



KRUGER2CANYON

NEWS

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The Farm House, R527, Zandspruit, Hoedspruit, Limpopo email: editor@kruger2canyon.co.za

State caves in to game farmers and hunters over key wildlife protection

Don Pinnock

Vital legislation for the protection of wildlife has been stopped in its tracks by a mysterious settlement between game breeders/hunters and the Department of Environment.

The Department of Environment (DFFE) had gazetted the most progressive wildlife protection legislation ever drafted in South Africa. It seemed like good news for beleaguered wildlife.

But just before it was to become law, game breeder and hunter organisations applied for an urgent interdict to halt it. DFFE responded with a convincingly argued defence of its legislation, clearly indicating its strong opposition to the application, not least on the grounds that it was not urgent.

But at the last minute, in a secret, out-of-court settlement, the Department withdrew the proposed Threatened or Protected Species (TOPS) regulations as well as related Norms and Standards amendments and agreed to pay the applicants' legal costs.

Its reasoning? "Due to the urgent timeframes of the litigation, the Department required additional time to consider the varied issues raised in the court application" by Wildlife Ranching South Africa (WRSA) and the Professional Hunters Association of South Africa (PHASA). So was it urgent or wasn't it?

What's curious is exactly what happened between 24 March, when the Department filed its comprehensive and well-argued 91-page affidavit opposing the interdict, and 27 March when it completely backtracked in conceding to retract the regulations without revealing any of its arguments.

Because the TOPS regulations were closely interlinked to four other Government Notices – also due to come into effect on 1 April – DFFE has also withdrawn the revised Norms and Standards for the management of elephants, the hunting of leopards, the amended protection list of 266 wild mam-



Withdrawal announcements

Image: Wildlife Ranching SA

mal, fish, birds, invertebrates and plants and new regulations involving the trade in rhino horn.

What were the seemingly convincing arguments made by WRSA/PHASA that made the DFFE back off? What other agreements or aspects to the settlement were reached? And why and on what basis did DFFE agree to pay costs when, in such cases, each party normally pays them? At this stage nobody's talking and a request to DFFE by *Our Burning Planet* (of *Daily Maverick*) got no reply.

Consultation timeframes

The TOPS regulations were published on 3 February for public comment before being promulgated, and at that point WRSA and PHASA met with the Department. Were their concerns raised then? What prompted them to take the Department to court?

Explaining the court challenge, the CEO of

PHASA, Dries van Coller, said the publication of the TOPS regulations and species list had taken the industry by surprise because the previous very limited public participation process was eight years ago, in 2015.

"The Minister's promulgated version of the regulations differed materially from the previous versions and included numerous provisions which would be detrimental to the ability of game ranchers and professional hunters to conduct sustainable business in the game industry."

Van Coller had grounds for complaint. Very limited public participation followed the publication of the TOPS regulations. This is in contrast to the exhaustive consultation following the recommendations of the High Level Panel on lions, rhinos, elephants and leopards and also the White Paper on Biodiversity just approved by Cabinet.

It is also surprising that the minister's legal advisers appear to have failed to take note of the precedent affirmed for the requirements for public participation in two other cases. One was an interim interdict granted to the Humane Society International-Africa, which challenged the hunting and export quotas for elephants, rhinos, and leopards. The second judgement was obtained by Endangered Wildlife Trust overturning the Department of Agriculture's inclusion of several species of wild animals under the Animal Improvement Act.

More than time frames

A reading of the TOPS regulations, however, makes it clear why game farmers and hunters hit the panic button. It's not just about consultation time frames. Following the report of the High Level Panel, DFFE's Cabinet-approved proposals on animal wellbeing and the White Paper on Biodiversity just published, it's clear that Creecy is responsive to increasing reports and studies on cruelty to game farms and, particularly, the hunting of lions bred for the bullet.

All this is having a negative effect on South Africa's image abroad at a time when the country desperately needs to rebuild its tourist industry after the Covid pandemic.

The new TOPS regulations tighten the thumbscrews on sloppy, inappropriate, dangerous, and cruel game farming and hunting, in an industry that has mostly been at great pains to fly below the radar. They considerably tighten regulation of captive breeding, rehabilitation, temporary holding and commercial exhibition facilities, game farms and animal translocators.

But the regulations go much further, listing 266 species as vulnerable, endangered, or critically endangered with precise listing of restricted or prohibited activities with regard to each. These include all rhino species, elephants, lions, leopards, African wild dogs, cheetahs, hyenas, and a range of plains game including ...

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From the editors desk...



This is a shorter edition, I was abroad for half the month which made it a little difficult to put together. I experienced a longing for home whilst I was away, and on the plane back listened to some South African complaining that winter was on its way.

Well, yes, the time has come to prepare ourselves for the oncoming winter. But most of us love winter, as we bask in the relative 'cool' of the day and the crisp night air.

With the added benefit of a retreat of the dastard 'skitties' and other bugs – it bodes well for a time in absolute paradise, which is where we live. It's almost like a holiday, to recharge the batteries for the summer that inescapably is on its way.

There are many reasons why we should love winter – besides cooling down. Durbs will have the best weather in the country, and together with the warm Indian Ocean – it really cannot complain about the weather. Cape Town of course will be cooler and wetter, and there may even be some snow on the 'berg. Johannesburg will be very crispy. But I think that we in Hoedspruit may well contest the perception that Durbs has the best winter weather – what better place than to be in the lowveld?

Beautiful clear skies during the day, crispy mornings and cool (sometimes very cool) evenings, all point to a very comfortable season, cuddled around a fire with the sounds of the bushveld expressing the ca-

phony of sound that we love. How could you beat that?

Our braais in that atmosphere and surroundings, must beat the who's who in Cape Town into a distant second place. Nothing like a great boerie roll around the fire, with a good dose of amber liquid to see it down.

Yes, you could go and see the flowers in Namaqualand, or set your sights on the snow covered Matroosberg in the Cape or the Drakensberg Mountains in Kwazulu-Natal – but once again I think we take the cake.

Winter is the best time to head for the bush – it's cool, which makes those game drives a whole lot easier; the thinner bush allows for better and easier sightings and the animals tend to congregate a little more around the waterholes and rivers in these months.

So, let's all embrace the winter ahead knowing that we DO live in paradise!

Enjoy the read.



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Letters to the Editor

Dear Ed,

My husband and I live on a boat, currently in Indonesia. I came home to meet up with old friends and get a much needed 'bush-fix'. I no longer have a laptop, as the sea air slowly corrodes away at all our electronic devices - particularly the charging ports - so as a result, "my life" is on my old Samsung!

While visiting the Kruger National Park with friends on Good Friday, I inadvertently left my phone at the remote N'Wanetsi viewpoint. It was only many hours later, when leaving Orpen Gate, that I realised what I had done. There was no way of going back, as the gate was about to close. I did however report it to Dan Hlatshwayo, the gate official on duty at Orpen Gate, and he said he would call Satara, as they were the closest camp to N'Wanetsi, and call me back (on my friend's phone) the following morning.

Dan was indeed true to his word. He called me back with the unbelievable news - my phone had been found! It had been picked up by visitors, and Leonard Themba, the SANParks official at N'Wanetsi picnic spot had persuaded them to hand over the lost phone to him, so he could get it safely to Lost Property at Satara, which he did.

I cannot tell you how grateful I am to all those in the chain, who got my phone back to me. I was blown away by the friendliness of all the SANParks officials I encountered, and their willingness to assist me.

If there is one thing that has warmed my heart this trip, it's been the friendliness of South African people - from the Immigration official who looked at my passport when I arrived at Cape Town International Airport, and smiled and said "Welcome home!", to these wonderful SANParks staff, to Leonard the driver of the Safari Link Shuttle I shuttled me from

Hoedspruit to OR Tambo Airport - as well as all my fellow passengers. My amazing LIFT flight back to Cape Town - which seemed to be packed with friendly, kind crew and passengers, and yesterday when the car I have borrowed broke down, and almost everyone who walked past offered to help.

We live in an incredible country, where unfortunately so much is so wrong, but the core is good, and the core is strong!
Marion Hoole

Ed: Dear Marion, what a wonderful story - well done to all those responsible for a very happy 'tourist'!

Dear Editor,

A while back you published a transcript of your discussion with a Mr Rob Hare, regarding the building of the new mall in Hoedspruit. In that article it was stated that there would be a 'press release' in two weeks - whatever happened to

that? There seems to be a lot of discontent in the community regarding this mall, how it came about, who are the contractors (seemingly not from Hoedspruit) and the apparent lack of transparency as to what it will look like, who gave the go-ahead, was an EIA done etc., etc... What is happening about this?

Regards, many concerned residents of the Hoed.

*Ed: Thanks for this correspondence. We did not receive any 'press release' as was promised by Mr Rob Hare - it may have been done through another platform, but we certainly did not get anything from them, nor did we see any release. With respect to all your questions I believe that the best person to get in touch with, who is doing a great job in uniting and getting the residents into an active 'force' is Lizmari Wolmarans. You should join the **Hdt Town Concerns WhatsApp** group and put the questions on that active platform.*

Explaining the future of conservation in southern Africa, AI style

Mark Bishop

Not purporting to be a techno-geek, and in anyway tech savvy, I read and listen with interest to all the hullabaloo about AI. There seem to be two camps on this issue - those for, and those against. I am not quite sure where I stand on it, suffice to say that I am sure that there are phenomenal applications for AI that we are yet to see, certainly in the 'text' environment. From a robotics perspective I suppose if those creatures are not given carte blanche to do as they wish, and are tightly controlled, there should not be any problems going forward. But we will have to wait and see.

I took the jump and decided that every month I would include an "AI text column" to see how well this form of intelligence is progressing, and to observe how 'clever' it really is. I imagined that it would be pretty general in its view. So, I posed the question to the AI platform ChatGPT: 'Explain the future of conservation in southern Africa'.

The AI response

"As an AI language model, I don't have

access to specific information about the future of conservation in Southern Africa beyond my knowledge cut-off of 2021. However, based on current trends and predictions, I can provide some insights.

Conservation in Southern Africa faces a number of challenges, including habitat loss, poaching, climate change, and human-wildlife conflict. To address these issues, there has been an increasing focus on community-based conservation and the involvement of local people in conservation efforts. This approach recognizes the importance of local communities in the conservation process and seeks to address their needs and concerns in a collaborative and sustainable manner.

Another trend in conservation is the use of technology, such as drones and satellite imagery, to monitor wildlife populations and combat poaching. This technology can help conservationists better understand the movements and behaviours of wildlife, as well as identify and respond to threats in a timely manner.

In addition, there is growing recognition of the need to integrate conservation with

sustainable development, particularly in rural areas where poverty is a major driver of habitat destruction and overexploitation of natural resources. By promoting sustainable livelihoods and economic opportunities, conservationists can help address the root causes of environmental degradation and promote long-term conservation.

Overall, the future of conservation in Southern Africa will likely involve a combination of approaches, including community-based conservation, technology, and sustainable development. It will require ongoing collaboration and innovation, as well as a commitment to protecting the unique biodiversity and ecosystems of the region".

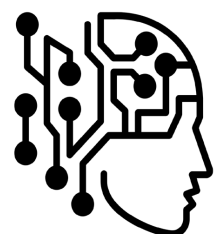
Taking away our ability to think

It's quite a general piece, but for it to easily and very quickly respond as it did, was quite amazing. My thoughts went to school and university students, and I wondered whether having access to this sort of technology might take away the ability for original thought and production. Would we, in the future, just load our questions into a portal and regurgitate the resultant response?

Or could it add to our widened vision on a subject? I suppose once again time will tell.

The frightening thought though, is that the human race needs purpose, it needs tasks, and it certainly needs thought to probe, enquire and solve issues and matters that arise. Without that I fear we are doomed. So, could we be creating our demise, where our sole reference and 'go to' is AI, and as a result we lose the ability to think! Not a pleasant thought at all.

Credit: ChatGPT, chat.openai.com



State caves in to game farmers and hunters over key wildlife protection

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These include all rhino species, elephants, lions, leopards, African wild dogs, cheetahs, hyenas, and a range of plains game including southern roan and sable antelope, and both species of zebra.

TOPS also tightens regulations around hunting permits and drills down on captive breeding, which must have infuriated breeders and would have been the main points of contention in the court case. A huge bone of contention with facilities involved in so-called canned hunting, where hand-reared lions are released to be shot, would have been regulations prohibiting the hunting of a large predator in an area adjacent to a captive holding facility.

Also prohibited would be the introduction of wild-caught predators to breeding facilities, a time limit after which rehabilitation facilities would have to return animals to the wild, and a ban on breeding in sanctuaries.

The TOPS regulations put captive breeding facilities under an official microscope with the ability to close them down for non-compliance with the strict guidelines. All animals and the conditions under which they are kept would have to be documented for official inspection and stud books kept to curb inbreeding and hybridisation.

Enclosures would need to comply with regulations, the food supply for captive

animals detailed, plans provided for the removal of waste and the availability of veterinary services. Captive breeding facilities would be required to provide a description of the strategies used in breeding that contribute to the conservation of wild populations, a requirement that lion farms would find impossible.

Breeding facilities would be denied registration if their activities conflicted with the Biodiversity Act or with anything within the TOPS regulations. And to add to the uncertainty of game breeders, their registration could be cancelled if "there is a change in the conservation status of the species involved being bred, reared, propagated, traded or kept by a permit holder".

A question of capacity
A weakness of the TOPS regulations – and this would have been pointed out in the court case – is that the tight control required by DFFE would require far more trained officials, and a data collection system capable of responding quickly and efficiently. Sadly, neither national or provincial environmental departments have either of these. This point was hammered home by Dries van Coller of PHASA: "We are already being hamstrung by the inability of various national and provincial departments to administer the myriad of environmental regulations. State departments already do not have the capacity or funding to administer the wildlife industry properly".



A lion in a breeding facility

Photo: Conservation Action Trust

"We receive complaints from members on a near-daily basis of permits not being processed. There is simply no money in some provinces to cover the costs associated with statutory oversight work. The system is stalling due to the department not having enough people and money to do their job. Now we see a Minister who wants to impose even more conditions on an already over-regulated industry."

So, here's the question. Will the TOPS regulations and linked wildlife laws be scrapped, rewritten, or hit a new round of contestation? No time frame or way forward has yet been suggested. For now, the issue lies smouldering in a firepit of confusion.

This article was previously published by the Daily Maverick.

Chris Tosi – a personal Kruger pilgrimage

Mark Bishop

Christopher Tosi's #86daysinkruger is a journey of one man's experience living in the wilderness of Kruger National Park, which started on 29 June 2022. Chris is still in the Kruger, ten months later, documenting every moment of every day on Instagram with stories showcasing the jewel of South Africa to the world, the Kruger National Park (KNP), with the aim of raising R8.6 million for Smile Foundation South Africa.

With an Honours degree in Visual Communication and Design, and having been a freelance graphic designer for over 24 years, COVID provided the opportunity for a six month sabbatical. Chris decided to traverse South Africa from Cape Point to Crooks Corner in the Kruger in "Dusty", the trusty 4motion Volkswagen Tiguan.

Chris originally checked in to the KNP in January 2021, for a planned three week break

after 12 years in retail and really wanting to call it quits. He has always had a soft spot for the Kruger, and had been visiting it with his godfather since he was 5 years old, with early childhood memories of playing in camp with his brothers and cousins. Little did he know that he would end up staying, because he found no real reason to leave the Kruger ... and so the initial 86 days in the Kruger began.

Now he's back doing it again! The foundation's mission is to transform the lives of children affected by facial abnormalities and severe burns, through the best possible surgical and psychological care. Their vision is to help children live a life inspired by confidence and possibility, no matter their circumstances.

His team has created huge awareness as to who Smile Foundation is, and what they do amongst SANParks staff and their communities, to all the local and international followers of his quest. So far Chris has raised nearly R 300 thousand directly to Smile Founda-

tion, to pay for surgeries in upcoming Smile weeks. The foundations goal for 2023 is to perform a thousand free surgeries for children from disadvantaged communities. This is however a global awareness campaign, and is not limited in any way to the Greater Kruger area and SANParks.

The aim is to increase morale and loyalty amongst the SANParks rangers, and change the lives of staff whose children require surgery. There is also access to Post Traumatic Stress Disorder counselling for the anti-poaching rangers that require that help, as well as the supply of various support items for the anti-poaching units. The promotion of tourism in and around the Greater Kruger area, will hopefully, though indirectly, help create greater job opportunities and growth. As a side note, Chris is well on his way to 'graduate' fastest as an Honorary Ranger in the Kruger in June this year.

There are various ways Chris is raising the money - through donations, raffles, and competitions. Of course he is on the mis-

sion for public engagement and contributions. You can follow Chris's daily stories as he offers unique insights, tips and tricks to get the most out of your sightings and trip to the Kruger, on Instagram: @christophertosi. Take a look and support this worthy cause.

#86daysinkruger, @christophertosi, <https://smilefoundation-sa.org/donations/86daysinkruger/>



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Veggie Diva's spin on wraps

We've all made them at home and eaten them in restaurants. Wraps, with chicken and dressings and all sorts of salad bits. Now toasting your wrap just made it a little more interesting.

Ingredients:

- | | |
|---------------------------------|--|
| Soft flour tortillas | Fresh coriander |
| Courgettes | Olives – pitted and sliced |
| Clove garlic | Grated cheese - recommend and use Emmentaler |
| Olive oil | Salt and pepper |
| Hummus, shop bought or homemade | Fresh chilli chopped - optional |
| Baby tomatoes | |
| Red onion | |

- Slice the courgettes length ways into strips.
 - Crush the garlic and mix into 5 - 6 table-spoons olive oil.
 - Generously brush the oil on both sides of the courgettes and season with salt and pepper.
 - Heat a griddle pan and fry on both sides until cooked.
 - Place a tortilla onto a board and layer up half the tortilla.
 - Start with a spread of hummus.
 - Add the grilled courgettes, sliced baby tomatoes, sliced pitted olives.
 - Add thinly sliced red onion and the
- grated cheese.
 - Sprinkle with coriander.
 - Season with salt and pepper and chilli.
 - Fold the tortilla over the layered half.
 - Pop into a flat toasting machine and toast for a couple of minutes, until slightly browned and a bit crispy. If you don't have a flat toaster place into a frying pan and flip after a couple of minutes.
 - Cut in half and serve. Enjoy!
 - Other options to use as fillings are sun dried tomatoes, fried mushrooms, avocado pear, spinach and a variety of meats and cold meat.



Delicious toasted wrap (above) and the assembling process (below) Images: Veggie Diva



Picky View

AE

Well, hello again. What a wonderful break I had, although I must admit that the sea spray did burn my eyes and cake my skin! I'm back and looking forward to continuing my quest to get to all the eateries before I depart for shores a-yonder.

That will be a sad day as I have, to date, thoroughly enjoyed my stay in this town. I hope that you missed me in the last edition – I did get some 'stick' from the Editor.

So, now onto matters at hand – I decided to go a little alternative and ventured off to "The Venue Sports and Wine Bar" at the Rotique Centre in Huilboerboom Street – work hub by day, bar by night. I thought

that to be quite a nice mixture of activity. Free WiFi and charging points, solar power, and the pizza oven, rounds off a comprehensive service offering – and all under the watchful eye of Matt Poole and team.

I immediately liked the fact that we could watch the pizzas being cooked, and as it happened the warmth from the pizza oven did serve as a small respite from the early chill in the air. The space is somewhat minimalistic but comfy – I did like sitting around the barrels on the outside, reminded me of my tapas days in Seville, but you can also sit comfortably inside if you wish. I did think that the lighting might have been a little bright – but that's a constructive comment.

The menu was thankfully not excessive (such a fault in so many restaurants). Pizzas are the name of the game. As it happened, I was quite keen on testing the pizzas on this particular occasion – not something that I would normally have.

First, we had to have a drink – what a surprise! For once in your little town, here was a restaurant that served value-for-money alcohol. We homed in on the suggested 'Hedgehog' brand of wines – great suggestion and very quaffable.

The choices we made for the evening were a couple of focaccias, pizza with bacon, feta and avocado, a Mexicana pizza, and some salads. Everything was presented together, and the salads were fresh and jolly delicious. The pizzas well, this was an experience. They were off the charts – without doubt the best pizzas tasted in Hoedspruit so far! Beautiful, crispy thin bases with the exact amount of topping – I don't know how they did that (maybe measured), but just fantastic!

And then came the service – the waitress was superb. She was very attentive, got the order spot on and ensured the wine was cold, with lots of ice. She really was 'ahead

of the game'. Congratulations to the new management team of The Venue – its heading in the right direction and can be easily recommended for a good, value-for-money, evening out!



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Web Site : www.century21wildlife.co.za



SOLE MANDATE

INGWELALA, GREATER KRUGER R 5 950 000
Beds 6 | Baths 3.5 | Floor size: 450m²

50% Share - There is no better investment than Big 5, Greater Kruger properties. This is one of the largest homes at Ingwelala which can accommodate up to 12 people. The house comes furnished and equipped and includes a 50% share in the Land Rover game-viewer.

Yvette Thompson - 083 655 7176 Ref: 2102135



SOLE MANDATE

HOEDSPRUIT WILDLIFE ESTATE R 4 650 000
Beds 4 | Baths 4.5 | Floor: 181m²

This is your opportunity to purchase this newly renovated home on the greenbelt for you and your family. There are spacious living areas that include 2 private patios, looking out towards the greenbelt, an established garden, pool, fence and motorised gate. B&B/Guesthouse potential.

Mike Dodds - 082 906 7004 Ref: 2103300



SOLE MANDATE

LEOPARD ROCK R 4 380 000
Bedrooms 4 | Bathrooms 4 | Floor size: 210 m²

Spacious and inviting, this lodge style home really does have so much to offer the bush enthusiast. Enjoy everything from the granite boulders that surround the main living space and swimming pool deck, to the elevation of the master bedroom with its birds eye view that is just sublime.

Michelle Severin - 083 469 3821 Ref: 2136341



SOLE MANDATE

BLYDE BOTANICAL RESERVE R 4 280 000
Bedrooms 3 | Bathrooms 2 | Floor size: 373 m²

The location is serene and peaceful; magnificent botanical gardens, large trees and the ever-impressive Drakensberg Mountains surround this home. This home has a free flow layout for comfortable living, lots of windows, and inviting views of the outside wherever you are in the home.

Jason Jones - 083 267 4794 Ref: 2140767



SOLE MANDATE

GREATER KRUGER, BIG 5 R 17 000 000
Bedrooms 5 | Bathrooms 5 | Floor size: 550 m²

This beautiful safari home is privately situated on the seasonal Tsiri river with a deep pool right in front of the house which holds water for most of the year. Sold fully furnished and equipped and the sales price includes a Land Cruiser game viewer, Total traverse areas 2,850 hectares.

Yvette Thompson - 083 655 7176 Ref: 2109365



SOLE MANDATE

KARONGWE - BIG 5 R 8 400 000
Bedrooms 4 | Bathrooms 4 | Traverse: 8,000 ha

Be one of 14 private owners within Karongwe Nature Reserve which offers pristine game viewing with 4 seasonal river systems. The home is situated on a dry riverbed and comes fully furnished. Harvey tile roof for lower maintenance.

Rob Severin - 083 469 3820 Ref: 2063307



SOLE MANDATE

MAKGOKOLO PRIVATE GAME RESERVE R 5 000 000
Floor: 297m² | Stand: 1.5 ha

This site is situated in a 2,500 ha reserve. The property has infrastructure which can be converted to a spectacular private lodge at modest cost. The reserve has a private airstrip, photography hide, lookout & picnic spots.

Rob Severin - 083 469 3820 Ref: 2086781



SOLE MANDATE

NDLOPFU PRIVATE NATURE RESERVE R 7 600 000
Site: 10,000 m² | Reserve: 2,500 ha

This vacant site in Big 5, Greater Kruger allows you to build your own exclusive bushveld getaway with traverse over the reserve and a neighbouring farm. Membership is limited to ensure the exclusivity of the Ndlopfu Share Block.

Yvette Thompson - 083 655 7176 Ref: 2072996



SOLE MANDATE

INGWELALA, GREATER KRUGER R 5 000 000
Beds 2 | Bath 1 | Floor size: 150 m²

Full share - This house comes with traverse rights over all the associated farms, giving you over 3,000 ha of pristine bushveld to traverse over. It is sold furnished and equipped with two game viewers. The house has a great outdoor space with covered patio, bar, gazebo and boma braai area.

Yvette Thompson - 083 655 7176 Ref: 2100334



SOLE MANDATE

GREATER MAKALALI R 20 000 000
Bedrooms 5 | Bathrooms 5 | Farm size: 640 ha

This farm is within Greater Makalali Nature Reserve, which has the Big 5 and 20,000 ha of traverse. Approvals in place for 10 commercial beds. There is a main 2-bedroom home and 3 guest chalets. Ideal for syndication, families, or convert to boutique commercial lodge.

Jason Jones - 083 267 4794 Ref: 1459112



SOLE MANDATE

NDLOVUMZI R 4 950 000
Bedrooms 9 | Bathroom 5 | Stand size: 21 ha

This bespoke tented camp is perfectly nestled on an elevated ridge within a 1,000 ha nature reserve. The property consists of two luxury tents with commercial licences, a 4-bedroom owner's house and a 2-bedroom manager's cottage. The commercial aspect will be sold fully furnished.

Jason Jones - 083 267 4794 Ref: 2079842



SOLE MANDATE

NDLOPFU - Greater Kruger R 13 000 000
Bedrooms 4 | Bathroom 3 | Floor size: 350 m²

This large home is situated in the exclusive Ndlopfu Private Nature Reserve. The home is privately located overlooking the Tsiri river. Sold fully furnished and including a game viewer. Solar power backup and recently redone thatch.

Mike Dodds - 082 906 7004 Ref: 2063033



SOLE MANDATE

LISSATABA R 5 160 000
Bedrooms 5 | Bathrooms 5.5 | Floor size: 500 m²

The main building has an open plan kitchen, dining and two lounge areas, pantry, scullery, guest toilet and main en-suite bedroom. The double storey guest unit is privately located and it has 4 en-suite bedrooms. The large patio and pool deck lets you enjoy the mountain views.

Jason Jones - 083 267 4794 Ref: 2099048



SOLE MANDATE

NDLOVUMZI R 3 750 000
Bedrooms 4 | Bathrooms 3 | Floor size: 380 m²

This 21-ha Olifants river property has a 2 bedroom main home and a separate 2-bedroom cottage, all located under large indigenous riverine trees. The outdoor entertainment area has captivating views of the garden, pool & river.

Jason Jones - 083 267 4794 Ref: 1459005



SOLE MANDATE

MAFUNYANE, KARONGWE R 14 000 000
Bedrooms 4 | Bathrooms 4 | Traverse: 8,000 ha

This property is stunning and has a wow factor that will take your breath away! Very exclusive, modern bush home, overlooking a seasonal river bed, located in a Big 5 reserve with 8,000 ha traverse. Sold furnished & including game viewer.

Rob Severin - 083 469 3820 Ref: 2107650



SOLE MANDATE

OLIFANTS RIVER PROPERTY R 4 500 000
Bedrooms 4 | Bathrooms 4 | 50% share

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The Monarch butterfly, a toxic yet mesmerizing flying artwork

Don Pinnock

Among the brainless bevy of gorgeous flying artworks in one with character and enough kick to make a predator puke.

Butterflies are the “bimbos” of the natural world. Their flight paths meander like pulses of idle thought, pure and seemingly unencumbered by direction from a brain as small as a full stop.

They're prodigiously diverse – about 20 000 species – without being adventurous. All behave very much alike, flitting from flower to flower, there to sup on sweet nectars through a toothless tube that rolls out like a party squeaker. Their wings are covered in tiny prisms and mirrors that trick light into gorgeous iridescence – six-legged worms strung between outrageously coloured kites.

The ancient Greeks saw in their gossamer lightness a likeness to the elusive human soul and in their hesitant flight its reluctance to move to the next world. The Greek word “psyche” means both soul and butterfly – the Latin word “anima” has the same dual meaning. For toga-clad students of Lepidoptera, the transformation of a caterpillar into a butterfly provided a model for their ideas of death, burial and resurrection. In Java, butterflies are thought to be the form your soul takes to dream.

Sweet, innocent, gentle, graceful, predictable – no wonder they're so godawfully boring. But wait, there's one that doesn't fit the mould.

Calculating in caterpillar, dangerous in colour, scornfully slow in flight, so poisonous it makes some birds vomit just seeing it, here's a butterfly with character. And, like all species that tip the balance firmly in their favour, it's everywhere.

Monarch butterflies are beautiful. Their orange wings are veined in black and edged with white spots which continue over their bodies; colours that are equivalent to a swagger and show a finger to caution. The males have black spots on their secondary wings which exude pheromonic perfumes that make females go moggy. And at the tips of their delicate feelers are little orange welcome lamps.

What gives monarchs their special character, however, is their universal obsession with a poisoned chalice called milkweed. There are 140 species of the weed and about 300 species of monarch butterfly, which ensures an abiding relationship between the two on every continent other than Antarctica.

The milkweed genus is *Asclepias*, named by Carl Linnaeus after the Greek god of healing. As is often the case in folk medicine, there's a fine line between healing and killing. *Medicinal Plants of South Africa* lists the value of milkweed as snuff and a cure

for tuberculosis, stomach ache, asthma, typhus, coughs and general pain. It adds, rather quixotically, that the plant contains poisonous cardiac glycosides which can cause the death of livestock and humans. Bushmen used it to tip their poisoned arrows.

A medical dictionary lists the effects as nausea, vomiting, headache, anorexia, visual disturbances and heart slow-down, and warns that “the dose range between therapeutic and toxic levels is small”.

All of this is good news for the monarch, which lays its eggs on milkweed. Their larvae hatch with a ravenous appetite and proceed to devour the plant with no ill effect – an achievement that no doubt took millions of years of natural selection to achieve, with untold zillions of dead larvae.

When the worms are fat and ready, they glue their tails to a leaf and form pretty blue and gold pupae that hatch into butterflies filled with cardiac glycosides. All this requires clement weather. In the US, when winter sets in, hundreds of millions of monarchs head south to warmer sites in Mexico and Southern California thousands of kilometres away, where they literally cover trees with their quivering beauty. In Africa, however, winters don't bother them so they stay put.

But here's a puzzle.

Birds eating monarchs have been seen throwing up shortly afterwards, so they're

clearly not good to eat. And the survival strategy of poison-free butterflies such as mocker swallowtails and viceroy is to look like monarchs in order to deter predators.

But there are also reports of monarchs being eaten with no ill effects. Lepidopterist Andre Coetzer got quite excited photographing a praying mantis in a Johannesburg park chewing on a hapless monarch. And in Mexico, certain birds, known to avoid the butterflies further north, have been seen snacking on hibernating monarchs down south.

A study written by Colorado State University researcher Kim Pike may have the answer. She found that as monarchs age, the toxins in their system fades to below the danger level for predators. Rather like the viper-tongued Kate in Shakespeare's *Taming of the Shrew*, the monarch's poison dilutes, rendering it a gentle, harmless bimbo.

But in one of those delightful twists of nature, its colouring signals its former poisonous self. Predators don't know the difference and only taking a chance will tell them. Most have learnt the hard way and never do. But some, like Andre Coetzer's praying mantis, are prepared to have a go.

“Did the mantis get lucky or throw up?” It was getting dark,” he said, “I didn't stay to watch.”

This article was previously printed in the *Daily Maverick*



The Monarch butterfly

Monarch butterflies below
Images: PublicDomainPictures / Pixabay
and Melissa Burovac / Unsplash



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The Spotted Bush snake



Johan Marais
African Snakebite Institute

The Spotted Bush Snake is commonly seen in suburban gardens. It is a long, thin, green snake and the front half usually has blackish spots. Some individuals are green in front but become more of a coppery colour towards the rear.

This excellent climber averages 60 to 90 cm but may, as an exception, reach 1,3 m in length. It hunts for geckos and small reed and tree frogs, and is often found between walls and roofs, especially thatched buildings. In addition to frogs and geckos, it also feeds on other lizards,

especially chameleons. It is very quick and will usually climb higher and higher if threatened.

It frequents riverbanks, shrubs, and bushes, and is widespread throughout most of eastern southern Africa as far down as Port Elizabeth but may also be found in parts of the northern Cape and Namibia.

This snake moves around during the day, often sleeping on the outer branches of a tree from where it will drop to the ground should a predator approach. With its strongly keeled belly scales, it can easily climb up face-brick walls or the rough bark of a tree. When threatened or captured it may inflate the neck region to

expose the vivid blue skin between the scales, and it will bite readily, but is quite harmless.

Like the Boomslang, this snake may also raise its head off the ground and undulate the neck – why snakes do this is still unclear.

Mating takes place in spring and females lay 3 to 12 eggs with the young measuring 23 to 30 cm in length. The young are perfect replicas of the adults, and hatch at the same time that a variety of gecko eggs hatch, thus being provided with ample food.

The Spotted Bush Snake is preyed on by a variety of predatory birds as well as other snakes, especially the Vine Snake.

Domestic cats kill large numbers of these snakes.

This harmless snake is often mistaken for the Boomslang or Green Mamba but can easily be identified by the dark spots on the front half of the snake as well as the dark eye with an orange pupil.

Johan Marais is one of Africa's leading herpetologists and is CEO of the African Snakebite Institute. He is a best-selling author, a compulsive photographer, and a travel addict. Check out the website on www.africansnakebiteinstitute.com – get your free App on the link <http://bit.ly/snakebiteapp>



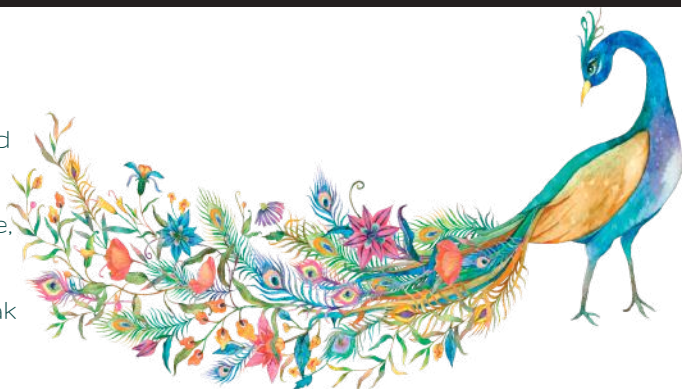
Spotted Bush Snake (*Philothamnus semi-variegatus*) from Polokwane, Limpopo (top)

Spotted Bush Snake (*Philothamnus semi-variegatus*) from Hluhluwe, KZN (left) and from Durban (middle)

Spotted Bush Snake (*Philothamnus semi-variegatus*) from Hoedspruit, Limpopo (above)

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Adaptation, evolution and the diversity of birds



Great Hornbill - Indian and Asian Hornbills can be far more ornate than their African cousins

Image: eBird

Mike Meidlinger

As we once again prepare our farewell to the luscious verdant nature of summer with its thick vegetation and fantastic diversity, this month was indeed one that had a mixture of subtexts as it passed unabated.

The shifting of the seasons and their subsequent consequences for the natural world, despite seemingly surprising each year to us, it's admirers, is in fact nothing strange or startling. These wonderful reciprocations in the dynamics that affect ecosystems, both at home and abroad, are themselves direct ramifications. They are the result of changes in the angle of light received at various points of the globe during the annual sojourn of our little rock, the one we call Earth, all the way around the solar system's warming stelliferous centre.

The elliptical oval-shaped racetrack we take, around the sun, etched as a groove into space-time by our own gravity, is not only precise, but has been in existence since before the planet had even reached its final form. As we travel, spinning like a bottle top on the daily basis that we do, we lean at a 27 degree tilt on an off-centre sphere, to which we are glued by our feet and all of their gravitational gripping power.

For billions of years, our home and all the life that has ever existed throughout the eons upon it, has experienced similar changes to intensity of sunlight and annual patterns in local climate and weather. The seasons are in many ways, a constant of an earthly existence, that has remained steady and predictable since the days of the first living entities.

Other aspects of our planet however, have changed dramatically since its inception, and which continue to change on their typically ancient time scales to this day. If able to travel back 200 million years or so, the planet and its distribution of land and water for example, would appear quite alien to what most of us alive today may recognise.

Once our molten glass bead of a home had cooled sufficiently to produce its solid jigsaw-piece like crusted surface, and time to settle had passed, all of the land we know today was clumped together surrounded by one global body of water. This was the supercontinent known as Pangaea where all of the land was locked together as one.

For us interested in birding today, this was a somewhat crucial time, as it was in this period that the birds we enjoy evolved. First primitive species like Archaeopteryx and then more recognisable avians like Coraciiformes such as Protoavis, the new vertebrate on the block was surely more widespread than the fossil record suggests. As niches opened up for those able to reach new and far away destinations, birds rapidly evolved to take advantage of whatever resources offered a chance at existence.

This was true of many families, groups and species of bird including the original flying ancestors of the infamous ratites, now thought to have reached their contemporary locations before evolving into their current forms.

As the molten mantle moving beneath Pangaea began tugging convectionally upon its various portions of the landmass, the massive continent began slowly splitting. Over millennia after millennia, rifts and gradual loss of narrowing land-bridges formed the separate continents that us as layman would recognise today.

Due to their adaptability, many of today's birds evolved to take advantage of new shorelines, islands and even new types of vegetation on land discovering new climates, while travelling slowing north, south, east or west. In many cases, one can gauge how long an order, family or even genus has been around for by taking note of which continents they can be found on. With their specialised method of locomotion, flight, they were relatively unique among chordates in their ability to spread far and wide, quickly and over narrow, or even larger bodies of water, that would separate other classes like mammals or reptiles.

From Pangaea came the two mega regions, Laurasia, responsible for today's North America, Europe and Asia as well as the larger Gondwanaland holding Africa, Madagascar, South America, India and Australia. By the time of this first major split, many of the bird families that we would recognise today were already around. Various forms of passerines had already evolved, a number of duck families, raptors such as accipiter's and kestrels and much more. This pattern, in what is referred to as zoogeography, of these clades or groups is easily seen as today they have representatives in all corners of the globe. Thus, in some cases, each different

species evolved along their divergent paths once isolated sufficiently from their common stock.

South America along with the North and its Central component were torn from there Laurasian and Gondwanan homes across the mid-Atlantic Ridge and far away, into a new world as it were. This left much opportunity for divergence through convergence, resulting in new families as others that existed somewhere else had few or no representatives over this time.

Families such as New World Vultures and Wood-Warblers evolved, as opposed to their Old World counterparts, Wood-Quails and Tinamou resemble Francolins in form and role, Hummingbirds pollinate on a nectar-rich diet as in Sunbirds, while Tanagers are generalists just as Bulbuls are. These are just a few examples that have all evolved to take advantage of similar gaps in the ecosystem left by birds that may be more recognisable but which were absent as the continents separated.

Then it was Australia's turn to trek east, as far as possible from its original position. Some of the most primal land, the original dirt as it were, was splitting in two, half remaining as the Barberton Supergroup within Africa, and the other half emigrating all the way to the edge of the Pacific, as part of the land down under.

In terms of its avian diversity, and due to millennia of isolation, there have been many new recipes generated to take advantage of vacant niches in Australia. The continent is rich with odd families like Honey-eaters which act as gleaners, Kookabura's which are an offshoot of the Kingfisher family, Fairy-Wrens take the place of our Prinia's, while a wide variety of Parrots of all kinds exist. These include Cockatoos, Rosellas, Budgerigars and Lorikeets, all of which have radiated out and which are not the only family to do so here. Similar species have a mix of Asian influences with few that can commonly be recognized from an African perspective.

One of the most fascinating results of our tectonic anatomy is with regards to the close ties we, as Africa, share with the relatively rapidly moving Indian Subcontinent. This distant cousin, which shredded off the remaining land 120 million years ago, created parts of today's East African coastline. After crossing the turquoise Indian Ocean at a rate of 5cm per year, it is still slamming into Asia so



Black-bellied Whistling Duck - one new world species of this truly global family
Image supplied



Scarlet Tanager - one member of a vibrant family of generalists eating insects, fruits and anything else they can get
Image supplied

hard that the Himalayas have been sparring up as a result of the crash for the past 40 million years and are still climbing.

Despite this, there are a wide variety of familiar families that have common ancestry not only in birds such as Barbets, Hornbills, Drongos, Francolins and Bee-eaters but also many mammals like Asiatic Lion, Honey Badger and Caracal just to name a few. Alongside these recognisable names are others like loras, Treepies, Koels and Leafbirds as examples, while big mammals include both Tiger and Snow Leopard.

Despite our most recent loss, that of the localized oddity that is Madagascar, we find a number of newly evolved families, with crazy mixes like Mesites and Vangas, but also a number of very similar species to what we find close to home. Species like Madagascar Jacana, Madagascar Wagtail, Madagascar Hoopoe and Madagascar Harrier-Hawk are all relatively subtle variants to our equivalents. This shows a relatively recent divergence of many of these from each other which reflects the time since the separation of the landmass.

As a whole what is truly amazing is how many families of birds, adapted for a wide variety of food sources, have truly conquered the world. Despite holding our 10% of the world's avian species, there is much still to be discovered, and explored for, while travelling beyond our regional borders. This month, while planning an international trip, with the use of resources such as site guides, websites and apps, have a look for some top quality birds to add to your bucket list for future journeys.



Superb Fairy Wren - the Australian upgrade on a Africa and Asia's Prinia

A tale of two planets

Ben Coley

Look to the west just after sunset and it is easy to see the planet Venus shining brilliantly in the twilight. Lighting up the night like a great celestial beacon, Venus is the brightest object in the sky after the Sun and the Moon, and its prominent visibility ultimately led to it being named after the Roman goddess of beauty. As it is a planet, and not a star, Venus does not produce its own light, but rather reflects sunlight, and does not twinkle like its stellar cousins. It is very similar to Earth in terms of size and physical properties, but there is where the similarities end.

Currently, Venus is the 'evening star', dominating the western horizon for the first few hours of darkness. However, due to it residing in an orbit inside our own (it is closer to the Sun than we are) its position and visibility changes over the months in response to its position. Venus will remain visible as the evening star for around 263 days, and then disappear for about a week. After that, it will re-emerge in the eastern sky before sunrise for a further 263 days, where it becomes known as the 'morning star'. Thereafter it will disappear again for 50 days before ultimately returning to the evening skies, as it completes its trip around the Sun.

For early astronomers, this was a hard concept to grasp, especially since the Earth was considered to be the centre of everything. It was not until the early 1600's that Galileo gave us the first empirical evidence that the Earth and other planets orbited the Sun. Galileo trained his telescope on Venus and discovered that it exhibited phases (full, gibbous, half and crescent), just like our Moon. He deduced that the only way this was possible was if Venus was closer to the Sun than we were. This, along with many other discoveries by Galileo, ended the belief in the Geocentric solar system, in favour of the heliocentric one that we know today (the Sun at the centre). Ironically, Venus is at its brightest during its crescent phase. Despite much less area being illuminated, it is very close to Earth at 'only' 40 million kms, making it the closest approach of any planet.

But what makes Venus most interesting is that despite being so similar to Earth in size and composition, it has vastly deviated from the evolutionary path of our own planet. Venus was named after the goddess of beauty on account of its radiance. People thought that something so bright must be beautiful - but appearances can be deceptive. In reality, Venus is possibly the most inhospitable place in the entire solar system.

The Venusian atmosphere contains around 96% of carbon dioxide, a toxic and virulent greenhouse gas. Compare that to the Earth's concentration of 0.04% and it is no wonder that Venus will not be on top of anyone's holiday list. The thick gas enshrouds the planet, reflecting a huge amount of sunlight off its cloud tops, contributing to Venus's apparent brightness. However, the gas also traps huge amounts of infrared light (heat) and has caused a runaway greenhouse effect on the planet's surface. Day or night, summer or winter, the average surface temperature is a sweltering 460°C. That is hot enough to melt lead!

If the oppressive heat was not enough, the stifling atmosphere pushes down on the surface with a force of nearly 100x that on Earth, roughly the same as being 1km under the ocean. Modern day naval submarines cannot handle those pressures! Even if we could survive under those conditions, Venus's clouds are predominantly made up of sulphuric acid from volcanic activity. This leads to concentrated acid rain circulating in the clouds, although the surface is far too hot for the rain to reach the ground.

In light of these impossible conditions, it is unlikely that any life can survive on Venus.

We have been able to study Venus in detail, thanks to radar images from orbiting probes like the Mariner and Venera programs. We have even been able to touch down on its surface and record data, but the longest any probe has survived is a mere 2 hours thanks to the horrific conditions. Future missions include joint ventures with NASA and the ESA (European Space Agency) and are planned over the next decade with the hope of gathering more precise information on our hellish neighbour.

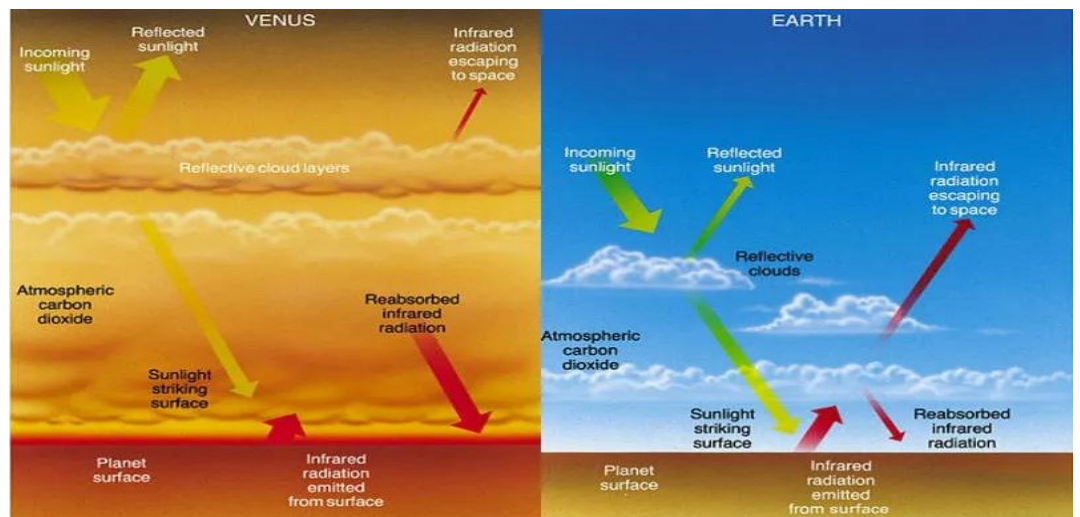
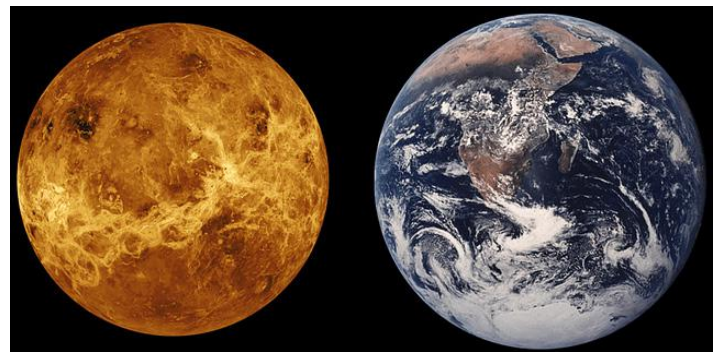
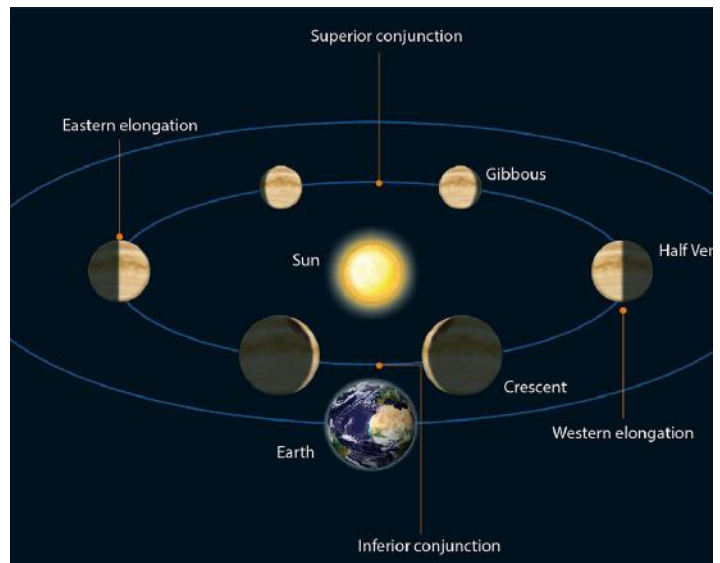
Venus's last unusual trait is its rotation. All the other planets rotate anticlockwise (although Uranus is tilted at about 98%), preserving the angular momentum of their creation from a spinning disc of debris from the Sun. Venus however rotates backwards. The upshot of this is that, from a Venusian perspective, the Sun seems to rise in the west and set in the east. What caused this phenomenon remains unknown, but it was mostly likely due to a tremendous blow from a small planetary body during its youth. Either Venus was knocked upside down, or it received a glancing impact that stopped its original rotation and caused it's reverse direction.

Not only does it rotate backwards, but it takes an age for a full rotation to occur. A day on Earth is measured by how long it takes the Earth to complete one revolution, and a year by how long it takes to orbit the Sun. Such is the snail-pace of Venus's rotation, it travels around the Sun faster that it turns on its own axis, so in effect, a Venusian day is longer than a year!

Ultimately then, Venus could be seen as a portent of what might happen on Earth if we do not protect our fragile atmosphere. It is thought that billions of years ago, Venus had liquid water such as Earth before its runaway greenhouse effect slowly cooked the surface.

Global warming is a real, and potentially fatal problem for our own planet. Our atmosphere is only around 100kms thick, a paper-thin protective bubble that shields us from the harsh conditions of space, and if we do not look after it, our fate could well follow that of Venus. Whilst we do predict any life, studying its geological and climatic history may prove invaluable in understanding our own planet, and helping us to avoid such a catastrophic turn of events. There is so much to learn about ourselves by studying our solar neighbours and as technology improves, so too do our chances of understanding our future plights.

See Celestial Events SA advert for contact details



Venus rotation and phases of Venus (top & middle)
Venus Atmosphere (above) and Earth and Venus (above right)

Images: EvolvedScience Apr 23 and BBC Sky at Night Apr 23
Image: EvolvedScience Apr 23

Hyphaene coriacea – the Lala Palm

Brett Heasman
Guiding Naturally

Let's tap into the tree for this month, and don't be fooled by this month's choice of plant. The name itself 'lala' is quite a common South African word for sleep or rest, but this is no reference to where the common name originates.

My thoughts on the origination of the name of this incredible tree are twofold. The tree has massive greenish-grey fan-like leaves that could have possibly been used in the same fashion as the fan-bearers who stood beside the pharaohs in ancient Egypt, waving them methodically to cool him down, both whilst seated on his throne and at bedtime, allowing them to be able to sleep or rest. My other hypothesis is that the tapped sap, collected from the cutting of the stems, was/is traditionally made into a somewhat intoxicating liquid, fashioned into a very refreshing styled lala wine. A heavy dose of this 'wine', if consumed more like a spirit, may put one to sleep. So that's where I would put my money on the origin of the name of this tree.

The seeds of the Northern Lala Palm have a very similar consistency to vegetable ivory. Back in 2005 I was made aware of curios that were carved by the locals from the seed. I managed to get hold of one of these incredibly hard seeds, and with much effort I exposed the seed which I carved into a ring. I gave it to my beautiful ex-girlfriend. It took me days to perfectly carve that ring. The good news is that she still has it and it is still in very good condition almost 15 years later. This ring did the charm, and we are now married, and she will always be my ex-girlfriend, and that ring is so strong neither will tarnish!

The fruit takes about two years to ripen and can possibly stay attached for two more on the tree, before falling to the ground and being eaten by the few that take advantage of this, like elephants bushpigs, and baboons. The fruit contain a 'coconut milk fluid' that attracts the

animals.

The amazing and most incredible thing about this tree, is how it provides so much for us, and almost all parts of this very common palm are used for something. In the KwaZulu-Natal region alone, there are millions of them. They thrive in alluvial soils and are prone to forming dense stands. They do well along rivers and coastal riparian zones. The leaves are boiled and soaked and then dried in the sun to soften for weaving. They are sometimes dyed and made into colourful baskets, mats, sun hats, and traditional attire. The purchase of these souvenirs is to be encouraged, as the raw material from which they are made is abundant and very renewable, and the process is good for the local economy. As a trails guide, they make for a good ad hoc roof on a damp night out.

The spiny bases of the old leaves hug the stem, and they can be counted on an average of one old stem per year. The old leaf base is good at keeping insects away (like most trees) but cannot be saved from fire. The fruit however requires heat and/or extreme pressure like the weight of an elephant, to crack them open, and to help with dispersal and seeding. Birds also find these spiny bases attractive for nest sites, and the very delicate Palm Swift will use feathers and saliva to make their nests on the underside of the fan shaped leaf. Here, they 'glue' their nest to the leaves and the eggs to the nest with saliva, in the most awkward position - a very odd, but safe way of ensuring anti-predation. One can only assume the reasoning behind this is a remarkable level of intelligence and evolution, to say the least.

It's wine o'clock in the lowveld, with this FAN-tastic tree.

The Lala palm fronds (top)

Bunches of brown fibrous Lala palm fruit

Images: Canva



Do animals see in colour and why do the eyes of some animals shine at night ?

The vast majority of species lack colour vision. Mammal eyes have two principal types of cells as follows:

Rod cells - these are tubular cells that can function in low light conditions and are sensitive to shape and movement at the expense of detail and colour. They are perfect for animals that are mostly nocturnal and for species that have no need for colour vision. They are common in most prey and predator species.

Cone cells - Each contains a photo-pigment sensitive to one of three parts of the spectrum; response to wavelength of 419 nanometers (billionths of a metre) = blue/violet; response to 531 nanometers = green; response to 559 nanometers = green to red. This is called trichromacy. the cones receive an electromagnetic impulse, pass it along to the nerves and a colour message is sent to the brain. By comparing these light messages, the mind identifies colour and images. Some birds will in addition use light filters to see in more spectral bands and a greater variety of colours than mammals.

New research has revealed that all but the most nocturnal of mammal species are not totally colour blind as was once thought.

Cats and dogs probably see in pale shades

of colour for parts of the spectrum. Colour vision impairment - having only one or two types of cones - can infer advantages for survival because it makes camouflage more readily detectable (hiding predators or prey). these conical cells need good light conditions to function adequately and they are sensitive to colour and detection of fine detail while lacking sensitivity to shape, movement and low light acuity. They are found in species that use colour for communication and those that find their food by colour (ripe fruit), and are common in birds and primates.

Why do the eyes of some animals shine at night?

This phenomenon is caused by a reflective, mirror-like layer of crystals called the **tapetum lucidum** at the back of the eye that helps to improve the vision of these animals at night. It primarily occurs in nocturnal species wear acute sight in dim light is a prerequisite for survival.

Light passing into the cells of the retina hits this layer and is effectively enhanced to optimise activation of the cells and interpretation of the image by the brain. This reflected light is what we interpret as the shining of the animals' eyes. The tapetum

lucidum may be situated within the retina (eg: Hoofed animals, carnivores, rodents, dolphins) or behind the retina (eg: crocodile, fruit bats, marsupials).

Regardless of the location, all serve to increase retinal sensitivity. Tapetums may also serve to enhance contrast, allowing nocturnal species to see better. The mineral guanine is found in many (but not all) tapetums and has a phosphorescent quality, being more sensitive to light, improving the eyes' ability to detect light. Guanine is a white, reflective compound found in the scales of fish, The skin of some amphibians and reptiles and the guano of sea birds. It is interesting that tapetums tend to occupy the top half of the retinal area to collect and enhance visual cues from the darker ground. The lower half of the retina is occupied by a layer of darkly pigmented cells (**tapetum nigrum**) that subdues light from the brighter sky.

Excerpts from 'Beat about the Bush – Mammals and Birds' by Trevor Carnaby, Published by Jacana Media, Second Edition reprint 2018.

Wild dog eye (above right) and the eye of a lioness (right) Images:Canva





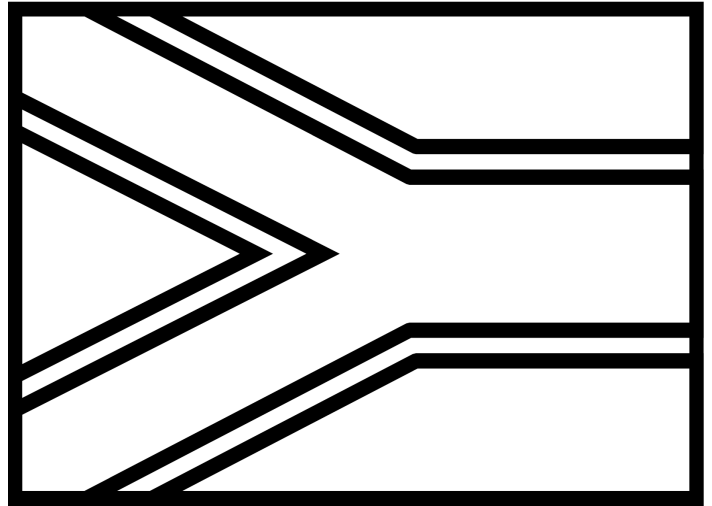
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colour in the flag

There are 9 provinces in South Africa.

South Africa has nine provinces, each varying quite a bit in size. **Gauteng** is the smallest, yet most densely populated, due to its high urbanisation. The largest is the vast, arid and empty **Northern Cape**, which takes up almost a third of South Africa's total land area.

- | | |
|----------------|----------------|
| Limpopo | Limpopo |
| Mpumalanga | Mpumalanga |
| Gauteng | Gauteng |
| Free State | Free State |
| North West | North West |
| Kwa-Zulu Natal | Kwa-Zulu Natal |
| Natal | Natal |
| Eastern Cape | Eastern Cape |
| Western Cape | Western Cape |
| Northern Cape | Northern Cape |

name the capital of each province

- Limpopo _____
- Mpumalanga _____
- Gauteng _____
- Free State _____
- North West _____
- Kwa-Zulu Natal _____
- Natal _____
- Eastern Cape _____
- Western Cape _____
- Northern Cape _____



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Answers

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- | | |
|-----------------------------------|---|
| 1 Beach Boys | 11 Judas Iscariot |
| 2 Five | 12 Duck billed platypus and the echidna |
| 3 Red | 13 Dolphin |
| 4 Albania | 14 John Lennon |
| 5 Green | 15 Red Rum |
| 6 Knee (it's the kneecap) | 16 Lee Majors |
| 7 USA (Lake Havasu City, Arizona) | 17 Sheep |
| 8 Vodka | 18 Mekon |
| 9 Yuri Gagarin | 19 Robin (in Batman and Robin) |
| 10 Wear it - it's an Arab veil | 20 Calling birds |

CPC

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