



Ratho Bush Camp Bat Outing 2017

by Erna Balona

I was away, working overseas for a while, when the bat group went to Ratho Bush camp for the first time. And since then, any bat expedition bragging-story would always start with: "At Ratho...".

Last time at Ratho Bush camp, chef Pierre Goffinet did all the catering and everybody sat around a big table for dinner, lunch and breakfast, just like the knights of the round table. At Ratho, the safari tents and camp sites are situated right on the Limpopo river, and with elephants on your doorstep it was much like staying at a five-star bush-lodge. At Ratho, the bat species count is comparable with Pafuri - the bat capital of South Africa, combine that with fishing in the Limpopo river, and you pretty much have paradise.

So now that I am back in sunny South Africa, I had to get my share of Ratho. And thus, I went with the bat group back to Ratho Bush camp.

Ratho Bush camp is situated on the periphery of a crocodile farm and is named after their largest crocodile. When the floods came a few years ago, it flattened the crocodile enclosure walls and Annalise, the croc farmer, and her team had a hard time collecting all the croc escapees from the river. They found big Ratho sitting somewhere on their lawn.

The three-year-old crocodile skins are exported to Italy and the meaty tails are sold in marinated packs, ready for the braai. Left-



over carcasses are served as a delicacy at the vulture restaurant. And thus there are a lot of marabou storks around. At one point, I had an

Alice-in-Wonderland-experience when these storks were circling a thermal updraft and somehow, they all came down low, circling right above our camp. I was the storm-chaser in the middle of the twister. You could hear their wings flapping as they attempted to gain height again. A surreal moment of pure happiness.

After this year's drought, the rain finally came and everything was plentiful and green. The elephants had enough to eat in Mapungubwe and Botswana and did not come to Ratho. Annalise, the croc farmer, tried to lure them with piles of fresh grapefruit, gifted by the next-door citrus farmer, but the elephants still did not come. We were offered some of the grapefruit and after tasting the

sweet pink flesh of pomelo, we flocked to that fruit-heap like a group of South-Africans to a truck that lost its load of beer. Some bushbuck and baboons also discovered these fruits of paradise.



Baboons rummaging through the pile
of grapefruit!

As we were putting up mistnets around the camp and watching the sun dipping down low, colouring the sky red, the smell of a great South African cook-off filled the air. It was Potjie vs. Weber and after a successful night of batting, I could join the round table for an amazing dinner.



The batting started off slowly, with the line-up of the usual suspects, a few Cape Serotine bats *Neoromicia capensis*, six or seven Yellow-bellied house bats (presumably all *Scotophilus dinganii*) and two little brown jobs, of which one was a furious Rusty bat *Pipistrellus rusticus*, the other had swollen cheek glands which he voluntarily displayed to us.



Rusty bat with an unusually yellow wash



Unidentified pippistrelle bat with wings spread out

But after dinner there was also the dessert! We captured a large rhinolophid, called Smithers horseshoe bat *Rhinolophus smithersi*, and Trevor's favourite: Sundevall's leaf-nose bat, *Hipposideros caffer*. And so we could all go to bed satisfied and fall asleep to the lonely sound of the hyena calling.



Smithers' horseshoe bat

The next day we came across what looked like a “murder scene”. In one of the nooks of the crocodile hatchling’s building, there were signs of tiny blood splatter and on the floor; decapitated cream-striped-owl-moth wings. What we had found was a night roost! This is classic behaviour of the Egyptian slit-faced bat, it turned into a stake-out that night and when we caught the suspect in the harp trap, we were surprised, it was not a slit-faced bat, but a Sundevall’s leaf-nose bat, *Hipposideros caffer*. We decided to let it go as it was probably not the guilty party and thus we had no case against it.

On the way to the 4x4 camp, a little stream had dried-up to a pond. It seemed like a good place to mistnet and indeed it was, we caught a fruit-bat. It was identified as Walhberg’s fruit bat, presumably *Epomophorus wahlbergi* based on the ID from the last Ratho trip. We did not look at its teeth because the gum was a bit swollen from chewing on the mist net.

Sandra, the mother of the crocodile farmer, runs the Ratho bush camp, she also has an animal rescue centre on the farm and the recent additions were baby Bushbabies! At night, you could see their eyes glowing in the reflection of your headlamp as they jumped from branch to branch. How I wished I could release them.



Sundevall's leaf-nosed bat



Surprised looking Bushveld horseshoe bat

Sandra told us stories of the olden days of Ratho and showed us around the farm. In the afternoon, she took us along the Limpopo river border patrol road, up until where it meets the neighbouring farm. On a kopjie, overlooking the adjacent farmland, there is a large overhang, but not a true cave. Upon exploring the overhang, we found a single sleeping horseshoe bat amongst the boulders. The Bushveld horseshoe bat, *Rhinolophus simulator*, is known to roost in partially lit cavities and was identified based on the size and the equilateral connecting process.

We found no other signs of bats, however the floor and roof taper inwards and meet in an area that could easily hold extensive chambers with narrow entrances, so I decided it was worth trapping at.



Thumb pad visible on banana bat



Picture of Banana bat wing with parasite.

More mist netting and harp trapping around the camp captured a number of little brown jobs. Amongst them was the Banana bat, *Neoromicia nana*, ID'd by the size, thumb pads and peak frequency call of 69 Hz.

Even though the overhang did not look very promising, we decided to give it a chance and attempted the semi 4x4 route with our not so 4x4 vehicles. Arriving with the smell of a burning clutch, and the sense of achievement, each “expert-of where to put up mistnets” sets up a mist net at their “perfect” place resulting in mist nets everywhere! Then ironically, just before darkness set in, we saw a large number of bats flying out from the high cliffs of the kopjie, flying much much higher than any of our mist nets. Joyful free-tailed bat squeaks accompanied them and we made a mental note to come back one more night.

The overhang was sealed off with a series of mist nets with many helpers standing on the inside of the cave, waiting for the bats to come out. But they were all caught on the wrong side of the net, as the bats tried to enter their night roost area from the outside! It was not dark yet and we caught several Bushveld horseshoe bats, *Rhinolophus simulator*, later some Egyptian Slit-faced bats *Nycteris thebaica* and one or two Sundevall's leaf-nosed bats *Hipposideros caffer*.

Some of the mistnets, set in the mixed Mopani woodland, at the foot of the kopjie, also had some luck, catching Schlieffens twilight bat *Nycticeinops schlieffenii*, a Zulu serotine *Neoromicia zuluensis* and two more Egyptian slit-faced bats *Nycteris thebaica*.



The Egyptian slit-faced with elongated ears

Just when it was getting dark, a swift, stealthy, bat-man like shadow was noticed flying amongst the tree canopy. This dark raptor was suspected to be a **Bat hawk**. After another successful evening, the cherry on top was finding a large **Flap-necked chameleon** in the bush on the way home.

While most were falling asleep to the occasional sound of a hippo snorting, Julio continued patrolling the area for sightings of any nightly creature. He noticed what appeared to be Sundevall's leaf-nosed bats, *Hipposideros caffer* flying around camp until very late in the night, with little signs of other bats. They were flying through small gaps and around sharp turns, he recalled that he observed a similar behaviour at Pafuri at night and found it curious that it forages for longer than other bats.

And so, we neared the end of our time in the Ratho-paradise and the bats seemed to have decided to leave the best for last. In the early hours of the morning we found two male Rufous myotis, *Myotis bocagii* in the harp trap in the garden.

The last evening, we returned to the 'overhang kopjie' to look for free-tails. To the left, above the overhang, we heard squeaks from at least two rock crevices. So, a net was set up in front of each of them.



Rufous myotis with matching coloured grapefruit heaps in the background.



Mops midas, the big celebrity at Ratho Bush camp

Only one crevice contained free-tails: at around sunset about twenty Egyptian free-tailed bats *Tadarida aegyptiaca* emerged and were caught. Several more could still be heard inside the almost vertical rock crevice. Others were seen flying around that had emerged from other crevices in the kopjie. When we returned to camp we were greeted with the news that Sharron's team had erected a high net on the outskirts of the 4x4 camp, capturing a Midas free-tailed bat *Mops midas*, another addition to our previous trips' list.

Later, on our way to release the 'processed' bats, we saw a **civet** just outside Ratho.

So now I can also say: "At Ratho I had a royal lekker time!" Do join us next time!

Bat News update

by Julio Balona

Interesting new research

Meet Stanley

For some time there has been a cryptic pipistrelle named *Neoromicia cf. melckorum*, where the 'cf.' implies that this bat is rather similar to *Neoromicia melckorum*, but is a different species.

If you have never heard of *N. melckorum*, relax - it was established at some point that it is not a valid species and is in fact identical to the almost ubiquitous Cape serotine, *N. capensis*.

But for some reason, the mystery pipistrelle which strongly resembles *N. capensis* but is noticeably larger and suspected of being an alternate species, became known as *N. cf. melckorum* and not *N. cf. capensis*. There was probably a good reason for this, likely based on the arcane rules of taxonomy, but it is not important. What is important is that genetic work recently completed by amongst others, Steve Goodman (Chicago Field Museum of Natural History) and Teresa Kearney (Ditsong Museum), has shown that *N. cf. melckorum* is indeed a distinct species and the newest described member of the southern African bat fauna. It has been named Stanley's serotine, *Neoromicia stanleyi*, and is known from records from Botswana, Zimbabwe and Zambia, and suspected of occurring in the northern Kruger National Park region and Malawi.



Neoromicia stanleyi

Goodman, Kearney, Michèle, Ratsimbazafy & Hassanin, 2017

<http://biotaxa.org/Zootaxa/article/view/zootaxa.4236.2.10>

<http://novataxa.blogspot.co.za/2017/02/neoromicia-stanleyi.html>

Desperate times for vampires



The Common vampire bat (*Desmodus rotundus*) is known to occasionally feed on humans. But its relative, the delightful big-eyed Hairy legged vampire bat (*Diphylla ecaudata*) has never been recorded feeding on anything other than the blood of large jungle birds and that of chickens.

It was thus a surprise when researchers investigating a colony of Hairy-legged vampires in north-east Brazil, found DNA evidence from faeces indicating that some of the members had fed on human blood. This is a more dramatic change than it may sound: avian blood is somewhat different to that of mammals in that it has a higher fat and water content, and less protein. In fact, previous experiments have found captive Hairy-legged vampires refusing pig and goats blood, even to the point of starvation.

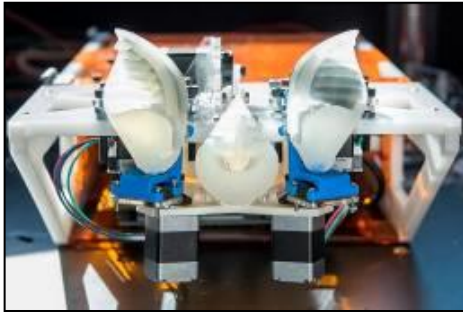
It is suspected that the diet switch is as a result of dwindling numbers of the bat's normal food sources due to deforestation.

<http://www.sciencealert.com/these-brazilian-vampire-bats-have-started-feeding-on-humans-for-the-first-time>

www.batsgauteng.org.za

Malleable megaphones

As I always say in my talks on echolocation, the 'funny faced' bats which have strange noseleaves and appendages such as the connecting process of a horseshoe bat, use these to direct and amplify the sound beam in very specific ways - ways we do not quite understand, but that are clearly adaptations to improve echolocation efficacy.



A team at Virginia Tech in the USA are trying to clarify these functions and have constructed a rudimentary mimic of a horseshoe bat with mobile ears and a simplified noseleaf structure. This model is a result of the observation long ago that the ears and noseleaves do not remain rigid but actually alter their shape constantly while the bat echolocates, thereby modifying the sonar.



By rotating the ears through five different shapes while recorded bat calls were transmitted, measurements suggested that the facial and aural wiggles improved the resolution of echolocation.

<http://www.physicscentral.com/buzz/blog/index.cfm?postid=7124896469745922427>

Battling White Nose Syndrome

The fight against the devastation of WNS in the USA continues, with scientists testing different treatments. One group is capturing bats and applying chitosan, a substance extracted from crustacean shells that has anti-fungal properties. After the winter hibernation period, the population will be re-assessed to see if there was an improvement in survival rates.

Another affiliated group is taking more drastic action and have disinfected a mine in the summer by spraying chlorine dioxide throughout. This agent breaks down quickly into salt and water and has no lasting presence. It is hoped that when the bats return in winter there will be much lower infection rates of the fungus that causes WNS.

I have read of this approach being considered before but not being implemented due to the unselective effect of the disinfectant which would kill all organisms, not just fungi. My guess is that it is being tried in this case because this is an old mine tunnel and likely has a limited biodiversity in terms of invertebrates and other non-chiropteran life forms, unlike long established caves with specialist fauna.

<http://www.ironmountaindailynews.com/news/local-news/2016/12/going-to-bat-for-bats/>

Secret of the stink

We have reported before that female Greater Sac-winged bats (*Saccopteryx bilineata*) have impressively disgusting taste by human standards: they are attracted by the odour emanating from the sacs on the males' wings, the source of which is a fermented mixture of urine, saliva and penis secretions ...

Recent research suggests that females are not just attracted to foul smells but are rather discerning. They appear to select those males whose odour indicates that they have a well-developed immune response, and also those that are genetically far removed, to avoid inbreeding.

<https://www.sciencedaily.com/releases/2016/12/161222094922.htm>

<https://www.scientificamerican.com/article/bats-use-body-odor-to-sniff-out-the-best-mates/>



Wikipedia

Who started echolocation?



Some years ago, DNA analysis revealed an interesting thing that rendered the traditional classification of Megachiroptera and Microchiroptera obsolete: the relatively small insectivorous horseshoe and leaf-nosed bats, are more closely related to the pteropodids (Old World fruit bats) than to other insect eating bats. Thus the bat world was split into two lineages, the Vespertilioniformes and the Pteropodiformes. But now the two groups both contain echolocating bats.

So, a new question arose: since the fruit bats do not echolocate (apart from the rudimentary method of tongue clicking of *Rousettus* species), did sonar evolve in both groups and was subsequently lost in the pteropodids, or did it independently evolve twice?

In trying to solve this puzzle, one team from the University of Illinois in the USA, focused on the foetal development of the cochlea, the bone that houses the inner ear. This is because the larger the size of the cochlea compared to the animal's skull, the better the ear's ability to respond to higher frequencies of sound. Thus echolocating bats have a higher ratio of cochlea size to skull size than non-echolocating bats.

The researchers found that in foetuses of the echolocating pteropodids, the cochlea was about the same size. But as these developed, the pteropodid cochleas' growth slowed down until its relative size to the skull was about that of a non-echolocating mammal. This is believed to be evidence that echolocation evolved once and that the relatively large cochlea in pteropodids is a vestige of this ancestral ability.

The result is intriguing but several scientists do not consider it conclusive, arguing that foetus development does not necessarily mimic the evolutionary history of an organism ...

<http://www.csmonitor.com/Science/2017/0111/Did-all-bats-once-have-sonar>

Toxic to bees and bats alike

Compared to other insecticides, Imidacloprid has a relatively low toxicity for mammals and has therefore been very widely used for about the last two decades. However, several years ago research work suggested that Imidacloprid and other pesticides may be contributing to honey bee colony collapse disorder, and its use has been curtailed in several countries.

Now a study at the National Taiwan Normal University found that Formosan leaf-nosed bats (*Hipposideros armiger*) fed on Imidacloprid-tainted insects acquired brain damage. This affected their ability to echolocate and the bats consequently became disoriented. Environmental pollutants such as this are suspected of being behind the decline in bat populations around Taiwan in recent years.

<http://focustaiwan.tw/news/asoc/201701110013.aspx>

This month's exterior decoration tip: How to deal with that unsightly hole in the wall!



A dog barks through a hole in the wall of a hardware store, Bogota, Colombia.

<http://www.telegraph.co.uk/news/picturegalleries/picturesoftheday/4937658/Pictures-of-the-day-4-March-2009.html>

Bats make good business sense

As can be seen in the story above, the standard insecticidal method of crop pest control is starting to look dated, clumsy, and prone to unintended consequences. Fortunately, some farmers are open to more natural alternatives such as the Green Farms Nut Company (GFNC). Professor Peter Taylor of the University of Venda has capitalized on this wisdom in an important project being implemented at macadamia nut orchards in the Soutpansberg. The scheme is comprised of four sets of cages to create the following zones:

- Closed (birds and bats excluded all the time)
- Open (birds and bats able to forage)
- Closed at night (only birds can forage)
- Closed during the day (only bats can forage)



The nuts in each of the zones are then inspected for insect damage which is mainly caused by stinkbugs, moth larvae and nut borers.

The study is ongoing but in the first year of the project (the 2016 to 2017 growing season), there has been clear evidence that crop damage increases when bats and birds are excluded from the orchards.

This form of pest control can translate not only into significant savings of millions of Rands per year, but also reduce those impacts, environmental and human health, often unforeseen.



Merlin D. Tuttle

Egyptian slit-faced bat (*Nycteris thebaica*) with a stink bug

<https://www.zoutnet.co.za/articles/news/41299/2017-03-17/research-shows-bats-are-a-natural-pest-control>



Baobab Blitz

Some of you will recall that we sent out invitations late last year to partake in the Baobab Blitz project. It required people to station themselves near baobab trees, whose flowers only open at night, in order to see if any are visited by fruit bats. Although this phenomenon is known from east Africa, it had never been recorded in our region, something that was probably realized around 2008 when Dr. Sarah Venter contacted GNoR BIG for a collaborative effort to observe the pollinating behaviour in northern Limpopo Province. It was then that it occurred to us that we were taking this behaviour for granted and just to confirm that this flower visiting happens in southern Africa would be a necessary start, before even considering the pollination intricacies. On that trip we didn't even see any fruit bats...

Finally, eight years later, the project was re-visited with more seriousness and the Baobab Blitz was born. This time by the Vhembe Biosphere together with Macy Madden of Texas Tech University, the National Research Foundation, the EcoProducts Foundation (Dr. Sarah Venter) and Prof. Peter Taylor from the University of Limpopo.

And the citizen scientists. I sat with Erna next to a flowering baobab in the western Soutpansberg, watching and waiting, an excellent way to spend a Saturday night even though we saw only rose beetles on the flowers. Other observers at other sites saw also visits by bushbabies and hawk moths. A few fruit bats were seen in the vicinity of baobabs at some sites, but only at one, Chilo Gorge Lodge in south eastern Zimbabwe, were bats seen attending to flowers. This was the first time it had been recorded in southern Africa. What is especially gratifying, is that this was observed by Dr. Sarah Venter herself, she who really started this journey, and whose life has become intertwined with this noble tree.

The plan is to repeat the Baobab Blitz again this year around November. But before this we may see the first 'Sausage Tree Blitz' – I have read that the flowers of these trees (*Kigelia africana*) are also pollinated by bats, but details are never provided. I suggested this to Peter Taylor, and it appears that the project may actually happen. Normally flowers that have nocturnal pollinators are white (presumably because bright attractive colours are of no use in the dark), but those of the Sausage Tree are a gaudy maroon and are open during the day too. However, their scent is apparently notably stronger at night.



Baobab by night with Rose beetles in attendance



The beautiful flowers and legendary fruit of the Sausage Tree.
Will bats find the flowers so appealing as well?

<https://www.zoutnet.co.za/articles/news/41377/2017-03-23/more-research-needed-on-baobab-pollinators>

<https://wildlifeandwilddogs.wordpress.com/2017/01/09/baobab-blitz-fruit-bats-and-ethereal-flowers>



Don't forget:
GNoR BIG AGM 2017
 Saturday 22 July 2017 16:30 for 17:00
 Venue: Winchester Marketing Lower Houghton
 Booking essential RSVP 18 July 2015
 gautengbats@gmail.com
 Legendary soup and bread will be served
 Please bring own drinks
 R30 members, R20 children
 R60 non-members.

**New Insights into Africa's Bats:
 discoveries and challenges**

Speaker: Dr Fenton (Woody) Cotterill
 Earth Sciences and Zoology/Botany, Stellenbosch University



#12

The quiz to test your skills on the identification of southern African bats. The rules are:

- The mystery bat will be from the southern African region as defined by the countries South Africa, Swaziland, Lesotho, Mozambique, Zimbabwe and Namibia.
- It will not be a species that is a rare vagrant to the region (e.g. Bergman's collared fruit bat, *Myonycteris relicta*), although it could be one that is relatively scarce (e.g. Rüppell's pipistrelle, *Pipistrellus rueppellii*).
- There may or may not be supplemental information provided (e.g. frequency of bat call, geographical location, forearm size, etc.)

Identification of mystery bat No. 11



The peak frequency of its call when released was about 68 kHz.

This creature could be described as a little-brownish-red-job. Which really only tells you that it appears to be one of the plain faced bats (a vespertilionid), perhaps a kind of pipistrelle or a mouse-eared bat (*Myotis* species).

The snout is too short for a *Myotis*, and the ears too short for a long-eared bat (*Laephotis* species), the fur not 'prickly' enough for a woolly bat (*Kerivoula* species), etc., etc. - and so we could go on with our process of elimination within this large group. But this is unnecessary because we have been provided with the peak frequency of its release call, and in a rare case this is enough for us to know that this must be Banana bat (*Neoromicia nana*): All of our vespertilionids operate at around 30 to 55 kHz, apart from the woolly bats (about 80 to 140 kHz), and only the Banana bat uses frequencies of around 70 kHz. Exactly why this is so is not clear, but since echolocation resolution improves at higher frequencies, it may be that this bat is exploiting a niche in which it can have all the smaller insects to itself...
nom nom nom!

Can you deduce the name of the beast below?



Its forearm measured 63mm.

Other stuff



Hot bats

Thermal imaging cameras are becoming less expensive and more accessible for those studying bats. The power of these devices can be seen from footage on the website of one of the manufacturers, FLIR systems. Although these are obviously intended as promotional videos, they show quite impressive clips of numerous bats in flight, in the dark, allowing one to analyse their trajectories and other information in a precise way, without disturbing the animals.

Where I believe this technology is really valuable, is for more accurate population counts in caves, thereby enabling long term monitoring which is an important aspect of conservation. Recently I was lucky enough to assist local company Inkululeko Wildlife Services in a survey of an old mine tunnel in the DRC. By setting up a thermal camera (from Axis Communications) at the tunnel exit, we were able to count the emerging Egyptian fruit bats from the recorded footage and get a far more accurate assessment of the population size than would have been possible before.

<http://www.azosensors.com/news.aspx?newsID=11715>

<http://flir.co.uk/bats/>



Snapshot from thermal camera footage showing thousands of Egyptian fruit bats emerging from an old mine tunnel.

Courtesy of Inkululeko Wildlife Services

Have bats become petri dishes for virologists?

It appears that probably the most well-known person in the bat world, Merlin Tuttle, is getting as disenchanted as I am with the current state of the scientific study of bats and much of their media coverage.

He has published an article in the *Issues in Science and Technology* online journal entitled "Give bats a break". The problem he discusses is this:

After years of educating numerous members of the public on the rarity of rabies amongst bats, our gains are now being rapidly eroded by the new spectres of Ebola, SARS, MERS and others. This is as a result of hyperbolic as well as inaccurate media representation of the danger posed by these diseases to humans. It has also fuelled the channelling of massive amounts of resources into investigations and research into bat diseases, under the weak premise that it is of critical importance to human health. Many of these researchers have no particular interest in bats or their conservation, and through their extensive work and its publication they are simply returning this much-maligned animal to its old status of disease carrying ogre, undoing decades of education. Thus, in Merlin's words, *"Searches for new viruses in bats are unlikely to contribute substantially to human health, but they may threaten the future of bats."*

An example of the cost of the misperception that Merlin cites is that of one of his primary research caves being burned out when public health researchers warned the owner that his bats might be rabid. Merlin writes *"Continued scientific and media bias focused on potential diseases from bats is unlikely to protect human health. But it is contributing to misallocation of scientific resources, to the acquisition of knowledge of dubious value for society, and to inappropriate public health priorities."*

To be clear, the study of virulent viruses and their postulated and/or proven links to bats, is an enormously intriguing field. And bat workers are a higher risk group and should take specific precautions.

But that the risk is clearly not enough to justify the mass hysteria is captured in Merlin's words once again:

"If bats were even remotely as dangerous as postulated, why has it not been possible to explain the following facts? Why is it that I and hundreds of other bat researchers remain in good health, despite countless hours of close contact, often surrounded by thousands, even millions of bats in caves? Like veterinarians, we are vaccinated against rabies because we are sometimes bitten in self-defence by the animals we handle. However, throughout most of our careers, we have not been protected against any of the other deadly diseases for which bats are now speculated to serve as reservoirs."

Furthermore, why hasn't it been possible to document bat-caused disease outbreaks among the millions of people who regularly eat bats throughout the African and Asian tropics or among the many Africans, Asians, and Australians living in cities cohabited by hundreds of thousands of bats? Why are guano harvesters who spend most of their lives in major bat caves no less healthy than their neighbours? How is it that millions of tourists have safely viewed from close range the emergence during summer nights of the million-plus bats that have lived for the past 35 years under a road bridge in the middle of Austin, Texas?" I urge you read the whole thing.
<http://issues.org/33-3/give-bats-a-break/>

Piotr's Phantastic photography

I stumbled on Piotr Naskrecki's page of beautiful bat photographs taken at the E.O. Wilson Biodiversity Laboratory in Gorongosa National Park. He uses a white background technique in a small desktop flight chamber, producing exquisite results.

I only wish he would not emphasize the rabies angle and use phrases like "lyssavirus-carrying teeth" ☹️ (see the above news article).

That said, Piotr also has a really informative, fascinating and expertly illustrated photo blog, *The Smaller Majority*, that is well worth reading. Covering anything from footage of developing Human bot flies in his arms (in the name of curiosity), to the peculiar sex life of bat bugs, I find it deeply engrossing. Others, though, might find it gross... ☺️



Gorongosa bat photographs <http://www.gorongosa.org/blog/science/shooting-bats>
 The Smaller Majority <https://thesmallermajority.com/>

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New member: ROBYN LOWE is an Ecologist and is very interested in bats. WELCOME TO GNORBIG.