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Human - wildlife conflict

Module # 1 - Introduction to human-wildlife conflicts

Component # 1 - Human-wildlife conflict resolution

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Module # 3 - Capture and translocation

Component # 1 - Physical capture
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Disclaimer

While graduates of this course will receive a certificate upon completion, this is **not a veterinary qualification**. The reason for this disclaimer is the inclusion of capture drug information and recommended dosages of some of these capture drugs. The drugs mentioned and how they are used, as well as their recommended dosages, are the opinions of the author only.

Only a qualified veterinarian may anaesthetise or tranquilise an animal. Veterinarians are the only end-users of scheduled substances used for anaesthetising animals. Veterinary prescriptions may also not be issued for use of these scheduled substances by clients. The darting of animals, including free-ranging game animals, with etorphine hydrochloride, Thiofentanyl, Oxalate, Fentanyl or other synthetic opioids is **strictly a veterinary procedure** and may only be performed by a qualified veterinarian.

This course is written as a **general guide** to **educate** wildlife management professionals, game reserve owners, wildlife managers and wildlife enthusiasts of the complexities of human-wildlife conflict, as well as capture and translocation situations.

The advice, recommendations, protocols, suggestions, and instructions provided should be treated **as guidance only**. The tasks of advanced wildlife management must be left to experienced and qualified professionals only. Further, all activities regarding the management of wildlife should be practised **within the legal requirements** and all **necessary permits/permissions in place** from the governing authorities of that country.

The information contained within this course is the experienced opinion of the author. **WildlifeCampus** takes **no responsibility** for how you may utilise the information contained within this course and any consequences thereof.

Module # 1 - Component # 1

Human-Wildlife Conflict Resolution

All animals form a vital part of the mechanics of a stable environment. In a natural, “left alone” situation, they interact with one another, holding each other in balance. This ecology is important to bear in mind whenever management of problem animals is contemplated. The removal of one species often precipitates other species becoming problematic.

Introduction

An **animal becomes a problem animal** when it:

- Competes at an unacceptable level for human food resources
- Becomes a nuisance
- Is a danger to human life

All animals form a vital part of the mechanics of a stable environment. In a natural, "left alone" situation, they interact with one another, **holding each other in balance**. This ecology is important to bear in mind whenever management of problem animals is contemplated. The removal of one species often precipitates other species becoming problematic.

In Zimbabwe, before the Parks and Wildlife Act was amended in 1975, certain species of animal were **considered vermin**. This unfortunate term was often misconstrued to mean that these species were considered undesirable, even within designated protected areas.

Not too long ago, even **some conservationists believed that they were acting in the best interest of ecosystem conservation** when removing these animals. Vermin species included **African wild dog**, **hyaena**, **jackal** and **baboon**, plus several species of **birds** of prey that were shot on sight, irrespective of whether they were doing damage or not.

African wild dog: Thought to be destructive to wildlife because of their apparent brutal hunting methods, which are in fact, efficient and selective. They only kill what they require, leaving nothing to waste. They seldom remain in one area for more than a few months. They move in large home ranges, rarely returning to one place within the same year.

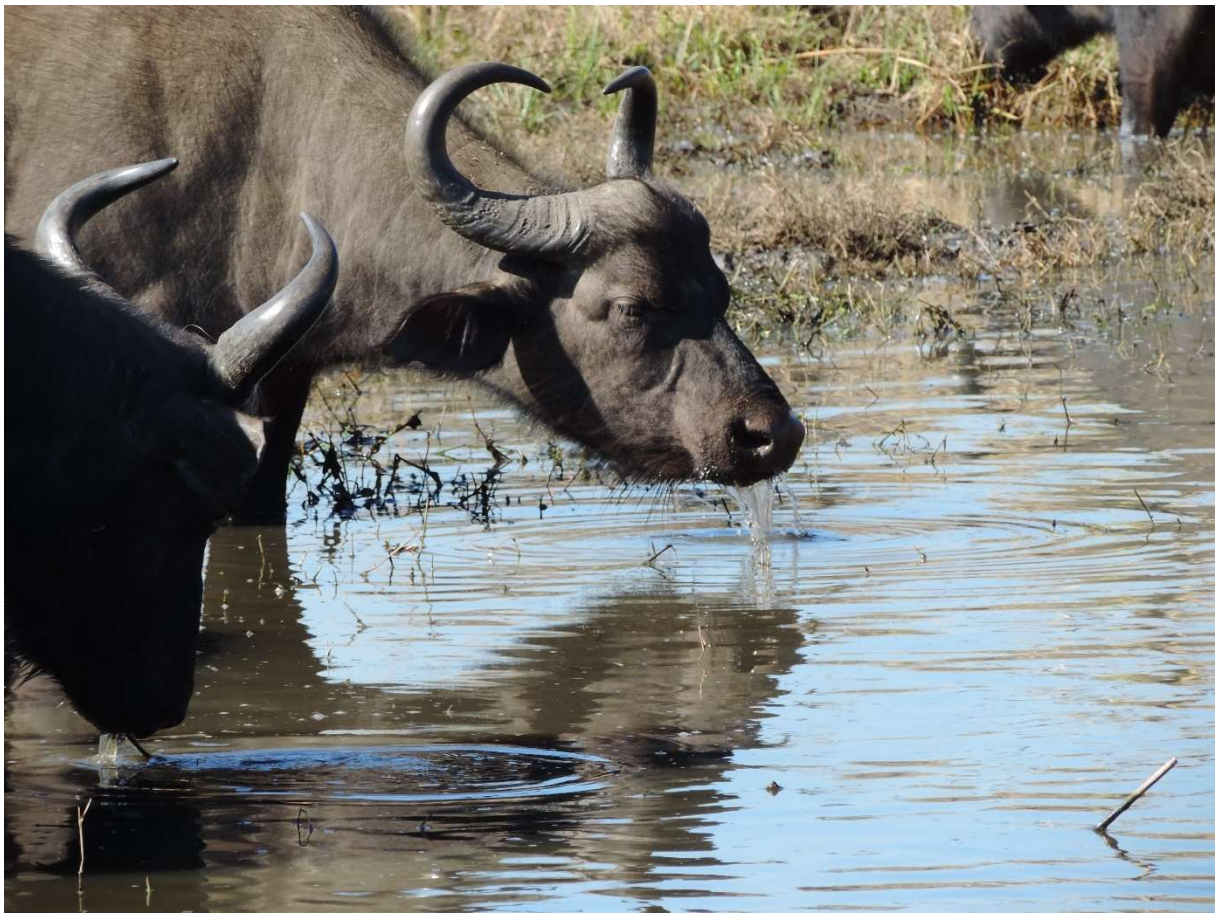
Leopard: The extraordinary behavioural plasticity of this species means that they are remarkably adaptable. Able to seamlessly adapt to environmental and anthropogenic changes such as preferred prey base and land use. This adaptability is what often brings them into close contact with livestock and humans. Their role in managing other potential problem animal populations, such as **baboon** and **bushpig** is often overlooked when considering the killing of livestock.

The conflict

Animals live in **predictable patterns** that differ according to species, occupying different ecological niches. Thorough knowledge of the animal that has become a problem, as well as its environment, **is vital** to reduce conflict with humans. The natural world has an abundance of limiting factors, which are responsible for controlling and managing animal populations. Availability of and access to resources, disease, predation and competition all play a pivotal role in maintaining animal numbers in a specific ecosystem, at an **optimum ecological carrying capacity**.

In a natural ecosystem with minimum interference, the **population dynamics** of different species (the size, age composition etc.) are controlled over successive years. A balanced ecosystem usually comprises several species, all interacting with one another, **preventing an unsustainable increase** of one species over another. For example, in general, as prey numbers increase, a corresponding increase in predator numbers can be expected. The population of the predator is itself limited by the availability of its preferred prey base.

This scenario has been evident on the shores of Lake Kariba, Zimbabwe, where an area of *panicum* grass species grew as a result of periodic flooding. This positively influenced the **buffalo population levels around the lake,** which in turn, influenced the **population of the lion** feeding upon them.



Over time, the water level, instead of rising and falling with the rainy season, rose steadily over consecutive seasons. It flooded the plains on which the *panicum* species

proliferated. This resulted in a reduction in quality grazing for the buffalo, which in turn resulted in large die-offs. Initially, the lion population responded positively to the abundance of weak buffalo as an easy prey base, but eventually also declined in response to the decreased buffalo population.

The more various species interact, the more stable the ecosystem. Knowledge and understanding of these interactions is necessary **to keep the environment as stable as possible.** This stability will **reduce conflict** between problem species and humans. The disruption of this delicate balance often takes place inadvertently. For example, when large tracts of natural habitat are transformed to agriculture, drastically reducing biological diversity, making way for monoculture or the persistence of only a few species, which are less able to support natural wildlife populations. This happens whether the natural habitat is transformed as a result of intensive or extensive (crops and livestock) agricultural practices.

Removing virgin forest in the Eastern Highlands of Zimbabwe for exotic timber such as pine, wattle and gum are an example of this. **Baboons** inhabiting the area occupied a diverse habitat of differing plant and food types available to them. Suddenly, this is replaced with a form of **monoculture** where all the surrounding trees are now the same with a consequent drop in diversity of habitat and food resource. Would nature not then try and reverse this trend? In natural circumstances, baboons damage certain trees under certain conditions of growth as they forage around. As they move around, so the vegetation they occupy changes.

Suddenly, **damage levels become unacceptable** and baboons are eradicated on a large scale to stop the problem. Thousands of **baboons** have been controlled, yet the problem remains. Control has effectively reduced the problem but will have to continue at the same level indefinitely to keep it in check.

Research has suggested that: Current control procedures exacerbate problems of damage. Bait sites encourage groups to remain in pine plantations and increase the likelihood of damage occurring around these intensively used areas. Taken together, this suggests that procedures designed to protect the most vulnerable trees at the times of the year when baboons are most likely to damage, may ultimately be more effective than control procedures focused on the baboons alone. Baboons have also been found to spend large amounts of time in pockets of natural vegetation within pine plantations. They have been found to depend primarily on natural vegetation as a primary food source. Therefore, suggestions for effective baboon population management in these agricultural areas include managing these natural vegetation pockets for biodiversity, and where possible, increasing their sizes.

Where do we strike a balance?

It is accepted that agriculture, even with the best intention of the farmer, does upset the natural ecology. There will be times when the level of depredation upon crops and livestock becomes unacceptable, requiring action. Unfortunately, agriculture and forestry must expand to provide food and a greater economy for increasing world populations. The complete eradication of the animal pest, though, is seldom sustainable or effective and should be discouraged as much as possible.

One of the golden rules in problem animal control is to never seek to entirely remove the pest species from an area but rather concentrate on removing specific culprits.

Consequences of control

It is important when undertaking any agricultural venture, to consider its impact on the environment and on the indigenous flora and fauna found there. Determine what conflicts could occur, to determine the best possible course of action when these problems arise. It may be beneficial; for example, to leave vlei or hill areas surrounding agricultural land alone. This may harbour birds and insects, which in turn can naturally manage potential pest species.

Advances in our understanding of the problem and new techniques available to us are continuously producing better and more efficient methods of problem animal control. These methods are becoming **more target specific,** minimising impact upon the environment. Continuous monitoring of control measures and sharing of data is essential to improve our understanding, reaction to and management of potential wildlife-human conflict situations. Completely removing baboons from an area where there are **resident leopards**, for example, will likely result in increased depredation of livestock. Removing entire troops will likely result in its replacement, as valuable resources will now be uncontested.

Experience in the Eastern Districts of Zimbabwe has indicated, in many instances, replacement of these troops has resulted in the next troop causing even more damage than their predecessors. Toxic control of baboon in the exotic plantations along the Eastern Districts of Zimbabwe, removed some 6000 baboons (carcasses found and disposed of) resulting in a dramatic drop in baboon depredation and perceived numbers for 18 months. But afterwards, the damage seemed to **escalate to levels higher** than had previously been recorded.

Investigation of the problem at a workshop to specifically discuss the problem with stakeholders indicated a poor understanding of the factors involved. The numbers of baboon troops and the size of the individual troops were generally unknown. Their distribution, movement and reasons for causing damage were assumed, rather than being based on hard evidence.

The immediate solution to this without further research is to remove even more baboons in a large blitz operation over two years to reduce the overall population throughout the region until; presumably, their numbers are reduced to insignificance. This will prove to be both costly and a major disaster to the environment. A much cheaper solution could be possible, simply by conducting basic research to establish precisely what is transpiring.

These facts demonstrate that any decision to remove a portion of any population must be based on scientific best practice, research AND an intimate understanding of the dynamics of the particular population in question to provide any meaningful long-term solution to the problem.

Adaptive management **must** be researched to continually update management strategies and provide effective long-term management of the problem. To ignore this will always result in more expense, poor results and possibly permanent damage to the environment. (**See module 5 component 1**).

Poor land management may also be responsible for problem animal activity. For example, excessive irrigation, causing damp areas in poorly drained land, may encourage an **increase in bushpig numbers**. Due to their foraging behaviour, they are attracted to damp areas. **Bushpig** root only in moist soil, so during the dry season, they are hard-pressed for food to a point of starvation. In dry years, this behavioural trait acts as a natural limiting factor in controlling their numbers.

Problem Animal control

Problem Animal Control, (**PAC**) worldwide, is a controversial subject and there is considerable debate regarding the removal of problem species.

Consequently, respective Governments have set up agencies specifically to monitor and **curb excessive destruction** of problem animals. This is particularly evident in the U.S.A., where each method has to be scrutinised and accepted by both the Federal Government and individual States before it can be implemented.

A **permit** is then issued carrying details of exactly how the method will be implemented or product used the precautions to be adhered to, etc. Individual permits must also be obtained for each operation undertaken with full returns submitted to the respective authorities immediately after each operation. Permits are a common practice for most countries, including South Africa.

Where possible, **repellents** or other **aversion agents** are preferred, rather than the destruction of the culprit. Long-term research, often taking many years before general acceptance can be considered. It is also carried out to **determine secondary hazards** and other possible side effects. In the U.S.A, the Denver Wildlife Research Centre in Colorado employs in the region of eighty scientists on several projects to keep abreast of control needs.

In Canada, authorities are reluctant to permit the destruction of animals and **only agree where damage is unusually severe or where human lives are at stake**. Numerous

assessors are employed to examine each case reported and where damage has taken place, the owner is paid compensation, rather than having the culprit removed.

The **use of chemicals** is coming under greater scrutiny and is now governed by the Department of Veterinary Services and the Wildlife Authority for the respective countries. The use of chemicals still provides the major means of control in Zimbabwe and large-scale operations are undertaken under the direct supervision of the Department of National Parks and Wildlife Management Authority.

Control measures are tightening up, so agencies and farmers need to be diligently **controlling only those specific animals causing damage,** rather than the species in general. Each report of damage should be thoroughly investigated and only when the problem is identified, action to affect control carried out (with necessary government-issued permits and permission in place). Apart from the control of large dangerous species, the Department expects individual landowners to be responsible for control, unless, of course, they are unable to or do not have the necessary equipment.

The Authority on its part though must assume responsibility to **research** problem animals and to improve upon knowledge of the animal and the techniques of control. The information must then be disseminated to assist farmers in resolving the problem, with assistance and guidance from local authorities. **The assumption that control invokes only lethal methods is no longer acceptable.**

Course objectives

The objective of this course is to introduce respective farmers, wildlife managers, conservationists, ecologists, wildlife-enthusiasts, field guides and designated control agencies to **acceptable methods of control** and provide ideas as to how the problem can best be alleviated. Management concepts are discussed, and details of each method and its use are given for easy reference.

These methods of control are divided into:

- Non-lethal and/or aversion agents (repelling or protection)
- Capture (where appropriate)
- Lethal control (where appropriate and legal)

Each approach is discussed before the respective methods are presented in detail (except for the lethal methodology, where the **why** and **what** questions are addressed, but the **how** is not detailed).

The course then concentrates on each of the **major problem species**, briefly giving description and distribution information. We then look specifically at the behavioural patterns through which control can best be effected. The approach to the problem, therefore, should initially be one of alleviating the problem without control followed by non-lethal aversion or capture and finally, if all else fails the removal of the culprit from the system.