Wildlife Vets Namibia July 2023 Edition 64

NEWSLETTER JULY

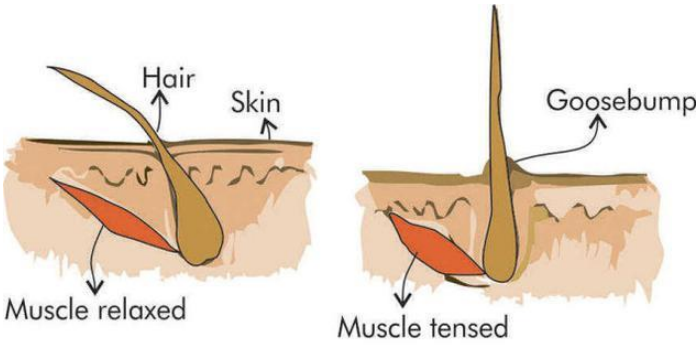
In this newsletter:

Dear clients,

We hope you are well, and that you will enjoy our latest newsletter, we have some interesting topics this month! The first topic is about a certain phenomenon that animals use to stay warm; piloerection. Then we had a super interesting week with Dr de la Rey, SA's leading animal reproduction vet. He came to check on several rhino cows who never calved before. Lastly, we discuss the question whether a farmer is allowed to touch an (animal) crime scene on his/her farm. We hope you can join our course in September! Kind regards, the Wildlife Vets Namibia team

RAISE YOUR HAIRS!

Did you manage to stay warm during the cold spell that hit southern Africa mid-July? While we can keep warm around the fire or being covered with blankets, animals don't have that luxery. They do hoewever have some tricks up their sleeves to keep warm. One of those tricks is called '*piloerection*'.



Piloerection; small muscles at the base of the hair follicles are contracted, making the hair stand up. © Alexander Rundlöf

Piloerection is the contraction of small muscles at the base of hair follicles. As the muscle contracts, the hair straightens up. In animals with fur one can clearly see the hairs standing 'up'. Piloerection is a means of thermoregulation. By raising the hairs, an insulating layer of air around the body is created, which helps to reduce heat loss and maintain body temperature. Birds also 'fluff' up (or fancier said, piloerect their feathers) to increase the thickness of the insulating air layer. In humans, this is what causes goosebumps. Goosebumps don't really help us to keep warm, and is likely a remnant trait from our more hairy ancestors.

Piloerection is not only used when it is cold. It can also be a 'fight or flight' response; think about cats and dogs that raise their hairs when they are afraid or upset. When the hairs are raised, an animal looks bigger than it actually is. Another example are procupines and hedgehogs; when they are threatened, they piloerect their quills to defend themselves.

Another cool example are nyala bulls. Instead of figthing, nyala bulls display an impressive sort of a 'dominance dance', whereby they raise their white hairs and fluff up their tails. The larger and more dominant bull will win, and the submissive bull will drop his hairs and retreat.

Fluffed-up swallow-tailed bee-eater © Emily Tubbesing

Dominance display in two nyala bulls © Kapama Private Game Reserve

Join us!
08 – 10
Sep

ANIMAL CRIME SCENE AND EVIDENCE HANDLING COURSE

08-10 September we will present our Animal Crime Scene course at SAROA Safari Lodge. If you are interested, please join us this time since this will be the only course for this year!

We have been giving this course since 2021, and over the years we had a lot of important input from for example police reservists and detectives, a K-9 expert and a professional photographer. One question that keeps on coming back is:

We are not police, nor reservists, are we allowed to touch a crime scene?

Technically, the police should handle any crime scene. However, there is **a big problem**:

Namibia is a vast country, and the police often has limited resources. The police are not always able to rush out to a farm, it sometimes can take several days. The problem here is that most crime scenes that farmers are dealing with, are outdoor crime scenes (e.g., poaching, stock theft, but also solar panel theft). This means that wind, rain and animals quickly will destroy the crime scene and its evidence. It is therefore important to secure the crime scene properly, and if the police are unable to come, the farmer will have to collect the evidence him/herself, or soon no evidence is left.

During the crime scene course at Etango Ranch in 2022, a herd of cattle walked all over the 'crime scene'. A good real-life example of how important it is to quickly process a crime scene! © M. Bijsterbosch

So ideally, the police will handle the case, but in cases where that is not possible, the farmer (or manager, APU team-leader etc.) should step in! When this happens, it is very important that what is done, is done right. Just the other day during a poaching case we have seen multiple people, including police officers, handling an important piece of evidence without gloves. This means that multiple finger prints are now on the evidence, the lab will not be able to determine the criminal's fingerprints anymore, and the piece of evidence might very well be dismissed in court! If this would happen on your farm, and you did not handle a piece of evidence correctly, it might even be possible that the court will point you as a suspect, since your fingerprints are on the evidence!

With this course we are not aiming to make a detective out of you. It is meant to teach you how to preserve a crime scene and assist the police and/or MEFT. When you encounter a crime scene, always notify the police and/or MEFT accordingly. It is important to note that in cases of serious crime (e.g., murder, rhino poaching) you should NOT handle the crime scene!

What will you learn during this 2.5-day course?

- ✓ The importance of DNA and proper evidence collection
- ✓ How to carefully approach and handle a crime scene
- ✓ What types of evidence can be collected, and how to handle, collect and store evidence
- ✓ How to take crime scene photos that can be used in court
- ✓ How to properly document your findings
- ✓ Maintaining the chain of evidence
- ✓ The different roles in a court case and how to behave in court
- ✓ How to examine body language and see if a possible suspect is lying

WILDLIFE VETS NAMIBIA

When? *Friday 08 – Sunday 10 September 2023.*
Where? *SAROA Safari Lodge, about 155 km from Windhoek in the Nina district.*

In the mornings we do lectures, while during the afternoons we will go out in the field. We will practise photography and collecting evidence, and we make shoe print castings and tyre imprints. On Sunday, everything that you have learned comes together. We will stage a crime scene, and it's up to you and your 'team' to correctly approach and handle the crime scene, and present what you have found to the 'police'.

The course fee is VAT included, and includes 2 nights of accommodation and meals in the luxury lodge of SAROA. For those that live close by, it is possible to only come during the day against a reduced price, and for those that live far away, you are welcome to come the night before. In the flyer accompanying this newsletter you can find more info.

Feel free to contact us for more information 😊

Photography

Make tyre track imprints

Cast shoe prints

Check the height of the suspect based on his foot prints

Collect evidence (the right way!)

WILDLIFE VETS NAMIBIA

Embrio Plus

RHINO REPRODUCTION

We had a very interesting week with South-Africa's leading vet in the field of animal reproduction, Dr Morné de la Rey. Dr de la Rey and his assistant Carla Herbst came to visit three farms, to examine rhinos with a history of not having calved for a long time (in some cases never).

The Dr's de la Rey (first the father and now, in his footsteps, the son) and their company Embryo Plus started with Assisted Reproductive Techniques (ART) in cattle already in 1980. These techniques involve the manipulation of sperm, eggs (ova) and embryos in vitro (in the lab, literal meaning 'in the glass') with the goal of producing a pregnancy. We won't go into too much detail, but you have probably heard of some of these techniques, which include semen collection, artificial insemination (AI), embryo collection and transfer and in-vitro fertilization (IVF). Embryo Plus was the first company in Africa that performed in-vitro fertilization in cattle, and subsequently in buffalo and sable. They were also the first doing embryo transfers in wildebeest. After gaining much experience in all kinds of wildlife species, they started to do more and more work on rhinos. In 2017 Dr de la Rey founded the non-profit organization Rhino Repro. The goal of Rhino Repro is to ensure the survival of the white and black rhino by assisting the species with ground-breaking ART.

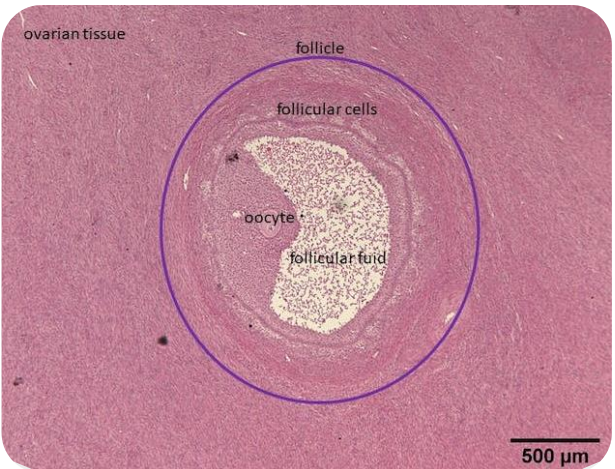
To set an example of how ART can play an important role in conservation… As you might know, there are only two Northern white rhino (*Ceratotherium simum cottoni*) females left at the Ol Pejeta Conservancy in Kenya. Before the last male died in 2018, sperm was collected and frozen. Currently Rhino Repro is working towards perfecting a technique to produce Southern white rhino (*Ceratotherium simum simum)* embryos so that this knowledge may be used to preserve the Northern white rhino. Embryos produced from the Northern white rhino in the future, can be preserved and once an effective technique has been established, transferred into a Southern white rhino surrogate mother. Rhino Repro furthermore harvests eggs and sperm from rhinos across Africa. These specimens are preserved and used for research to ultimately create embryos. At the rate of which rhinos are poached, it is very important to establish these biobanks. In 2020, Rhino Repro successfully artificially inseminated the first white rhino in Africa!

BACK TO CLASS!

Before we explain what we did with the rhinos, lets quickly have a biology class, don't worry, we keep it simple and basic 😉

A rhino cow has two ovaries. The main function of the ovaries is to *produce eggs* (ova). The eggs are controlled by a complex interaction of several hormones (Follicle stimulating hormone (FSH), Luteinizing Hormone (LH), Progesterone and Oestrogen), and are produced according to a cycle – the *oestrous cycle*. During this cycle, the reproductive tract is prepared for *oestrus* (in lay man's terms, 'on heat' – the period that the female accepts the male) and *ovulation* – the egg release.

The eggs develop and mature in a small fluid-filled sac called a *follicle*, which are found throughout the ovaries. During the *oestrous cycle*, follicular cells develop, and an egg is prepared to be released. During ovulation, the follicle ruptures, and the egg is released. If the egg is fertilized by sperm from the male, it begins developing in the *uterus* and forms a calf. If not, the cycle starts again.



Here you can see the follicle, the follicular fluid, and the oocyte in a southern white rhino. The oocyte is an immature egg cell.
© Ruth Appeltant

SO, WHATS UP WITH THE NAMIBIAN RHINOS?

You now know that the **oestrous cycle** is an important part of the reproduction. The rhino cow needs to come on heat and the eggs need to be released (ovulate). Then, obviously, the cow needs a fertile rhino bull in order to get pregnant.

Coming back to the Namibian trip with Dr de la Rey. Several clients informed us that their rhino cows have never calved, even though they are of reproductive age and they walk with one or more bulls. There can be several possibilities why a cow does not get pregnant:

- There might be a medical issue with either the bull or the cow.
- When a bull and a cow walk alone (without other rhinos), the bull sometimes just becomes too lazy to breed.
- Sometimes it happens that rhinos **don't come into a proper cycle**. The hormones don't reach adequate blood levels, and the body does not get prepared to release an egg, or to become pregnant.
    - This can happen to any animal, and any human.
    - This phenomenon is sometimes seen in poaching survivors, that went through a traumatic experience. Their system basically down regulates.
    - It is also seen in rhino orphans that grow up together. They see their mates as siblings, and don't get into the reproduction cycle.

Every rhino counts, and this is where Rhino Repro comes to the rescue!

FARM 1 – TWO RHINO COWS

On the first farm two rhino cows were moved from South-Africa a few years ago and matched up with a mature rhino bull, but did not have any calves so far. The idea was to first check if the cows were pregnant, and if not, check the sperm of the bull, to see if he was fertile.

Once the rhino is immobilized, the first thing Dr de la Rey has to do, is to get rid of all the faeces inside the rectum. As you can imagine, this is quite a task! Once the rectum is empty, it gets flushed with water to clean it further. Then a big ultrasound probe gets inserted into the rectum. It is very difficult to check for pregnancy in rhinos, as the ovaries are hidden deep inside.

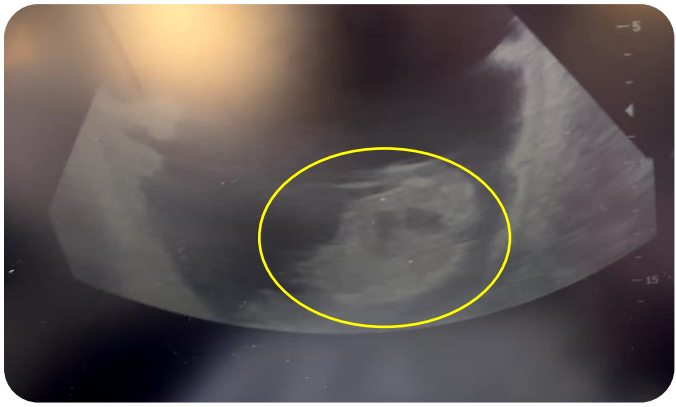
The custom-made probe extension that Dr de la Rey uses. © All photos U. Tubbesing / M. Bijsterbosch

Special immobilization mix *- As you might know, rhinos are very sensitive for the immobilization drugs that we normally use. Since it is quite a task to check for pregnancy in rhinos – you can't do it with a 'normal' ultrasound machine, the rhino has to be sedated for quite some time – therefore, we have to use a different immobilization mix; without the potent opioids we normally use. It means that the rhino will take longer to go down, BUT, they also can sleep for much longer as they have a better oxygen flow through their body.*

Here you can see a pulse oximeter, showing an oxygen level of 98%. That is very high for a sedated rhino! Read more about how the pulse oximeter works here.

WILDLIFE VETS NAMIBIA

In the yellow circle part of the calf can be seen.



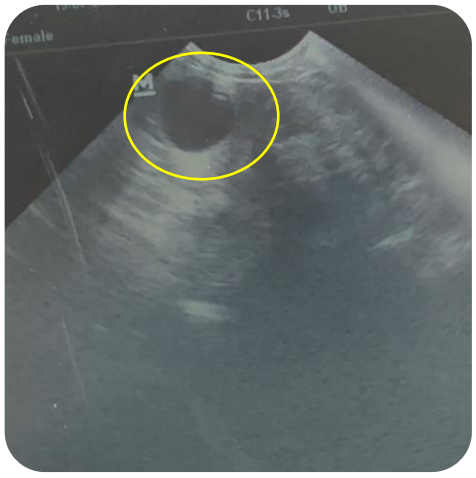
After a bit of searching, Dr de la Rey had good news! The cow was about 4-6 months pregnant! This meant she did not need any procedure, and she was woken up. The second cow was then immobilized and checked, and she was in a very early stage of pregnancy! This meant that the bull was doing his job, and he got off the hook 😊

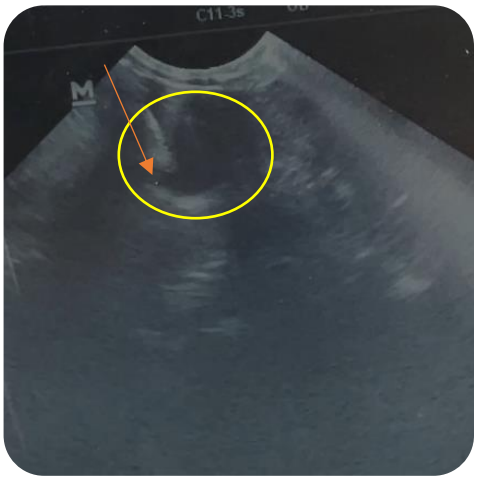
FARM 2 – THREE RHINO COWS

On the second farm we had three cows that needed to be checked. These cows are in a big area, with multiple bulls. The first heifer was still young, but it was expected that she would have a calf by now. An ultrasound examination was done, and she was about 10 months pregnant, good news!

The second cow was already at least 15 years old and never had a calf. First, she was checked and found not pregnant. The ovaries of this cow did not look very good, and she had severe endometriosis (abnormal growths in several areas in the uterus) which would make it difficult for her to become pregnant. Despite this bad news, Dr de la Rey decided to start a procedure called ovum pick-up (OPU), and give her a chance.

An ultrasound probe with needles is inserted, and the ovaries and follicles are identified. A needle is then inserted into the follicle (remember, throughout the ovaries are several follicles, and in the follicle is the egg), and all the material inside (egg and fluid) is sucked out, and deposited into a bottle. The needle is connected to two tubes, the one sucks everything out, the other one flushes saline into the follicle. The follicle is emptied, flushed, and emptied again several times. All the follicles that can be found, receive the same treatment.





On the 1st photo you can see the probe has been inserted into the cow. On the 2nd photo you can see the follicle in the yellow circle. In the 3rd photo, you can see the follicle again in the yellow circle, but also a needle (the white line along the orange arrow). All the material inside the follicle is sucked out, and saline is flushed in.

The goal is to basically 'reset' the ovaries and the hormones they produce. By emptying the follicles, the ovaries are downregulated, and their response is to create a flush or hormones. In 14 to 28 days the cow should come on heat. This could be a fertile heat, or a silent heat. In many cases, the rhino needs just one treatment and she has a good chance of becoming pregnant. In other cases, the cow needs one or two follow-up treatments two and four months later. This is the first time ever this procedure has been done in Namibia!

The third cow was also an older cow, who never had a calf before. Her ovaries looked better than the second cow, and she received the same procedure.

WILDLIFE VETS NAMIBIA

FARM 3 – ONE RHINO BULL AND ONE COW

On the third farm we had to check a bull and cow. On a previous farm, they had been walking together for a long time, without any calves. A few years ago, they were moved to this farm, where also other cows and bulls are present. Unfortunately, so far, the cow did not get pregnant yet.

The bull was done first. He was immobilized, and a probe was inserted rectally to stimulate ejaculation. This is basically the same technique as is used in cattle.

Taking sperm samples from the rhino bull. A first for Namibia!

The sperm was collected, and immediately checked under the microscope. Good news, the bull's sperm was fertile! The best quality samples were prepared for transport by adding a media to preserve the sperm until reaching the semen lab to be frozen. Later that evening the sperm was frozen at Gobabis Veterinary Practice, where it is now stored in a liquid nitrogen tank (at -196°C!). These samples can be kept for future artificial insemination or in vitro fertilization.

The cow was next, and unfortunately after scanning her, she was not pregnant. Her ovaries however looked great, and she had many follicles. She received the OPU-treatment, and there are good hopes that she will become pregnant soon!

Dr de la Rey checks the ultrasound and carefully positions the needle to suck and flush out the follicles. His assistant, Carla (on the left, holding the tubes), controls the sucking and flushing.

We had a great and interesting week, where we learned so much on rhino reproduction and new immobilization mixes! We would like to thank Dr de la Rey and Carla for their time and explanations. It was truly great working with them! Do you have rhinos, or perhaps other animals like sables, who struggle with getting pregnant? Feel free to contact us! If all works out well, Dr de la Rey will come to Namibia on a more regular basis, to work on rhinos, but also on other wildlife species.

Like in humans and many other animals, pregnancy in rhinos is tested via **blood tests**. These tests measure the progesterone levels in the blood, and depending on the levels, the tests indicate whether the rhino is pregnant, and +/- for how long. However, these tests are **highly inaccurate**, only about 37% of these tests are correct. Because of this inaccuracy, there is a misconception that when rhinos are being translocated, they abort. This was because supposedly pregnant animals (based on blood tests) are sold but never calve when they get to the new reserve. With his ultrasound scanning method, Dr de la Rey has proven on many occasions that rhinos do not just abort when they are translocated!

WILDLIFE VETS NAMIBIA

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)

MARISKA@WILDLIFEVETSNAMIBIA.COM

WWW.WILDLIFEVETSNAMIBIA.COM

FACEBOOK: WILDLIFE VETS NAMIBIA

INSTAGRAM: WILDLIFE_VETS_NAMIBIA

YOUTUBE: WILDLIFE VETS NAMIBIA

WILDLIFE VETS NAMIBIA