NEWSLETTER APRIL

In this newsletter:

Dear clients,

Here we have our latest newsletter again for you! We hope you will enjoy it! In this edition, we discuss the interesting physiology (how the body works) of the Namibian desert elephants. Since the duwweltjies (devil's thorn) are all over again, we thought it would be good to write something about this weed, and the potential problems it might cause to especially livestock. Lastly, we shortly explain how we can reduce helicopter- and professional time by working in a team of two. Kind regards, the Wildlife Vets Namibia team.

NAMIBIA'S DESERT ELEPHANTS

We got a request from one of our newsletter readers, if we could cover the fascinating physiology of the Namibian desert elephants. How do these giants survive in such a harsh climate?

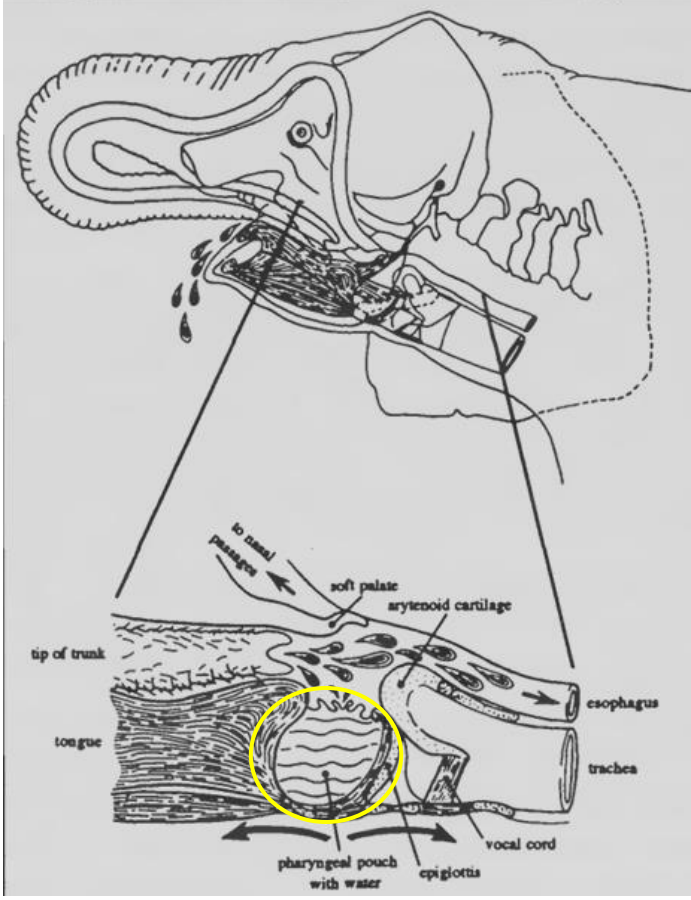
A small herd of desert elephants in the Ugab river. The massive trees in this riverbed make the elephants look tiny! © M. Bijsterbosch

First of all, it is important to know that the Namibian desert elephants are not a subspecies. Just like all the elephants in Namibia, they are African savannah elephants (*Loxodonta Africana*) (Ishida *et al* 2016). What makes the desert elephants so special, is the fact that they have learned to survive in an extreme harsh climate. The long distances they have to travel, together with a high learning capacity made them develop small physical- and behavioral adaptations to cope with the extreme temperatures, low rainfall (approx. between 50-150mm per year) and difficult terrain.

EHRA estimates that there are around 150 desert elephants, who mainly live around the dry riverbeds in southern Kunene and Damaraland. To get enough food, they walk 100s of kilometers to get to high-quality vegetation. Their diet is very varied, and depends on the season and food availability. For example, during the rainy season they eat more grass, and during the dry season they browse more. They usually travel at night, when it is cooler. The home ranges of the Namibian desert elephants are one of the largest ever recorded (Benitez *et al* 2022). One elephant bull for example was recorded to have a home range of 10.738 km^2 (EHRA). Since they have to walk such vast distances to get enough food, the herds tend to be smaller – fewer elephants in the herd means fewer mouths to feed. They also have developed bigger feet with extended footpads, due to the long distances they have to walk, and the soft sandy terrains they cross. Desert elephants are about the same size as other Namibian elephants, but they appear to be less bulky and taller, probably due to their lower food intake.

The desert elephants can survive days without water. If no open water sources are found, they are known to dig into the soil with their feet or trunk to access water beneath the soil surface (Ramey *et al* 2013). If no water can be found, they rely on vegetation in the river beds, that contain more moisture. All elephants, and thus also the desert elephants, have a pharyngeal pouch. This pouch, situated at the base of the tongue, plays a role in producing low-frequency sounds, and it also acts as an emergency water source, which can hold almost 4 liters of water (Greene *et al* 2019). When it is hot and there is no water nearby, elephants insert their tongue into the pouch and spray themselves.

Despite being the biggest land mammal on Earth, the Namibian desert elephants have adapted to survive in the difficult arid environment they live in.



The location of the pharyngeal pouch (in the yellow circle) in an Asian elephant © Trends in Ecology and Evolution

Duwweltjies along the airport road © M. Bijsterbosch

LITTLE DEVILS: DUWWELTJIES

When you drive through Namibia, you will see little yellow flowers everywhere. They look pretty, but they are actually weeds that can cause problems when animals eat them. The official name of the duwweltjie is *Tribulus terrestris*, or devil's thorn in English.

A duwweltjie is an annual plant. The stem extends outward from the crown, reaching a diameter of +/- 10 cm to over 1 m. The yellow flowers have 5 leaves, and after the flowers bloom, a woody fruit develops. We are sure that many of you, especially the bare-foot walkers amongst us, know these 'fruits'... They are hard burs with two or four sharp spines, sharp enough to penetrate skin or bicycle tyres!

Duwweltjies like to grow in disturbed and/or overgrazed soil. Animals actually often find the weed palatable and eat it. But, in certain circumstances they can become poisonous. After the rains the weed grows quickly, but when it is dry and hot for a period, the weeds start wilting. About two to six weeks after the rains, some of the wilted duwweltjies can become poisonous. Not all wilted plants become poisonous, and some become more poisonous when a fungus develops inside the plant. Once the duwweltjie has dried out, or it turns green again due to the rains, it stops being poisonous.

WILDLIFE VETS NAMIBIA

The exact mechanism of how the compounds of the wilted duwweltjie lead to toxicity is complex. The chemical compounds alter membrane functions of especially liver cells, and bile ducts get obstructed. This will lead to jaundice (geelsug) and photosensitivity.

Signs

It can take two days to three weeks before animals show symptoms. Animals becomes photosensitised; they become sensitive to the sun and literally develop a sunburn which is characterised by redness of the skin, cell death, swelling and itching. Eventually blisters appear, and even patches of skin can slough off. Unpigmented skin as well as skin on the face, back and udder are most severely affected. In severe cases even pigmented skin areas can also become involved, and due to fever the animal might to into shock. Depending on the severity of the liver lesions, animals may show jaundice, poor appetite, weight loss and die.

In sheep this condition is often associated with a swelling of the head and typical "sunburn" lesions on the eyelids and lips – the classic "geeldikkop".

Brahman cow with severe signs of photosensitivity © Namibian farmer

Early signs of photosensitivity are discharge and inflammation of eyes and nasal septum © SA Mohair Growers Association

Typical swollen face and ears of a sheep suffering from acute clinical geeldikkop © E.M. van Tonder

The final stage of photosensitivity involves the skin sloughing © Vet in training

A necropsy will show the skin lesions described above and will likely show a swollen, pale/yellow fragile liver, an enlarged gall bladder, filled with dark black sticky fluid, enlarged and yellow kidneys, and jaundice.

Treatment

Affected animals should be brought into the shade immediately, and if possible, keep them in the shade for about two weeks. Obviously, one must avoid further intake of the duwweltjies. Anti-inflammatory and anti-histamine injections (ask your vet for advice!) might relieve the skin irritation and stop self-inflicted trauma (rubbing, kicking towards the sore skin patches). Additional therapy is mostly supportive of nature (multivitamins, possible antibiotic cover as well as liver supportive treatment) and depends on the severity of the disease as well as the value of the animals involved. In severely affected animals that might not recover euthanasia is a realistic option.

Prevention

It is important to try and maintain a healthy ecosystem and proper pasture management (avoid overgrazing) on your land to prevent the spreading of duwweltjies. Once the duwweltjies establish, it is not so easy to eradicate them. Seeds can remain in the soil for up to three years! Do not debush to radical, keep trees and bushes so the animals can stand in the shade.

Above: darting oryx from the helicopter with Simon Wildlife Services © M. Bijsterbosch. Below: reversing a springbuck from the immobilization © C. Krell

WORKING IN THE AIR AND ON THE GROUND

Helicopter prices have unfortunately increased over the last few years. While some wildlife work can be done from the car, some work just has to be done from the helicopter. Now let us have a great way of saving helicopter hours!

Since we work as a team – Ulf the vet in the helicopter, and Mariska the wildlife para-professional on the ground, we can work more animals in a shorter amount of time. Mariska is qualified to handle, monitor and reverse the animal. This means that the helicopter does not have to land every time an animal goes down. Depending on the ground team, the helicopter with Ulf can keep on darting, while Mariska and the ground team can handle the animals and wake them up. This way we can work more efficiently – and thus reduce both helicopter time, and professional time.

If you have any questions, please feel free to contact us anytime 😊

Dr Ulf Tubbesing
P.O. Box 50533, Windhoek
+264 (0)81 128 3050
ulft@africaonline.com.na

Mariska Bijsterbosch
+264 (0)81 382 8473
+31 (0)6 4369 3095 (WhatsApp)
mariska@wildlifevetsnamibia.com

www.wildlifevetsnamibia.com.na
Facebook: Wildlife Vets Namibia
Instagram: @wildlife_vets_namibia
YouTube: Wildlife Vets Namibia