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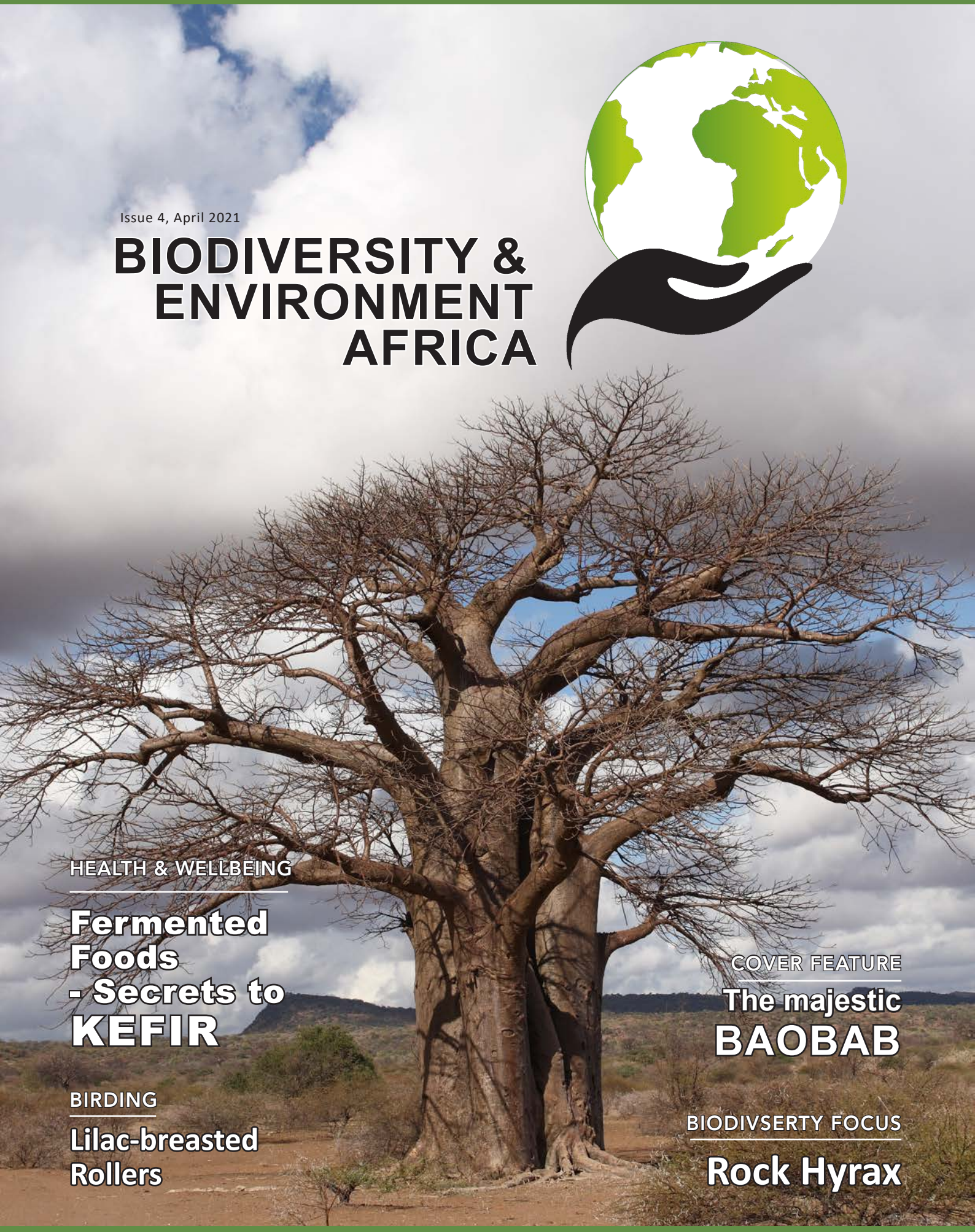
BIODIVERSITY & ENVIRONMENT AFRICA



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COVER FEATURE

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Rock Hyrax

Cover image: Baobab
Adansonia digitata

Photo: Warren Schmidt

MISSION
Biodiversity & Environment Africa (publication) strives to present accurate and informative news on relevant biodiversity and environmental topics from across the African continent. We aim to disseminate academic research findings and communicate this in an informative and understandable format to our readers, as well as highlighting important **conservation and environmental issues.**

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IN THIS ISSUE

Global instability is a serious threat to biodiversity conservation...

I get excited and motivated when I read about conservation success stories, and these elevate a sense of optimism about the future of our Planet. However, it would be foolish to believe that all is well in paradise. The Covid-19 pandemic is showing no sign of letting up and the continued lockdowns are having a detrimental impact on economic growth, with millions still unable to work. While we are long overdue for a massive reset, and perhaps Covid is the catalyst for this to happen, the reality is that we have a world population bursting at the seams and rapidly increasing poverty levels will lead to increased social conflict. We ignore this to our peril.

I have just completed reading the 27-page summary of the Annual Threat Assessment of the US Intelligence Community released by the Office of the Director of National Intelligence on 9 April 2021. Whilst this report is strongly biased towards United States interests, it does have global significance and influence.

International disputes and disagreements have a dramatic impact on treaties and signed agreements as we witnessed with the Trump Administration, where the US pulled out of several significant agreements on climate change and other environmental resolutions. In recent years there has been a proliferation in military capability, particularly in China and the USSR, but also as far afield as Australia. The increased technological innovations are allowing for greater and more accurate delivery of ballistic missiles and nuclear warheads. Despite continued pressure for de-escalation by international organisations, nuclear-armed countries continue to increase their arsenal and countries such as North Korea and Iran continue with their nuclear aspirations. Cross-border skirmishes between the USSR and Ukraine, China, India and Pakistan, and elsewhere, and the expansion of military and naval bases in many regions, have all raised concern that one misjudgement may ignite global conflict, most certainly with devastating consequences to humanity and the environment.

In addition, environmental concerns are strongly noted within the National Intelligence report: "Ecological degradation and a changing climate will continue to fuel disease outbreaks, threaten food and water security, and exacerbate political instability and humanitarian crises. The degradation and depletion of soil, water, and biodiversity resources almost certainly will threaten infrastructure, health, water, food, and security, especially in many developing countries that lack the capacity to adapt quickly to change, and increase the potential for conflict over competition for scarce natural resources."

Our actions on the industrial level don't only impact on natural areas, resources, and climate change, but the resultant pollutants are having a dreadful impact on air quality. "Air pollution was the fourth leading risk factor for premature death globally in 2019, resulting in approximately 7 million deaths, and has been found to increase the susceptibility to and severity of COVID-19 infections," stated the report.

Another noteworthy organisation overseeing the future of humanity is the Bulletin of the Atomic Scientists (https://thebulletin.org). This organisation was founded in 1945 by Albert Einstein and University of Chicago Scientists, who assisted in the development of the atom bomb.

This panel of scientists developed the Doomsday Clock two years later. It uses the analogy of the imagery of apocalypse (midnight) and the contemporary idiom of a nuclear explosion (countdown to zero) to convey threats to humanity and the planet. Over time, the Clock has become a universally recognized indicator of the world's vulnerability to catastrophe from nuclear weapons, climate change, and disruptive technologies in other domains.

The Doomsday Clock decision is made by the Bulletin of the Atomic Scientists' Science and Security Board in consultation with the Bulletin's Board of Sponsors, which includes 13 Nobel Laureates. In January 2020, the Doomsday Clock moved to 100 seconds to midnight, closer to midnight than ever in its history:

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> **“Given this and the lack of progress in 2020 in dealing with nuclear and climate perils, the Doomsday Clock remains as close to midnight as it has ever been – just 100 seconds to midnight.”**

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The recent attack in Palma, northern Mozambique, is yet another serious concern to regional stability and the protection of biodiversity in Mozambique. After prolonged civil war, Mozambique has made massive strides in its protection of natural areas and biodiversity over the last decade. Much investment has gone into research initiatives, the protection of natural assets, development of parks, and anti-poaching campaigns.

However, rampant poverty and inequality is leading to increased social conflict, and this leads to easy recruitment of dissident citizens who are offered false hope by engaging in terrorist activities. The socio-political background to the Palma attack, and previous incursions, including sporadic conflict in other regions of Mozambique, runs back decades, but is exacerbated by the current level of inequality and endless promises of wealth to a desperate population. There are now apparently over a million people facing famine in Mozambique.

Desperate people turn to poaching to fulfil their needs, both in monetary terms, and nutritional sustenance in the form of protein. This places additional stress on already constrained conservation parks and reserves. The onslaught on natural areas is not only confined to conflict zones. Currently, there have been several news items highlighting proposed large-scale mining operations in Limpopo Province in South Africa. These mining activities threaten thousands of hectares of pristine savanna, even in protected areas.

The Musina-Makhado Special Economic Zone is a massive development in Limpopo Province, which, if it goes ahead, may destroy over 100 000 trees including mopane, ironwood and around 5000 baobab trees. There is talk of relocating many trees, but any ecologist will know that relocation is a complex issue and can cause further problems for a multitude of species. There is a strong possibility of displacing established species and introducing pathogens, thousands of invertebrates, and smaller animals into areas in which they may not necessarily occur, and if they do, they could compete with already established populations.

Nearby, another proposed strip-mining project is playing out in the courts. This particular one penetrates the Selati Game Reserve. This region is rich in biodiversity with several highly restricted and endemic plants and animals.

We can all agree that job creation and poverty alleviation are top priorities for the southern African region, and elsewhere in Africa, but can we justify wholesale destruction of irreplaceable natural assets? The promise of local jobs in these circumstances are limited, as mining operations require specialised skills which takes years to develop. Local communities are shut out, and labour is imported into these areas. Rehabilitation, if feasible, will take decades, if not centuries, to match the original splendour and beauty of the original landscape.

Back to global instability…when the global community is caught up in civil unrest or conflict, biodiversity conservation and the protection of our natural heritage is easily overlooked and pushed aside. International agreements like the Convention on Biological Diversity get to be ignored by signatories. This would paint a terribly sad, unforgiving picture and inheritance for future generations…

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- Office of the Director of National Intelligence. April 9, 2021. Annual Threat Assessment of the US Intelligence Community.
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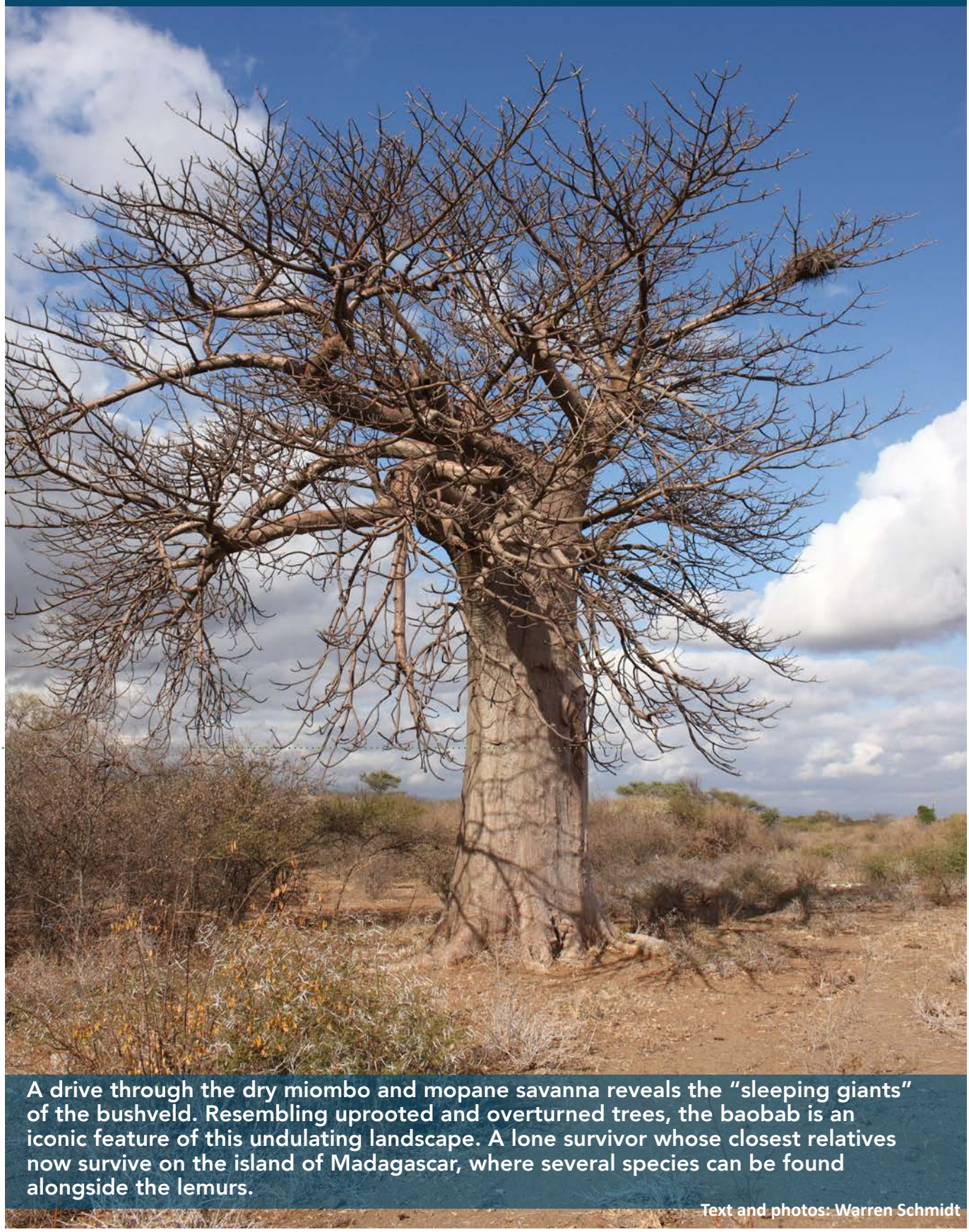
- https://mg.co.za/environment/2021-03-20-plan-to-uproot-100-000-trees-in-limpopo-sacrilege-says-baobab-expert/
- https://www.dailymaverick.co.za/article/2021-04-08-mordor-at-the-gates-the-ploy-to-strip-mine-selati-game-reserve/

VIEWPOINT RESEARCHED AND WRITTEN BY: Warren Schmidt

Warren Schmidt holds a Master of Science degree in Ecological Sciences awarded by the University of KwaZulu-Natal, South Africa. He has three decades of experience in ecology, conservation science, invasion biology and herpetology. He has worked as a journalist, magazine editor, and lecturer, and has presented numerous talks, seminars, and lectures.

The Majestic Baobab



A drive through the dry miombo and mopane savanna reveals the "sleeping giants" of the bushveld. Resembling uprooted and overturned trees, the baobab is an iconic feature of this undulating landscape. A lone survivor whose closest relatives now survive on the island of Madagascar, where several species can be found alongside the lemurs.

Text and photos: Warren Schmidt

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The baobab is in the family Bombacaceae and its botanical name is *Adansonia digitata*. It was known and described as far back as 1754 when formally described by Linnaeus. The name digitata is in reference to its digit or finger-like spreading branches, which actually look more like roots.

Baobabs are grotesquely large in terms of their trunk diameter with some individuals exceeding a circumference of 30 meters. Depending on various methods deployed, including ring counts and carbon dating, very large baobabs are believed to be between 2000 to 4000 years old. To put that into perspective, some trees were in existence before the birth of Jesus Christ.

Despite the large circumference, baobabs only reach a height of 10 – 15 metres. The wood is actually soft and pulpy with a dry weight of 320 kg per cubic metre. As a result, it holds water very well but when the tree dies and dries out, it collapses into a heap of fibrous material which is either blown or burnt away, leaving no trace of its former glory. These trees are not tolerant of frost and extreme cold and that's why they are found in the far northern parts of South Africa and extending north into Zimbabwe, Mozambique, Botswana, Namibia, Angola, Zambia and Malawi.

Throughout most of the year the tree is leafless but during the rainfall season will develop small digitate leaves, each with 5-9 leaflets, casting a green layer over the branches. The flowers are white in colour and up to 20cm in diameter and almost look like crumpled tissue paper with a protruding ball of pink-tipped stamens. Trees flower from October to December and fruit bats are the main pollinators. Flowers hang downwards and open fully at night when their pollinators are most active. The smell of flowers can be rather pungent but clearly attracts its preferred guests. Flowers fall from the tree after about 24 hours and are eaten by various antelope and other herbivores.

The fruits are oval and yellow, growing to 12 x 24 cm, resembling boxing bell-balls. They protrude off a stem and the outer casing is hard and woody. However, the pulpy flesh within is nutritious and high in ascorbic acid, especially the seeds. It can make a refreshing bushveld drink when mixed with water!

> **"some trees were in existence before the birth of Jesus Christ.**

A tree of many uses

The baobab is an extremely useful tree for humans and animals and has been utilised for thousands of years. Interestingly, almost all parts in their various growth forms are edible and can be consumed by people. The leaves may be cooked like spinach. If eaten raw, the tannins can cause an upset in the digestive tract, although they have been used therapeutically to treat fevers and diarrhoea. The roots too are edible, and are usually ground to make a porridge or flour. Water can be extracted from the inner bark and pulpy flesh, but this has a bitter taste. Nonetheless, it can serve as a good, clean source of water in survival situations. Elephants are known to ring-bark baobabs for getting to the water, but remarkably, the baobab recovers rapidly. As highlighted above, the fruits themselves are nutritious, including the seeds which are dried and can be brewed as a substitute for coffee. The seeds are also rich in protein and oils.

Ecological condominium

The baobab is an ecological condominium inhabited by a wide variety of species. The tree acts as a natural reservoir for water, not only as storage in its pulpy fibre, but the many natural cavities and hollows allow water to accumulate. Birds, baboons and leopards know this all too well. The cavities also provide excellent enclaves for bees and their hives. As a result, humans and animals are familiar with baobabs as repositories of water and honey.

In addition, the cavities and hollows provide refuge and foraging grounds for numerous mammals, birds, reptiles, amphibians and invertebrates. Tree squirrels and fruit bats are regular occupants, and many birds will use the cavities as retreats or nesting sites. Several reptiles, including Turner's Gecko and Velvet Gecko -and snakes, all take shelter inside the holes.

Traditional beliefs and folklore

Due to their size and odd shape, it is no surprise that the baobab has created a wealth of folklore and legend. Sit under a baobab at night and you will be joining the spirits and ancestors… and don't pluck one of the fluffy white flowers…the spirits frown upon this, and you might be devoured by a lion!
It is also believed that baobabs were planted by hyenas, who were annoyed that they were left till last, when all the animals were given plant seeds to sow. As a result, the hyenas planted the baobab upside down, in spite, and ran away laughing into the darkness…
The seeds, when stirred in a barrel of water, are said to offer protection from crocodile attacks. However, if you suck on the seeds, you may in turn attract crocodiles.
A baby boy bathed in an infusion of the bark is believed to then grow up strong…but there is a time limit, as too much bathing in this mixture will lead to obesity.

The huge girth of the trunk, and the hollows within, have led to several famous baobab trees which have been converted into pubs, shelters, and even prisons. The Sunland Big Baobab near Modjadjiskloof was converted into a wine cellar and pub, and another baobab had a road running through its core. Whilst widespread across parts of southern Africa, baobabs are under threat from development, road building and mining activities.

We need to look after these magnificent giants of the bushveld so that generations ahead can look on in awe on a landscape of baobabs holding up the clouds, and the spirits can rest easy.

The baobab is an ecological condominium inhabited by a wide variety of species. Throughout most of the year the tree is leafless.

Baobabs are grotesquely large in terms of their trunk diameter with some individuals exceeding a circumference of 30 meters.

FERMENTED FOODS
Secrets to Kefir

About kefir & its benefits

Kefir is a fermented drink which has been consumed for thousands of years. It originated in the Caucasus mountains in the former Soviet Union where the drink was fermented naturally in bags made of animal hides.
The fermentation process in making kefir creates a source of friendly micro-organisms that provide ideal conditions in the digestive tract for the colonization of friendly bacteria. Home-made kefir is a very cost-effective way to provide your body with a fantastic supply of good gut bacteria to help keep you healthy.

The array of friendly bacteria found in kefir can control the spread of undesirable micro-organisms such as harmful bacteria, viruses, and fungi, helping one to combat food poisoning and many bowel and urinary tract infections. Kefir provides great nourishment for pregnant and nursing women. They are a good defense against the Candida albicans yeast, now implicated in many health problems in people who are malnourished or whose immune systems are depleted or compromised. There is evidence that probiotics can help protect against the negative effects of radiation, antibiotics, and toxic pollutants. Kefir is also a source of B-vitamins, such as biotin, niacin (B3), pyridoxine (B6), and folic acid, as well as minerals, enzymes, and essential amino acids. The amino acid tryptophan is present in significant amounts, making it a great sleep enhancer. Its protein is partially digested during the fermentation process, making it easily utilized by the body, aiding one to feel full for long periods of time.

Sources say that the best time to take kefir is first thing in the morning on an empty stomach. Others suggest having a glass 1-2 hours before bedtime. Kefir taken before bedtime apparently helps to improve intestinal flora and enhances sleep. The presence of the enzyme lactase makes it great for those who cannot otherwise digest milk, and the fermentation process makes it easier for your body to absorb the calcium, and in turn magnesium. Kefir also contains a chemical called tryptophan which is the other reason it helps you to be more relaxed and get a better night's sleep.

Kefir vs Yoghurt, Ayran and Amasi

Yoghurt is not entirely the same as kefir. One theory around the discovery of yogurt is that during 10,000 – 5,000 BC, when herdsmen began milking their animals, they would store their milk in bags made from the intestinal gut thereof. The intestines contain natural enzymes that cause the milk to curdle and sour. Other sources account that yogurt was discovered 'by accident' in the Middle East, when bacteria from goatskin bags caused milk to ferment into yogurt when carried by camels through the hot desert. The nutritional difference between kefir and yoghurt, it is understood that kefir contains more probiotics than yogurt. ***Ayran*** was first

Kefir is more potent than Yoghurt in its friendy bacteria offerings helping to restore and maintain good micro-ecology. If you are looking to improve digestion or gut health, kefir may be the better choice...

developed thousands of years ago. It is basically yoghurt diluted with water and a touch of unrefined sea salt. It is said to yield the most amazing and refreshing flavour. Ayran is one of the fundamental drinks of Turkish culture dating back to Central Asia. The word comes from the Turkish word yoghurt, deriving from the verb yogurtmak, which means to blend, a reference to how yoghurt is made.

Amasi is sour, cultured milk. It is produced by inoculating pasteurised milk with a specific bacterial culture. The end-product has a firm texture, without the bubbles that often characterises kefir, and no separation of whey from the coagulum. It has a pleasant sour taste with a slight tanginess on the tongue and is consumed widely in South Africa.

Traditionally, Amasi is prepared by storing unpasteurized cow's milk in a calabash container (igula in isiZulu) or hide sack to allow it to ferment. The fermenting milk develops a watery substance called umlaza. The remainder is Amasi. This thick liquid is mostly poured over mealie meal (maize flour) porridge called pap, or taken straight. It is traditionally served in a clay pot (ukhamba in isiZulu) and eaten with wooden spoons. Amasi is also produced commercially using Lactococcus lactis subspecies lactis and L. lactis subspecies cremoris.

In South Africa, a similar drink to Kefir is known as *Amasi* (in isiZulu and Xhosa), or *maas* in Afrikaans and *mafi* in Sesotho. These are the common words for fermented milk that tastes like cottage cheese or plain yoghurt.

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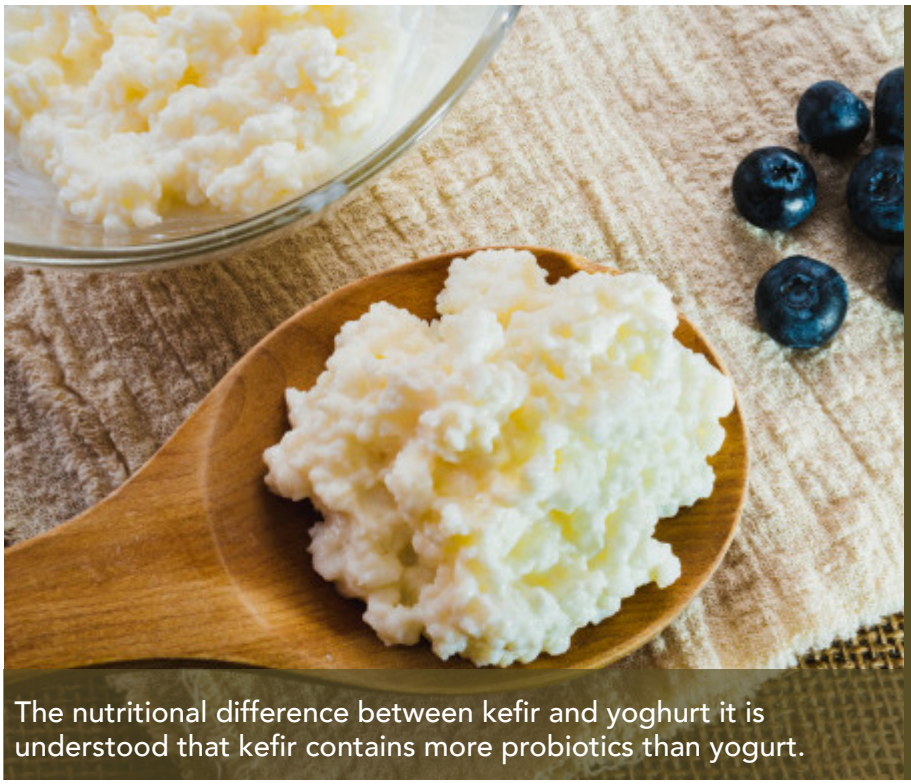

The nutritional difference between kefir and yoghurt it is understood that kefir contains more probiotics than yogurt.

Kefir **is similar to a thin yogurt or ayran that is made from a specific type of mesophilic symbiotic culture. It appears in the form of gelatinous particles called "grains." A mesophile is an organism that grows best in moderate temperature, neither too hot nor too cold, with an optimum growth range from 20 to 45 °C (68 to 113 °F). The milk kefir grains are sometimes called *"Tibetan milk mushrooms"* and water kefir grains are also known as *"Japanese water crystals."* Milk grains are white and somewhat rubbery; they look like cottage cheese or cauliflower florets. One can grow the cultures in cow, goat, or sheep-derived milk.**

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The Art of Kefir

Kefir's flavour is tangy and slightly bubbly…but is there 'more' to kefir than meets the eye -or should we say today's tastebuds?

We take a closer look at kefir from our interview in the March 2021 issue of Biodiversity & Environment Africa, with Katja Philips from Green Baskets Healthy Lifestyle Boutique

"Please tell us more specifically about Kefir? Why is it an 'old family secret recipe'? It sounds like an art form or craft of sort… a skill passed on from one generation to the next, like pearls of wisdom one would like to pass on to your children."

I used to watch how my great grandmother used to make kefir. I was very fortunate that my great grandmother was still alive while I was growing up. She was born in 1908. She lived a very incredible life, and she brought a lot of wisdom and knowledge into my life. She raised me up until I was 12 years old so luckily I still have quite a few memories that are still alive and vivid. It is definitely a process. Once again, in our fast life everything seems to be rushed. When I went onto Google to find a recipe for kefir and have a look at what is actually out there, I just couldn't understand how all the suggestions on the internet could be that useful? But nevertheless, it is what it is. Things are done way too fast and the general idea that I pick up is that you can just take 2 tablespoons of already prepared kefir, and just pour it into your glass of milk and leave it overnight and in the morning when you wake up and you drink this glass of milk …I don't know how it can really turn into genuine kefir, because the fermentation process is really much deeper than that. People just think that if something has a "sour" taste, it automatically has become "kefir".

Well, kefir is something that is created through the symbiotic relationship between cultures which like to feed themselves on naturally occurring sugars known as lactose, and that totally enjoy very specific temperatures. They have their 'own little life'. They definitely are little 'alive creatures'. Therefore, there are very specific aspects that need to be looked at while kefir is in preparation. Just like a woman, these cultures have their own 'mood'. I know intuitively how to nurture it, and if mutual understanding is found, then the great benefit is shared. I won't unfortunately go into the details.

When someone asks me: "how do you make kefir, please give me the recipe." I say: "No problem… I will give you the recipe for my kefir if you give me the recipe for Coke. Then I will give you my recipe…" (Katja has a bit of a laugh in between her words.) This might sound a bit mean, but nevertheless this is something I will be sharing with my kids, and so on, if they will be interested.

Kefir is also something that must not only have the taste, but actually have the right effect and work. My clients actually do feel the changes in how "their tummy" works. I am really glad that life gave me the opportunity to hold such pearls, and actually apply my mind to it and share the benefit with others. And that is exactly why purchasing the product from our shop, with our recipe, the way we make kefir through the way I am running my kitchen, it does do the proper work.

Recommended Links & References:

- Biodiversity & Environment Africa e-Magazine -3 March 2021 -Issue 3 -Strong Roots: Interview with Katja Philips from Green Baskets-Healthy Lifestyle Boutique
- How to Make Your Own Healthy Probiotic Drink -By Terry Garcia-Haass
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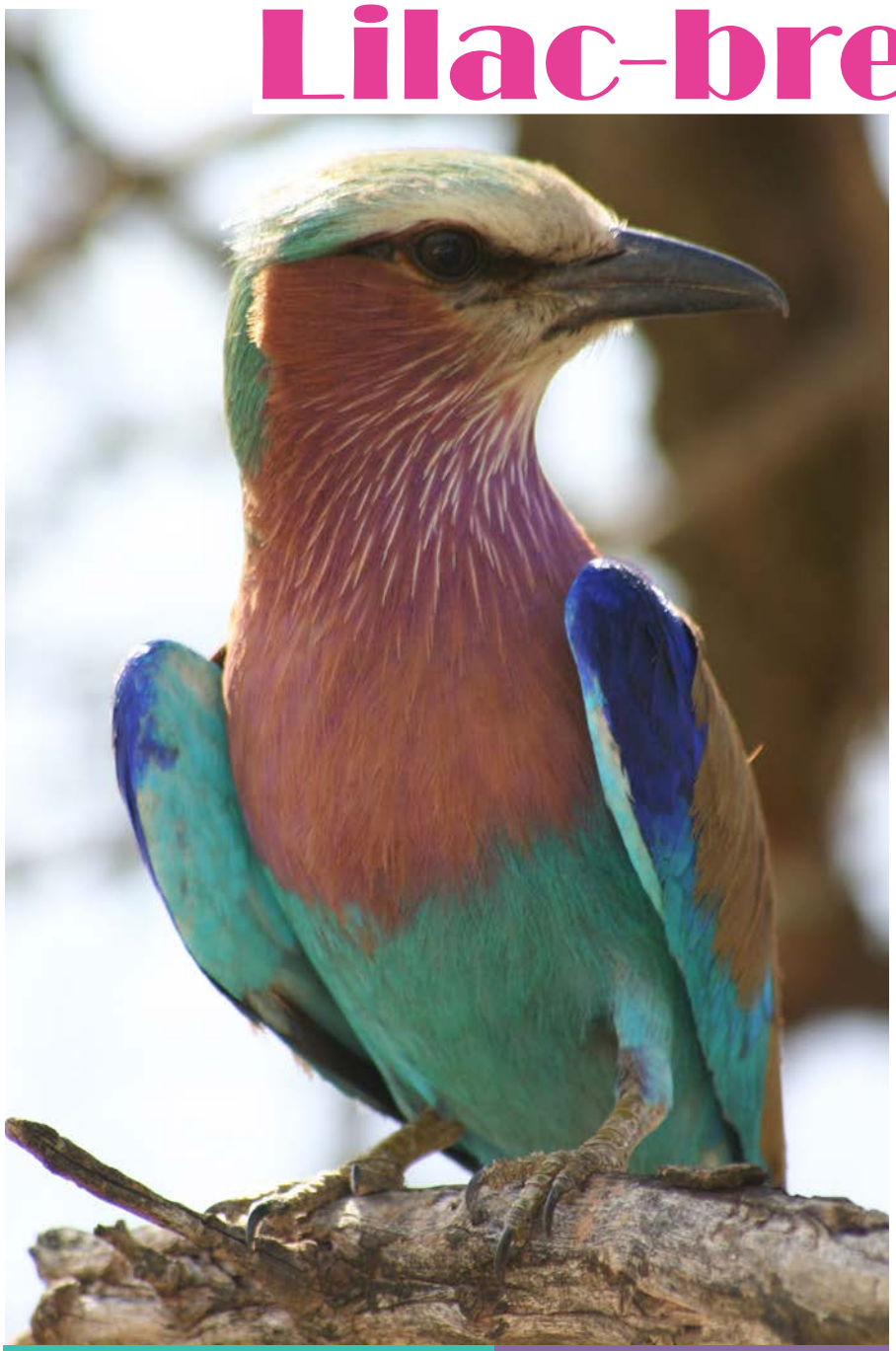
WRITTEN & INTERVIEWED BY : Nicolette Da Costa

Nicolette completed her tertiary education in social sciences, humanities and romance languages through the University of the Witwatersrand (WITS) and UNISA.Subsequently, her drive for making a difference lead her to the complementary health world where she is a registered Therapeutic Reflexologist & Meridian Therapist. Over the past 16 years, Nicolette has run her practice in Johannesburg providing treatments that offer strong support in bringing about stress relief, healing and recovery from illness, and a sense of greater vitality for people of all ages, from all walks of life. She has written several magazine articles and an e-book called *Earthing The Wired Generation -Stress Relief for Busy Kids*, available on Amazon.com. Nicolette believes that 'wellbeing', in all senses of the word, individually, societally, and globally, now and for the future, is inextricably tied in with nature. We can not fully care for ourselves & one another without looking after and being with the natural world.

Lilac-breasted Roller



The Lilac-breasted Roller can be seen year-round.

Class: Aves
Order: Piciformes
Family: Coraciidae
Species: *Coracias caudatus*
Etymology: *Coracias* = derived from Greek and in reference to a raven (korakias). *caudatus* = tail.
IUCN Conservation Status: Least Concern

Lilac-breasted Rollers are fond of open woodland and adaptable to a range of savanna types, and are easily observable in most savanna nature reserves and national parks.

Some savanna birds are exquisitely colourful, and the Lilac-breasted Roller is no exception. These brightly coloured birds with their lilac-purple and turquoise blue plumage quickly catch the eye as they fly across the bushveld landscape. Unlike the European Roller *Coracias garrulus*, a seasonal migrant, the Lilac-breasted Roller can be seen year-round. They do however travel vast distances over the season to keep pace with regular food supplies.

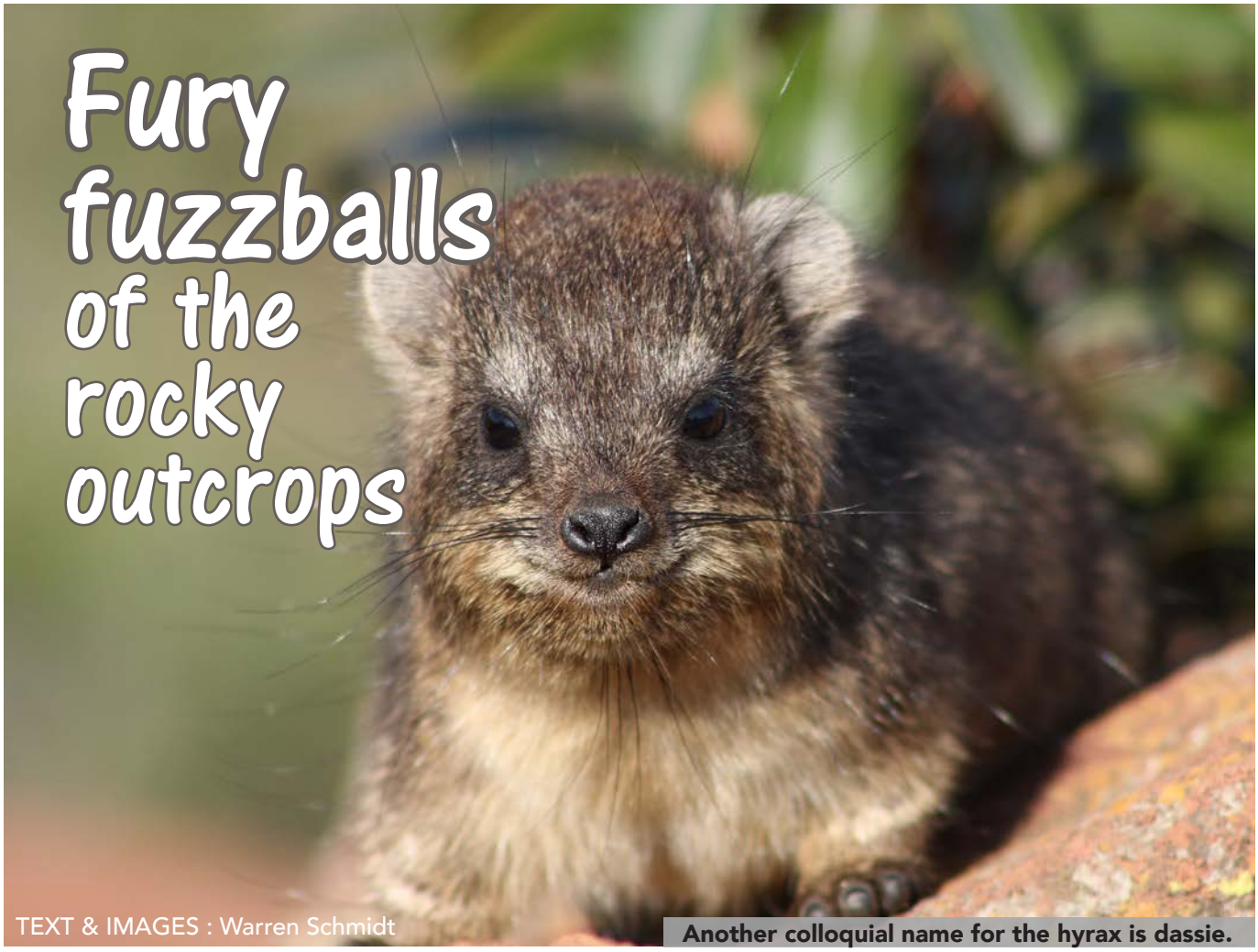
Lilac-breasted Rollers are fond of open woodland and adaptable to a range of savanna types, from the dry Kalahari, across the Central Bushveld and into the Lowveld, where they are a common site in reserves such as the Kruger National Park. They are also common in miombo (*Brachystegia*) and mopane (*Colophospermum*) woodland, and abundant in the Okavango Delta in northern Botswana. Elsewhere these birds are found across East Africa reaching Eritrea in the north.

Rollers are primarily insectivores feeding on grasshoppers, crickets, ants, termites, moths and butterflies, as well as other invertebrates including millipedes, snails, spiders and scorpions. They will even feed on relatively noxious prey types. In addition, they will take small lizards, snakes and frogs. They hawk some insects by perching then swooping down on their prey. Larger items are beaten against a perch to subdue them and make them more manageable.

Breeding is seasonal, taking place throughout summer, and they are monogamous and solitary breeders. Nests are inside hollow cavities in trees. Two to four eggs are laid, and these are incubated between 17 – 25 days.

Lilac-breasted Rollers are easily observable in most savanna nature reserves and national parks. They are easily photographed or observed as they often perch near roadsides where they can easily spot prey moving across the road. Unfortunately, this behaviour results in many birds being hit by fast-moving cars.

Fury fuzzballs of the rocky outcrops



TEXT & IMAGES : Warren Schmidt

Another colloquial name for the hyrax is dassie.

The Rock Hyrax *Procavia capensis* was described in 1766 by Peter Simon Pallas, a Prussian zoologist and botanist, who reportedly fist saw a specimen in a Cape Town tavern. However, although he had planned to visit the Cape, it would appear that he never actually made the voyage, and it is more likely that he examined specimens when working through Dutch museum collections in Europe. Pallas described the Rock Hyrax together with several other South African species including the Bushbuck *Tragelaphus scriptus*, the Eland *Tragelaphus oryx* and the Red Hartebeest *Alceplaphus buselaphus*.

Rock Hyraxes were well-known long before their formal description however, and indigenous tribes across Africa would have been familiar with them. Early Dutch navigators made mention of hyraxes during early voyages around the Cape. In 1601 Captain Joris van Spilbergen recorded hyraxes from what is now called Dassen Island, comparing them to badgers. Hyraxes were caught and eaten in large quantities by sailors and attempts were made to introduce them to other islands, but with limited success. Later, Jan van Riebeeck, in 1654, prohibited the collection of these mammals from Dassen Island as their numbers were dropping and this is probably one of the first formal conservation policies promulgated in Africa!

Another colloquial name for the hyrax is dassie, which is commonly used by both Afrikaans and English language speakers. It is derived from the Dutch word das in reference to a badger. In the Nguni languages which include isiZulu, isiNdebele and isiXhosa, hyraxes are called imbila and in Sesotho and Setswana as pela.

The rock hyrax is a small mammal measuring 45 – 60 cm with a mass of 2.5 – 4.6 kg. There is a great degree of pelage colour variation which has led to the description of numerous subspecies; however, this is largely due to blending into their habitat. Colouration ranges from reddish to greyish brown.

The rock hyrax has a wide distribution range across much of southern and eastern Africa, as well as across the dry Sahel region of West Africa. Within this vast range they occur in specific habitat types which have rocky outcrops and hills with boulders and crevices for shelter. Hyraxes are incapable of making their own burrows due to the structure of their feet, and so rely on rocky outcrops with sufficient hideouts in which to seek refuge. Hyraxes lose body heat during the night and therefore huddle up close together in groups. They are also fond of sun-basking on rocks and will emerge from their shelter shortly after sunrise to warm themselves. In many regions they occur on rocky outcrops in arid areas where temperatures can soar during the day and drop to near freezing at night. They are sensitive to high temperatures and use behavioural methods to avoid overheating – either retreating into their shelters or sitting under the shade of rock overhangs or tree branches.

Hyraxes can survive without direct access to water for extended periods and rely on their diet for most of their water needs. They will however drink

water from rock pools during and after rainfall. Hyraxes are strictly vegetarian and take a wide range of plants and grasses. This includes leaves from many different tree and shrub species, usually situated close to their rocky retreats, but will also eat bark, fruits, berries and flowers. They will travel a considerable distance when foraging.

Hyraxes commonly fall prey to a variety of predators, especially raptors such as Verreaux's and Crowned Eagles. They are also taken by cats such as caracal and leopard, as well as snakes like black mambas and pythons. They are most vulnerable to predation when out foraging or when dispersing to new habitat when the population increases, or males are ousted and need to find new shelter. A female, or sometimes a male, will act as sentinel and keep a watchful eye out for danger. They emit a sharp cry which immediately sends all hyraxes scrambling for cover.

Hyraxes will breed throughout the year and females give birth to an average of 2-3 young. The young are precocious, meaning that they are born fully furred with open eyes and able to move about on their own within a few minutes. They will then suckle from the female. Maturity is reached within 28 – 29 months in males and earlier in females.

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Hyraxes are incapable of making their own burrows and rely on rocky outcrops with sufficient hideouts in which to seek refuge.

ARE HYRAXES RELATED TO ELEPHANTS?

There is some truth to this statement, but the answer is much more complex. Hyraxes (family Procaviidae) and elephants (family Elephantidae), based on the best scientific evidence and the fossil record, share a common ancestor, also shared with the aquatic sirenians (dugongs). This means that they all evolved from the same ancestral line.This is further supported by modern genetic sequencing as well as anatomical comparisons. Hyraxes have similar toenails and padded feet to that of elephants and certain skeletal features are similar. In taxonomy, hyraxes, elephants and dugongs are placed in the mammal cohort called the Paenungulata. However, these different mammals split millions of years ago and are on their own evolutionary trajectory and as such are placed in different mammal orders. The hyraxes fall in the order Hyracoidea and the elephants in the order Proboscidea.

An Impala ram *Aepyceros melampus*. Impala are one of the flagship antelope species of the savanna biome where they are both browsers and grazers.

A Common Daidem butterfly *Hypolimnus misippus* male exploring a garden flowerbed.

ABOUT US.

Biodiversity & Environment Africa is a fully digital, website-based platform - freely available to readers globally. Publications and resources are available as downloadable PDFs, as well as regular online blog posts. It is our hope to make information available as far and wide as possible. In keeping with its environmental ethos, printing and distribution is effectively reduced, therefore striving towards a low carbon footprint and minimal use of natural resources.

The primary objective of B & E Africa is to interpret and disseminate often complex academic research and environmental policies in a digestible and easy to understand format. The website, www.biodiversitynature.com and blog articles therein, can easily be viewed in alternative languages by right clicking and using Google translate.

Never has environmental communications been as important and pertinent as it is in today's rapidly changing, dynamic world. It is critical that people receive reliable information about biodiversity, conservation, and environmental issues. Just as important, communities need to understand why biodiversity is important in their daily lives and why environmental issues are personally relevant to their health and wellbeing. Given the levels of poverty across Africa, the challenges may seem insurmountable, but can be overcome strategically with foresight, dedication and consistency.

Traditional knowledge and consumption of natural resources must be integrated into sustainable biodiversity management strategies and communities need to see, and experience first-hand, the benefits of biodiversity. The benefits of ecosystem services need to be demonstrated clearly and practically. Africa must also be cautious of international and corporate investments which lead to environmental destruction and biodiversity loss for short-term profit. Such short-term financial gain and profits cannot be allowed to overrun long-term sustainable goals and biodiversity conservation objectives. As humans, we yield immense power over the natural world, but we have a moral and ethical responsibility to leave a legacy of natural wonder to the generations that follow, so that they too can experience the majestic roar of lions, the trumpeting of elephants, and the humble dung beetle in the African savanna.

It may seem idealistic to aim for environmental sustainability and conservation of biodiversity when many regions of Africa are suffering from prolonged civil conflict, disease and poverty, but these challenges can be overcome. It will however take dedication and resolve from politicians, and more importantly, Africa's citizens. Thousands of game guards, wardens and environmental activists have lost their lives protecting biodiversity and natural assets across Africa. This alone goes to show that the will to protect is there. We owe it to these fallen heroes to ensure that their sacrifice will not be in vain.

Africa is custodian to some of the world's most unique landscapes, plants, and animals. Elephant, rhino, gorillas and a plethora of less enigmatic but no less interesting creatures call this continent home. Nurturing an appreciation and spiritual connection to these plants, animals and landscapes is critical to ensuring their long-term survival. It is the continent's youth that needs to be uplifted and guided to do this. Environmental education and resource management are essential skills that should be taught at every stage of a child's education, from pre-school to tertiary level. B & E Africa strives to be a communications channel bridging the gap between academic research findings and translating scientific literature into a format that anyone can appreciate and understand.

B & E Africa will cover a range of topics and carry out interviews with scientists, researchers, businesses, and politicians across the African continent and further afield. Some of the topics covered include:

- Biodiversity (focus on diversity and conservation of plants and animals)
- Biosecurity (the prevention of pathogens and invasive species)
- Climate change (global climate change)
- Community upliftment (environmental benefits to communities, tourism, bioprospecting)
- Conservation (endangered species, trade, poaching and conservation issues)
- Economy (financial economics and the environment)
- Ecotourism (safari and game lodges, ecotherapy, tourism, birding and hunting)
- Environmental management (landscaping, environmental scoping and impact assessments)
- Invasive species (spotlight on invasive animals and plants)
- Legislation (environmental law and legislation)
- Marine resources (fisheries and recreation)
- Recycling (waste management)
- Resource management (agriculture, forestry and mining)
- Sustainability (development and resource management)
- Technology (GIS, satellites and other technology used in environmental management)
- Water (water resource management & wetlands)

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