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Of Mice, Men And Rhinos

WildlifeCampus CEO
Todd Kaplan

In the mid-90s I was looking for a suitable topic for my final undergraduate dissertation. The Rhodes Zoology Department had a particular focus on Inter-tidal Ecology ,while I was seeking an iconic large savanna mammal to study.

There was a single terrestrial mammal professor, but his interest was bats. Just as I was resigning myself to some coastal mollusc, urchin, bivalve or similar; the department quite fortunately took on a mammal ecologist post-doctoral Fellow, Dr White with an interest in terrestrial ecology. Excellent!

The nearby 1,005 hectare Thomas Baines Reserve has plenty of large mammal candidates from rhino (now removed) to buffalo to wildebeest to aardvark and others. Dr White's speciality: Small mammals. Following her interest, the reproduction of the four-striped mouse (*Rhabdomys pumilio*), I ended up with the Woodland dormouse (happily in retrospect).

Part of working under a supervisor is that you get to (are expected to) assist in their research projects. The site selected for her study was a section of reclaimed pastureland; fairly flat, knee-high grasses and a few scattered small thorn bushes and thorn trees. Step one is a population survey, which is achieved with catch and release trapping. You set out a grid of Sherman Traps 10m apart in a 100m x 100m configuration. The traps are setup at sunset and emptied at sunrise (the traps are aluminium so can get quite hot if left out in the sun).

Each trap is baited with a ball of peanut butter and rolled oats (Black Cat & Jungle Oats in this case), in winter we added a square of a cut-up purple jersey for warmth (its colour not scientifically significant).

Processing the traps is a relatively straight forward procedure. Walking back down the trap line in the morning, when you find an empty trap, simply retrieve the bait (and blanket) and the trap quite cleverly folds flat and packs away in a wooden crate for the next use. When finding a sprung trap, lift it to check the weight. If heavier than expected, (the four-striped mouse only weighs 40g), you may have caught a vlei rat (in this habitat) or even a snake (extracting a puff adder from a Sherman Trap is not a task to be undertaken lightly!). Assuming a small mammal, the trap is opened inside a clear plastic bag. The species is identified, weighed, its gender determined, it's reproductive state established and photographed for identification (if caught again); then released.

It's not a bad deal for the mouse; it gets a safe and warm place to stay for the night together with the most nutritious meal it'll have ever received. All in all, it's a very widely used, safe and ethical practice in the furtherance of understanding small mammal ecology (elsewhere in the reserve I was using the same method to study the Woodland dormouse in a forest remnant picking up valuable experience on how to remove puff adders from Sherman traps). The trapping sessions occur once per season for a year. After all the data is collected some complex statistical analysis of it provides a good idea of population size and density. Most specimens caught are easily handled, shrews however, bite!

The procedure worked out with Dr White was that each of us would work separately on clearing the trap lines, starting on opposite sides of the grid; this can take some time and the traps should ideally be all cleared before the day starts to warm. On one such session, I was into my second row working intently when Dr White called to get my attention. She didn't need me for anything, rather she was alerting me to the family of three white rhino that had entered site. The trio were a very large well known male renowned as "Long Tom", an adult female, and a calf. I'd encountered Tom before in various vehicles and he didn't have what you'd term a sunny disposition. I'd been mock charged twice and actually had the vehicle rammed once.

Dr White was working close to a road and having no rhinos between herself and the vehicle wasted no time in reaching it. The vehicle itself was a much abused bakkie (utility vehicle with a two-seater cab and open loading bay at the back), without any 4x4 capability and it barely drove on sand roads; it would never make it across 150m of reclaimed pastureland to where I was.

On the other hand, I did have a trio of rhinos between my present position and said vehicle. Let me repeat the description of the terrain: Fairly flat, knee-high grasses and a few scattered small thorn bushes and thorn trees. The closest tree to climb was several hundred meters away. Top running speed of the average white rhino ± 50 Km/h. Top running speed of the average Todd, less than that, perhaps more if sufficiently motivated by 2,500 Kg of rambunctious rampaging rhino, but certainly less than 50 Km/h. They ambled towards me.

I darted laterally, vaguely in the direction of the road to crouch behind a feeble thorn bush. They followed until they were on the other side of the insubstantial vegetation, literally close enough to reach through and pat. I dashed again, a slighter thicker thorn bush, they followed in concert. And thus began a peculiar cat-and-mouse, zig-zag ballet across the veld. Bush to bush, tree to tree. Dr White picked up on the game immediately and drove around the site accurately predicting where I'd eventually emerge on the road. It took about an hour, rather it felt like an hour, Dr White later claimed to the huge amusement of the 10h00 Zoology department tea-break that it was perhaps seven minutes. We agree to disagree …

Once back in the vehicle the rhinos soon lost interest and amiably wandered away. In hindsight they were never aggressive, rather just curious. Shortly after, with the rhinos out of sight, we completed the clearing of the traps.

Todd

In this Magazine

Study Upskill & Contribute!

MORE INFO ON THE M'FEZI

The Mozambique Spitting cobra (Naja mossambica), also known as the M'fezi, is one of the best-known spitting snakes in southern Africa. This snake accounts for many serious snakebites during summer, and a number of these victims are bitten whilst asleep in their beds.

Usually averaging around 80 cm – 1.2 m in length, these snakes are usually brown to olive-brown in colour but may also be slate-grey with black-edged scales.
When threatened, they form a hood exposing a salmon-coloured neck with black bars and blotching on the throat.
They are capable of spitting up to about 3 m and can spit from a prone position (without forming a hood).

A common snake throughout their range, they favour rocky bushveld areas and are often found in termite mounds, hollow logs, animal holes and on rocky outcrops.

They actively hunt their prey, which consist of frogs, especially toads, small mammals, birds and even other snakes (including Puff Adders). There are also records of them eating insects.

Mozambique Spitting Cobras lay 10 – 22 eggs in midsummer and the hatchlings measure around 24 cm in length. They are venomous from the moment they hatch and are even able to spit (although their venom yield is small).

This snake has the nasty habit of entering homes and biting people while they sleep.

It seems that these snakes mistake people for food and bite their victims with intent, often more than once. These bites are to the hands, arms, body, or face. Although it is often assumed the victim rolled onto the snake causing it to bite in defence, a number of the recorded bites prove this to be untrue.

The Mozambique Spitting Cobra has a predominantly cytotoxic venom which causes pain, swelling, blisters and in many cases, severe local tissue damage. Polyvalent antivenom is effective and needs to be administered as soon as possible in bad bites, to reduce the effect of the tissue damage. Human fatalities are very rare.

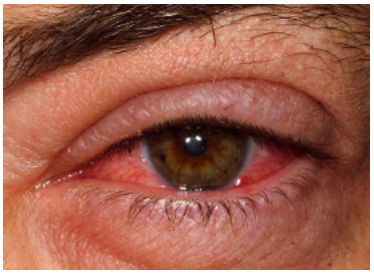
In the event of a snakebite, the most important thing to do is to get the patient to the nearest hospital with a trauma unit.

In some snakebite cases, people spend far too much time resorting to social media asking for advice and about antivenom, and more often than not the snake is incorrectly identified.

Well over 85% of all snakebite victims do not need nor get antivenom, but when needed it is critical.

For medical advice on snakebite, the Poison Information Centre runs a 24-hour helpline that is manned by professionals that deal with snakebite emergencies on a daily basis - their number is 0861 555 777.

Venom in the eyes is extremely painful and in such a case, the eyes need to be washed with copious amounts of bland liquid (water is best).



Patients then need to be taken to a medical doctor who will examine the eyes and prescribe a local anaesthetic and antibiotic eye drops. In most instances, the eyes recover fully within a few days and cases where permanent damage is experienced are rare.

Course Spotlight

Wildlife Management

Written and updated in collaboration with KaiNav Conservation Africa, our Wildlife Management Course is based on the University of Pretoria's Centre for Wildlife Management's Honours degree programme but has been re-written so that no prior learning is required.

This course has been written specifically for those who need to understand the ecological management of game farms and game reserves.

If you are a reserve owner, conservancy, wildlife or game farm manager; game ranger, game guide, game guard, trails guide, field guide or merely have an interest in this field, this course is for you.

Did you know?

Who you support?

For every Online Wildlife Management Course sold WildlifeCampus pays 10% of the course fee directly to **KaiNav Conservation Africa**

Practical Training

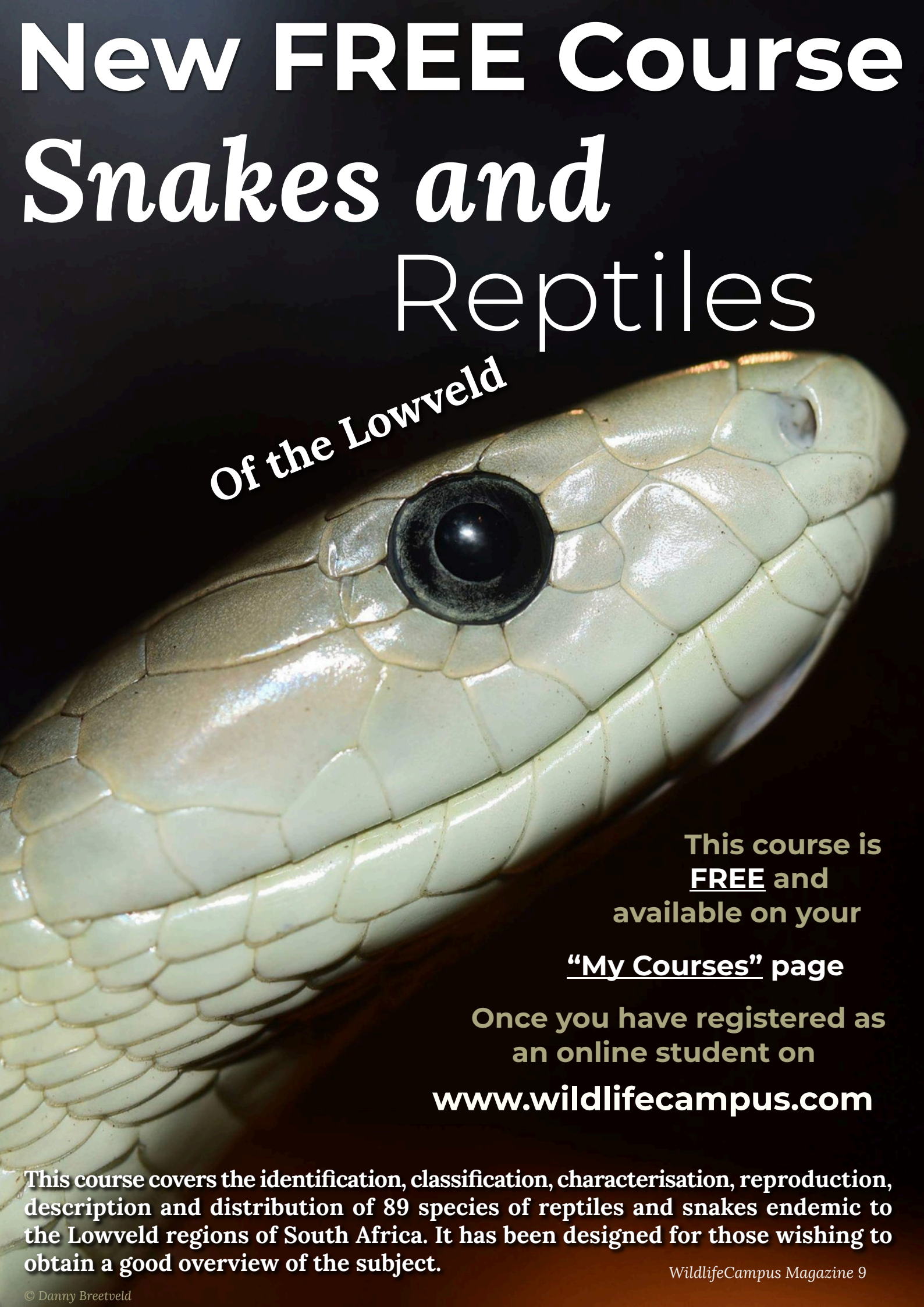
For Wildlife Management Practical Training, WildlifeCampus highly recommends GameWays. For more information, please visit www.gameways-npo.org

We have an entire website dedicated to this specific subject. For full info, visit:
www.wildlifemanagement.co.za

New FREE Course

Snakes and Reptiles

Of the Lowveld



This course is FREE and available on your

"My Courses" page

Once you have registered as an online student on

www.wildlifecampus.com

This course covers the identification, classification, characterisation, reproduction, description and distribution of 89 species of reptiles and snakes endemic to the Lowveld regions of South Africa. It has been designed for those wishing to obtain a good overview of the subject.

The world of fossils

Part Two & Fossil preparation

by Adelheid Bechtold Celliers

This second article provides a further insight and a general resource on fossils and preparation for enthusiasts of paleontology and fossils. From amateurs to school and university students.

The first part of "The world of fossils and fossil preparation" by Adelheid B. Celliers can be found in WildlifeCampus Magazine July 2020 - Vol. 4 (or on our website ***www.wildlifecampus.com click Magazines****)*

Laboratories

New material arriving from the field requires room for temporary storage and large dedicated laboratory spaces in which to prepare it.

The extent to which a specimen gets prepared is determined by the paleontologist's goals for that particular specimen. They may be research goals e.g., to expose features for identification or for further study. Alternatively, the specimen might be prepared for exhibition and depending on the nature of the fossil, this could involve leaving the specimen partially embedded in matrix, or completely removing the matrix and mounting the fossil.

The functions of each activity is explained with detailed information, by various documents developed by museums and preparators.

With proper preparation and awareness, the risks from these dangers can be minimised and all of your hard, dirty and backbreaking work may be rewarded with spectacular and scientifically significant fossils.

Boom arm microscope

To be able to work on fossils of different dimensions, the microscope should be mounted on a boom stand, which consists of a heavy base, an upright and a boom arm which holds the microscope head. Fibre optic illuminators (branch and ring). A combination of branch and ring lighting is recommended when working under the microscope.

Branch light is directional and is better for seeing the highlights and shadows of surface topography and glossy coatings.

Ring lights cast no shadow and are better for seeing through coatings and into deep holes.

Work boxes, trays and aprons

Trays or work boxes are used around a specimen to ensure that any fragments that inadvertently fall or fly off during preparation are trapped and, thus, retrievable. Wear a mask and apron to cover your mouth and clothing against dust and matrix.

Labeling

Every specimen and jacket should be accompanied by its field number. This information, as well as collection and locality notes, information on the construction of the jacket and how to approach its removal in the lab, the orientation of the specimen, etc. can be written directly on the dry plaster jacket. Photographs and field notes are also invaluable resources for preparation in the lab.

The world of fossils & Fossil preparation

by Adelheid Bechtold Celliers

Scanning before traditional preparation

Scanning an unprepared slab may allow researchers/preparators to determine the distribution of elements within that slab. A quick-and-dirty "scout" scan can easily produce this level of information at a reasonable cost

3 D laser surface scanning

Three-dimensional laser surface scanning is another non-contact, non-destructive technology that can provide information that may be difficult to obtain using traditional preparation techniques. The resulting data points are captured by a computer which can then be merged into a 3 D representation of the specimen.

3 D printing

In 3 D printing, data files from either a 3 D surface scan or from a High Resolution X-Ray Computed Tomography scan are fed into a rapid-prototyping machine where a three-dimensional model is created, typically by building up layers of thermoplastic resin. These models can often be molded and cast repeatedly if necessary.

The technique is particularly useful for extremely small specimens, as the models can be easily enlarged to allow for easier viewing of the smallest.

Techniques

Preparators developed important techniques and lab innovations to handle the workload, some of which may require expensive machinery, entirely new systems or new spaces in which to operate the equipment, some of which produced particularly noxious dust, noise, or smells.

Tools and Equipment

A fossil preparation laboratory contains specialised tools, equipment and materials that enable the preparator to complete the exacting tasks required to both expose the fossil and to preserve it for future generations.

Points

Points or needles are used for microprep and for the final stages of preparing large specimens. They are made from steel drill blanks or carbide rod. Both can be held in pin vises and shaped to fit the desired use. Steel is softer and more flexible than carbide, and can be sharpened to a very fine point, for preparing tiny areas.

Micropreparation

Various tools will be used to remove the matrix, depending on the size of the specimen, the softness of the matrix and the bone, and the desired end result. The process of preparation will generally move from larger to smaller tools, using larger tools with more force to remove large amounts of matrix, and smaller, more delicate tools, to remove the matrix closer to the bone in a more controlled manner.

Types of Matrix

Chalks – usually very soft.
Mudstone or siltstone – fine-grained, usually soft but can also be heavily cracked.
Sandstone – soft and unconsolidated or cemented and hard, of varying grain sizes.
Conglomerates – having multiple grain sizes like gravel, often as hard as concrete.

The world of fossils

& Fossil preparation

by Adelheid Bechtold Celliers

Hematitics – specimens covered in a hard layer of iron concretion.

Matrix can be heavily weathered and friable, or hard with deep fissures and cracks. These states will affect the bone within. In some cases, bone and matrix will separate cleanly and there may even be a color change that indicates when the bone is near. In other situations, such as with hematitic specimens, the matrix may be firmly attached to the bone, requiring more care and skill to remove.

It is occasionally difficult to visually see the difference between matrix and bone. If you have any doubt about what is bone and what is matrix, look under a microscope or consult with another preparator.

Gluing and consolidation

Specimens will often need consolidation and gluing during preparation. You should be aware of the properties of the various adhesives, and have them on hand before beginning to work. It is important to be aware of that glues may need to be unglued.

Macropreparation equipment

Many tools for the preparation of large material are air-powered (pneumatic). These require an air compressor.

Airscribes

Airscribes are pneumatic "pecking" tools, like miniature jack-hammers. With the tool held on the matrix and not on the bone the percussion of the tool forces small flakes of matrix away from the bone. Airscribes vary in size according to how much material can be removed with each stroke, allowing for the bulk removal of large amounts of hard matrix to those which allow for grain-by-grain removal. With experience, the preparator can clean the most delicate of fossils using these tools.

Sandbags

Sandbags of various sizes are essential for supporting the specimen and/or your hands and wrists when preparing under the microscope. They are easy to make yourself. Any tightly woven cloth will do, sewn along three edges, filled with sand and sewn closed.

Adhesives and Consolidants

Selecting the most appropriate adhesive for the task at hand, whether joining, consolidating or coating a specimen, is an important part of successful fossil preparation.

With this collection of adhesives, preparators are able to perform a multitude of tasks including joining, consolidation, coating, and gap filling on a range of fossils which can differ greatly in size and state of preservation.

Resources for this article and further reading

Further reading on the above will give you a better understanding of the world of fossils and the preparation thereof.

Fossils and Evolution published by PSP (www.psp.org.za): Written by Rose Thomas and Ruth Versfeld. Western Cape Primary Science Programme 2011 Photographs: Dr Roger Smith.

Prof. Ian Mckay and Marina Rubidge:
Kitching Fossil Resource Centre, Nieu Bethesda

Kitching Fossil Exploration Centre Facebook page

A guide to Sterkfontein in the Cradle of Humankind:
Prof. Lee Berger and Brett Hilton-Barber

Bolt's Farm: The Kingdom of the Large Cats in the Cradle of Humankind: Gommery et al

The Paleontology Portal:
preparation.paleo.amnh.org

The West Coast Fossil Park:
www.skullsunlimited.com

Practical training

Eastern Cape

ULOVANE ENVIRONMENTAL TRAINING

We asked our affiliates at Ulovane Environmental Training why they think enthusiasts should consider practical training in the Eastern Cape:

"The Eastern Cape is truly one of the gems of South Africa – there is the best of all the wilderness landscapes you could wish for!"

Whether it's a relaxed and informal beach getaway - the Eastern Cape boasts one of the longest stretches of sand dunes in Southern Africa - or perhaps you'd prefer to get your hat and bush clothes on instead, for a safari in one of the Big 5 Game Reserves. Here on Amakhala Game Reserve, which is ALSO a malaria-free destination, you won't be disappointed by the constant change in landscape and species diversity, with six of the total nine biomes occurring in South Africa, all in one reserve! If mountaineering is your preference, just a few hours' drive from the bustling windy city of Port Elizabeth, lies the Baviaanskloof Nature Reserve, with rolling hills and lush valleys that meet towering rocky outcrops which rise in magnificent splendour. The desert dwelling creatures and landscapes of the Klein and Groot Karoo regions are also within reach on your travel through the Eastern Cape.

Every year there is a National Arts festival held in Grahamstown, where local artists, dancers, craftsmen and women come together to share their wonderful works of art. Travellers come from all around South Africa to this fantastic gathering, to share in, learn about, and become submerged in the diverse culture of South Africa.

Of all the provinces in South Africa, Schalk and Candice Pretorius, the founders, and directors of Ulovane Environmental Training, saw the rich diversity the Eastern Cape offered - recognising this as one of the most striking characteristics of this region. The choice was then made to make the Eastern Cape home to Ulovane – superbly fitting, for 'Ulovane' in the traditional isiXhosa language, means 'chameleon'. The name rings true to its description because of what we know of chameleons, both in terms of the environment of the Eastern Cape, and the nature of the training provided – ever adapting to best suit the needs of what is required.

Another draw to this magnificent province for Schalk and Candice, was the sense of family and community atmosphere of the Eastern Cape. Port Elizabeth isn't named the 'friendly city' for nothing! It permeates hospitality at almost every place one visits. Once you walk through our doors, you become an Ulovane family member for life!

Conservation is the centre and heartbeat of a significant amount of game reserves and wildlife populations of the Eastern Cape. The late Dr Ian Player saved the White Rhino population from near certain extinction in the 1960s with 'Operation Rhino' – one of the most successful conservation operations in history. Amakhala Game Reserve, where Ulovane operates its courses, is a marvellous success story of a fifth-generation landowner who had the idea, and then a serious drive and passion, along with the founding families in the region, to bring to life a wild area, from an 8,000ha piece of rehabilitated farm land.

The Eastern Cape is a land steeped so deep in history, with landscapes we see today having been shaped millions of years ago, holding archaeological gems that palaeontologists and the like from the world over, come to discover and read the untold stories that still lay within the land. Here, you will find the story of three vastly different cultures, their origins, battles, and triumphs overcome to live life the way we know it to be here today.

Having chosen the Eastern Cape as the birthplace of Ulovane Environmental Training,

has provided us with more unforgettable experiences than we could ever have anticipated fifteen years ago. The quality of training and education our students receive is dur to the pristine habitats in which we are blessed enough to be able to conduct training. Ulovane simply would not be what it is today if it were located anywhere else in the country.

If there were a word to define the habitat Ulovane calls home, it would be 'Elegance'- a refined quality of gracefulness, effortless beauty of manner, form, and style.

More info?

https://ulovane.co.za/
enquiries@ulovane.co.za

Late *For a Date*

By David Batzofin

There have been two animals vying for the top spot on my bucket list for the past 53 years, pangolin and aardvark. So when the former was spotted in November 2019, the latter automatically slipped into the top spot. Given the fact that COVID-19 has curtailed traveling, I was not expecting to be in a position to see the latter anytime soon.

Fortunately, I was able to spend time at a reserve for work and on the very first game drive, a shape on the side of the road attracted my attention. Not wanting to jinx the sighting and thinking that it was, in fact, a small warthog, I kept quiet waiting for the field guide to confirm my suspicions. The guide was as quiet as I was, until with a “Whoop” he confirmed that it was indeed a young aardvark. For those of you who do not know what an aardvark is, it is basically an animal built from spare parts. It has the body and snout of a pig; it is covered in hair that is not too dissimilar to that of a warthog and finally, the ears of a hare and the tail of a kangaroo. No wonder it is rarely seen, it is too embarrassed to leave its burrow. Hang on, I should not be so judgmental, it is a nocturnal creature, hence it is rarely seen during daylight hours. Except on a cold winter afternoon, said our guide. They are prepared to leave their burrows to look for food when the temperature drops and the light starts to fade. And who was I to argue with a professional? With claws like small shovels, these interesting-looking mammals can dig down to 1m in about 30 seconds to claim their favourite delicacies , termites and ants.

We followed close behind as it went about its business, snuffling, and then stopping to scrape way the soil looking, without any luck, for a meal.

Remember what the guide had told me about the daylight perambulations of the aardvark? Late afternoon, cold day, etc? Well at 11h00 the next day, we were to discover the same youngster in the same area doing exactly the same as the day before. Now, I am uncertain as to who did NOT get the memo... the aardvark who was wandering around, seemingly without a care in the world, or the guide who had part of an extensive training module negated in a single drive. So, once again we found ourselves bumbling along as the animal went about its business. And that was the final time that we found it, even though we did traverse the area again several times, it had by now read the memo and decided that it needed to 'stick-to-the-programme' and return to being nocturnal, even if it was just for the rest of the time that I was there.

This double sighting has left me in a quandary. I had thought that the top spot on my list would now be filled by either aardwolf or bat-eared fox and it turns out I have seen both.

I am therefore currently searching for a new contender to fill the number-one position. Suggestions on a postcard, please.