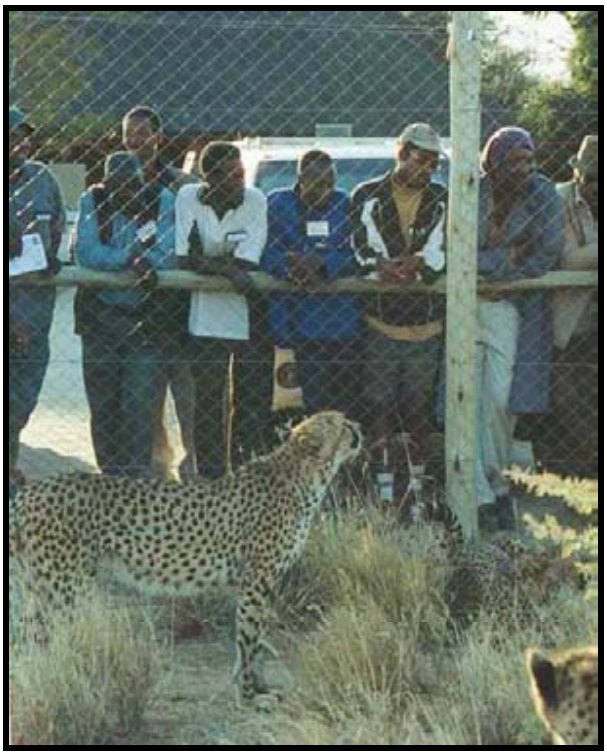
Guide To Integrated Livestock and Predator Management

A CCF RISE- Namibia collaboration

Compiled and Edited by Mandy Schumann

GUIDE TO INTEGRATED LIVESTOCK AND PREDATOR MANAGEMENT



Course participants meeting cheetah – Cheetah Conservation Fund (CCF) 2003.

Adapted from a CCF / RISE-Namibia Communal Conservancy Shepherd Training Course

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Training Course 2003

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FOREWORD

This foreword was adapted from a speech delivered by the Honourable Mr. Lukas Hifitikeko, Regional Councillor of the Otjozondjupa Region, for a course on *Integrated Livestock and Predator Management*, in July 2003. The course was planned and presented by staff members at the Cheetah Conservation Fund (CCF), the Rural-people's Institute for Social Empowerment in Namibia (RISE) and the Ministry for Environment and Tourism (M.E.T.)

The Honourable Mr. Lukas Hifitikeko and Mandy Schumann touring CCF's Education Centre. This unique centre is open to the public daily.

"It is my pleasure to address a group of Namibia's farmers and wildlife shepherds of the future, gathered to learn, share their knowledge with others and take new information back to their communities.

The aim of this course is to share ideas and information on Namibia's fascinating and potentially valuable predators, their importance in our lives and environment and how we can better understand them and learn to live together with them.

Integrated livestock and predator management is the catch phrase of the future and Namibia has taken the forefront in research and development of techniques to better live together with this part of our country's wildlife.

When one looks at the rock art across the country, Damaraland area being of particular richness, one can see the variety and numbers of game that used to wander across our country. Today many areas have only remnants of what used to be.

Rock Art at Twyvelfontein.

We have advanced technology and communication. We can fly, stand on the moon, speak across oceans, cross beneath them and cure once-feared diseases and plagues.

Yet, amongst all this modern technology, we are still battling to do what our forefathers seemed to do with such ease – and that is to live amongst our wildlife in harmony.

Have our predators and large animals, such as the elephant, increased in number to cause these problems, or have we forgotten how to live with them and ourselves, so that we now fail to leave space for our wildlife? What is too many cheetah, lion, gemsbok or springbok?

FOREWORD

If we have no space for this wildlife, where should they go? Many are just like us. They like space and they want to see horizons free of human influence.

We do have game reserves, but are these adequate to conserve Namibia's wildlife and beauty? Should we, the people of Namibia, not also be able to benefit from having the most unrivalled diversity and beauty of wildlife and scenery around where we live?

Some people are city people, but most Namibians are country people at heart and do not enjoy the rush and crowded cities.

Many countries overseas have cities that are so large you can travel a day to cross from one end to the other.

People from these countries do not have the chance to see wildlife, open spaces, red sunsets or experience really fresh unpolluted air or water. Namibia is unquestionably one of the most beautiful countries in the world.

We have vast open spaces, and wildlife such as many overseas countries have never seen. People come to Africa to see this wildlife and in some cases they still believe they will encounter elephants and lions in the city streets. Whilst this is not the case, they will see a world in one when visiting Namibia.

Much of this beauty and tourist attraction lies in the North West of the country - in our hands. Namibia's wildlife needs the same vast open, unspoiled areas we do to live. We have lived together in the past and must come up with ways in today's life to do the same. Predators – such as the lion, cheetah, leopard and even the old wily jackal - have come with us since time began.

Much of Namibia is harsh and arid with little rain most years. The wildlife has adapted to surviving here, just as the people of Namibia have adapted. Livestock forms the basis of most Namibians' way of life and tradition. Together, wildlife and livestock can be the means of taking our communities into a more prosperous future. Our Government recognises the value of our wildlife and has made Namibia one of the first countries to enshrine conservation in its Constitution.

Integrating livestock and predator management is the biggest challenge facing our emerging conservancies. Let us take up the challenge, and at the end of it say: *We can live together and we will prosper doing so, for the wildlife, the predators, and ourselves*.

I hope you enjoy this manual and will make the most of it and take the information back to share with your fellow conservancy members."

INTRODUCTION

The Cheetah Conservation Fund is a non-profit Namibian Trust founded in 1990 to conserve the wild cheetah.

The organisation's mission is "to be an internationally recognised centre of excellence in research and education on cheetahs and their eco-systems, working with all stakeholders to achieve best practice in the conservation and management of the world's cheetahs".

The organisation has two primary goals in mind: research and education. Research into the biology, ecology and disease aspects of cheetah, livestock management techniques that reduce losses to predators as well as education and outreach programmes that involve visits to farmers and schools, all form part of the CFF programmes.

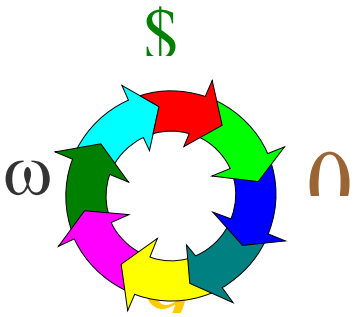
After extension visits to communal conservancies in the north-west of Namibia, CCF was requested to conduct a course on integrated livestock and predator management for communal conservancy shepherds.

CCF, RISE-Namibia and the Ministry of Environment and Tourism collaborated to present the course. CCF staff organised and presented the course at the CCF centre, located 44 km east of Otjiwarongo. RISE-Namibia and M.E.T staff co-ordinated the participants and arranged transport to CCF. Thirty-six Communal Shepherds from six communal conservancies participated, as well as one staff member from the Waterberg Conservancy.

The contents of this manual reflect the information presented during the training course conducted at CCF.

Every effort has been made to create a document that is applicable to integrated livestock / predator management in communal conservancies. The main aim of this manual is to assist conservancy shepherds in their community roles. Therefore, basic aspects of predator behaviour and ecology, the correct identification of predators, correct identification of livestock losses and the prevention of livestock losses to predators have been covered. Not all of Namibia's predators have been included, only the primary one dealt with during the course.

CHAPTER 1:
UNDERSTANDING THE IMPORTANCE OF PREDATORS



Farmlands in Namibia are still wild and in a natural state for the most part, as most farming is with free-range livestock.

As a result, an abundance of wildlife shares the farmland with Namibia's farmers. While game species such as eland, kudu, gemsbok, springbok and hartebeest are welcomed by most farmers, due to their perceived economic value, predators - large and small - are mostly unwelcome and persecuted, whether or not conflict occurs.

Many farmers fail to acknowledge the role predator's play in the ecosystem. Africa's predator and prey species evolved together. The hunting of game by predators resulted in the incredible abundance and diversity of game we see today. By developing ways of evading predators, the game helped hone the variety and amazingly adapted predator species we see today. Without one, the other would not have developed. Wildlife is unquestionably one of Africa's most valuable resources and gives Africa its unique image.

Predators are vital to the health of our wildlife and are an integral part of what attracts tourists to Africa.

With sound livestock and wildlife management, predators can be incorporated and play the key role for which they have evolved. Communities can also then benefit from both components – livestock and predators.

Without predators, game species would be less healthy, as those weaker animals usually selected by predators will instead survive to reproduce.

Visitors to Namibia want to see game ranging free, not confined behind fences.

In many countries, predators are becoming extinct in the wild and can only be seen in zoos. Namibia has the advantage of wide-open spaces, a rich diversity of wildlife and predators and communities willing to learn to live with them. Every effort should be made to conserve Namibia's predators and their natural environment, for the benefit of all Namibians.

IS MY PROBLEM PREDATORS OR MANAGEMENT?

Predators have been labelled "problem" and "vermin" ever since the introduction of livestock to the African continent.

Compared to game, sheep, goats and cattle are slow, clumsy, not very alert, and not very clever. Predators and scavengers are opportunists. If a meal presents itself, they will grab it, not always knowing when the next meal will come along.

All too often we create such opportunities to predators out in the veld, by presenting them with unprotected or vulnerable livestock. When they take the opportunity we have presented them, we make them pay with their lives.

Predators have existed in harmony on the African plains for millions of years. In no case in history has a predator species ever been solely responsible for the extinction of another species, except in the case of man.

We are the only predator to have caused numerous extinctions of other species, usually through greed, ignorance and a lack of appreciation for that which we are destroying.

Ultimately, every farmer that puts livestock onto the African veld is responsible for the survival of that livestock. The survival of that livestock should not be to the detriment of a system that existed before farming ever started in the country.

If the management of livestock on a farm is not adaptive, flexible and designed to protect the livestock from predators, then even one predator will be one too many. Whether a hundred cheetah cross the farm or whether just one does, there will be conflict.

It is the responsibility of every farmer to ensure that livestock management has taken the presence of predators into account.

"Problem Predators" Versus Opportunistic Hunters

If predators are repeatedly presented with the opportunity to hunt livestock, they may become habitual livestock hunters, repeatedly seeking out this easy prey.

It is very important that any farming operation take this into account and ensure that livestock are protected, whether in kraals or in the veld.

Once a predator has learned to take livestock and becomes a problem, it is very difficult to target the actual culprit. Prevention of the "problem predator" developing in the first place is thus a better option.

Where possible, cheetah should not be presented with the opportunity to target livestock.

CHAPTER 2:
WHAT HAS KILLED MY LIVESTOCK?

Solutions for repeated livestock losses to predators will only be effective if the correct problem is targeted – whether that problem is a predator, disease or livestock management that needs improving.

The collection of accurate information when livestock loss occurs is critical if an informed decision is to be made and the correct steps implemented.

Bonnie Schumann, (left), and communal conservancy shepherds examining a livestock kill site, as part of a practical training course held at CCF, 2003

Communal shepherds need to examine the site of a loss methodically. They need to record everything they see for future reference. This will assist in problem solving and will provide a database for the conservancy on predator and livestock management issues.

This chapter deals with the cause of livestock losses and where predators are involved, correct identification of the predator. Only certain predators are dealt with. For further reading, see the reference list.

INVESTIGATING A REPORTED LOSS

What should you take along to the investigation?

- Conservancy event book and pen.
- Predator ID sheet (Appendix 3) with wipe off pen or pencil.
- Note book.

What is the history of losses?

A history of losses should always be obtained from the owner:

- What were the locations of previous losses? (e.g., inside the kraal, near a hilly area, randomly in the veld, close to the house);
- What were the suspected causes of previous losses?
- How were the suspected causes of previous losses identified?
- What were the sizes/ages of the animals lost previously and what is the size and age of the current loss?
- Were they healthy or sick, newborn or old?

A history helps identify and understand the problem. It is important to look at the bigger picture; this will help when considering solutions.

For example:

- If losses keep occurring in the kraal, the kraal fencing may need improving.

It may be easier and more effective to fix the kraal than try to catch the predator.

- If losses keep occurring near a particular hilly area, then the owner needs to keep the livestock away from that area, or else provide temporary protection in the form of a herder or an effective livestock guarding dog.
- If the lost animal was a calf, lamb or kid born in the veld and the mother returned without it, why was the mother not under supervision around the house or in the kraal? Could the newborn have been stillborn or abandoned by the mother?

HOW TO APPROACH THE SITE OF A LOSS

Finding the carcass is a priority, as the carcass and the site around it, will provide clues as to the cause.

- Keep all onlookers in a group to one side, until the carcass and any tracks around it have been located.
- Mark the site of the tracks using stones or sticks, so that they can be found again, if necessary and so that onlookers do not trample them.
- Try to identify the tracks, if found, and make notes on what the identification of the possible predator is based on.
- Record all information in the report book.

HOW TO APPROACH TRACK IDENTIFICATION.

General identification:

- Scan the whole area for tracks.
- Make sure all tracks are examined and not just the first one found, to prevent making incorrect assumptions. Scavengers may result in multiple tracks being found around the carcass.

Mandy Schumann (left) and communal conservancy shepherds completing practical track identification training at CCF, 2003.

- Remember that front and back tracks can differ in size and shape. For example, cheetah and brown hyena have considerably larger front tracks.

Dogs versus Cats:

- Dog species, such as domestic dogs and jackals, usually show nails in their tracks.
- Cat species, such as leopards and caracals, usually do not show nails.
- Cheetahs are an exception among cats, as their nails show in their tracks.
- Cats have a distinct W-shape at the back end of their footpad. This distinguishes cheetah and other cat tracks from dog tracks, which are generally shaped straight at the back end of their footpad.

Cheetah vs. leopard:

Cheetah tracks usually show nail marks; leopard usually do not. Leopard tracks have a round profile, cheetah have an oval profile.

As a general guide, leopard tracks are almost the same width and length. Cheetah tracks are longer than they are wide.

EXAMINATION OF A CARCASS

If a carcass can be found, the next factors to consider are:

Was the animal killed, or only scavenged?

To determine this, find the bite marks and carefully skin this area. If bruising and bleeding occurred, the animal was alive at the time of the attack, as the heart was still beating. If no evidence of bruising or bleeding can be found, the animal was in all likelihood already dead when preyed on.

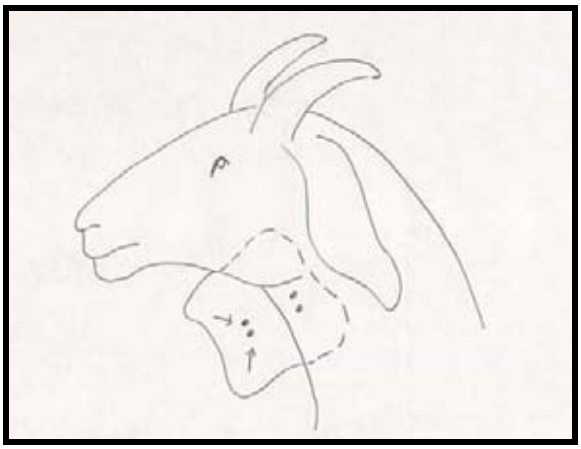
(Left to right) Jenethe Howoses, Moses Eiseb, and Festus Tjimbi, with Bonnie Schumann identifying predator skulls and tooth structure.

How large was the livestock lost?

- Smaller predators are limited by the size of prey they can attack. The larger the livestock lost, generally the larger the predator. Therefore, always consider the size of the livestock lost, for example: if the loss was an adult cow (not giving birth) and only jackal tracks are found surrounding it, then it probably died and was not predated.

Are bite marks visible?

- Locate any visible bite marks on the carcass and carefully skin the area.



Bite marks are easiest measured on the inside of the skin.

- The distance between the upper canines can be measured on the inside of the skin, as this is where they show clearly. This measurement helps narrow the possibilities of which predator caused the loss, as predators have distinctly different widths between their canines.

Canine width measurements:

Cheetah 36-39mm	Leopard 40-46mm
Jackal 19-21mm	Caracal 29-32mm
Spotted Hyena 47-58mm	

- Compare the location of the bite marks, e.g. side of neck, back of neck, base of head or throat, or randomly all over the carcass, as this may also help to indicate which predator made the kill.
- Try to distinguish between upper and lower canines, as this width varies. The width between the upper canines is slightly wider than the width between the lower canines.

SUMMARY

STEP 1

Be prepared. Take the tools needed to complete an accurate investigation.

STEP 2

Talk to the owner or whoever reported the loss.

STEP 3

Investigate the site, surrounding area and collect clues.

STEP 4

Investigate the carcass where possible and note the tracks around it.

STEP 5

Analyse the information. Collect background information from other reference sources, where relevant.

STEP 6

Advise the person who has experienced livestock losses about livestock-management techniques which can help prevent repeated losses.

STEP 7

Encourage the community to work together in finding solutions to predator conflict

CHAPTER 3:
WHAT PREDATOR IS THIS?

Namibia has a unique and amazing variety of predators. These predators range from the very small (the bat eared fox) to the very large (the lion). Namibia is also home to Africa's largest population of free-ranging cheetah, which gives this population national and global value.

Every predator has a distinctive way of life, body structure, hunting technique and role to play in the ecology of Namibia's farmlands.

Many predators are also scavengers while some animals are exclusive scavengers. Some animals benefit from the kills made by predators, for example, the bat eared fox, hunts maggots, beetles and other insects around carcasses.

It is important to understand the role these animals play, their diets and how their way of life overlaps. As many as 15 different species share the burrows created by the aardvark, including warthogs, porcupines, aardwolves and bat eared foxes.

Mistakes are often made in correctly identifying the cause of livestock losses and the wrong animal often gets the blame for livestock losses. Therefore, correctly identifying Namibia's animal species—their habits and way of life and their hunting preferences and techniques—is critical when assessing livestock losses.

This chapter aims to identify key predators usually associated with livestock losses. It will also show ways to correctly identify the cause of livestock losses when they occur.

Bat eared foxes are harmless to livestock and should be protected. They use their large ears to listen for termites, insects and rodents when hunting.

Aardwolf are also harmless to livestock and benefit farmers as they can eat up to 250 000 termites in a night.

Porcupines may carry bones to the burrows they live in, resulting in other animals being blamed for killing livestock.

WHAT BIG TEETH YOU HAVE!

Cheetah have relatively weak jaws and small teeth in relation to their size. Their molars have sharp cutting edges allowing meat to be eaten quickly.

Leopards have extremely strong jaws and long canines, allowing them to kill their prey with a strong neck bite.

Cheetah skull (left) and leopard skull, showing the size difference between the skulls and canine length.

Lions have strong jaws and long canines, typical of the large powerful carnivores.

Bat-eared foxes are harmless to livestock. Their Small molars are not adapted to eating meat.

Brown hyenas are scavengers. Note the strong molars capable of crushing even large bones.

1. THE CHEETAH – ATHLETE OF THE PREDATORS

Like Namibia's top athlete, Frank Fredericks, the cheetah is a superb athlete.

Cheetah usually suffocate their prey with a bite to the throat.

Distinctive Characteristics

The cheetah is the only cat with a black tear line running down from its eyes. It has a spotted coat. Its profile is slender, with a small head in proportion to body size.

Cheetah tracks are characterised by the W-shape along the rear part of the footpad and the presence of nail marks. (Note: these may not always be seen on hard ground.) The toe pads are pointed in front and not rounded. Front tracks are larger than back tracks and the overall shape of the track is oval.

How Does The Cheetah Hunt?

- Cheetah typically hunt alone, although brothers in a coalition will hunt together. A female teaching her young will hunt in a group, too, with the youngsters initially shadowing her and later participating in the hunt.
- As cheetah have relatively weak jaws and small canines, they typically kill by suffocating their prey with a bite to the throat. Young or inexperienced cheetah may bite elsewhere before biting the throat.
- Cheetah nails are usually blunt, except for the dewclaw, which is used to trip prey and hold onto it. Single scratch lines caused by the dewclaw may therefore be visible.
- The cheetah will usually eat its prey where it was killed, although sometimes it may drag its kill for a short distance to the nearest shade or cover.

Feeding Behaviour

- Cheetah eat as much as possible as quickly as possible, so they usually eat the large areas of meat on the haunches and shoulder first.
- The intestines are removed and often left quite close to the kill, but not eaten.
- The internal organs such as the liver and heart are often eaten.
- Rib ends may be chewed, however, bones are not crushed, even in smaller prey such as steenbok or duiker
- Cheetah virtually never return to their kill after they have eaten. Although extremely rare, cheetah have been seen to scavenge.

- If disturbed, or in areas of higher competition, a different feeding behaviour may occur.

Why Should I Want Cheetah In My Conservancy?

The cheetah is the fastest land mammal on earth. Its top speed is 120km/hour. It will hunt guinea fowl, rabbits, smaller antelope species such as duiker and steenbok, the young of larger antelope and young warthog.

Only the fastest, most alert and fittest game animals will evade a chase by a cheetah. Cheetahs therefore help maintain the ecological fitness of our game species, as only the fittest will survive to breed. Cheetah, along with other predators, help maintain game numbers.

Cheetah are much sought after by tourists and where chance sightings are possible, they may serve as a tourist attraction.

CHAPTER 3: WHAT PREDATOR IS THIS?

Cheetah feet. Note the pointed toe pads and W-shaped rear edge of the footpad.

Cheetah track. Note the nail marks and pointed front edge of the toe pads, the distance between the nail and toe pad and the groves along the rear edge of the footpad.

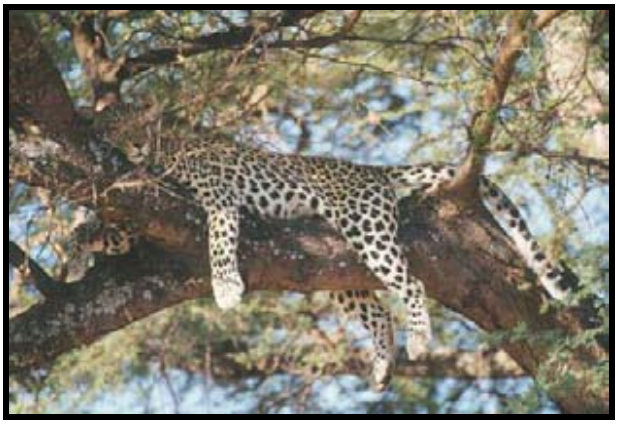
Leopard paw. Note the retracted nails, paw size and the W-shaped rear edge of the footpad.

Leopard track. Note the lack of nail marks and round profile.

Dogs paw. Note the rounded front edge of the toe pads.

Dog tracks are easily confused with cheetah tracks. Note the straight rear line created by the footpad. This distinguishes the dog track from the cheetah track.

2. LEOPARD – THE ULTIMATE HUNTER



Leopards will often sleep in trees. They are very strong and will even carry their prey up trees to keep them out of reach of scavengers.

Distinctive Characteristics

Unlike the cheetah, which has spots, leopards have a rosette-patterned coat. The profile of a leopard is much heavier and stronger looking than that of a cheetah.

Leopard tracks usually do not show any nail marks. The profile of the track is round and the width is equal to the length.

How Does The Leopard Hunt?

- Leopards typically hunt alone, except when a mother is accompanied by her young.
- Leopards have strong jaws and long canines. They typically kill by biting the back of the neck (often crushing vertebrae) but may also bite down on the throat, similar to the cheetah.
- As all their nails are sharp and retractable, multiple scratch marks may be seen, indicating where the front feet grabbed the prey to hold it down.
- Leopards may drag their prey considerable distances and have been recorded dragging calf kills up to 3 kilometres from the kill site.
- Leopards typically hide their kills either under a bush, in a thicket, down a hole or up a tree.

Leopards usually kill their prey with a bite to the back of the neck.

Feeding Behaviour

- The haunches, shoulder and internal organs are eaten.
- The intestines are not eaten and are removed and left intact.
- Rib ends may be chewed. In smaller prey the long bones, such as the femur (thigh bone), may also be eaten, leaving virtually no remains.
- Leopards frequently return to their kills, but other leopard may also steal their kills.
- In areas where there is high competition, especially with hyena, leopards may carry their kill up a tree.

Why Should I Want Leopard In My Conservancy?

Leopards are stealthy, powerful hunters and will prey on a variety of game species. They typically ambush prey and hunt at night. Therefore, like cheetah and other predators, leopards keep prey species alert and ecologically fit. As one of the high-profile large cat species, they are also a much sought after tourist attraction.

3. BLACK-BACKED JACKAL – HUNTER AND SCAVENGER

Black-backed jackal. Indiscriminate removal and continued attempts to eradicate this clever little carnivore have failed to solve conflict with livestock farmers.

Distinctive Characteristics

The black-backed jackal is one of the most persecuted of all the predators and scavengers that come into conflict with livestock farmers.

As its name suggests, it has a distinctive black back. Jackal tracks are dog-like and show nail marks. Their track profile is oval, with a longer length than width.

Jackal tracks.

Hunting Technique

- Jackals live in pairs and occupy defined territories. In times of abundant food such as a large carcass, they may congregate at the site of the carcass, later returning to their own territories.
- Jackal chase their prey and bite as it runs from them, which may result in bite marks on the jaw and on the 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.
- Jackals typically take goat kids and lambs but may also take adult sheep and goats. Cows lying down to give birth may be attacked, frequently resulting in lethal injuries to both the cow and calf.

Feeding Behaviour

- Jackals typically eat the anal area and the thigh area, leaving a flap of skin that has been hollowed out underneath.
- They will also eat the shoulder and may remove the front legs of smaller prey.
- Rib ends are often chewed.
- The chest cavity may be hollowed out and the contents eaten.
- Intestines are often eaten and strewn around.
- Jackals may bury what they cannot eat.

Why Should I Want Jackal In My Conservancy?

Although jackals primarily scavenge, they can hunt very effectively, taking rodents, insects, reptiles, frogs and birds. They even eat plant material such as berries.

Jackal help keep the veld clean by eating carrion. They also play an important role when it comes to vultures, as their presence at a carcass indicates to vultures that it is safe to feed.

In some areas where jackals have been removed, caracals have increased in number and become a problem.

Jackal are therefore part of an intricate network. They would not have evolved and flourished if they did not have a vital role to play in our ecosystem.

4. DOMESTIC DOG

The damage caused by domestic is often blamed on other predators.

Dog tracks are often confused with those of cheetahs. However, the rear part of the footpad lacks the W-shaped grooves typical of the cat family.

Many feral and even pet dogs are responsible for livestock losses. Even relatively small dogs will hunt livestock, badly injuring them in some cases, even though they are unable to kill them.

How Can I Identify A Kill Made By Dogs?

Domestic dogs bite and tear at their prey randomly, with no fixed pattern. They cause extensive damage and often injure several livestock animals without killing all of them. The kills are usually not eaten, but where this does occur, feeding is random. Wool, fur, skin and intestines are scattered all over. This is a very messy kill.

5. SPOTTED HYENA

Spotted Hyena.

These predators can cause damage if they start taking livestock and can attack adult cattle.

Hyena can hunt alone very effectively, but they typically hunt in a group. Random bites may sometimes be an indication of hyena.

Hyena kills are typically very messy with carcasses torn apart and skin and intestines strewn about or eaten. Large bones are crushed or eaten. Very little remains of the kill, particularly if more than one hyena is involved.

6. CARACAL

Distinctive Characteristics

Caracal are widely distributed. They are solitary and are found in pairs only during the short breeding period. Their diet typically consists of small- to medium-sized prey, including hares, vervet monkeys, dassies, birds, reptiles and the young of antelope, such as springbok lambs.

Caracal are also capable of taking prey up to the size of adult springbuck. Individual caracal can develop the habit of taking small stock.

How Does the Caracal Hunt?

Caracal hunt alone. Prey is usually killed with a throat bite, but caracal will sometimes bite at the back of the neck. The bite marks typically show as two puncture wounds on either side of the throat or on either side of the spine. Claw marks are often visible, either on the shoulder, belly or hindquarters

The caracal is also known as the lynx or *rooikat*.

Feeding behaviour

Caracal typically feed on the meat between the back legs or on the inside of a hind leg. Caracal will also feed on the shoulder and

chest, sometimes chewing on rib tips, but the large bones are never eaten. The intestines are not eaten and are removed intact. Caracal will partially cover the remains of a kill, scraping grass and dirt over it.

Why Should I Want Caracal In My Conservancy?

Caracal play a valuable role in the ecology of the veldt by helping to control hare, dassie and rodent numbers. These attractive cats are also a favourite among tourists during night game drives.

7. AFRICAN WILD CAT

African wild cats may occasionally take very small kids or lambs but this is rare. As they are a small predator, livestock can be protected with the use of any small- to medium-sized livestock guarding dog.

They have been known to eat rodents, birds, reptiles, insects, frogs, scorpions, hares and even fruit.

8. PAINTED HUNTING DOG (OR AFRICAN WILD DOG)

These dogs used to occur in packs of over sixty individuals. Today, their numbers have drastically declined throughout their former range with possibly as few as 4,000 remaining. They are found in just 14 of the original countries in which they used to occur.

Painted hunting dogs are not tolerated on farmlands. A pack of these dogs can pull down and consume their prey within minutes. Because they rip their prey apart, they have a reputation for being merciless killers.

In reality, this is not the case. Painted hunting dogs hunt only when hungry. They are unique in that they will take care of injured pack mates, even at risk to their own safety. The entire pack participates in feeding puppies and will even regurgitate food for them.

The painted hunting dog is also known as the painted wolf (because of its striking coat), or the Cape hunting dog.

Painted hunting dogs are unique to Africa. Any country that still has any of these

predators left should view them as a national asset and try to protect them. Because there are so few packs left in the wild, these dogs are now one of the most sought after animals for tourists and wildlife watchers. Any conservancy having these dogs ranging through the area should formulate a policy and incorporate their protection in the conservancy management plan.

If den sites are encouraged, the dogs will stay in the area for at least three months whilst the puppies are small, guaranteeing tourist sightings of these rare animals.

Painted hunting dogs do pose some threat to livestock. However, where in-depth studies have been conducted, results have shown that the damage is often exaggerated.

If the value of these dogs as a tourist attraction is developed, this should outweigh any damage the dogs may do in an area. For example, the cost of one impala a day to feed a pack of 12 dogs is a far smaller amount of money than that which eco-tourism could generate in a denning season of 12 weeks.

Do I Want Painted Hunting Dogs In My Conservancy?

9. LIONS

Lions are one of the most popular eco-tourist attractions. Due to their large size, however, they are difficult to deter from attacking livestock. Lions are social and live in groups, with the females doing most of the hunting.

Adult lion paw.

Lion track in mud. The W-shaped grooves at the back of the footpad are not distinctive in the mud, however, the large size of the track indicates that it is a lion.

CHAPTER 3: WHAT PREDATOR IS THIS?

Lions are social and live in family units with the females doing most of the hunting.

Lion track in sand. The distinctive grooves at the back of the footpad indicate cat family. The large size of the track again indicates that it is a lion.

BROWN HYENA ENCOUNTER

During the training course held at the Cheetah Conservation Fund, a brown hyena was captured on an adjacent farm and course participants were invited to assist. The brown hyena, also known as a *strandwolf*, is a shy, nocturnal animal that is seldom seen. As they are scavengers for the most part, they seldom come into conflict with livestock farmers.

Participants carrying the anaesthetised brown hyena to the release site.

Biomedical collection being performed by Dr Arthur Bagot-Smith and CCF staff.

A full biomedical collection was conducted on the anaesthetised animal. Blood, skin and hair samples were collected for disease and genetic analysis. The animal was weighed, measured, examined and appeared to be in excellent health. Following the collection, it was placed in a shady area and observed until it was awake and ready to make its way into the long grass again. The Cheetah Conservation Fund conducts similar collections on cheetah, in order to learn more about the general health and genetic aspects of this species.

For most participants this was the first time they had seen a brown hyena.

The brown hyena is released following completion of the biomedical collection.

VULTURE EXCURSION

The African skies would be an empty place without our large raptors and vultures.

Maria Diekmann (REST founder and farmer) explains the importance of vultures.

As part of the training course, participants were taken on an excursion to the headquarters of the Rare and Endangered Species Trust (REST). REST was founded in 2000 by Maria and Jörg Diekmann and currently focuses on the conservation of the rare and endangered Cape Griffon Vulture. There has been a drastic decline of these birds in Namibia. Today there are only between 8-11 left in the country.

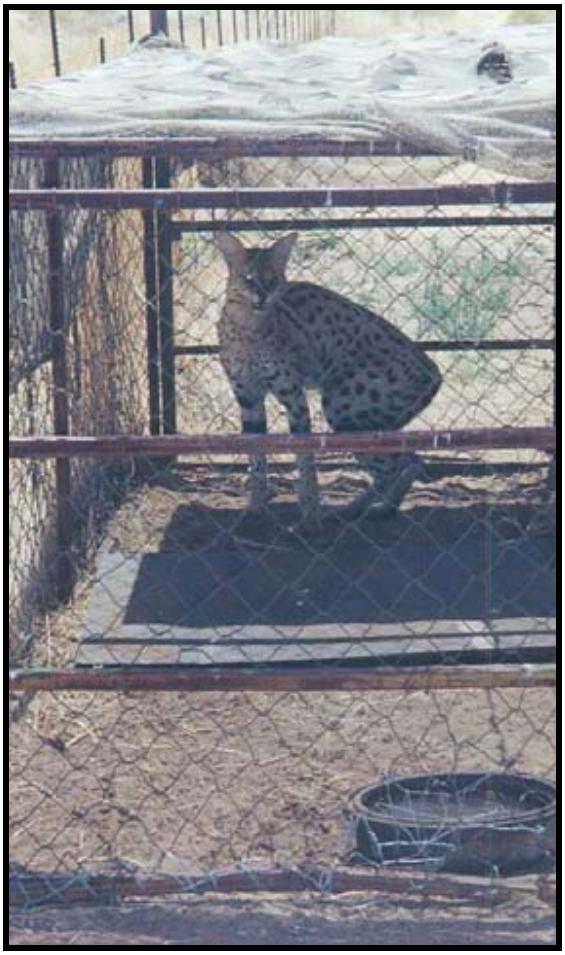
Vultures have declined in many countries due to a number of reasons. The indiscriminate use of poisons has not only affected vultures, but also many other birds of prey. They usually find carcasses before jackals or hyena's and ingest poison intended for these animals. There is also less food available for vultures on farmlands, as vultures traditionally depended on the large herds of game that used to migrate across much of southern Africa and which have been replaced with livestock. Farmers tend to burn or bury livestock carcasses, inadvertently removing potential vulture food. As many of the larger carnivores have been removed from farmlands, bone chips - which vultures would have gathered from areas where these carnivores had fed - are no longer available. As a result, some nestlings have been found to suffer from calcium deficiencies.

Vultures play an important role in the environment and a healthy population is an asset to any conservancy. While some people claim that vultures kill livestock, they are primarily scavengers. They have weak feet, not adapted to killing. They help remove carcasses from the veld, which could potentially act as hosts to various diseases and blowfly, which may spread to livestock. Vultures also save farmers the time-consuming, unpleasant and costly task of burning or burying carcasses.

Vultures often bathe at waterholes or cattle troughs. As they are shy of people, scarecrows may be erected at troughs where farmers are concerned about them fouling the water. Vultures are also often unwelcome at water points, as some farmers believe that vultures spread anthrax. Anthrax is a spore-borne disease with spores able to survive in soil for periods of up to 50 years. When vultures consume carcasses that may have been diseased, they probably inhibit the spread of the disease, as anthrax spores need several hours of air and sun to develop. Therefore, if a healthy population of vultures and other scavengers exists in a conservancy and they are able to consume carcasses quickly, they may be an asset in the control of this disease.

CHAPTER 4:
INDISCRIMINATE PREDATOR CONTROL – THE WRONG WAY TO MANAGE PREDATORS

Many wildlife species are killed for alleged livestock predation, even when they are not responsible. They are sometimes deliberately targeted and killed, but mostly they are killed accidentally when other predators are targeted, usually with indiscriminate methods such as poisoning and gin trapping (snap traps or leg-hold traps).



Serval are not a threat to livestock farmers, but may be caught and killed in gin and box traps set for other predators.

Species such as the aardwolf, bat eared fox, serval, aardvark and porcupines are killed in this way.

Aardwolves are small interesting animals that eat mainly termites. They do not have the tooth structure or jaw strength to kill livestock.

Bat eared foxes eat a variety including insects and rodents and like aardwolves, they do not have the dentition or jaw strength to kill livestock. They may visit carcasses, but this is usually to eat maggots and other insects found around the dead animal.

Porcupines will chew on old bones and may drag these down old warthog burrows, which they and many other species inhabit. Farmers find the bones at these sites and all the occupants of the burrows are unfortunately accused of livestock predation.

Gin traps are inhumane and indiscriminate and therefore should not be used for the control of predators.

POISON ALERT: The Effect of Indiscriminate Poison Use to Eradicate Predators

The indiscriminate use of poisons to control predators causes huge damage to the environment and kills many innocent animals.

According to some estimates, 110 non-target animals may be accidentally killed for every attempt to kill one jackal using poison bait incorrectly. In today's world of science and information technology, this is completely unacceptable.

No predator management technique should be to the detriment of the entire target species, or any other species. Being a farmer and a conservancy member includes adopting a responsible attitude towards the environment. It also means accepting responsibility for any consequences which farming practices have on that environment.
Without addressing livestock management techniques, the incorrect use of poison, at best, offers short-term relief to problem animals and results in negative long-term effects on the environment as a whole.

If you wish to know more about safety when handling poisons on your farm, utilise the information network available. Contact NARREC or the Poison Working Group of Namibia for more information.

Tel: 061-264409
Email: liz@narrec.schoolnet.na

Indiscriminate predator removal does not solve problems with livestock losses.

CHAPTER 5:
HOW DO I REDUCE LIVESTOCK LOSSES

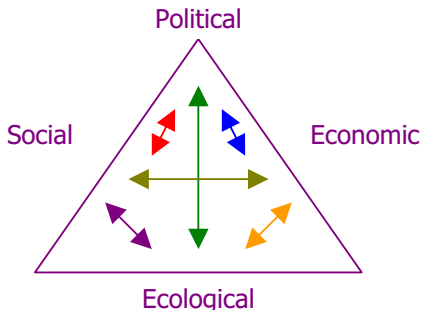
It is the responsibility of every farmer to understand that every action undertaken on his land—whether for subsistence farming or for commercial gain—is not in isolation, but part of a bigger picture which affects outside environments.

The earth is inhabited by billions of people. People around the world have a say in how Namibians farm, as these areas provide the markets for Namibian products, agricultural and other. These markets influence the prices Namibian goods will fetch.

If each individual farmer does not take this into account, Namibia will not have a strong market to sell its goods, which ultimately support its economy. Failure to take the "bigger picture" into account can be determined by the number of bankrupt farms on the market.

The environments surrounding farming can be summarised into five categories: ecological, economic, social, political and legal.

ENVIRONMENTS AFFECTING FARMING



1. Ecological Environment

This includes drought, disease and adaptation of animals, or lack thereof. Animals not adapted to their surrounding ecological environment should ideally not be in that environment.

Farmers also need to adapt to this environment, instead of trying to farm against it.

Not much can be done to influence the environment, but farmers can influence their success by addressing production methods and improving production. Production increases as losses decrease, and vice versa.

2. Economic Environment

The economic environment is possibly the trickiest, as farmers have very little influence over it. Farmers don't determine the price of beef, but instead they have to take what the market offers.

Many factors influence this market. For example, do people want meat? The answer is yes, but they want that meat to be healthy and disease-free, with no hormonal supplements or additives. The FAN MEAT system is just one way of ensuring this market can be maintained.

Free-range meat, such as that produced in Namibia, is becoming highly sought after. This means the market poses a potential opportunity and not necessarily a threat. The economic environment, of which the market is the most important factor, must always be considered.

Therefore, even a decision as simple as whether or not to shoot a cheetah suspected of preying on livestock, should be considered part of the bigger picture.

3. The Social Environment

This environment also dictates to farmers. For example, there will always be a

certain amount of poverty and as a result, theft.

The social environment dictates that it is unacceptable for farmers to take the punishing of livestock thieves into their own hands. Therefore, farming methods and management need to be designed to cope with the risks, as they will always be there. However, there are socially acceptable – nationally and internationally – ways of managing thee risks.

4. The Environment of the Law

The law dictates which actions may and may not be taken by farmers. For example, certain livestock vaccinations are compulsory and certain diseases must be declared. The law also requires that farmers not take livestock theft into their own hands making this the social and law-abiding responsibility of every farmer.

5. The Political Environment

Certain decisions are not in the hands of individual farmers, but in the hands of the elected government.

The government decides the laws of the country and what must happen, how safe the country is for foreigners and residents and regulates the prices of certain products (especially those produced for export, such as the majority of Namibia's meat).

The South African Rand and the Namibian Dollar are linked. If one is weakened because of a lack of faith in southern Africa by the outside world, it becomes more expensive for southern Africans to farm. Products such as vaccines and supplements become more expensive.

However, a weak Namibian Dollar (compared to the U.S. Dollar, Pound Sterling or Euro, results in higher prices for export beef.

These fluctuations in currency make it difficult to farm because of fluctuating differences in prices and expenses.

1kg meat = 2US$
If 1 US$ = 8N$ → obtain 16N$ per kg
If 1 US$ = 10N$ → obtain 20N$ per kg

Large fluctuations in the exchange rate also mean large fluctuations in interest rates. This becomes important when purchasing land or importing products.

In Summary:

- Remember: You farm as part of a larger community, locally, nationally and internationally;
- we now know we are part of outside environments;
- We need to remember that the global market is looking at us;
- we must evaluate livestock losses and address them in context with the above factors;
- it is socially and lawfully unacceptable to shoot livestock thieves, yet the law allows us to shoot a predator when a livestock loss has occurred, even when not proven responsible for the loss;

  There is very little protection for predators, therefore we need to reconsider our way of thinking and become more scientific and ethical in our approach to human wildlife conflict resolution;
- The emphasis in farming needs to be on preventing losses and increasing productivity;

- there are "ideals" in farming. We must aim as farmers to strive to reach these ideals.

Farming decisions should always be based on long and short-term management goals. It is a mistake to consider farming a way of life. In the current social and political climate, all farms and farming operations need to be managed as businesses.

Many farmers have failed as a result of poor management and not adopting a business approach. Successful farming requires a good manager.

Understanding the environment and predators is essential when trying to increase production and reduce losses. Ensuring healthy, well-adapted and well-managed livestock reduces losses. Sick livestock with their feet in a poor condition, for example, or battling with difficult births and lack of protection, will result in immediate conflict with predators.

Common Causes of Livestock Losses

The causes of livestock losses are many and varied, but they are all linked to management.

Diseases such as Anthrax, brucella, pulpy kidney and botulism (lamsiekte), to name a few, as well as losses to predators, can all be controlled to a certain extent through sound livestock management. Losses due to drought, which results in poor food availability, can also be reduced through forward planning and by reducing livestock numbers when droughts commence.

Losses due to theft are cause for growing concern. The incidence of theft can have a serious effect on a farmer's economic outlook and will only increase, if not jointly tackled by the community and law enforcement agencies.

Reducing livestock losses begins with being a good manager.

What is a good manager? It is someone who:

- Uses foresight, plans, and considers the market. Any farming operation must start by considering the end product. It is the market and not the farmer, that decides what to produce and when.

  What does the market want and what is it prepared to pay? The international market needs to be considered, as this is where the best prices are obtained for meat. Quality is always an important issue for the international market;
- prioritises production: what to farm, when, how, vaccination schedules, when to slaughter;
- takes financing into account such as cost of production and marketing;
- keeps detailed records of all livestock, including losses, feed purchases, veterinary treatments and labour details, to name a few.

Livestock Management - Increased Livestock Production

Farming as a profession is only going to become more difficult. Government assistance is not always going to be available to farmers, and cannot therefore be relied on. Farmers who adapt to changing conditions are more likely to succeed.

Improving and adapting livestock management techniques can decrease losses, improve production and thereby increase profitability. The more efficient and productive a farming operation, the fewer potential conflicts with predators.

Why Is The Selection of Adapted Livestock Important?

The Namibian environment is harsh. Rainfall is low, summer temperatures high and grazing seasonal. The wildlife of Namibia has evolved and adapted very well to Namibian conditions.

Cattle suited to Namibian conditions, such as the Afrikaner, Brahman, Nguni, or crosses of these races, should be selected.

Wildlife synchronise their births, ensuring a glut of prey for predators that guarantees a good percentage will survive predation. Wildlife has a 90-95% calving rate during good rainy seasons. Wildlife migrates and can tolerate walking long distances, endemic diseases and extended periods between watering, as well as extreme temperatures.

The production of cattle and small stock can be improved through the selection of similarly adapted animals. A small, light animal has longer legs and does not carry such a heavy load (medium cattle breeds such as the Afrikaner, Brahman, Nguni, or crosses of these races). Simintalers and Cherolais are heavy and less adapted to walking far distances and are therefore less suitable for farming in harsh environments.

Some breeds of livestock or individuals are susceptible to diseases, ticks and tick borne diseases such as anaplasmosis. These should be culled or sold for slaughter. Adapted animals are more resistant to disease and should be used to build herds.

Calving Rates

Calving rates are determined by the number of calves born from breeding cows in the herd. For example, if 30 out of 100 cows calved, the calving rate would be 30%. Some herds may have a calving rate of 10-25%, while others have a calving rate of 75-95%. Examine the effect this could have on productivity of 100 cows: If only a 30% calving rate is achieved (30 calves), 25% might reach weaning age (25 calves). If the price at auctions is N$1500 for a weaner, N$37,500 could be earned.

If an 80% calving rate is achieved (80 calves), and 70% reached weaning age

(70 calves), for the same price at auction, N$105,000 could be earned.

Good management which achieves good calving rates usually means an owner will also have a higher weaning rate, fewer losses and a greater tolerance towards predators. An 80% calving rate means that a few losses can easily be tolerated. A 30% calving rate indicates a need for improved management and results in a lower tolerance to losses - and consequently to predators.

What Influences Calving Rates?

Condition - The condition of the cow is very important and is largely determined by feeding.

Old unproductive animals should be culled from the herd if high productivity is to be maintained. In this instance, tooth wear has resulted in the cow being unable to feed herself adequately.

Fertility - Cows that are not ovulating do not come into heat. Old cows that have stopped ovulating, should be culled, as they are consuming grass that fertile cows could have eaten.

Disease - If cows are not coming into heat, they may have a sexually transmitted disease, or their condition may be poor.

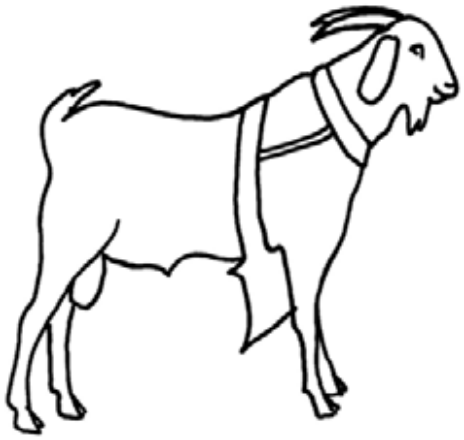
Record keeping, pregnancy testing and disease screening of herds is essential to maintain production.

Bull selection – A bull contributes 50% towards the herd, because calves carry 50% of the bull's genes. A cheap, low-quality bull will therefore end up costing money. It is very difficult to determine at a glance if a bull is fertile. If the cows are disease free and their health and condition are good and yet no calves are being produced, the bull's fertility needs to be checked by a veterinarian.

One unfertile bull on 100 cows will result in no calves. It is therefore worthwhile having a vet examine the bull once a year. Once the cows have been checked for disease and a good fertile bull introduced, a considerable improvement should be seen in production.

Ensure a bull has been certified healthy and fertile before purchasing it.

- In communal areas, where a few owners each have small herds, owners could work together to share the costs of having a vet examine all the bulls for fertility and disease.
- Where herds can be amalgamated and co-operatively managed, fewer bulls will be needed. Better quality bulls could then be purchased.
- A non-productive cow, i.e., one that is not producing calves, is eating the grass a productive cow could have eaten.
- There is no space in a well-managed herd for non-productive cows.
- Every cow not calving is a loss of potential earnings and should be culled.
- Tradition should be integrated into livestock management and not be maintained to the detriment of a farming operation.



Mating apron: Where billy goats cannot be separated from the herd, a breeding season can be instituted using a very simple apron, which prevents them from mating with the nannies. The apron is made from hide or thick canvass and is fitted to the goat, so that the apron hangs under the body behind the front legs. The size should be adjusted to the size of the goat and is usually 20 cm by 30cm. The body belt should be at least 5cm wide. The neck collar helps keep the apron and belt in place.

How Can I Improve My Weaning Rates?

Weaning rates are determined by how many calves reach weaning age. Even an excellent farmer may lose some animals after they are born. Reducing post-birth mortality will improve weaning rates.

Improving weaning rates can only be achieved through careful management. Herds which do not have a breeding season (i.e., the bulls are with the cows all year round), can still be managed if a good record keeping system is in place.

The date cows give birth or are covered by bulls should be recorded. This will allow their next due date to be calculated and they can then be brought near the homestead for the calving. If the breeding of the cows is not monitored and recorded, it will be difficult to assess if and when a cow is due to calve, whether or not she is aborting early, or whether it was a healthy calf that was lost.

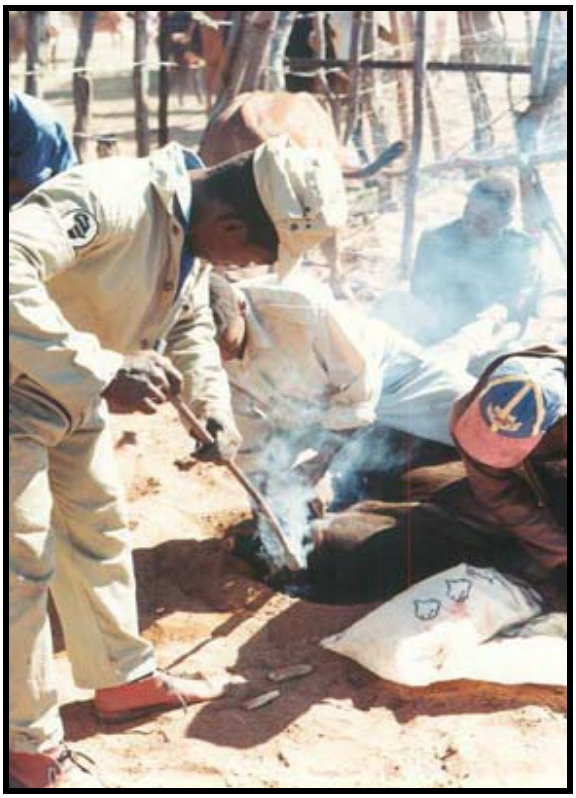
Calves under three months of age are very vulnerable to predation if left unprotected in the veld.

Cows should calve near the homesteads, where they can be monitored when due to give birth. Therefore, if they experience difficulty, they can be assisted and protected while giving birth. If difficulty is being experienced with cows having calves that are too big to safely give birth

to, the bull should possibly be replaced. Certain bulls may be genetically predisposed to producing large calves, however, a large bull does not necessarily produce large calves. Birth weights are determined partly by genetics (40%), but the environment plays a larger role (60%). Normal birth weights are approximately 7 to 7.5% of the cow's mass.

The heavier the cow (which is dependant on the season and how good the grazing is), the heavier the calves will be. Smaller calves result in the cow having an easier birth and coming back into oestrus sooner than if the cow had a difficult birth with a large calf.

Young livestock (i.e., lambs, kids and calves) are the most vulnerable to predation. If these can be protected, the weaning rate will improve.



Branding cattle: An efficient record keeping system is essential to good livestock management.

LIVESTOCK HEALTH AND DISEASE MANAGEMENT

Sick or old livestock, which die in the veld and are then scavenged, are often attributed as losses to predators. Healthy, well-selected and managed livestock should be less vulnerable to predators.

As with game species, livestock require an adequate quality and abundance of food in order to maintain their condition and to fight disease and parasite infestations.

Licks are a supplement only and not a substitute for grass. Salt and phosphate licks are usually necessary, even in the north-western part of Namibia, where the grass is of good quality. Urea licks can also benefit livestock, however, if not mixed properly, they can be dangerous, especially if cattle are not used to the lick.

Vaccinations

Vaccines are relatively inexpensive and very effective. When weighing the costs of vaccinating livestock, this should be compared to potential losses from a disease outbreak in livestock not protected by vaccinations.

Vaccines must be kept cold during transport and handling. This can be done by wrapping them with an ice pack in newspaper, and/or putting them in a cooler box with an ice pack. Most vaccines are destroyed by heat (or by freezing), particularly the *brucelosis* vaccine, which is very heat sensitive.

By law, *anthrax* and *brucelosis* are diseases for which vaccination is compulsory. These diseases are dangerous to people and cattle.

The symptoms of *anthrax* include sudden death and external black bleeding. Foamy red blood coming out of the nose is usually not a sign of anthrax, as bleeding caused by anthrax is usually black.

Note: If anthrax is suspected and a vet is not available to examine the carcass, the carcass should be burned immediately and not cut open.

A blood smear should always be taken from the tip of the ear or tail prior to burning the carcass, as this can assist diagnosis.

If a carcass is found and the animal is suspected to have died from anthrax, a blood smear should be taken and the carcass immediately burned. Anthrax bacteria need oxygen to develop spores that can last for years in the environment, so the carcass should never be cut open. During the rainy season, the disease is usually spread when spores are washed into puddles, where cattle drink water and become infected.

Common livestock diseases

It is important to be able to identify the more common livestock diseases in order to correctly treat and prevent their occurrence.

Sick, unhealthy animals will be easy prey for predators and will decrease the production of the herd.

Young cattle can get *black quarter* (*sponssiekte*), which results in their haunches becoming spongy and lame. Vaccinations are usually required until about two years of age. In small stock, *sponssiekte* usually affects the uterus. After giving birth, a spongy uterus usually indicates this disease. Sudden death a few days after kidding is usually caused by *sponssiekte*.

Botulism is an infection usually transmitted when livestock eat old bones. Old ostrich bones are particularly dangerous. Vaccines against this disease are very effective.

Enzootic abortion usually results in a high number of abortions, and can greatly affect production, making vaccination against this disease important. A state vet should be called in to assist if this disease is suspected.

All livestock are susceptible to *rabies,* and should be vaccinated against it, if the disease is suspected or known to occur in the area. The disease is transmitted via the saliva of an infected animal. Symptoms are not always very obvious, but drooling frequently occurs.

An object lodging in the mouth can also sometimes cause drooling, but as drooling is also a common symptom of rabies in livestock, care should be taken not to come into contact with the saliva when examining the animal. If an animal which had been drooling dies, the state vet should be called in to examine the carcass.

Pasteurella is a common small stock disease. White patches can be seen on the lungs. Vaccination should be done routinely to prevent it. Tough environmental conditions make livestock particularly susceptible. This disease is very seldom found in calves. It is only

common in milking sheds where calves stand on cold floors.

Pulpy kidney is associated with diarrhoea. It is frequently seen where good grazing is suddenly available. Sheep are the most susceptible.

Herpes (*orf* or v*uilbek*) related sores around the mouths of goats are very common. Most individuals can build up immunity to it. The vaccine is mixed with water and rubbed into two scratches made on the skin (usually beneath the shoulder).

When this disease is prevalent in a herd, it is worth vaccinating against, as kids with badly infected mouths will refuse to drink. The udders of nannies can also become badly infected.

Tetanus can be caused when animals step on rusted wire, causing puncture wounds. *Tetanus* also occurs when castrations are performed using elastrator rings (rekkies) on older lambs or kids, or by using a dirty knife.

Old pieces of wire and scrap metal should not litter a farm and any instruments used on livestock should be clean and sterile. Instruments such as knives may be sterilised simply by boiling them. Tetanus grows in wounds where dead flesh occurs, and can therefore develop where elastrator rings are used, as they result in dead tissue around the wound, especially with calves. Livestock should therefore be vaccinated two weeks before putting castration elastics on.

Other common diseases include *babesiosis* (*rooiwater*) and *anaplasmosis*, both of which are tick-born diseases. Some areas don't have these diseases.

When purchasing a bull from another area, care should be taken to ensure it does not bring these diseases into the area. Some animals may be immune, but carry the disease in their blood. This can result in other cattle dying for a short while, in the area in which the new cattle were introduced.

Vibriosis (*campylobacteriosis*) and *Chlamidiosis* are two sexually transmitted diseases that should be taken into account when managing livestock. They are spread from bull to cow and cow to bull and can result in low fertility. Infected animals do not show symptoms, but if a cow is repeatedly coming into heat every two to three months, these diseases could be present.

Other common ailments

1. Snakes

Snakes play an important role in the environment, as they are predators in their own right. They eat rodents, frogs, lizards and birds, etc, some of which may become pests if their numbers remain unchecked.

Snakes are attracted by their food source. Discouraging their food source, such as rats and mice, can discourage their presence.

Of the 131 Southern African species of snakes, only 14 have been know to cause death to human.

Snakes may cause livestock mortalities, but the incidence is probably exaggerated. Puff adders are responsible for the most human bites, as they rely on their excellent camouflage to avoid detection. People and livestock frequently step them on as a result.

Puff Adder bites will usually result in swelling at the site, as the venom causes tissue destruction.

With snakes such as the black mamba, which cause destruction to the central nervous system, swelling at the site of the bite is not usually evident. The venom results in loss of muscle control and difficulty in breathing, and is often fatal.

Black mamba

Spitting cobras sometimes affect livestock when they spray venom in their eyes. The venom crystallises and eye damage is caused when the eye is rubbed. If eye swelling occurs, flush the eye liberally with water to flush the venom out.

2. Abscesses

Abscesses on livestock may result from either a local wound going septic or from a bacterial source. The bacteria that cause abscesses, especially in small stock, are prevalent in the environment and spread by burst abscesses dripping pus.

Culling affected animals may reduce the incidence where the cause is bacterial but is usually regarded as too drastic to use as a management measure.

Where possible, abscesses should be cut open and the pus drained into a container and then burnt. The wound should then be flushed with saline water or another antiseptic. An abscess should only be cut when ripe (if a soft spot develops). Blood poisoning can result if an abscess is cut too soon. An X-shaped cut will usually ensure the abscess does not close before it has been properly drained.

3. Birthing complications

When livestock are due to give birth, they should be closely monitored. Difficult births may result in unnecessary deaths. Livestock lying on their own in the veld, trying to give birth, are easy prey to scavengers such as jackal.

Where complications occur, action must be taken before the animal is too exhausted and the birth canal too swollen for successful delivery.

Normal birthing occurs when the head and feet are presented together. Do not pull on feet if there is no sign of the head.

If the front feet are out without the head, a hand will have to be inserted and the head gently brought into the birth canal. If necessary, the feet should be pushed back to allow for the head to be brought around.

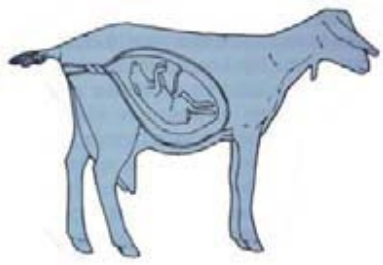
Remember, the uterus can easily be torn and/or infected, which will be fatal to the animal.

Normal birth: Both front feet and the head appear first during delivery.

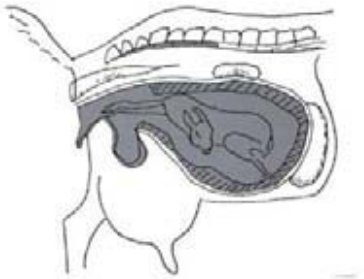
If hands are inserted multiple times, the result is swelling of the birth canal, which will make matters worse. Therefore, always ensure that hands are thoroughly soaped and washed and that the vulva of the animal is washed as well. If protruding feet need to be pushed back into the uterus, wash these too.

In cases where torsion occurs (the uterus rotates), a vet will be needed to perform a caesarean quickly. If a delivery is complicated and not quickly resolved, a vet will be required or the animal will die.

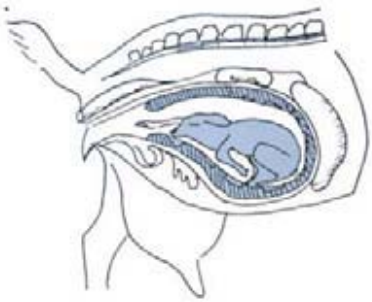
EXAMPLES OF BIRTH COMPLICATIONS IN LIVESTOCK



Complicated birth: When the uterus rotates (a torsion), a veterinarian will need to be called immediately, as a normal birth is impossible. This is a fatal complication if the animal is not assisted.



Complicated birth: The head has not come into the birth canal and is preventing a normal birth. The head needs to be carefully pulled into position in the birth canal. It may be necessary to gently push the front legs back before retrieving the head.



Complicated birth: One leg may be left behind preventing the birth. The leg needs to be carefully pulled into position.

Complicated birth: Both front legs are positioned behind the shoulders and may cause an obstruction that prevents a normal birth. The front legs need to be carefully retrieved.

When a prolapsed uterus or vagina occurs (the uterus has knobs covering its surface), it should be kept clean (wash gently with saline water if dirty), smeared with glycerol, and put back. Stitching (remember, all instruments used should be sterilised by boiling them) may be required to keep it in place. If a cow repeatedly prolapses when giving birth, it may be necessary to cull her.

Colostrum is very important to all newborn livestock and they should obtain it within 3-4 hours of birth. It is the first milk produced after birth and is thick, yellow and full of antibodies that help protect the newborn against diseases.

If a newborn is unable to suckle, the mother should be milked. The newborn animal should be fed at least one cup full of this milk. This is important as calves' stomachs change after a few hours, after which they are unable to absorb the colostrum.

4. Foot Care

Care of livestock hooves is very important, especially in areas where they have to walk far for grazing and water.

If an animal is walking on an incorrectly shaped hoof, the hoof will grow skew. In sandy areas, particular care should be taken to trim feet which do not naturally wear down.

Hooves should have a 45-degree toe. If hooves have become overgrown, do not just cut them short. The hoof should be gradually trimmed back (until the pink area is reached) to the correct length and shape.

Drastically cutting an overgrown hoof will result in crippling the animal and possible foot infection. The foot should always be trimmed so that the animal is walking on the outer edge of the hoof, otherwise sore blisters will form which will also result in crippling.

5. Poisoning

Slangkop (*Ornithoglossum, Pseudogaltonia, Urginea*) and gifblaar (*Dichapetalum*) are the most common causes of plant poisoning in livestock.

It is believed that game are not as susceptible to plant poisons and they also learn to avoid them. Eland, for example, will not eat gifblaar. However, livestock eat the plants and the poison in the plant then dissolves in the water they drink, poisoning them.

If poison plant ingestion is suspected, the livestock should be kept away from water for the night. If enough of the plant has been eaten, not even removing water will save the animal. In areas where free access to water is available, not much can be done to prevent poisoning.

Poisonous plants grow early in the rainy season, prior to the rains in some cases, making them a tasty looking option for livestock. Where possible, an attempt should be made to keep livestock away from the area where these plants flourish.

Lead poisoning can occur when livestock ingest old batteries and old paint. These should not litter areas where livestock

graze, as some livestock, especially cattle, will ingest all kinds of objects.

Livestock managers should try to become familiar with basic necropsy procedures. In communal areas, where veterinarians are far away and it may be a while before one can be consulted, it will help if basic necropsy information can be provided to help with the diagnosis. The carcass should be examined and very descriptive notes made of the findings, as this will help the veterinarian.

Basic signs to look for when examining a carcass are:

- Trachea - red patches on the trachea are signs of a fever.
- Lungs - they should be pink and spongy, not dark red, blotchy or congested.
- Liver - if it was swollen the edges will be round and it will bulge out when cut. The same applies for the spleen.
- Heart - if there are blood spots on the heart then the animal was sick.
- A large gall bladder is caused when bile builds up, and usually only means that the animal may not have eaten for a few days. Not eating is not uncommon when an animal is sick.

When healthy animals are slaughtered for home consumption, necropsy skills should be practiced, so farmers may become familiar with the appearance of healthy internal organs.

RANGE MANAGEMENT

If grazing has been over-utilised, farming will in all likelihood fail. A lack of proper grazing is in many cases the most important reason for low fertility in cows. Efforts to manage and conserve grazing should be the priority of every farmer and conservancy.

In communal areas this is sometimes very difficult, making it essential for communities to work together to achieve the best grazing practices. The key here is proper planning and co-operation.

Donkeys are destructive grazers as they pull grass tufts out of the ground. They also eat grass that a productive cow could have eaten. Therefore, unless they have a specific function on a farm, they should be removed.

This counts for all non-producing livestock.

SUMMARY

Improved livestock management

+

Accurate record keeping

+

Improved calving %

+

Improved weaning rates

+

Increased production

=

Reduced predator conflict

=

Happy community

=

Successful conservancy

CHAPTER 6:
LIVESTOCK-GUARDING ANIMALS

All predators are opportunistic and will take advantage of an easy catch.

Catching livestock, to a predator that has adapted over millions of years to hunt game, is a high-risk venture. Where game is plentiful, most predators will only take livestock if and when the opportunity presents itself. Sound livestock and wildlife management is therefore the key to reducing conflict with predators in conservancies.

Keeping livestock that is adapted to the environment and which is healthy and productive, can reduce predator conflict.

An additional management tool is the use of livestock-guarding animals. Various animals are used to protect livestock around the world. In Namibia, dogs and donkeys are the most popular livestock-guarding animals.

The Use of Donkeys as Livestock-Guarding Animals

Donkeys have been used traditionally as a means of transport. However, these animals have also proved themselves very efficient at chasing away predators. In Kenya, donkeys have even been used in some areas to guard cattle against lions!

In areas where cattle are kept in fenced-off camps, only one or two donkeys are needed per herd of cattle.

Donkeys are naturally more alert and aware of predators, more so than cattle. They will find predators and chase them away. Being herd animals, if there are only one or two individuals, they will instinctively gravitate towards and remain with a cattle herd for security.

Donkeys are also extremely protective of their foals, so a mare with a foal is an added advantage.

Donkeys are not afraid of predators. As they can bite and kick, they make formidable opponents.

Stallions may break fences and become aggressive during breeding, kicking and biting livestock, so these may not always be suitable.

In Switzerland, donkeys have even been successfully used to protect small stock. Again, mares were preferred over stallions, due to the aggressive behaviour of the stallions. Donkey foals should be raised with the livestock they will protect and kraaled with them at night.

The Use of Livestock-Guarding Dogs

The concept of using dogs to protect livestock is not new. Namibians have been using dogs for a very long time and have developed small mongrel breeds to help protect livestock.

In Turkey, the Anatolian Shepherd has been used as a livestock-guarding dog for approximately 6000 years.

When selecting a livestock-guarding dog, the size of the dog and the environment it will be working in are of importance.

How do I Select a Good Livestock-Guarding Dog?

A potential owner needs to ask:

- What are the main predators the dog will need to defend the livestock against?
- What function have the available breeds been developed for? (i.e. working, herding, hunting, etc.)
- What are the advantages/disadvantages of the various breeds and their sizes?
- Is the area particularly hot and rocky?
- Is commercial dog food affordable and readily available?

Some breeds have been developed for specific functions. For example, the border collies and the kelpies have been bred as herding dogs. The Anatolians, on the other hand, have been developed as guarding dogs. Most mongrels can perform one or the other of these tasks.

Large dogs have an advantage in that they can confront large predators, such as cheetah and leopard. Their loud bark is also a good deterrent to predators.

However, certain disadvantages must be considered. The diet of a large, fast-growing breed of dog such as the Anatolian needs more attention and can be more expensive than a smaller breed of dog or mongrel.

Large-breed dogs grow rapidly and therefore require a well-formulated diet that includes pellet food. Mielie meal is not adequate and frequently results in bone deformities. A dog with a poorly developed bone structure will be unable to maintain the hard life of a working dog.

Larger dogs may also find it tougher to walk over very rocky terrain and if they develop bad behavioural habits such as chasing wildlife, they can do a lot of damage.

Another problem in Namibia is that large breeds of livestock-guarding dogs are not readily available.

Small dogs have the advantage that they may cope with rough terrain and take heat

better than larger dogs, as they are usually quite tough. They are easier to feed and easier to obtain than large dogs.

A possible disadvantage with smaller dogs however, is that they may be unable to defend livestock against large predators.

Raising and Training a Livestock-Guarding Dog

A few golden rules, and a lot of patience, need to be applied when raising a livestock-guarding dog.

A puppy should preferably be obtained from a working livestock-guarding dog, and placed with its new livestock at six to eight weeks of age.

The dog should always be with livestock and never left alone in the kraal – even if only two livestock remain with it. A bond needs to be formed between the developing puppy and its livestock. If the bond formation fails, the dog will probably fail as a livestock-guarding dog, as it will not be motivated to stay with the livestock and protect them.

Dogs must be familiarised with other livestock in the area, such as other flocks or herds, horses, cattle, etc. In communal areas this is of particular importance, as livestock share communal water points. If the dog is not familiarised with the neighbours' livestock, it may "defend" its livestock against them and chase or attack them.

It is very important to familiarise a livestock-guarding dog with all the animals it will encounter while accompanying its livestock. A herder should walk the puppy past or through wildlife and other livestock to teach it to ignore them.

Dogs also need to be taught not to view wildlife as a threat to their livestock. If they bark at something, it means they are concerned and view the intruder as a threat. If they bark at or chase wildlife or other livestock, they should be reprimanded immediately.

Once behaviour such as hunting has been learned, it may be very difficult to correct. A dog, which is allowed to chase game, will not stay to protect its livestock when it is unsupervised in the veld. Therefore, as the dog develops and matures, its progress needs to be closely monitored so that any undesirable behaviour can be immediately corrected.

Hunting behaviour in a livestock-guarding dog should not be encouraged. This dog was seriously injured by a warthog.

Dogs that come home with wounds caused by warthog tusks or antelope horns should be monitored, as those wounds were more than likely caused while the dog was hunting.

The time and effort put into raising and training a good livestock guarding dog will have been wasted if the dog is lost due to hunting injuries.

Close monitoring of the dog will also allow the owner and dog to become familiar with one another and develop a working relationship. This allows the owner to be able to handle the dog and inspect it for ticks and injuries, and to treat it when necessary. Lead training the dog while it is young is also essential.

A livestock-guarding dog should have shelter against bad weather.

Puppies need to have protection against aggressive livestock, and against being trampled by the flock. A small pen within the kraal should be adequate for this.

Stages of Development

Children go through defined developmental stages. By certain ages, an infant can be expected to crawl, walk and to begin talking.

Puppies go through very predictable developmental stages as well. Between two and four months of age, social bonding takes place, which is why it is critical that they are with their own herd by this age. Whatever a dog grows up with is what it will bond to. A dog that has grown up with and bonded to goats cannot later be transferred to sheep.

Most puppies go through a playful stage and will chase their livestock around.

At six months most breeds, such as the Anatolian, go through a playful stage, which can result in livestock fatalities if the dog is not monitored and the behaviour corrected. The dog should be reprimanded and, if necessary, kept on a run wire at night. A run wire is preferable to tying the dog up.

A swivel clip and light weight chain suitable for a run wire.

When installing a run wire:

The anchors for the wire should be knocked in level with the ground so that the chain does not get tangled;

Have the run wire traverse the kraal;

Make sure the dog cannot reach a fence and try to jump over it;

The dog should be able to reach shade and water;

Use a light-weight chain and attach it to the dogs collar with a swivel clip;

The dog should be familiar with restraint on a lead before attaching it to a run wire, and then observed when first attached to it.

The Adult Dog

A dog is only as good as its owner. Even an adult dog needs care and monitoring. Large dogs mature later than smaller breeds. Therefore, although they may be the size of adults, it must be remembered that their behaviour will still be that of a young dog, requiring training and patience.

A successful working dog owner should be:

Dedicated to making the dog a success;

Available to monitor the dog's progress and guide it's development;

Willing to invest time and money in the dog's health, welfare and development; and

Have patience and an understanding of the dog's behaviour and needs.

Diet

Puppies require adequate milk from their mothers for the first six weeks. If the bitch's milk is poor, puppies should be supplemented with goat milk. When weaning occurs, it should be done gradually between four to six weeks. Puppies are then supplemented with pellet food and goat milk, so that they become less reliant on the bitch.

Bone growth is rapid between six weeks to six months, so the calcium content of the diet should be adequate. Large dogs need more calcium than small dogs. Muscle development takes place from three to six months, so protein is important early in the dog's growth. Protein is supplied through pellet food, milk, meat and eggs, etc. A growing dog needs more protein than an adult dog. An adult dog requires more energy.

On a well-fed dog, the ribs, spine and hipbones should not be visible. This dog is underfed.

A dog that is not fed properly will not work efficiently. Hunger may cause the dog to chase game, or to appear lazy, as it may just want to lie in the shade.

Working dogs should be fed a good meal twice a day, preferably in the morning

before going out and in the afternoon when returning home.

Before going out, the dog should have access to water and not be fed dry pellets or dry porridge. Feeding should be done at the kraal, preferably where the livestock cannot steal it from the dog.

Veterinary Care of a Working Dog

Dogs, like humans, can only work well if they are healthy. The dog should be inspected every day for ticks, tick-bite wounds and other injuries. These should be treated before they become infected.

A regular vaccination schedule should be followed. Vaccinations build up a dog's immunity by exposing it to diseases in small amounts.

If a bitch does not have a good immunity, she cannot pass it on to her puppies in their first 6 weeks. Up until this age, the immunity from the bitch is all that protects puppies against diseases.

Puppies should receive the 5-in-1 vaccination at least three times, three to four weeks apart, from the age of six weeks. At three months of age they should receive the rabies vaccination.

Following the initial series of vaccinations, a dog should receive a yearly booster for rabies and the 5-in-1 combination.

The Main Diseases Dogs Are Susceptible To and Which Should Be Vaccinated Against.

Distemper: Symptoms of this disease include a discharge in the corner of the eyes, slime coming out of the mouth, and the dog becoming thin. Dogs can survive this disease but they become lame and develop wobbly heads.

Parvovirus: The dog can develop bloody diarrhoea, which can lead to death. Dogs are very susceptible to this disease when not vaccinated.

Rabies: This disease is fatal. It is a very serious disease and all dogs should be vaccinated against it at three months, followed by a booster every year.

Livestock-guarding dogs are particularly vulnerable to rabies, because they must protect their livestock against wild predators and scavengers. They therefore have a high risk of being bitten by these animals and therefore a high risk of contracting the disease if not vaccinated.

Symptoms vary from unexplained aggressiveness and a personality change, to salivating and loss of coordination, among other symptoms. Any dog behaving strangely should be treated with caution and taken to a veterinarian. The disease is transmitted via saliva.

If a dog with an unknown vaccination history, or a dog behaving strangely, bites a person, that person should be taken to a doctor immediately, as the disease is fatal to humans.

Adeno virus: This disease affects a dog's eyes. In severe cases they may go blind.

Leptospira: Symptoms of this disease in dogs include fever, shivering and muscle tenderness, followed by signs such as vomiting and rapid dehydration, together with an increased heart rate. The kidneys are also affected. The disease is eventually fatal if not treated.

Hepatitis: The liver is affected.

Other Common Ailments

Tick bite fever: Symptoms include a high fever, listlessness and weakness (often interpreted by owners as laziness), anaemia (pale eyelids and gums) and nose bleeds. Pus discharge may occur from the eyes and nose, with eventual collapse and death.

Cutting the ends off dogs' ears does not cure this disease. Some dogs may survive but if tick bite fever is suspected, the dog should always be treated with a full course of tablets, as it is very often fatal.

Worms: Working dogs should be dewormed regularly. Deworming does not make a dog immune to worms. It only removes current infestations, which is why deworming should be repeated at least every three months.

Any dog coming into contact with the working dog should be dewormed according to the same schedule as the working dog.

Symptoms of a severe worm infestation include:

- A potbelly in puppies – the puppy's stomach is big and round but the rest of the dog may be skinny;
- Vomiting – worms may even be visible in the vomit;
- Poor coat – loss of sheen, dry, brittle;
- Lethargy and depression (often interpreted as lazy by owners);
- Diarrhoea – worms may be visible in the faeces.

Ear infections: Be careful, when bathing or dipping the dog, not to get the dip too deep in the dog's ears.

Hyaloma ticks: These ticks have a very sore bite and result in a chunk of tissue around the bite dying and falling out. These ticks should be removed as soon as possible, to diminish the dead tissue that falls out. Keep wounds clean until they can heal. Be very careful when applying dips and other tick prevention measures. Wear gloves and only use what has been recommended for dogs.

Only use chemicals that are specified for dogs and use only the recommended dosages. Do not indiscriminately use livestock dips on livestock-guarding dogs.

Porcupine quills: Do not just pull quills out, as the barbs may remain in the skin. This results in a festering wound. Push the quill slightly in and then pull out while turning the quill gently.

Dog with a porcupine quill stuck in its nose.

"Steek grass": Dogs with a lot of hair between their toes may get grass seeds that work their way in between the toes. Trim the hair between the toes if this is a problem, and check daily for seeds.

Open wound treatment

Clean well and flush with salt water if no other antiseptic is available. Trim any hair around the wound, as it will compact and keep dirt in. Flies may also lay eggs in a wound that is not kept clean. Aerosol wound sprays are very effective.

Sterilisation

A bitch will come into heat every 6 months. Every time she comes into heat, there is a risk she will forget about her livestock and roam to find a mate. She also cannot work effectively when pregnant and lactating.

Sterilising working dogs is important, because it may help prevent them from roaming.

A table salt solution is suitable for cleaning wounds. Mix one teaspoon of solution with one cup (250ml) of water.

Health Care In Summary

Prevent disease rather than trying to cure it.

Vaccinate, deworm and de-tick your dog.

Healthy nutrition = Healthy dog.

Sick or injured dogs should be treated as soon as possible to prevent expensive complications or losing the dog.

Sterilise your dog to avoid roaming. A guarding dog that is roaming is not protecting your livestock. It also runs the risk of being shot on a neighbour's farm, in addition to learning bad habits such as chasing wildlife.

Be informed – the more you learn about the care and training of your livestock-guarding dog, the better its chances of a long, healthy, and productive life, thereby increasing the safety and productivity of your livestock.

Golden Rules for Raising a Livestock Guarding Dog:

Obtain a puppy from a proven working dog. Communities can work together to develop a good line of working dogs by selectively breeding the best ones and then distributing them.

Never separate the dog from its livestock.

The dog should be kept with its own herd. Never move the dog to a new herd or a different type of livestock.

Have patience raising and training the dog.

A dog is only as good as its owner and the care it receives.

CHAPTER 7:
WILDLIFE MANAGEMENT IN CONSERVANCIES

Communal Conservancies are entitled to manage their wildlife independently, provided levels of utilisation are sustainable. Conservancies therefore provide the basis through which natural resources and community-based tourism ventures can be managed.

Communal conservancy members can jointly decide on the best options for the management of the wildlife within their conservancies.

Since Namibia's Independence in 1990, tourism has become the third largest income generator in Namibia.

Namibia's incredible variety of wildlife and vast wilderness areas are an important asset to the country in attracting tourists from overseas.

Conservancy areas need to carefully manage and take care of their wildlife if tourism is to be a viable income earner for the conservancy.

Game has certain advantages over livestock. Game eats less food per body mass than cattle, are better adapted than livestock to surviving in Namibia's harsh environments and produce more meat (kilograms) per hectare than livestock. A cow requires 10 ha on average, for example, while a gemsbok may require just five ha, as it grows and turns the grazing into meat more efficiently.

Game animals breed more efficiently than cattle and are more fertile. From an eco-tourism point of view, wildlife is extremely valuable. Tourists will visit Namibia and southern Africa and pay to see wildlife, not livestock.

Game farming provides more options for utilisation than livestock farming, such as filmmaking, photographic safaris, lodges, hotels, trophy hunting and meat and employment. Cattle can only be raised and sold for their meat.

Some aspects of game management are more difficult than livestock management. Game movements are not as easy to control as the movement of cattle.

Game cannot be handled, vaccinated and treated the same way as cattle, making disease control and management difficult. Combining game and cattle increases the risk of diseases to cattle, as some game species may act as carriers, spreading a disease without displaying its symptoms.

Caution must be applied with certain species, such as buffalo, as they carry contagious diseases such as corridor disease. Government agencies and regulatory officials have passed strict laws regarding the care and maintenance of these animals.

However, game farming and livestock can be successfully combined to increase the land's productivity.

Game farming in a conservancy is ideal because it spreads capital over a large area. Communities can share the costs of erecting tourist infrastructure, such as camping facilities and road signs and for gathering tenders for larger developments such as lodges.

Fencing is not necessarily required with game farming and is best not applied as a wildlife management tool in a country like Namibia, which is largely arid and semi-arid.

Game fences severely limit the natural movements of game.

Most game species can traverse standard 5-strand cattle fencing. When game-proof fencing is erected, however, it cuts off migration routes of wildlife, making it difficult for them to find prime feeding areas and escape droughts, which results in high mortality rates.

Game fences also limit the flow of genetic material between populations and animals trying to move through the fences may be caught, injured and killed.

Where fencing is electrified, the lower strands can also affect small mammals such as pangolins, which may be shocked to death.

The main factors that control game numbers are food, water availability and social spacing. Social spacing is a very important limiting factor, as wild animals will only tolerate certain numbers of their own species around themselves.

HOW TO MAKE LIVESTOCK FARMING GAME FRIENDLY

The northwest communal conservancy areas have experienced an increase in game, due to the protection efforts of local communities and conservation organisations.

In many areas, however, human populations are also increasing, making it

essential to assess the effects of human habitation on wildlife within conservancy areas.

Areas where game and predators are likely to conflict with livestock, such as water points, livestock kraals, and vegetable gardens, need to be identified.

The basic needs of game and predator species needs to be taken into account if they are to be tolerated and encouraged by communities within conservancies.

Water Points

All living beings need water to survive.

In many areas, communities or families settle near water points for practical reasons, as water still needs to be carried by hand to many households.

Communal water points need to take game requirements and access into account.

Livestock kraals and vegetable gardens are often cultivated near water points to make watering easier.

Wildlife also requires readily available fresh water. Where water points are all occupied by human settlements, with their accompanying noise and smells such as cooking fires, barking dogs and livestock, game will find it difficult to drink undisturbed.

Antelope and elephant coming to drink may also be drawn to the food sources provided by the vegetable gardens.

Predators coming to drink will be brought into close contact with the livestock sharing these water points, increasing the chance of conflict.

Livestock Kraals

Livestock kraals need to be situated near homesteads to discourage predators.

Kraals should also be predator proof where possible, whether through the use of thorn branches and fences or overhangs.

Alternative water points for wildlife need to be provided, which are not located near human settlements or kraals.

Vegetable Gardens

In arid areas, the presence of vegetable gardens is bound to attract any game in the area. Vegetable gardens therefore need to be adequately protected. Communities may combine their gardens for more effective protection.

Uncontrolled Hunting by Domestic and Feral Dogs

Game will move out of areas where they are constantly chased by dogs. Dogs should not be allowed to roam around freely at night if they do not remain at the homestead or, in the case of livestock guarding dogs, in their livestock kraals.

CHAPTER 8:
CONSERVANCIES – THE WAY FORWARD

Conservancies are about conservation.

Conservation is holistic, in other words, it includes the soil, the water, the air, the plant life, the predators, the scavengers and people.

Conservancies are a way of farming and are therefore not an entirely new concept.

Farming and conservation should be viewed together and not as separate units.

In any part of the country where farming is taking place, conservation measures need to apply as well.

If the concept of conservancies and community involvement as a means of wildlife management does not work, then there is little hope for the wildlife of Namibia, as more than 75% of Namibia's wildlife lives on the country's farmlands.

Most of Namibia's National Parks are in low game distribution areas - the arid and semi arid areas. The parks therefore do not offer adequate protection for most of Namibia's wildlife, especially the predators with large home ranges.

Commercial conservancies are largely comprised of commercial, privately owned farms. The Conservancy Association of Namibia (CANNAM) is the umbrella organisation under which all of Namibia's commercial conservancies fall.

Communal area conservancies are mostly established on government-owned land. Once a communal conservancy area has been established, the community may then take responsibility for the management of the area and its wildlife.

Commercial and communal conservancies can benefit by sharing resources and knowledge. They should therefore strive to integrate and network information.

QUESTIONS FREQUENTLY ASKED BY CONSERVANCY MEMBERS

- What's in it for me?
- Why is it important to work together, persevere and be part of a conservancy?
- What are the aims of a conservancy, and conservation and where do predators fit in?
- Why should I conserve predators?
- How do we balance the needs and value of wildlife versus livestock? One should not be to the detriment of the other. Careful management of livestock is essential, every loss is a reflection on management.

- What is the long-term value of livestock versus wildlife to the community?

WHY SHOULD I CONTRIBUTE TO AND SUPPORT MY CONSERVANCY?

The establishment of communal conservancies has made it possible for communities to manage their own wildlife and therefore, their own future prosperity.

The integration of wildlife and livestock management is essential for the survival of wildlife and for the benefit of the community.

Community members need to come together and work towards common goals for their mutual benefit.

The human population is increasing in Namibia and all around the world. Wildlife and wilderness areas are becoming fewer.

Cooperation within and between communities in wildlife and livestock management is no longer optional - it is a necessity.

If we think wildlife or predators are becoming too many, let us compare what we have today to what used to occur in this country. The benefits that can be derived from conserving wildlife are a long-term investment and should not be to only achieve quick overnight profits.

Over the long term, conserving wildlife will benefit the whole community and therefore, each individual

Monetary benefits are what most people strive for, however, the survival of every community hinges on the survival of the environment.

TOURISM AND CONSERVANCIES

Tourists are often viewed as money on wheels, BUT what does a conservancy need to attract tourists?

- Tourists want to meet local people, to learn about them and learn from them;
- Tourists want to take away home-made crafts;
- They want to know they can travel the country in safety;
- Drive on good roads;
- Stay in comfortable accommodation;
- See a variety and good number of game;
- Many tourists want to see small, interesting animals like birds;
- Most tourists want to see large, impressive animals, such as elephants and rhino (a valuable attraction for any conservancy);
- Most tourists also want to see large predators. If one considers that England's largest predator is the fox, then these tourists' fascination with Africa's predators can be better understood;
- Tourists want to see unspoiled scenery, landscapes that are not littered with plastic and other garbage, savannahs that are not ruined and overgrazed and not over-developed; and
- Tourists want to see livestock grazing around traditional villages.

Does my conservancy have all of this?

HOW CAN I IMPROVE MY CONSERVANCY?

- Take responsibility for solving problems in a way that benefits the wildlife and, therefore, the community;
- Participate in decision making;
- Make an effort to compromise and to work together with your fellow community members and other communities;
- Think of possible solutions before a complaint is lodged.

Tourists are valuable to conservancies as a source of revenue, and should always be made to feel welcome.

Remember how communities used to solve problems and conserve and manage their wildlife?
People used to live together. How did they do it?
Why is it so difficult to do today?

APPENDIX 1 – ATTENDANCE LIST OF THE COMMUNAL CONSERVANCY SHEPHERD TRAINING COURSE 2003.

Cheetah Conservation Fund

Staff Presenters:

Bonnie Schumann - Research Assistant
Fanuel Ekondo - Assistant Farm Manager
Johan Britz - Farm Manager
Mandy Schumann - Research Assistant
Siegfriedt !Aebeb – Community Development Officer

Guest Speakers:

Dr. Arthur Bagot-Smith - Veterinarian and Farmer
Harry Schneider-Waterberg - Farmer
Maria Diekmann - Farmer and REST Founder

Waterberg Conservancy

Immanuel Nganjone - CCF Farm Employee

Doro!nawas Conservancy

Christiaan Brandt - Shepherd
Gustuv Haraëb - Shepherd
Herold Nunguru - Shepherd
Ismael Tsuseb - Shepherd
Jenethe Howoses - Volunteer
Johannes Gawiseb - Community Development Facilitator
Karl So-ôabeb - Shepherd
Piet !Oë-amseb - Shepherd
Moses Eiseb - Shepherd
Roberth Nunguru - Shepherd
Ronnie Nunguru - Shepherd

=Khoadi //Hoas Conservancy

Barman !Guim - Shepherd
Eben Hoëb - Shepherd
Johannes Mukuahima - Shepherd
Michael !Gomeb - Shepherd

Ministry of Environment and Tourism

Amanda Botha - Senior Ranger
Arnold Uwu-Khaeb - Senior Ranger
Gerson Somaeb - Warden
Siegfriedt Gowaseb - Warden

R.I.S.E Namibia

Don Muroua - CBNRM Programme Manager
Riaan Lorenz - Logistics Officer

Otjimbojo Conservancy

Arön Tjangura - Shepherd
David Tjangura - Shepherd
Festus Tjimbi - Shepherd
Obed Tjangura - Shepherd
Rabbie Tjivinge - Shepherd
Ronny Tjivinde - Shepherd

Torra Conservancy

Abraham Mapanka - Shepherd
Alex Uwuseb - Shepherd
Anthony Mapanka - Shepherd
Florry Vitalus - Shepherd
Merrill Rhyn - Shepherd

Tsiseb Conservancy

Amon Gaoseb - Shepherd
Eric Xaweb - Coordinator
Jonas Ûseb - Shepherd
Justus Hailonda - Shepherd
Lazarus Gariseb - Shepherd
Otniel Gurirab - Shepherd
Otto Guruseb - Shepherd
Richardt Kaviheja - Shepherd
Theodoer Gawaseb - Shepherd
Victor Tsaraë - Shepherd

APPENDIX 2 – NAMIBIAN CONSERVATION ORGANISATIONS

Africat Foundation
P.O. Box 1889, Otjiwarongo
Tel.: 067-304566
E-mail: africat@natron.net

Afri-Leo Foundation
P.O. Box, 118, Kamanjab
Tel.: 067-330224
E-mail: afrileo@iway.na

Conservancy Association of Namibia (CANAM)
P.O. Box 90493, Windhoek
Tel.: 061-245260 or 081-1245620
E-mail: schlau@iafrica.com.na

Cheetah Conservation Fund (CCF)
P.O. Box 1755, Otjiwarongo
Tel.: 067-306225 or 081-1245679
E-mail: cheeta@iafrica.com.na

Harnas Wildlife Foundation
P.O. Box 548, Gobabis
Tel.: 062-568788 or 081-2600432
E-mail: harnas@iway.na

Integrated Rural Development and Nature Conservation (IRDNC)
P.O. Box 24050, Windhoek
Tel.: 061-228506
E-mail: irdnc@iafrica.com.na

Ministry of Environment and Tourism (MET)
Private Bag 13306, Windhoek
Tel.: 061-263131
E-mail: peter.wildlife@mweb.com.na

Namib Desert Brown Hyena Project
P.O. Box 739, Luderitz
Tel.: 063-202114
E-mail: strandwolf@iway.na

Namibian Nature Foundation
P.O. Box 245, Windhoek
Tel.: 061-248345
E-mail: chrisbrown@nnf.org.na

Namibian Animal Rehabilitation, Research and Education Centre (NARREC)
P.O. Box 11232, Windhoek
Tel.: 061-264409
E-mail: liz@narrec.schoolnet.na

Rare and Endangered Species Trust (REST)
P.O. Box 178, Otjiwarongo
Tel.: 067-306226
E-mail: awt@iafrica.com.na

RISE-Namibia (Rural-People Institute for Social Empowerment in Namibia)
P.O. Box 50155, Bachbrect, Windhoek
Tel.: 061 236029
E-mail: rise-ww@iafrica.com.na

Save the Rhino Trust (SRT)
P.O. Box 224, Swakopmund
Tel.: 064-403829

Wildlife Society of Namibia
P.O. Box 3508, Windhoek
061-248176
E-mail: etosha@mweb.com.na

World Wildlife Fund (WWF) Namibia - Life Programme
P.O. Box 9681, Windhoek
Tel.: 061-239945
E-mail: cweaver@iafrica.com.na

APPENDIX 3 – REFERENCES AND SUGGESTED READING

REST
Rare & Endangered Species Trust

Predator Identification

Endangered Wildlife Trust
POISON working group

Why use this?

If you can determine the species of predator causing stock losses, you as a farmer can use a control method best suited to the specific problem animal. This saves you time and money, and has a higher success rate.

Steps to follow (see backpage)

1) Check for spoor surrounding carcass site (circle one)
2) Identify location of carcass (circle one)
3) Identify prey species (circle one)
4) Check for claw marks (circle one)
5) Is stomach intact? (circle one)
6) Identify bite width (measure distance between top fangs in fatal bite, and note measurement). If necessary, skin side of neck to better view bite marks.
7) Identify parts eaten (color in parts eaten)
8) Are any bones chewed or scattered? (check all that apply)
9) **When you have finished steps 1-8 use the middle pages to help identify your predator.**

Circle the relevant picture from each category

Solutions

Preventative Solutions	**Problem Animal Solutions**
King collars • Repellant collars (smell/noise) • Stockholm Tar • Calving kraals and calving seasons • Herders • Donkey • Zebra • Guard Dogs	Live Traps • Trophy hunting hotlines • Selective shooting • Poison (as a last measure, with advice from PWG or REST)

For more information please contact:

REST	tel:	**067 306226**	
	email:	**awt@iafrica.com.na** (no attachments)	
	website:	**www.RESTafrica.org**	
EWT POISON WORKING GROUP SA	tel:	**0027 82463 4104** or **0027 82446 8946**	
	email:	**pwg@ewt.org.za**	
AFRI-LEO	tel:	**067 330224**	
AFRICAT	tel:	**067 304563/4/6**	
CHEETAH CONSERVATION FUND	tel:	**067 306225**	email: **Cheeta@iafrica.com.na**
ETOSHA RESEARCH	tel:	**067 229864**	email: **oliviaf@tsu.namib.com**
HARNAS	tel:	**062 568020**	email: **harnas@iwwn.com.na**
MIN. OF ENVIRONMENT & TOURISM	tel:	**064 205089**	email: **pstan@iafrica.com.na**
NAPHA LEOPARD HOTLINE	tel:	**061 234455**	
NARREC & PWG NAMIBIA	tel:	**061 264409**	email: **liz@narrec.schoolnet.na**
OKATUMBA WILDLIFE RESEARCH	tel:	**062 560232**	email: **okatumba@namibnet.com**

REST would like to thank the sponsor of this field guide: ***Fauna & Flora International***

	Risk Level	Tracks	Prey Location	Prey Size	Claw Marks	Stomach	Fang Location	Bite Width	Parts Eaten	Bones	Other Evidence
Domestic Dog	10+	front / rear	anywhere	0-400 kg	none	partly eaten	All over--random bites	36-58mm 3 fingers		long bones chewed	Wool, fur, skin, and remains scattered. No marks on throat.
Caracal	10+	front / rear	in grass, bush, or hole	10-25 kg	4 short	intact	Mostly throat, or back of neck	29-32mm thumb length			Wool, fur pulled out and scattered. Does not eat skin or guts. Red hair on prey skin.
Black-Backed Jackal	10+	front / rear	anywhere	0-50 kg	none	partly eaten	Side of neck and lower jaw. Hindquarters of larger 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.
Cheetah	3	front / rear	under bush, or in grass	over 10 kg	1 long	intact, separate from carcass	Throat	36-39mm 3 fingers		rib ends chewed off	Does not eat skin or guts.
Leopard	3	front / rear	in tree, grass, or hole	over 10 kg	4 short	intact	Back of neck, throat	40-46mm 4 fingers		rib ends chewed off	Fur, wool pulled out and scattered. Does not eat skin or guts.
Brown Hyaena	3	front / rear	in bush or hole	0-50 kg	none	partly eaten	Huge fang bites in back of skull. Hindquarters of larger prey, stomach	47-58mm 4 fingers		skull crushed	Wool, fur, skin, and remains scattered. Bites on rump. Only crushed bones, wool, hooves, blood and guts remain.
Spotted Hyaena	3	front / rear	at kill site, in grass	0-400 kg	none	partly eaten	first flanks, then udder and back	4 fingers		all bones crushed	Messy carcass remains. With a large pack, no evidence remains.
Lion	2	front / rear	anywhere	all sizes	claw marks on belly	fully eaten	Throat	75 mm		large bones intact	massive tissue damage
Wild Dog	2	front / rear	no remains	0-400 kg	none	fully eaten	All over	thumb length		no remains	no evidence remains

Highlighted cells indicate exclusive traits

Vulture -- Risk Level: 0
Although you may see vultures soaring above your dead livestock or eating it, they are probably not responsible for killing it. Extremely rarely will a very hungry vulture kill a weak, newborn lamb or kid. They are usually on a carcass because they have chased away the original predator.

Bat-Eared Fox **Aardwolf** **Honey Badger**
Risk Level: 0
These small predators are sometimes thought to be a threat to stock, but they feed only on small rodents and are too weak and small to attack livestock.

APPENDIX 4 – REFERENCES AND SUGGESTED READING

1. Bowland, A.E., Mills, M.G.L., Lawson, D. *Predators and Farmers*, ISBN 0 620 17098-0, The Penrose Press, Johannesburg
2. Cheetah Conservation Fund Newsletters. Contact CCF to go on the mailing list: P.O. Box 1755, Otjiwarongo, or Tel: 067-306225
3. De Wet, T., *Doodmaak Slaag nie teen Probleemdiere nie*. Landbouweekblad, 4 January 2002
4. Marker, L., Kraus, D., Barnett, D., Hurlbut, S. 2003 (3rd Edition) *Cheetah Survival on Namibian Farmlands,* ISBN 99916-30-62-7, Solitaire Press, Windhoek
5. NARREC (Namibia Animal Rehabilitation Research and Education Centre), *Namibia Large Birds of Prey.* Contact NARREC for a copy.
6. *Poisons and Pesticides: Using them Responsibly and Safely*: Contact NARREC for a copy.
7. Stuart, C & E, 1998. *A Field Guide to the Tracks and Signs of Southern and Eastern African Wildlife,* ISBN 1 86812 764 8, Southern Book Publishers (Pty)Ltd, Halfway House.
8. Vulture Study Group, 1990 (2nd Edition). *Vultures & Farmers*, ISBN 0 620 0887 1 0, Print Dynamix, Johannesburg

GLOSSARY

Abundance: a very large amount of something, a lot of something
Acknowledge: recognise or notice
Amalgamated: to combine or unite, to bring together
Anaesthetise: immobilise ("put to sleep") an animal or person with anaesthesia (drugs)
Assist: help or aid
Biomedical collection: the collecting of medical information and samples (such as skin, hair) from animals (or people)
Carrion: the meat of a dead animal
Carcass: the body of a dead animal
Coalition: partnership, working together
Congregate: gather into a crowd, get together
Dentition: type and number of teeth in any species
Deterrent: prevent the occurrence of, discourage (someone) from doing something
Determine: decide or settle, come to a conclusion
Detriment: being harmed or damaged
Distinguish: define, set apart
Endangered: at risk (especially) of extinction
Evolved: changed over time
Exaggerate: represent (something) as being larger or better than it really is
Extinct: having no living members, no longer in existence
Fouling: to make something dirty
Gin trap: a metal leg-hold trap
Habitual: done constantly, done as a habit, done again and again
Harmony: agreement, peacefully
Haunches: upper parts of the back legs
Home range: the area occupied by an animal in which all its requirements (food, water, shelter) are met
Hone: sharpen or fine tune
Incorporated: bringing together, combining
Integrated: bringing together, combining
Listlessness: having no energy
Lethal: very harmful, causing death
Methodically: something that is performed carefully and in an orderly (organised) way
Opportunistic: using immediate opportunities
Perceived: understood, observed
Persecuted: harassed, treated badly
Predated: when an animal is killed (and eaten) by another animal
Predator: animals that (prey on) catch and eat other animals
Preyed on: when an animal is killed and eaten by another animal
Priority: the most important, more important (condition or fact) than others

Raptor: (bird of prey) day-flying bird that feeds on other animals for food. Ssome catch live animals (eagles), and other feed on dead animals (vultures). Typically have a hooked beak with well-developed claws
Regurgitate: vomit or throw-up swallowed food
Retractable: draw (pull) back in
Rosette pattern: a "rose-shaped" marking or pattern
Scavenger: animal that feeds mostly on dead animals killed by others
Stealthy: moving very slowly and carefully
Synchronise: occur or happen at the same time
Territory: an area defended by an animal against others of the same sex or species
Vulture: large bird of prey that feeds on dead animals