An adult Rüppell's Vulture salivates in anticipation of the freshly killed carcass on which it is about to feast.

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Vulture research in East Africa

Spending too much time in the presence of East Africa's foremost raptor biologists could be bad for your health. We only came to appreciate this after spending six days in Kenya's Masai Mara National Reserve with Simon Thomsett and Dr Munir Virani. Currently the doyens of East African raptor (and vulture) research and conservation, these two biologists together help fill the shoes once worn by the larger-than-life Leslie Brown.

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Thomsett and Virani are native to Kenya but are employed by the US conservation organisation, The Peregrine Fund (*www.peregrinefund.org*). They head that body's conservation programme in Kenya, Ethiopia and Tanzania, focusing on the present and pressing conservation concerns of the region. With 83 species of diurnal raptors and 21 species of owls, and in an area with one of the fastest growing human populations in the world, these two conservationists have all kinds of challenges to face.

They complement each other's skills extremely well. Virani is the organised, compact, cerebral, sporty and level-headed scientist. His dedication to Kenyan conservation is measured by the fact that, just as his Kenyan cricketing career was about to take off, he decided that university studies were more important, and raptors took over his life. Thomsett, by contrast, is a hot-headed, opinionated, compassionate, go-getting pilot and conservationist. His life has been in danger on several occasions as those opposed to his conservation ardour have taken exception to his straightforward methods by sending in thugs to teach him a lesson. Suggesting that he moves somewhere safer just increases his passion to right the conservation problems around him.

These two uncompromising biologists are responsible for highlighting the plight of the threatened Sokoke Scops-Owl, for attempting to re-introduce the Bearded Vulture into Kenya, for revealing the devastating effects of Queleatox-spraying on local raptor populations, for uncovering the reasons behind the rise and fall in populations of Leslie Brown's African Fish-Eagles on Lake Naivasha, and for pioneering research on the local Augur Buzzard populations. Further afield, Virani has also played a significant role in the discovery that Diclofenac poisoning was behind the demise of the Oriental White-backed Vulture populations of India and Pakistan, and he continues to monitor vulture breeding colonies in India.

Above *Lappet-faced Vultures look down from their nest on the Masai Mara.*

Below *Simon Thomsett (left) preparing satellite transmitters and patagial tags, watched by Rob Simmons (centre) and Munir Virani.*

Opposite *The Lappet-faced Vulture is considerably larger than its Rüppell's and White-backed cousins, which it dominates at a carcass.*

Back in Africa, if you want to learn anything about the raptors in remote parts of Ethiopia, then the odds are good that Thomsett has been there. Several years ago, he taught himself to fly and then built his own light aircraft, thus allowing him to regularly visit the remote regions of East Africa. Flying over the Rift Valley escarpment in pursuit of vultures, Thomsett all but killed himself when his aircraft came down on one such trip. He escaped with a damaged shoulder and a creaky back, walking out of a plane that was written off and now lies twisted and mangled in a garage on his Athi River ranch, not far from Nairobi.

On the occasion we met up with them, they were preparing for a trip to Kenya's stunning Masai Mara National Reserve. This was not a holiday outing for them, but a serious attempt to capture Rüppell's Vultures *Gyps rueppellii* for satellite tagging. The Masai Mara is a World Heritage Site, but it is faced with a variety of pressing concerns. Many adjacent wildlife areas that previously acted as buffers have been converted into pastoral grazing lands or wheatfields. The raptor community has changed and decreased in diversity, and Thomsett and Virani's present study is aimed at determining the effects of this within the reserve.

The aims of the trip were to count and re-visit old nest sites. The wing-tagging of the vultures would allow the researchers to assess how these birds are responding to change. In particular, they wanted to determine how Rüppell's Vultures time their breeding if they are tied to cliff-nesting, while their ungulate prey (mainly blue wildebeest) are constantly migrating away from them. Notwithstanding the fact that the vultures' cliff sites are already some way from their prey on the grassy plains, in the more than six months that it takes for a Rüppell's Vulture to rear its young from egg to first flight, the wildebeest have often moved a good distance away. By marking the birds with tags that use satellite technology to record hourly movements, Thomsett and Virani hope to determine the daily travels of the vultures to and from their nests. By doing so they also hope to find new Rüppell's colonies to add to the ones they already know of in Kenya and Tanzania.

When we were invited to join them for a spot of research, we jumped at this, the opportunity of a lifetime. We weren't disappointed, either. For many reasons, the journey proved almost as memorable as the destination. The surfaces euphemistically called roads in Kenya were best avoided (it was far safer to travel on the dusty shoulders than to crash into pothole after pothole), while the traffic 'rules' that Kenyan drivers employ were more than a little stressful to foreigners like ourselves. The minor fact that Thomsett's four-wheel-drive vehicle lacked brakes for most of the journey down the escarpment and the entire journey back meant that we drew straws to decide who got the 'suicide seat' up front next to him. Virani simply refused to budge from the back.

Eight hours of this tortuous outward journey ended with an after-dark attempt at finding our tented accommodation at the recently opened Olare Safari Camp, perched near a dry river-bed, one degree south of the equator in the Masai Mara Reserve. Suddenly the trip improved markedly: we were treated to luxury – good food and hot showers – for the next few days. This was a welcome end to long, hot days spent on the open grassy plains, handling smelly vultures and dragging bloody carcasses about for their enjoyment.

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Initially, it was difficult to comprehend that all those childhood films depicting the mass migrations of wildebeest on the Serengeti were unfolding in front of us. Like all tourists, we spent the first few days behind our cameras, photographing wildebeest, elephant and buffalo from every angle, while Thomsett and Virani patiently waited for us to re-focus on their project. Of course, with the hundreds of thousands of wildebeest come the terrestrial predators, so we photographed them too... We saw lion, cheetah and spotted hyaena on a daily basis and, while the hordes of visitors were watching them, we were scanning the skies for vultures – hundreds and hundreds ▷

Below *Simon Thomsett uses an ingenious method to capture vultures. By placing nooses at strategic positions on the blue wildebeest carcass, he is able to catch vultures without causing them undue stress or any injury as they stick their feet and heads into the remains.*

Bottom *Future observations of this tagged African White-backed Vulture will provide valuable information about the movements of vultures in the Serengeti ecosystem, especially relative to the ever-changing location of the herds of large ungulates.*

of them. Most were the ubiquitous White-backed Vultures *G. africanus*, but among them – and the reason for our visit – were the large and majestic Rüppell's Vultures.

The East African equivalent of southern Africa's Cape Vulture *G. coprotheres*, Rüppell's also nest only on relatively inaccessible cliffs. They differ from the Cape Vulture in that they rely on migrant herds of ungulates that complete a slow, circular migration over East Africa's grassy plains. Past research by David Houston has also shown that Rüppell's are somewhat aseasonal breeders: many pairs simply start breeding when they have recovered from their previous attempt, raising one chick at a time. Since the reproductive cycle is just less than one year, they gradually begin breeding slightly earlier each year, which in effect moves the cycle backwards around the annual clock. Cape Vultures, by contrast, have a definite breeding season, beginning with egg-laying in May/June, seeing the first flighted chick some 200 days later, and generally finishing before the end of the year. The breeding cycle of the few Rüppell's Vultures present at southern Africa's largest Cape Vulture colonies would therefore be interesting to monitor.

The routine for catching the Masai Mara's vultures was straightforward. In the early mornings we looked for overnight kills or scanned the sky for vultures, determining where they were heading and spiralling down. The sheer number of carcasses taken down during the night meant the wait was never long, but the next trick was to avoid the areas where the tourists were heading. Not so easy! The Mara lacks the feel of untouched wilderness found in the vulture lands of Namibia and the Northern Cape, and with planes regularly flying in hundreds of tourists, and up to 30 game-drive vehicles viewing sleeping lions, our task of finding unpeopled carcasses sometimes proved difficult.

Eventually this too was accomplished and the project could begin. Given the somewhat skittish nature of vultures at carcasses in southern Africa, we were initially amazed at those on the Masai Mara, as the birds came directly onto carcasses and rarely took off as our vehicle approached. Both White-backed and Rüppell's vultures simply bounded off and waited patiently some 20 to 50 metres away. Thomsett used the vehicle to conceal his activities, while we watched for the big predators and tourists. Using a knife to obtain a good purchase in the often freshly killed carcass, Thomsett expertly tied a set of nylon-covered wire nooses around the deceased animal, from horns to rear, positioning them where the vultures would have to step on or through them to reach the feeding area.

True to his frontiersman image, Thomsett often tucked into coffee and sandwiches after having spent much of the morning with his hands buried deep inside the freshly killed carcasses. Our job was then simply to drive some 100 metres away, and wait for the action. We were chiefly interested in Rüppell's Vultures, but as the vulture community is dominated by White-backs, we often caught the latter species first. It was rare that two birds were captured together, as individuals that were caught often panicked on realising their predicament. Their flapping caused concern among the other feeding birds and we had to rush in to release and subdue the trapped White-backs, quickly popping them in a large sack to keep them quiet, and hoping that the target birds would return.

The feeding mêlée of interacting vultures at a carcass provides one of the most entertaining dramas to watch on the African savannas.

Again, in southern Africa, most vulture biologists would leave the carcass with little hope of seeing any vultures return to the crime scene. Not so in the Masai Mara, where the waiting mob often bounded in again to fight and squabble over the carcass as soon as we were about 100 metres away.

As one observer watched for other captured birds, each sacked vulture was fitted with a large, brightly coloured patagial tag, pinned through the leading edge of its wing, for future observations by rangers and guides, and by Thomsett and Virani.

The real prize, the larger Rüppell's, was harder to capture, but after a few days of trapping, one was caught and given the full treatment: a specially designed patagial tag with a satellite transmitter, weighing about 120 grams. Since our visit, these two dedicated raptor biologists have managed to capture several more and soon the information that is gleaned from their movements should tell Thomsett and Virani what they need to know about the foraging strategies and breeding schedules of East Africa's Rüppell's Vultures. The data are likely to be extremely valuable, given that similar information gleaned from Namibia's Cape Vultures, satellite-tagged by Maria Diekmann near the Waterberg Plateau Park, has revolutionised our understanding of the movements of these highly threatened birds. Data such as daily foraging distance, total foraging range, habitat used and even the carcasses they fed on three months previously, can be gleaned from such data mixed with ground-truthing. Of course the similarities and differences between these two closely related species on either side of the equator will make a fascinating contrast in lifestyles.

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It is a tribute to Thomsett and Virani that they have continued with their research under often trying circumstances and despite the fact that many of their individually marked raptors have disappeared. Indeed, often entire populations of birds they have observed for many years have vanished, as land-use practices and human pressures impinge on areas that were pristine when they began their observations. Fortunately, both men are highly committed to their work and it was an immense pleasure to spend time in their company. We will long remember the detailed discussions that we had with them regarding the finer points of their research and the future of conservation of East African birds of prey. □