

NEWSLETTER NOVEMBER

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Dear clients,

This strange year is crawling towards the end! In this newsletter you can read about where the frogs have been hiding the last couple of months, ‘crying’ elephants and about the recent Foot and Mouth outbreak in Namibia. We hope you enjoy the newsletter, take care!

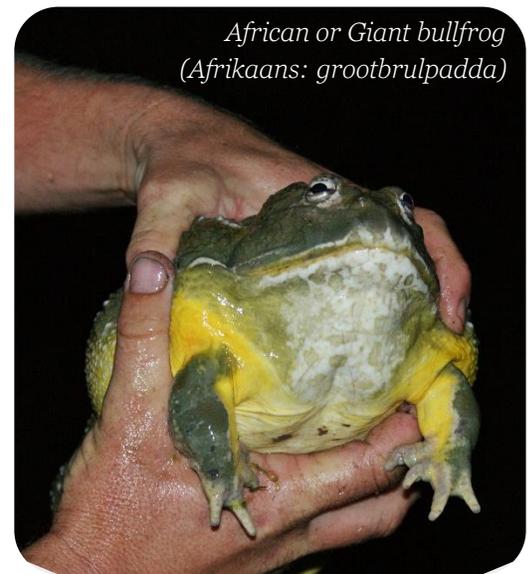
Kind regards, Ulf and Mariska

THE RETURN OF THE FROGS

With the first rains, the Namibian nights are once again filled with a cacophony of ‘singing’ frogs. Namibia has around 50 different species of frogs. The big question is of course... where do they come from? For months you don't see or hear any, and then suddenly, after some rain, they are all over the place! Where do they go all these months?

Let's start off with a small biology class... We are sure you have heard of hibernation in animals; a survival strategy whereby animals save energy by e.g. lowering their metabolism and body temperature. Amphibians, reptiles and certain mammals have another technique to survive extreme environmental conditions, which is called ‘*aestivation*’. Aestivation is a state of inactivity, whereby the animal lowers its metabolism in response to a lack of water or by high temperatures.

If we take the African bull frog as an example, they spend most of their life underground. The African bullfrog makes a burrow in moist soil or mud, about 80 to 150 cm deep. The deeper you go into the soil, the smaller the temperature fluctuations are and below 40 cm there is hardly any variation in daily temperature. The bullfrog, and several other amphibians, create a cocoon consisting of one or several layers of shed skin. Some species use a layer of mucous. This ‘cocoon’ reduces water loss and due to aestivation, it can survive for months under the ground. Some frog species can even survive for a couple of years! When the rains come, the frogs emerge with one thing in their minds... breeding! They congregate in ponds and start their serenades to attract females.



African or Giant bullfrog
(Afrikaans: grootbrulpadda)

Photos from the northern burrowing frog in its cocoon (left), and the Main's frog with the cocoon coming off (right) in the Gibson desert, western Australia © [Terrestrial Ecosystems](#)

How amazing are frogs, that they can survive months under the ground?! Sadly, worldwide the amphibian populations are in a dramatic decline...

Being small and not so noticeable as many of the big mammal species, frogs don't get the attention they deserve. Did you know that frogs are a *natural bioindicator*? Their presence (or absence!) in an environment says something about the health of that environment. Because frogs have a highly permeable skin that easily absorbs chemicals and toxins, they need both suitable clean land and freshwater habitats. They are thus very susceptible to environmental changes. They also play a very important role in the food chain as both predator and prey. Tadpoles for example eat algae which keeps our waters clean as well as mosquito larvae which keeps the number of mozzies in check. Frogs eat insects which for example keeps them from spreading diseases. To add to all this, frogs are important for several medicinal purposes, so far researchers have found certain frog products useful as a painkiller, antibiotics and treatments for heart attacks, depression, strokes, seizures Alzheimer's and cancer. So next time when you see or hear the frogs, don't forget to appreciate them

😊 Below you find some cool Namibian species!



Bubbling Kassina
Afr.: Borrelvleipadda
(*Kassina senegalensis*)

One of the Sand frog species
Afr.: Sandpadda
(genus *Tomopterna*)

Boettger's caco
Afr.: Gewone blikslanertjie
(*Cacosternum boettgeri*)

Banded rubber frog
Afr.: Gebande rubberpadda
(*Phrynomantis bifasciatus*)

Western olive toad
Afr.: Power se Skurwepadda
(*Amietophrynus poweri*)

All photos © M. Bijsterbosch. A big thanks to Francois Theart for helping with the identification of these species!



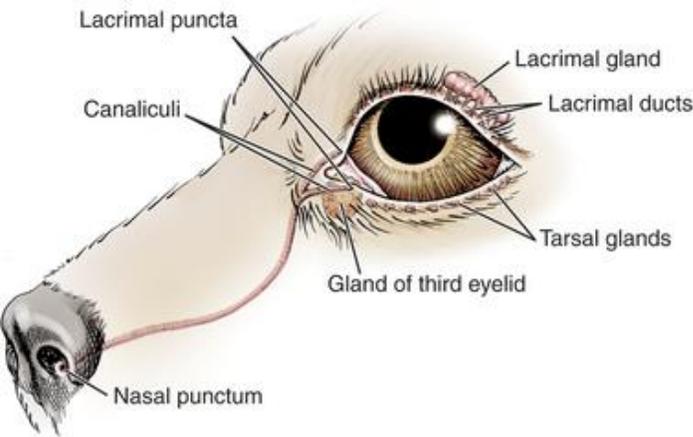
‘CRYING’ ELEPHANTS

“Look at this poor elephant, he is so sad, he is crying”! You probably all heard or seen this sentence... Although there is no doubt that these highly social and intelligent animals have emotions and can show empathy, they don’t cry like we humans do. Why not? There is a simple scientific explanation; elephants don't have tear ducts, and are thus incapable of crying!

All mammals produce some sort of liquid to keep their eyes lubricated and free from dust and dirt. A set of glands and ducts called the *lacrimal apparatus* is responsible for this process. The *lacrimal gland* produces tear fluid. This fluid runs to the eye via ducts, and is spread across the eyeball by blinking. Excessive fluid goes into the *canaliculi*, a little channel at the inside corner of the eye, which drains into the nasal cavity.



Elephant ‘tears’ © [J. Stroes](#) (Flickr)



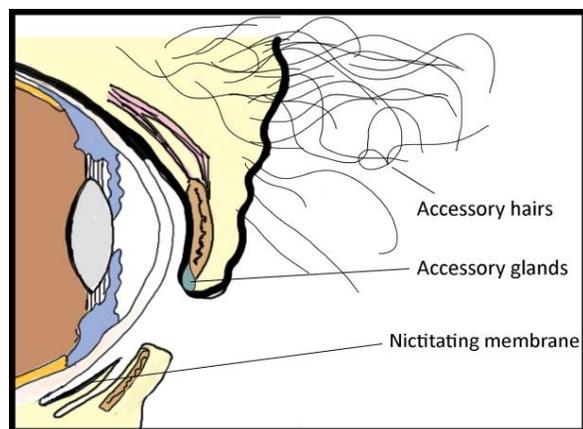
Lacrimal apparatus in a dog © [Veterian Key](#)

Crying occurs when too much tear fluid is produced; the canaliculi cannot handle it anymore and the liquid spills out from the eye. This can happen when there is something irritating in the eye for example. Only the human species is known to produce emotional tears.

The ancestors of modern-day elephants were semi-aquatic, and did not need this lacrimal apparatus. During the evolution of the elephant the entire normal mammalian lacrimal apparatus has disappeared. Elephants thus have no lacrimal glands, tear ducts, canaliculi and nor drainage canals.

Instead, other glands on the third eyelid (*nictating membrane*) and accessory glands along the eyelids took over the role of tear production. In most mammals the third eyelid is small, and produces only very small amounts of fluid. In elephants it is extremely well developed and produces most of the fluid, including mucous. This makes the elephants ‘tear’ consistency different than ours.

So, the reason why it looks like an elephant is crying, is because they don’t have the drainage canal present in most other mammals have. The tear fluid accumulates in the inner corner of the eye, and spills down over the face. When you look closely at an elephants’ eye, you can see there is a groove next to the corner of the eye, to take the liquid away. Sometimes you see a white foam there. Although we don't exactly know what the cause is, it is likely an accumulation of sebum (oily, waxy substance) and mucous, and a deposit for bacteria and dirt that have been cleared out of the eye.



A schematic overview of the structures involved in the tear production of elephants © [T. Mueller](#)



White ‘foam’ at the inside of an elephants’ eye © [B. Jennings](#)

FOOT AND MOUTH OUTBREAK IN NORTHERN NAMIBIA

You might have heard about the Foot-and-Mouth Disease (FMD) outbreak in northern Namibia. We have spoken about the FMD outbreak in SA in a [previous newsletter](#) as well, but it can't do any harm to quickly recap!

What is going on?

There have been outbreaks of FMD amongst cattle in the northeast of Kavango East in September and in the Kavango East and Kavango West in October. It is suspected that infected cattle that were taken across the river from Angola to Namibia. The government reacted by immediately imposing a transport ban on all cloven-hoofed animals north of the veterinary cordon (red line), including Kavango East, to prevent the further spread of FMD. Movement of animal products was also restricted, and vaccination campaigns were started.

In terms of FMD control, Namibia is divided into several zones; the infection zone, the protection or buffer zone, the surveillance zone and the free zone. Namibia is split up by a Veterinary Cordon Fence (VCF) into the southern FMD and Contagious Bovine Pleuropneumonia (CBPP) free part, and a northern zone which is CBPP infected and also contains an FMD buffer and infected zone. The recent FMD outbreak is restricted to the protection zone.

Why is it important?

FMD is a highly contagious disease, affecting not only cattle, but all animals with cloven, or divided hoofs (pigs, sheep, goats, buffalos, antelopes), and even elephants.

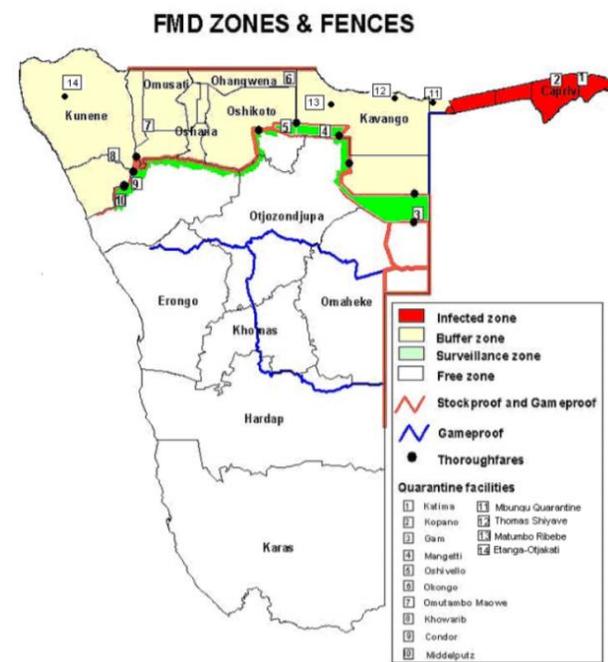
Meat is an important source of income for Namibia. Beef from the free zone is exported to countries such as Norway, the UK, several EU countries, China, and since this year also to the US. Namibia is the first African country that was allowed to export red meat to the US. An uncontained FMD outbreak potentially puts these exports at risk.

The containment of FMD is thus essential both from a disease management and economic point of view.

What is it?

FMD is a highly contagious disease caused by a virus, of which there are 7 distinct families, or 'sero-types'. All produce the same symptoms, only the lab can distinguish the types. Symptoms include a high fever during the first few days, blisters inside the mouth that lead to drooling and blisters on the feet that may rupture and cause lameness. Animals might have a decreased appetite, lose weight and have a drop in milk production. Most animals eventually recover from FMD, but the disease can lead to inflammation of the heart muscle (myocarditis) and death. The incubation time is between 1 to 12 days.

FMD is transmitted via animal-to-animal contact, faeces and urine, long-distance aerosol spread and objects such as food, vehicles, clothes etc.



The FMD zones of Namibia, whereby red is the infected zone, yellow the buffer or protection zone, green the surveillance zone and white the free zone. © [Ministry of Agriculture & Rural](#)



FMD symptoms include drooling, vesicles (fluid-filled blisters) on the mouth, tongue, feet and teats © [P. Scott](#)

FMD and wildlife

All 7 different serotypes of the virus have been found in wildlife species, who show the same symptoms as cattle, sheep or goats. The African buffalo on the other hand is a known reservoir of FMD, meaning that the buffalo, even if infected with the virus, will not show symptoms. In addition, an infected buffalo can remain infectious for up to 5 years, and an isolated herd even up to 24 years, without the animals showing obvious clinical signs. Infected buffalo, if in close contact with livestock, are thus a major cause of infection. With the exception of the disease-free buffalo in the Waterberg Plateau Park and in Bushman land all residual buffalo in Namibia are confined north of the red line.

© [D. Denev](#)

Treatment

There is no treatment for FMD. Animals usually recover, but due to the loss of production and infectious state of the disease, affected animals are usually culled.

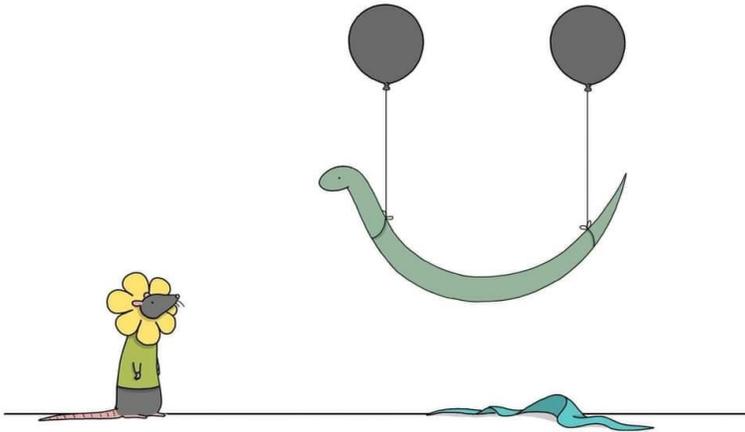
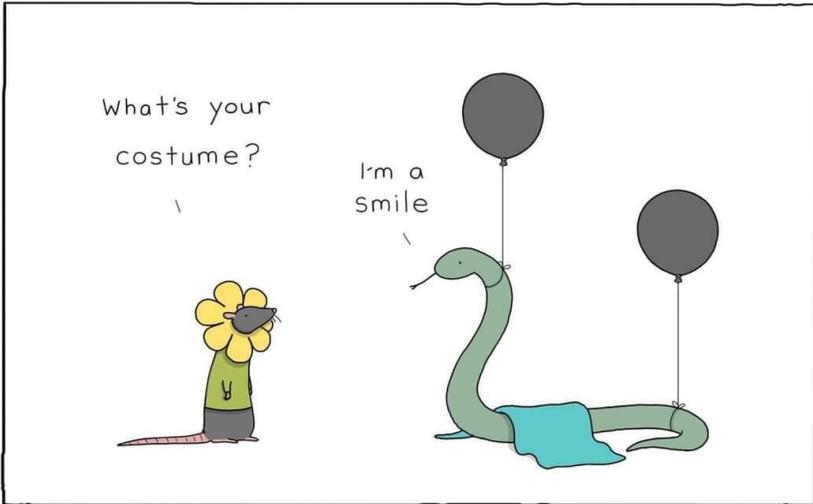
How to control it?

Since FMD is such a contagious disease, the spread from infected- to uninfected animals must be prevented at all cost. In case of an outbreak there are various management strategies that are considered:

In high risk areas (north of the red line) where an outbreak does not influence our FMD free status with the OIE, the Directorate Veterinary Services will initiate a vaccination program in conjunction with strict animal monitoring as well as a complete ban on animal movements within the controlled area.

In case of a FMD outbreak within the FMD free area south of the red line, Namibia would immediately lose its FMD free status resulting in the suspension of all meat exports. Every effort will thus be made to re-attain the FMD free status as soon as possible. This would involve a complete ban on movement of animals within the area placed under management. Very intensive and strict disease surveillance will be applied and infected herds will be culled. Infected carcasses must be disposed in a safe way by incineration, rendering or burial.

No vaccinations will be administered since the vaccine would interfere with subsequent disease screening tests (vaccinated healthy animals testing as positive) making the attainment of a disease-free status near impossible. The high number of game proof fences having been erected all over Namibia play a very important (even if not recognised) role in limiting animal and game movement which will greatly assist in containing and controlling a potential FMD outbreak.



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thelittleworldofliz.com

DR ULF TUBBESING
P.O. BOX 50533, BACHBRECHT,
WINDHOEK
+264 (0) 81 128 3050
ULFT@AFRICAONLINE.COM.NA

MARISKA BIJSTERBOSCH
+264 (0) 81 382 8473
+31 (0)6 4369 3095 (WHATSAPP ONLY)
MARISKA@WILDLIFEVETSNAMIBIA.COM

WWW.WILDLIFEVETSNAMIBIA.COM
FACEBOOK: [WILDLIFE VETS NAMIBIA](#)
YOUTUBE: [WILDLIFE VETS NAMIBIA](#)