take small lambs to their den site for their young and occasionally remove parts of the carcass, most commonly the front leg.

Holistic conflict mitigation methods:

- See conflict mitigation concepts, methods and strategies on pages 26 and 28.

Interesting facts:

- The black-backed jackal is one of the most persecuted predators and scavengers in conflict with humans.
- As its name suggests, it has a distinctive black saddle and black-tipped tail.
- The black-backed jackal makes a distinctive wailing call, often answered immediately by family members and later by other nearby individuals or groups.
- Jackals typically live in pairs and occupy defined territories.
- The home range size of a territorial breeding pair of jackals is extremely variable, ranging from 40 ha to 10 000 ha (average 1 000 – 4 000 ha) depending on the area, and may change seasonally.
- Young jackals from the previous season sometimes stay behind to assist in raising the new litter as "helpers".
- Jackals also eat fruit, with the "jakkalsbessie" named after this behaviour.

BROWN HYAENAS

Ecological benefits:

- Being scavengers, brown hyaenas clean up carcasses naturally.
- Have highly acidic stomachs which can digest contaminated food and prevent the spread of disease.
- Compete with smaller carnivores like jackals and may keep their numbers low.

Diet: *Mostly scavengers with a varied diet, eating meat and bone from carcasses, as well as birds, reptiles, eggs, insects and even plant material. They occasionally hunt small mammals.*

Preferred habitat: *Found in a wide range of habitats from savanna woodland to desert.*

Potential conflict:

- While reports are rare, may occasionally predate on livestock.
- May be blamed for killing an animal when found feeding, but it is likely that the animal was already dead.

Signs:

- Spoor with curved toes and visible claw marks ; hindfoot tracks quite a lot smaller than those of forefoot.
- Sausage-shaped droppings that become white over time due to high calcium content.
- Pasting – thick, light and dark secretions from anal glands on grass stalks, used to mark territory.
- Underground dens in thick vegetation or rock crevices, with scat and animal remains near the entrance.
- In rare cases where livestock is killed, it is usually done by crushing of the skull from above.

Holistic conflict mitigation methods:

- See conflict mitigation concepts, methods and strategies on pages 26 and 28.

Interesting facts:

- Brown hyaenas are nocturnal and sleep in a communal den during the day.
- Brown hyaenas forage alone, although they live in clans of 4 to 15 individuals.
- Clan members work together to defend their territory and feed and care for young.
- Brown hyaenas do not make loud calls, and mainly communicate through scent marking.
- The brown hyaena is listed as Near Threatened on the IUCN Red List.

CAPE CLAWLESS OTTERS

Ecological benefits:

- Presence indicates and contributes to a healthy aquatic environment.
- Create and maintain pathways in riparian habitats.

Diet: *Opportunistic predators feeding on fish, crustaceans, amphibians, molluscs and birds.*

Preferred habitat: *Rivers, streams, lakes and swamps.*

Potential conflict:

- Predation on fish or poultry stock.
- Occasional predation on small lambs near water.

Signs:

- Distinctive clawless tracks with 5 toes.
- Gritty faeces containing mainly crab shells, fish scales, bones and feathers
- Signs of predation by otter:
  - Evidence of predation of poultry or fish stocks.
  - Feeding signs typically found around the head and neck region of prey.
  - May sometimes kill small lambs near water, although this behaviour often appears to be through play, rather than for food.

Holistic conflict mitigation methods:

- Provide secure overnight quarters for domestic fowl.
- Enclose fish hatcheries and ponds with netting and electrified fencing. Bury the fence 50 cm below the surface and turn the buried end outward at a 90° angle to prevent digging.
- Pack large rocks on either side of fowl enclosures to prevent digging.

Interesting facts:

- The Cape clawless otter is the second-largest freshwater otter species, but occur in both salt and freshwater environments.
- Otters have a distinctive loud whistling call.
- Otters live in small family groups
- Otters have rubbery paws to aid in catching aquatic prey.
- Cape clawless otters can traverse long distances over land to find food.
- The Cape clawless otter is listed as Near Threatened on the IUCN Red List.

CARACALS

Diet: *Generalist hunters with a wide prey range consisting of small to medium-sized prey, including hares, vervet monkeys, dassies, birds, reptiles and the young of antelope, such as springbok lambs. They typically do not scavenge.*

Preferred habitat: *Rugged terrain (koppies and mountains) and shrubland (bush).*

Potential conflict:

- Individuals may develop the habit of killing small livestock, including occasionally adult sheep.
- May engage in surplus killing (killing more prey than they can eat).

Signs:

- Typical cat-like tracks without visible nail imprints.
- Scat is cat-like, but is larger than that of a house cat and may contain hair.

Ecological benefits:

- Help to control hare, dassie and rodent populations.
- As a secondary predator in the food chain, they play an important role in the ecological balance.
- Dominant individuals can help keep other caracal and predators out of the area.

- Signs of predation by caracals:
  - Prey is typically killed with a bite on either side of the windpipe, just below the jaw.
  - Bite marks typically feature two puncture wounds on either side of the throat or windpipe.
  - Claw marks are often visible on the carcass, located either on the shoulder, belly or hindquarters.
  - Occasionally, prey may be dragged over short distances.
  - Carcasses may be covered with vegetation or soil.
  - Occasionally, a part of the carcass (e.g. the neck) may be taken to the caracal's young.
  - Usually caracals prey only on a single animal, but multiple kills are not uncommon, especially when kittens leave the den.

Holistic conflict mitigation methods:

- See conflict mitigation concepts, methods and strategies on pages 26 and 28.

Interesting facts:

- Caracals are solitary and are typically found in pairs only during the short breeding period.
- Caracals are capable of taking prey as large as adult springbok or young kudu.
- Their distinctive and contrasting ears are used to accentuate facial expressions.
- An "ear-flick" is used as a mild threat gesture.
- Caracals are skilled climbers and seek refuge in trees when pursued.
- Caracals are predominantly nocturnal.
- Males are territorial towards other males, with large home ranges overlapping smaller female territories. Home range sizes range from 700 ha to 4 800 ha in the southwestern Cape.
- The caracal is not a lynx. Lynx are medium-sized, short-tailed wildcats in North America (i.e. bobcat), Europe and Asia.

LEOPARD

Ecological benefits:

- Stealthy, powerful hunters that typically ambush their prey and hunt at night, keeping their prey species alert and ecologically fit.
- As an apex predator, they play a critical role in maintaining ecological balance.
- Occasionally kill caracals, jackals and other smaller predators that could compete for their prey, thereby helping to control their populations.
- Remove sick and weak animals from the ecosystem and so prevent the spread of disease and support the persistence of genetically fit animals.

Diet: *Generalist hunters with a wide prey range, consisting of small to medium-sized animals like small antelope, porcupines, dassies, hares, and even birds and reptiles. They typically do not scavenge.*

Preferred habitat: *Leopards exhibit a wide habitat tolerance but depend on adequate cover. Primarily persist in mountainous areas or well-vegetated riverine areas rather than open, flat terrain.*

Potential conflict:

- Prefer to prey on natural prey species, but where the natural prey has been reduced or where livestock are not properly guarded, they may occasionally resort to preying on livestock.
- May engage in "surplus" killing (killing more prey than they can eat).

Signs:

- Typical large cat-like, rounded tracks without nail prints.
- Droppings contain lots of hair and chewed pieces of undigested bone and hoof. Over time, old droppings become white due to high calcium content.
- Scratch marks in the bark of large trees.
- Signs on and around carcasses
  - Drag marks where prey has been dragged off.
  - Large puncture marks visible where canines entered the throat area of the prey.
  - Claw marks may be found on the rump or shoulders of larger domestic stock.
  - They will typically eat the inside of the hind legs first and consume 1-2kg of meat.
  - They avoid eating the intestines of the prey.
  - Plucked wool or fur around the carcass.
  - In smaller prey, the neck is usually broken.

Holistic conflict mitigation methods:

- See conflict mitigation concepts, methods and strategies on pages 26 and 28.

Interesting facts:

- Each leopard has unique rosette patterns, not spots like the cheetah.
- They are mainly active at night, but also occasionally during the day.
- A leopard call sounds like sawing wood.
- Leopards are solitary, moving within a well-defined, sexually exclusive territory or home range. Contrary to common belief, they do not live in a single cave but instead find suitable places to rest as they move within their territory.
- Male leopard home ranges in the Western Cape are between 10 000 ha and 91 000 ha, while females occupy smaller territories between 7 400 ha and 20 300 ha.
- There are no reports of unprovoked leopard attacks on people in the Western Cape. However, if one were to corner a leopard, or threaten a female's cubs, they could be extremely dangerous.
- The leopard is listed as Vulnerable on the IUCN Red List.

OTHER ANIMALS IN CONFLICT WITH HUMANS

- **Stray dogs** that become feral and start hunting can decimate wild prey species and cause significant livestock losses, accounting for huge financial losses to farmers. Many wild predators are persecuted and blamed for losses caused by feral or stray dogs.
- **Feral cats** can potentially cross breed and hybridize with the native Southern African wildcat. They also pose a disease risk, like "snuffles", to wildcats and have an impact on small prey animals.
- Conflicts with **crows** can take several different forms, like raiding crops. Roadkill along roads and fallen grains on fields and roads during harvest are an accessible source of food and can contribute to a drastic increase in crow numbers.
- The **Spur Winged Goose** and the **Egyptian Goose** have both become unpopular in grain production areas and are facing increased persecution.
- The **European paper** and **German wasps** are expanding their range throughout the Western Cape and have an impact on the wine, deciduous fruit and bee-keeping industries.

Landowners are welcome to contact CapeNature or other relevant conservation organisations in their area (see "Useful Contacts" on page 36) to discuss a holistic and responsible approach to managing conflict with these species.


Egyptian Goose


Spur Winged Goose


Pied Crow


European paper wasp


Stray dog


Feral cats

GENERAL CONCEPTS FOR PREDATOR CONFLICT MITIGATION

Carcass inspection: identifying cause of death

When livestock has died, it is important to identify the correct cause of death to mitigate further losses effectively. If the death is due to predation, a thorough inspection of the carcass and the scene not only prevents blaming the wrong predator, but also ensures tailored mitigation strategies can be applied for the responsible culprit. For example, if a proper investigation is not conducted, jackals may be blamed when domestic dogs are responsible for the killing of livestock.

Aside from predation, other causes of death or disappearance could include disease, exposure, drought, poisonous plants, theft, injuries from falls or getting stuck in holes or mud. Many of these risks can be mitigated through simple adjustments in livestock management practices. Therefore, a logical and step-by-step approach should be followed to determine the cause of death and then devise an appropriate response.

It is advised to **report predation of livestock to CapeNature or a conservation organisation within 24 hours** of the incident so that they may assist in evaluating the scene and identifying the species responsible.

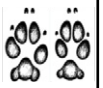
Approaching the carcass

When livestock has been killed, the area should be approached as a "crime scene", taking care not to destroy any evidence that might help to determine the responsible predator.

- Generally **approach the scene from the outside to the inside,** first looking at the general scene for evidence of predation, and only later focusing on the carcass itself.
- **First look for and photograph evidence** like tracks, blood, evidence of chasing or struggle, hair, drag marks, etc., and then for the position of the carcass and its size.
- Tracks and other **evidence should be preserved,** and the number of people at the kill site kept to a minimum until photographs have been taken of all the evidence and/or an expert official from CapeNature or another organisation has completed their on-site inspection.

When predation is confirmed, understanding the typical killing patterns of different predators (**Table 1**) can aid in determining the correct culprit. However, predators are individuals and there can be exceptions to these patterns. It is important to recognise that many carnivores also scavenge and **the fact that a predator fed on a carcass does not necessarily indicate that it had killed the animal.** In cases where there are no killing bite marks on the carcass (neck, throat or elsewhere) or a broken neck, it is more likely that the animal died of natural causes. Predator tracks found in the area may indicate scavenging, rather than active predation. Skinning the neck area is an important step to find canine bite marks to confirm that it was a case of predation and to assist in identifying the culprit.

Table 1 – Signs of Predation and Mitigation Strategies for Common Predator Species in the Western Cape. Adapted from Schumann (2004).

SPECIES	Risk Level	Tracks	Location of carcass	Typical prey size	Claw marks	Stomach	Fang mark location	Bite width	Parts eaten	Bones	Other evidence
Domestic dog	10	 Fore Hind	Anywhere	0-40kg	None	Partly eaten	All over	36-58mm 2-3 fingers		Long bones chewed / eaten	Wool, hair, skin, remains scattered no marks on throat
Caracal	10	 Fore Hind	In bushes or grass	10-25kg	4 short	Intact	Mostly throat or back of neck	36-58mm 2-3 fingers		Tips of ribs chewed	Hair, wool plucked and scattered; skin or guts not eaten; red hairs on prey's skin
Black-backed jackal	10	 Fore Hind	Anywhere	0-50kg	None	Partly eaten	Along neck and lower jaw; hind-quarters of large prey	19-21mm ¾ - 1finger		Tips of ribs chewed	Face and ears chewed or torn,fore-legs may be completely eaten ; flesh eaten with loose, open skin
Leopard	3	 Fore Hind	In tree, vegetation or cave	10-50kg	4 short	Intact	Back of neck, throat	40-46mm 4 fingers		Tips of ribs chewed	Hair, wool plucked and scattered; skin or guts not eaten; drag marks
Brown hyaena	1	 Fore Hind	In bushes or hole	0-50kg	None	Partly eaten	All over	47-58mm 4 fingers		Skull crushed	Wool, hair, skin and remains scattered; bitten or moved, skull, bones, wool, hooves, blood and guts remain

MITIGATION METHODS AND STRATEGIES

Various mitigation methods can be used when livestock predation has occurred or to prevent it altogether. Good mitigation prevents livestock losses and the need for costly reactive measures. Each mitigation method has pros and cons (whether physical or financial) depending on the landscape and predator species present. Therefore, employing a combination of mitigation strategies is often most effective.

1. Preventative methods

1.1. Protect and manage the natural veld sustainably to maintain the health and numbers of local natural prey species.

- Predators typically prefer native prey species. **Improving the diversity of available natural prey** is one of the most effective methods to reduce livestock depredation. This does take time but can improve the sustainability of the entire farm.
- **Corridors of natural veld** provide essential shelter for potential natural prey and predators.
- **Stocking native species,** such as springbok, as a buffer species to livestock can be effective. Springbok also have their lambs in the same season as most farmers have their livestock lambing season and when jackals have their pups.
- **Intensive crop-farming can have a negative impact** on the distribution and behaviour of prey species. Native prey animals either have reduced food available or start causing damage to crops and may be killed by farmers. Both of these cause decrease in prey numbers which can lead predators having less prey.
- Proactively **act against and report illegal snaring and hunting** to ensure sufficient alternative natural prey, reducing the necessity for predators to target livestock for survival.

1.2. Consider grazing area and stock placement.

- Where feasible, **avoid using marginal areas** such as remote mountain regions for livestock grazing, as these areas tend to have higher exposure to predators.
- Do not keep stock in remote locations without **adequate protection measures** in place.
- Try to ensure that livestock lamb/calve in **camps near the farmyard** to allow for constant surveillance.
- Move stock to a **safe area during the night** if operating in a region where predators are particularly active.

1.3. Consider using livestock guardians.

- **Human herders** are among the most effective mitigation methods to prevent livestock losses during the day. Well-trained herders can also increase livestock production through better veld management, improved husbandry and early disease detection. Human herders can be combined with livestock guardian animals to improve the detection of predators.
- **Livestock guardian dogs,** such as Anatolian Shepherds or Maluti dogs, are typically large and aggressive enough when fully grown (over 1 year old) to deter large predators like leopards, particularly at night. They also tend to cost less over time than human herders. For smaller predators, a smaller dog breed might be just as effective, at a lower cost. It is important to note that that proper training and selection of livestock-guardian dogs can take about a year on average.
- **Other animals** like donkeys, alpacas, llamas and ostriches can also serve as livestock guardians against smaller predators, particularly during the day. They are not as effective at night. The majority of these do not require training or extra feed.

1.4. Consider adjusting husbandry/ management practices.

- Focus on **intensive management,** particularly during the lambing/calving season.
- Shorten the **duration of the lambing and calving seasons** to reduce management input.
- Supply **optimal grazing in predator-safe areas** during the lambing and calving seasons.
- **Coordinate the lambing and calving seasons between neighbouring farms** to prevent a situation where only certain farms are targeted by predators.
- Align lambing and calving seasons with that of the **breeding periods of the natural prey.**
- **Remove any carcasses and lone lambs** that may attract predators, particularly where black-backed jackals occur in the area. Timely carcass removal can also prevent predators which sometimes eat carrion from developing a taste for livestock.
- **Do not dock the tails of young lambs in the veld,** but rather do it in a kraal near the farmyard. This ensures that a blood scent is not left behind in the veld, which could attract predators.
- **Mixed camps** of sheep with larger cattle can help deter predators such as caracal from preying on sheep.

1.5. Make use of physical barriers.

- **Fencing** is generally more effective and easier to secure against jackals than against cat species. Secure fencing (preferably electrified) should be maintained, as poor fences allow jackals to move freely. Adequate fencing may be expensive and requires regular maintenance but can be highly effective.
- Keep stock in a **predator-proof kraal** at night. In regions with leopards, kraals should be genuinely leopard-proof, completely enclosed, or at least have 2m high fencing/walls without any holes, and with an overhang to prevent jumping from the outside. Clear trees or tall vegetation on either side of the fence and avoid using thick crossbars that may serve as a "ladder".
- **Protective collars** on livestock, such as King and Dead Stop collars, are very effective against caracals in particular. They are not particularly effective against jackals.

1.6. Use deterrents.

- **Bell collars** and electronic deterrence collars can often temporarily deter predators, particularly during periods of greater livestock vulnerability such as lambing season. Predators may become used to the sound over time.
- Motion-activated **lights and/or sound systems** can be effective deterrents, especially as cost-effective but temporary solutions until more permanent mitigation or control measures can be implemented.
- Progress is being made on **scent deterrents**, including pheromones or scat from the same or other predator species. However, these must be reapplied regularly to maintain their effectiveness.

1.7. Confirm and identify the species and individual responsible for losses.

- Make sure that you are **100% certain of the predator species** responsible before implementing preventive or reactive measures. This involves promptly inspecting and verifying signs on the carcass and at the scene to ensure accurate identification of the culprit.
- Use trail cameras to **monitor the presence of predators**. These cameras can also be set on a livestock carcass to potentially identify presence of the species or the individual potentially responsible, particularly when multiple predation events have occurred. It is important to note that an animal recorded feeding on a carcass can be secondary predation or scavenging and does not confirm that it is the same animal that made the kill.
- **Keep accurate records** of losses, including dates, times, photographs of the evidence, and species responsible. This will help build up a conflict history and assist with understanding the behaviour of the potential culprit/s.

A skaapwagter device that uses lights and sounds to deter predators.

1.8. Do not remove non-problem individuals.

- **Allowing resident and dominant individuals** that are not "stock thieves" to stay in the area is an effective way to keep other potentially problem individuals out, especially in the case of caracals and leopards.
- The **presence of certain predator species** can help regulate the populations of other predator species. For example, a leopard present in the area may limit or even exclude caracal from the same area.

2. Reactive methods

For the following, it is important to note that legal procedures, including permit applications and reporting, must be followed for both the control method and the species involved. **These methods are only to be considered if directed by a CapeNature official** (see "Useful Contacts" on page 36).

2.1. **Translocation of predators** may be considered in rare situations, although it is important to note that this option is not always viable or ethical. Moving an individual predator may just move the problem to a new area, and in some cases may lead to the death of the individual or individuals of the same species in the new area and possibly also the individual translocated animal, which is naïve to the new area to which it has been translocated. This can be due to direct competition for prey and/or fighting for territory, transferring of diseases, inability to adapt to a new area, or stress. Individuals may also attempt (and can be successful) to return to their original area, coming into conflict with humans and livestock along the way.

2.2. **Collaring and tracking** of a perceived "problem" individual is sometimes done to implement an "early warning system". However, this approach can lead to the targeted killing of the animal by landowners aware of its movements and a shifting of responsibility from livestock management to the conservation authority who now has to constantly monitor the animal. Additionally, this method relies on the costly capturing, sedating, collaring and taking on responsibility for the well-being of the individual animal.

2.3. **Removal of the confirmed responsible individual/s** (through lethal control methods, e.g. hunting or trapping and euthanising) may alleviate conflict if a particular individual was confirmed to be responsible for multiple livestock losses and other mitigation methods have been exhausted and/or ineffective. It is, however, important to note that the removal of an individual opens up space for other individuals of the same or another species to move into the vacuum created. While there may be a short period of no conflict, there may be further or even increased conflict in the future.

2.4. Work within the law (see page 34)

- **Poison controls are either NOT legal or require a special permit to use in very rare cases.** They are also generally non-selective and risk killing the incorrect individuals, failing to resolve the underlying issues.
- The use of **hunting dog packs is also illegal.** While a permit may be obtained to use sniffer dogs, these dogs are not permitted to kill predators. Well-trained sniffer dogs can aid in finding the specific predator responsible if it is a habitual livestock killer.

- It is **illegal to set wire snares and other hold traps** like Terminator traps, gin traps and "doodslaners". These inhumane methods are also non-selective and risk trapping any species, often causing traumatic injury or slow death. Predators that manage to escape these traps may be severely injured or maimed and may not be able to move long distances, therefore staying in the area and relying solely on easy-to-hunt prey such as livestock for survival, which increases conflict. Additionally, use of a trap cage, pitfall trap or any type of spring trap is illegal without a permit from CapeNature.
- Any trapping or lethal control measures targeting perceived damage-causing animals should be conducted with **relevant reporting procedures and required permit applications, and in collaboration with conservation officials.** This ensures the use of ethical and humane methods, prevents persecution of the incorrect individual or species, and avoids moving the problem elsewhere, or making the problem worse.

WORKING WITH THE LAW

"Hunting", which by definition includes searching for, capturing or attempting to capture any wild animal in the Western Cape, is controlled by the Nature Conservation Ordinance No. 19 of 1974.

Under this Ordinance, it is an offence to "hunt" any protected wild animal without a permit or license. It is also an offence to use any of the following methods (referred to as "prohibited hunting methods") without a special permit:

- Hunting by means of fire or poison.
- Hunting with the aid of artificial light.
- Hunting on or from a public road.
- Hunting by means of any trap, which by definition includes any spring trap, snare, gin trap, cage, net, pitfall or birdlime.
- Hunting during the period one hour after sunset on any day and one hour before sunrise on the following day.
- Hunting with any weapon in a public place within the jurisdiction of a local authority.
- Hunting with a firearm which discharges a rimfire cartridge of a calibre less than 5,6 mm (.22 calibre)
- Hunting with a firearm which discharges more than two shots without manually reloading (semi-automatic weapon)
- Hunting by means of a bow and arrow.
- Hunting by means of a set gun or any similar contrivance.
- Hunting by means of any device injecting an intoxicating, narcotic agent, or poison into such animal
- Hunting by using of a dog, except for bird hunting or for following/searching for a wounded animal.
- In the case of birds in or upon inland waters, hunting using a boat for chasing or killing such birds.

A special "prohibited hunting method permit" is required should any of the methods listed to the left be used.

It is important to note that not only is a hunting license or permit required before any hunting activity can take place, but also written permission of the property owner, on whose land the hunt or capture is taking place, is mandatory. This written permission must contain the following:

- The name and address of all parties involved.
- The number and species of wild animals to be hunted.
- The dates during which hunting will take place.
- The specific land in respect on which the hunting is granted.
- Signed and dated by the property owner.

It is of utmost importance that all parties involved in the capture or hunting of wild animals and / or the transport of any such animal or carcasses, are fully au fait with all legislation, over and above the Nature Conservation Ordinance, applicable to that activity. If in doubt, please contact your nearest nature conservation office (see Useful Contacts on page 36) or visit capenature.co.za/permits/hunting-permits

ADDITIONAL RESOURCES

GUIDES

- Guide for Hunters in the Western Cape (CapeNature) – www.capenature.co.za/uploads/files/Permits/Guide-for-hunters-in-the-Western-Cape.pdf
- Livestock Predation and its Management in South Africa: A Scientific Assessment (Centre for African Conservation Ecology) – www.predsa.mandela.ac.za/Scientific-Assessment-Publication
- The Predator-Safe Livestock Guide (Cheetah Conservation Botswana) – www.cheetahconservationbotswana.org/uploads/6/4/3/3/64330039/predator-safe_guide_book.pdf
- Predation Management Manual: The farmer's one-stop guide to identifying and managing predators (Predation Management Forum) – www.sasmallholder.co.za/wp-content/uploads/2018/04/Animal-Predation-Manual.pdf

LEGISLATION

- Nature Conservation Ordinance No. 19 of 1974 – https://www.capenature.co.za/uploads/files/Nature-Conservation-Ordinance-19-of-1974_2021-05-31-075828_whkc.pdf
- Western Cape Biodiversity Act No. 6 of 2021 (to repeal the Ordinance once promulgated) – www.capenature.co.za/uploads/files/act-no-6-of-2021-western-cape-biodiversity-act-2021.pdf

ONLINE RESOURCES

CapeNature - **capenature.co.za**

- Permits (overview) – capenature.co.za/permits
- Hunting guidelines and permits – capenature.co.za/permits/hunting-permits

Cape Leopard Trust – **capeleopard.org.za**

Endangered Wildlife Trust (EWT) - **ewt.org.za**

- Carnivore Conservation Programme - ewt.org.za/what-we-do/saving-species/carnivores

International Union for Conservation of Nature (IUCN) – **iucn.org**

- Best practice guidelines and resources – iucn.org/resources
- Red List of Threatened Species – iucnredlist.org

Landmark Foundation – **landmarkfoundation.org.za**

- Human-wildlife conflict mitigation – landmarkfoundation.org.za/human-wildlife-conflict-mitigation

NCC Environmental Services – **ncc-group.co.za**

- Baboon behaviour and conflict mitigation – ncc-group.co.za/information-and-leaflets

Predation Management South Africa – **pmfsa.co.za**

- Knowledge library – pmfsa.co.za/knowledge-library

Snare Free – **snarefree.co.za**

- Anti-snaring information and resources – snarefree.co.za/resources

South African National Biodiversity Institute (SANBI) – **sanbi.org**

- Biodiversity foundations and policies - sanbi.org/biodiversity

World Wildlife Fund (WWF) South Africa – **wwf.org.za**

- Conservation Champions and stewardship programmes – wwf.org.za/our_work/initiatives

USEFUL CONTACTS

Organisation / Service	Contact	Contact Number
CapeNature Landscape Offices	Head Office (Bridgetown)	087 087 9262
	Garden Route (George)	044 802 5300 / 087 087 3037
	West Coast (Vanrhynsdorp)	087 087 3034 / 087 087 4132
	Cape Karoo (Oudtshoorn)	087 087 3002
	Overberg (Hermanus)	028 314 0062
	Winelands (Jonkershoek)	087 087 4118
	Paarl (Limietberg Nature Reserve)	021 871 1535
Cape Leopard Trust	Community Outreach Officer	082 086 1011
	Conservation Coordinator	060 850 7270

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CREDITS/ACKNOWLEDGEMENTS

Photograph credits:
CapeNature and the Cape Leopard Trust would like to acknowledge Jaco van Deventer and Dr Joselyn Mormile for their contributions to the content of this booklet.

Photos by CapeNature or Stock images except where specified below:

Cover: Caracal – Martin Harvey. Ewe with lambs – Jeannie Hayward.
Inside cover: Lizette Burger.
Contents: Goats – Jeannie Hayward.
Page 3: Main photo – Darryl J Smith; Circular photo – Jeannie Hayward.
Page 6: Jeannie Hayward.
Page 7: Main photo – Anita Wilkinson; Circular photo – Cape Leopard Trust.
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Notes

Notes

CAPENATURE

PHYSICAL ADDRESS
CapeNature
PGWC Shared Services Centre
Bridgetown
Cape Town

POSTAL ADDRESS
CapeNature
Private Bag X29
7766

TELEPHONE
087 087 9262

WEBSITE
capenature.co.za

CAPE LEOPARD TRUST

PHYSICAL ADDRESS
Cape Leopard Trust
The Barn
Lasswade Farm, Spaanschemat River Road
Constantia
Cape Town

POSTAL ADDRESS
Cape Leopard Trust
PO Box 31139
7945

E-MAIL ADDRESS
clt@capeleopard.org.za

WEBSITE
capeleopard.org.za

CapeNature

CAPE LEOPARD TRUST