Singita

Photo by Sean Surtees

WILDLIFE JOURNAL
SINGITA KRUGER NATIONAL PARK, SOUTH AFRICA
For November, Two Thousand and Twenty-two

Temperature		**Rainfall Recorded**	**Sunrise & Sunset**
Average minimum:	20.03˚C (68.05˚F)	For the month: 62.5 mm	Sunrise: 04H59
Minimum recorded:	14.00˚C (57.20˚F)	Season to date: 72.5 mm	Sunset: 18H28
Average maximum:	30.70˚C (87.26˚F)		
Maximum recorded:	38.00˚C (100.4˚F)		

Following on from the month of October, game viewing has continued to be excellent. The expected rains finally arrived in the middle of the month which brought a welcome respite. After a few more rainless days, the heavens opened again on the 26th and continued for two days, resulting in the N'wanetsi and Sweni Rivers levels to rise. All of the pans are now full as well as the many ephemeral mud wallows – these will play an important role for the many animals that rely on them for cooling and self-care during the summer months. The cacophony of frogs can be heard all over the concession and more and more migratory birds have arrived to take advantage of the impending insect explosion.

Here's a Sightings Snapshot for November:

Lions :

- The Mananga Pride continue to be a common sight on the concession and we have been witness to some spectacular moments. The pride managed to kill four large buffalo bulls in the space of ten days,

of which one sighting was witnessed by some of our guides and guests in the central depression. The whole pride, together with the two Shishangaan males, were in attendance and it was amazing to watch the hunt from start to finish. The entire buffalo was consumed in just over twelve hours.

- Shishangaan Pride sightings have been very sporadic over the last month due to the unstable lion dynamics down south near the lodges. The Trichardt Males that fathered the cubs recently born into the pride, are now getting pressure from a coalition of three males which have yet to be named. These three males have been entering the concession more frequently in the last few weeks and both coalitions have come into physical contact, with members from both sides showing recent injuries. Since the last confirmed sighting of one tawny cub on the 30th of October, we finally located seven Shishangaan lionesses with only one tawny cub again present on the 20th November. We had another sighting of three lionesses with the cub on the 26th and sadly we can assume that the other two cubs are no longer alive.
- We have had no sightings of Mountain Pride during the month and the consensus is that they have moved into Mozambique due to the Mananga Pride's expansion to the east.
- An unknown coalition of four lions was found on the 28th of November to the north of the concession. Will these males push south and challenge the two aging Shishangaan males? Only time will tell.
- Regarding the Shishangaan males – they continue to be dominant over the central and northern parts of the concession. They were even seen as far south as Xingwenyana Crossing on the N'wanetsi River one morning which is pushing into the territory of the two Trichardt Males. When not out patrolling, they are constantly found with the Mananga Pride and were present at each of the buffalo carcasses killed by the pride. On the morning of the 30th, they were found with the Mananga Pride feeding on a male waterbuck which had been killed by another male in a territorial dispute.
- We had two confirmed sightings of the Maputo male – one at Hyena Pan in the north eastern part of the concession and another just to the west of the concession. With the Kumana male presumed to no longer be with us, he is now keeping a low profile and has become nomadic. We are happy to report that he is in great condition and it is hoped that he somehow manages to find a new coalition partner.
- The Xirombe male was seen on two consecutive days feeding on a female waterbuck in the southern parts of the concession. This male is also nomadic and he would be an ideal coalition partner to the Maputo male.

Leopards

- The Dumbana female was seen on a handful of occasions. Most notably, she and the Nhlanguleni female had two territorial disputes two weeks apart. During the first dispute, the two leopardesses became physical, each showing fresh injuries. While witness to the second dispute, there was a lot of hissing and growling between them, before they eventually went in opposite directions.
- The two young Dumbana males have once again provided excellent viewing for our guests. Either one or sometimes both were viewed on fifteen separate occasions during the month. They are spending most of their time in the N'wanetsi River and the many drainage lines that feed into the river, particularly the Ntsibitsane and Xinkelengane. These areas are where most of their preferred prey – impala, common duiker, bushbuck and nyala - are found. Also, with the impala lambing season in full force, we expect both to take full advantage, as they continue to hone their hunting skills well into independence from their mother.
- The Nhlanguleni female and her two cubs also provided excellent viewing towards the end of the month. All three leopards were viewed together feeding on multiple impala lamb carcasses further north in the Xinkelengane drainage. As stated above, we twice viewed both her and the Dumbana female having a territorial dispute. With both of her cubs being female, she is probably looking to increase her territory, with a view to eventually ceding some of this to her cubs, should they both make it to independence. Female leopards are generally philopatric, sometimes setting up territory directly next to their mothers and even claiming a small part of their mother's territory, as already mentioned.

- The Lebombo male was viewed on three occasions in the granophyres and an unidentified male was seen on a few occasions in the N'wanetsi River and south western parts of the concession. On the 30th, we located yet another unidentified male feeding on a hoisted carcass of a blue wildebeest calf near the Gudzane Dam area.

Cheetahs

- Cheetahs were seen on six occasions this last month.
- Four of these sightings were of a single individual female cheetah. She was wearing a telemetry collar and we assume that she came from Mozambique.
- The other sightings of cheetah were of a female with two sub-adults. On the last day of November, they were seen in the grasslands on the western side of the concession. After a short while they spotted an adult female impala and the chase was on. The mother managed to bring down the antelope and the youngsters started feeding. Unfortunately, a large hyena had seen a vulture that descended to a dead tree nearby and came to investigate. The hyena found the cheetahs feeding and immediately ran in and usurped the prey, chasing the cheetahs away. What an incredible sighting!

Wild dogs

- Four different packs were seen this month: A pack of three, a pack of five, a pack of nine and a large pack of twenty-two (including pups).
- The pack of three dogs was seen on a few occasions in the concession, but by the end of the month they had moved out of the area and were seen outside of the concession far to the west, close to Satara Rest Camp. These dogs were seen to have quite a few injuries on them. We are not sure what caused these wounds. One afternoon we were watching them searching for prey in the grasslands on the H6 public road. We had just seen a steenbok prior to finding the dogs and had explained to our guests how they often drop down into the grass with their ears flat when seeing predators. In such a pose they look just like a rock (hence the name steenbok, meaning stone antelope). It was only minutes later that the dogs came into view and we watched as the steenbok did exactly what had just been said and the dogs ran by, within a few meters of the crouching antelope, without seeing it.
- The pack of five were seen a few times just east of the lodges, in the hills. On one of these occasions the dogs found a dead impala that had been killed by a leopard and they appropriated and ate it.
- The pack of nine was only seen on one occasion on our western boundary road.
- The large pack was seen once, in the far northern reaches of the concession along the Mozambique boundary. They were resting in the shade of a large jackalberry tree.

Spotted hyenas

- We have had quite a few sightings of these amazing animals this last month (42 sightings in total).
- Some of the more interesting sightings included: One adult hyena feeding on a honey badger; one adult hyena resting in a cave in the rocky hills on a hot day; three adults waiting at the base of a tree in which a leopard had stashed its kill – they were hoping to get fallen scraps; an adult female was seen in the far north of the concession playing with four youngsters; one adult female hyena chasing a baby impala; three adults that stole the kill from a leopard; and three adults feeding on the carcass of a young elephant. The next day there were seven hyenas lying in the area waiting for the lions (which had found the carcass) to move off. Towards the end of the month a large female hyena managed to steal the kill of three cheetahs.

Elephants

- We have had great elephant viewing this last month. A bull with fairly large tusks was seen on a few occasions. We have also seen quite a few herds of females and youngsters, including a few sightings of babies that were only a few days old. Towards the end of the month we found a young bull elephant

that had died in the grassland near the river. We are not sure what caused him to perish. His carcass attracted a lot of vultures and marabou storks. On the second day after he had died there were over 160 vultures in the vicinity of the carcass and soon the lions saw the mass accumulation of vultures and also came to feed on the decaying meat.

Buffalos

- Most of the month we were seeing a few male buffalos. There are two dagha boys that have been hanging around in the Nkayanini area (in the far north of the concession). On the second of the month we found a single bull drinking at Pony Pan. After quenching his thirst he headed north, but unfortunately for him Mananga Pride found him during the night and we found them the next morning feeding on his remains.
- On the 4th a herd of approximately 800 buffalos entered into the concession from the west and immediately the lions found them and managed to kill one. The buffalos then fled back westward.
- Towards the end of the month there had been quite a lot of rain in the concession and we were driving mainly on the Kruger roads. While outside of the concession we did have a few sightings of large herds of buffalos.

Plains game

- The plains game has been great, as usual. We have been seeing giraffe, kudu, waterbuck, impalas, zebras and wildebeest on most drives. We have also had quite a few sightings of klipspringers on the rocky ledges. On a few occasions we saw the diminutive Sharpe's grysboks, mainly in the hills. We have also had regular sightings of steenbok and warthogs. Common duikers have been seen a few times this last month (in contrast to the name common duiker are not common in this area).
- This is the time of the year that the animals that give birth seasonally have their babies. There are lots of baby impalas now and by the end of the month they were already gathering in their small creches. We have also seen a few baby wildebeest in the far north-western reaches of the concession. Many of the herds of zebras have young foals at the moment.

Rare animals and other sightings

The following unusual animal sightings were recorded this month:

- Two sightings of African Civets on the night drives.
- One sighting of a very relaxed caracal.
- One sighting of a shy serval.
- A few sightings of Sharpe's grysbok, nyalas, klipspringers and common duiker.

Birds

- This is the time of the year that the migrant birds return to our area. We have seen both Intra-African Migrants and Palearctic migrants returning. The European rollers arrived towards the end of the month and will now push the lilac-breasted rollers into hiding.
- Some of the rare birds seen this last month include white-backed night heron, saddle-billed stork, marabou stork, yellow-billed stork, secretarybird, hooded vulture, Cape vulture, white-backed vulture, lappet-faced vulture, white-headed vulture, tawny eagle, martial eagle, bateleur, kori bustard, greater painted snipe, European roller, southern ground-hornbill and golden pipit. All of the afore-mentioned birds are listed as birds of concern by Birdlife SA (except for the golden pipit, which has possibly only been seen in southern Africa fewer than thirty times).
- Some of the endemic (only occur in southern Africa) and near-endemic (found mainly in southern Africa, but may extend just outside of the region) birds that we see fairly regularly in the area, and were seen this last month, include Natal spurfowl, red-crested korhaan, double-banded sandgrouse,

southern red-billed hornbill, southern yellow-billed hornbill, acacia pied barbet, sabota lark, white-throated robin-chat, southern boubou, southern white-crowned shrike and Burchell's starling.

- Towards the end of the month we found an elephant carcass that attracted over 160 vultures, including white-backed, hooded, white-headed, lappet-faced and Cape vultures. This carcass also attracted a few bateleur eagles, tawny eagles, yellow-billed kites and marabou storks.

Cape vulture, White-backed vultures and spotted hyena at an elephant carcass.

Some bush reflections and articles follow, as well as the November Gallery of images.

Biomimicry - Technology through nature **Article by Sean Surtees**

What do the following, all of which are found here at Singita Lebombo and Sweni, have in common?

- the aerodynamics of a Kingfisher's beak
- the blood pressure control system of a giraffe
- the inner part of the head of a woodpecker
- the termitary of termites

Answer – they have all been used in some way to advance human technology through the amazing use of biomimicry. Before we get into more detail on each example above, let me explain what biomimicry actually is:

Simply put, it is a practice that learns from and mimics the strategies found in nature to solve human design challenges. It is a design process which looks for sustainable solutions by imitating nature's patterns and strategies which have been tested over time. Biomimicry is about valuing nature for what we can learn, not what we can extract, harvest, or domesticate. Examples below:

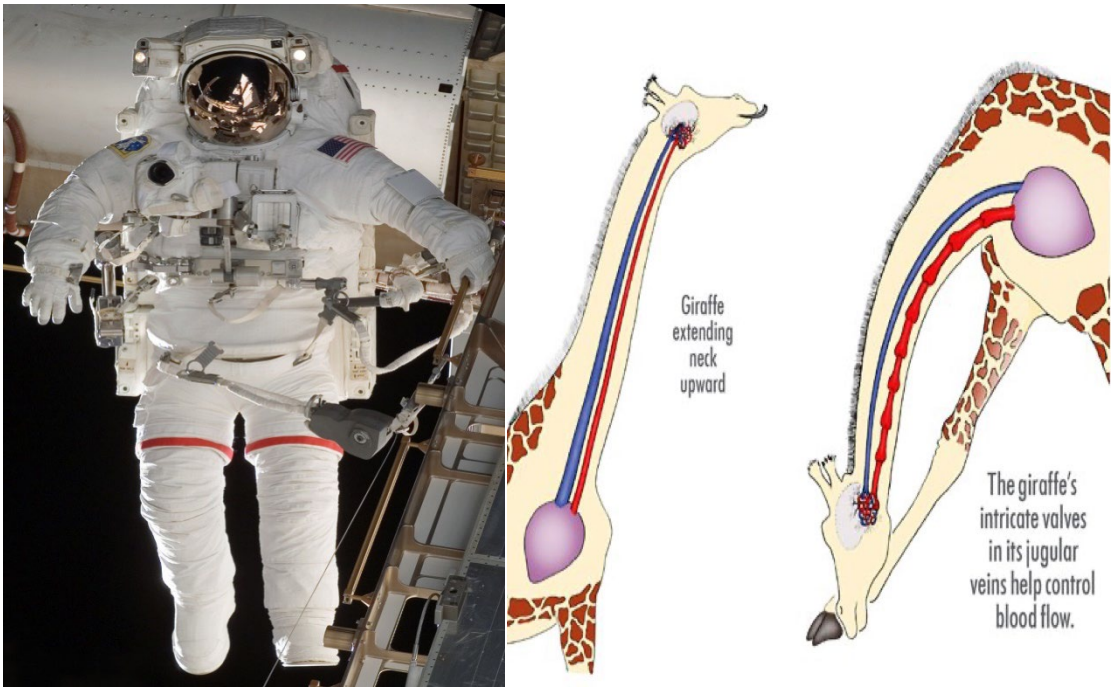
The Shinkansen bullet train in Japan

- Can travel up to 320 km/h (200 miles/h).
- There was a major problem on its initial debut – noise. Every time the train emerged from a tunnel, it caused a change in air pressure which caused thunder-like sounds that were a nuisance from half a kilometre away.
- The trains chief engineer, a keen bird watcher, turned to nature to see if he could find something that travels quickly and smoothly between two different mediums.
- Taking inspiration from the aerodynamics of a bird's beak, it was discovered that the shape of a kingfisher's beak (narrow profile) was ideal for this situation.
- Their beaks were ideal because a kingfisher will dive into a body of water to catch a fish with very little splash – the reason for this is so that the kingfisher can still see its prey as its breaks the water surface.
- Once they had copied the bill, they modelled the front of the train from that design.
- Not only did this design result in a quieter train, but the train ended up using 15% less electricity while travelling at 10% faster than originally designed for.

The Shinkansen Bullet Train (left) and the giant kingfisher (right).
Click here to watch a video on this amazing example of biomimicry on YouTube.

NASA astronauts anti-gravity suits for extravehicular activities (EVA'S) in space

- When NASA developed these suits, scientists extensively studied the coordinated blood pressure control system of a giraffe.
- To withstand a surge of blood when its head is raised, lowered or swung rapidly, the giraffe evolved control valves in its jugular veins and an unusually elastic network of blood vessels at the base of its head known as the *rete mirabile caroticum* - wonder net of the carotids – that acts as a pressure-regulation buffer and helps keep blood pressure constant in the brain.
- Also, blood does not pool in the legs nor does a cut on the leg bleed profusely, even though arteries near the feet are under great pressure because of the weight of fluid pressing down on them. In other animals, such pressure would force the blood out through the capillary walls.
- In giraffes, however, these blood vessels are thick walled and less elastic, with a very tight sheath of skin around the lower leg, which maintains high extra-vascular pressure.



NASA's Extravehicular Anti-Gravity suits (left) and the circulatory system of a southern giraffe (right).

Shock Absorbers

- Woodpeckers are known for their exceptional excavating capacity. They use their beaks to forage for insects and also to create an excavated cavity for themselves.
- As woodpeckers bore these holes, they experience a deceleration of 1 200 gravitational pulls (G's), nearly 22 times per second. To put that into perspective, a severe car crash delivers the equivalent of 120 G's on a passenger.
- Humans are often left concussed at 80 to 100 G's, so how the woodpeckers avoid brain damage was unclear.

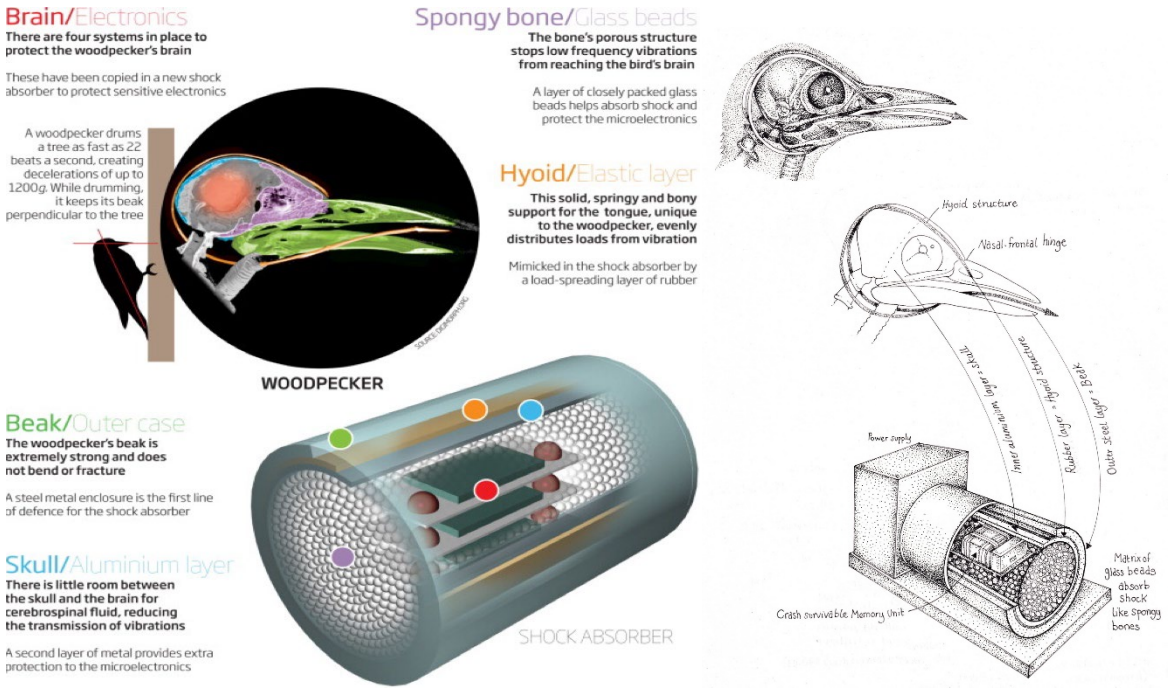
So how does a woodpecker withstand this? Answer:

- Natural shock absorbers.
- Using videos and CT scans (in the birds head and neck), researches at the University of California, Berkeley, discovered that Woodpeckers have four structures designed to absorb mechanical shock.
  I. Hard but elastic beak.
  II. Hyoid – a sinewy, springy tongue-supporting structure that extends behind the skull.

III. An area of spongy bone in its skull.
IV. The way the skull and cerebrospinal fluid interact to suppress vibration.

All of these work in unison to extend the time over which the concussion occurs and therefore inhibiting vibration.

- Based on this multifaceted design, the team is working to create an array of applications ranging from shock resistance flight recorders (black boxes) to micrometeorite-resistant spacecrafts.
- Other applications include microelectronics, military technology, electronics in cars and dampers/shock absorbers for cars.
- Also, Formula 1 teams are looking to incorporate this into their crash protection for their drivers. One big issue with F1 is protecting the driver by getting them to decelerate in an accident situation in such a way that the driver's internal organs and brain aren't severely damaged.



The inner parts of a woodpeckers head and how each has been incorporated into the latest design of flight recorders (black boxes).

Ventilation systems

- Biomimicry isn't simply about mimicking an anatomical or evolutionary niche of a species. Sometimes, we can take cues from the structures animals build to create a better life support system for ourselves.
- The most well-known example when it comes to heating and cooling is ventilation inspired by termites.
- Scientists observed that big termite mounds in Africa stay remarkably cool inside, even in blistering heat.
- They accomplish this feat with a clever system of air pockets, which drive natural ventilation through convection.
- An engineering firm called Arup used the idea to build a large office and shopping centre in Harare, Zimbabwe, that is cooled with the outside air.
- The system uses only 10% as much energy as conventional air-conditioning to drive fans that keep the air circulating.

A large termite mound (termitary) from Africa savanna and the Eastgate Shopping Centre in Harare, Zimbabwe. Click here to watch a video on this amazing example of biomimicry.

Quote: when we look at what is truly sustainable, the only real model that has worked over long periods of time is the natural world – Janine Benyus

For further information on this amazing subject, please click here.

Yin Yang **Article by Brian Rode**

The seasons have changed again and I was noticing the changes that summer brings to the bush and started getting philosophical… (The bush is a great place to just sit and think. The peace of the surroundings is so conducive to ponder upon life).

Summer just seems to arrive more suddenly than winter. As winter approaches the bush just appears to get gradually drier and the leaves fall from the trees. The grass starts getting more and more golden until almost all of the green disappears. The pans of water in the bush slowly dry up and the water levels in the rivers slowly decrease until only small pools remain (if they do not dry up completely, as they did in the drought a few years back). The migrant birds slowly start leaving and the numbers of species seen each month starts getting less and less. Summer is, however, different. It is as if everything changes rapidly. It is the rains that transform everything and we have just started to receive them now. At the beginning of the month, we had a few small showers and immediately the grass started turning green and the leaves started pushing from the bare branches. Towards the beginning of the month there were still very few baby impalas, but as soon as the bush started changing the lambs started dropping and by the end of the month there were lots of crèches of stick-legged, big-eared infants. Other animals that give birth seasonally also started dropping their youngsters. There are many new zebra foals in the herds now and we have even seen a few of the tawny wildebeest calves walking right next to their mothers. The jackals have also had their pups. They are so cute! There has also been a sudden increase in numbers of bird species as the migrants reappear. Our total, in the concession, for October was 182 species. The total number of bird species seen in November is 224. It is as if the birds suddenly arrive from the north to take advantage of the increase in insect numbers. The intra-African migrants arrived first, travelling a shorter distance than the Palearctic migrants (who come from Eurasia). The Wahlberg's eagles and yellow-billed kites were some of the first to arrive. Towards the middle of the month some of the European birds started appearing and the barn swallows and European bee-eaters were seen flying over the grasslands, hawking insects.

At the end of the first week of November I was watching the full moon rising over the horizon in the east. It was a beautiful orange colour, as the rays of moonlight were scattered by the atmosphere. As the moon rises it gets brighter and brighter, turning whiter and whiter. By the middle of the month the moon was in its third quarter phase. It is at this time that it appears half-full to us. There is then a distinct difference between the bright side and the darker portion. The line dividing the two sides is known as the terminator. It is along this line that we see the moon's craters best. I started to think about the moon and equated the darker side to winter and the lighter side to summer and it made me think that we had just crossed the terminator line. As I was looking at the moon, I realized how similar it is to the Yin-Yang symbol. The Yin-Yang symbol is well-known. It is shown as a circle with two equal tear-drop shapes, one black and one white, each with a circle in the middle of the widest part of the tear-drop in the opposite colour.

Yin-Yang is an ancient Chinese / Taoist symbol that depicts the philosophical and religious concepts of the duality of life and shows how the opposites together form a whole. This duality reflects amongst others male and female, summer and winter, day and night, good and evil, dark and light, and birth and death. It shows that one cannot exist without the other. Light cannot exist without shadow. Good cannot exist without bad. There would be no comparison and one would not be able to tell one from the other. They are two sides of the same coin. Together they make the whole. Both are necessary to complete the circle of life and are complementary with each other. If one side was larger or more dominant the harmony would be disrupted and chaos would ensue. Without black and white everything would be a murky grey.

In Chinese philosophy, generally speaking, yin is characterized as an inward energy that is feminine, still, dark, and negative. Yang, on the other hand, is characterized as outward energy, masculine, hot, bright, and positive. Together they complete each other. Together they balance each other.

We see this in the bush all the time. At the moment we see the beauty of all the baby animals, but we know that along with the births there are deaths as well. The predators would not be able to survive and thrive if they did not kill others. When we see the predators killing their prey we know that they, themselves, are getting sustenance. Without this they would not be able to survive. Towards the beginning of the month one of our guides was fortunate / unfortunate enough to see Mananga Pride killing a large male buffalo. For some people this can be quite distressing to see the life disappear from an animal. At the same time, one must consider, that without the death of this buffalo it is possible that some of the members of the pride could have starved.

There were a few losses this last month. The young white lion cub that was seen in October seems to have disappeared and we believe that it has been killed. We did not see what happened and can only surmise. Towards the end of the month, we found the Shishangaan Pride and only one of the normal, tawny cubs was present. Perhaps with the other cubs having been killed the remaining cub will get more food and will not have to compete as much. Maybe this cub will benefit from the loss of its siblings somehow. Who knows?

With summer arriving new life is appearing all around us. The biodiversity is increasing on a daily basis as the flowers start blooming, the migrant birds start arriving, the insects start crawling and flying, the frogs start singing and the reptiles come out of their hidey-holes. This is one of the best times of the year and I am personally excited to see the changes. It will not be long before winter arrives again. The cycle of nature and life will continue and we should appreciate the here and now. Each season is different and beautiful in its own way.

November Gallery

Mhlanguleni female leopard

Big bull elephant

Maputo male lion

Western yellow-bellied sand snake

Woodland kingfisher

Blue wildebeest mom and new-born calf

Baby Nile crocodile