Trials of a Field Entomologist - South Africa, 2024

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Try as I might to take myself seriously, there is something inherently comic about entomology. The bizarre paraphernalia the insect-enthusiast lumbers around with him is matched only by his conspicuous and faintly insane behaviour—running about, seemingly chasing thin air; stumbling out of bushes; rummaging around, with one's head among the leaf-litter. I recall some advice in an Edwardian entomology textbook—I forget which—that advised the prospective collector to always wear a hat when out in the field. This way, when he staggered out of the undergrowth, strewn with leaves, much to the panic of casual passers-by, he could immediately diffuse any alarm by doffing his cap, and being on his way. This particular cunning plan is unlikely to operate quite so effectively in the parched bushveld of southern Africa, where one might be greeted with something decidedly more unpleasant than a pair of ladies twirling their parasols and taking in the air.

I set off to South Africa with one simple aim in mind—record and collect as much as possible with the time I had. Biology is built on a foundation of natural history—observations, behaviours, distributions, associations—that is laid so deeply many of us never fully grasp its importance. For many parts of the world, however, we still lack so much of this basic understanding of the species that live there. And, just as the richest and least explored environments are ever more threatened and eroded, biological fieldwork based on taxonomy and recording is among the least glamorous and worst funded of scientific activities. It is old-fashioned and low-tech. Decidedly not 'cutting-edge'. The wonderful thing about the Davis Trust is that it is willing—and enthusiastic—to support not only hypothesis-driven experiments, but this kind of fundamental exploratory work that is a necessary pre-requisite.

My work focuses on butterflies and moth—partly because, faced with the immense diversity of the natural world, there must be some specialisation. There are over four times as many species of butterfly and moth in South Africa than in Britain, but there are about 500,000 distributional records, compared with 46,000,000 for the far smaller British fauna. With pressures on natural habitats from agricultural and urban development, invasive species, and climate change, we still have a rather crude idea of which species occur where. What are their preferred habitats? What plants do their caterpillars feed on? What predators eat them, and how much as they relied upon as a food source? There is still so much that is unknown, and South Africa is comparatively one of the best studied insect faunas in Africa. With such a great disparity of scientific effort, there are still almost certainly many species new to science, awaiting discovery.

I gathered nearly 2000 records in the course of my five-week trip in South Africa, mostly of the smaller and more inconspicuous moth species. When these are fully identified and made available, that will be around 5% of all the distributional records of Lepidoptera in the Greater Kruger National Park, where my work was based (an area about the size of the Netherlands). When we consider that most of the existing records are of big, showy species

like butterflies or the more conspicuous moths—in other words, the already better-known species—the scale and importance of the contribution made by this project starts to stack up. But it was by no means easy. The trickster-gods of entomology are international—and they will not be denied.

I was trapping moths at a property on the banks of the Olifants river, a broad waterway that meanders lazily down, out of the mountains on the frontier with Mozambique. I spent my early evenings puttering away outside for hours after darkness, UV light bulb dangled in front of a white sheet so I could watch the moths come fluttering in, drawn on by that inexplicable urge. Scarab beetles of all kinds—more species than I knew were possible—rattled headlong into the sheet and tumbled in a flurry of buzzing to the floor. You stand with your attention fixed on an interesting little insect perched on the sheet, when suddenly some leathery thing whirs into your ear and off again into the darkness before you catch a glimpse. With the chorus of frogs as a gentle backdrop, and in the dim light of the moth trapping bulb, I was more than once reminded of HG Wells's 'In the Avu Observatory'.

One morning I got chatting with the landowner, telling him about some of the interesting insects coming in to the lights at night.

"Oh, have you seen the leopard?" he asked.

I knew there were leopards in the area, of course, but *the* leopard held too much familiarity for my liking.

"Well," he went on, "he's pretty big actually. More the size of a lioness."

It seemed that this particular cat made a habit of creeping around the property at night, and the owners would often spot him crouched under bushes or behind trees. Watching. Or waiting? Mercifully, as far as I'm aware, I avoided a nocturnal encounter.

Another night, while bent over the sheet examining some small moths, a hyaena yelped from out of that darkness so loudly it sounded as if it were leaning over my shoulder. Unsettling noises in the night were, it turned out, the least of my problems. At one trapping site, in the Kalserie Private Nature Reserve, a pair of red-billed hornbills *Tockus rufirostris* quickly learned that my moth trap was a convenient source of food, and flapped around it, tilting their awkward beaks and peering at the beetles and winged driver ants scuttling inside and around. I had to start quickly emptying the trap in the early mornings, before they were active, and while the tiny pearl-spotted owlets *Glaucidium perlatum* were still squinting and hooting grumpily in the red dawn light.

Tiny lizards found a way in on several occasions, and caused havoc running among the captive insects. I quickly learned that I had to hang the traps or raise them off the ground somehow, otherwise ants would inevitably and methodically carve their way inside to the bounty of prey. In the cool morning air, I would be greeted by a tidy little procession of moth wings, legs, and other assorted body parts, calmly dismembered and transported.

Perhaps most memorably, I was joined on several trapping nights by a lesser bushbaby *Galago moholi*, that came rocketing out of the darkness towards the insect-covered sheet

and lightbulb. He deftly plucked moths out of the air, even some large and speedy hawk-moths, and carried them off to devour in a tree nearby, crunching and squeaking with satisfaction, sounding like a cross between a creaky door and a deflating balloon. Fearing that, at any moment, a bushbaby might leap out from behind, and close its tiny hands around that *one* particularly interesting specimen drawn in to the light, must be a hazard quite beyond the imagination of any Edwardian entomologist.

Moth trap bulb set up (left) with a white sheet behind to inspect the insects that are attracted to the light. The specialist mercury-blended tungsten bulb emits high quantities of UV light, which is particularly attractive to insects, and especially moths. Some examples of moths recorded during this project (right). © Jamie C. Weir.

View south over the Olifants River from the Balule Private Nature Reserve. © Jamie C. Weir.

A Southern lesser bushbaby *Galago moholi* foraging at the light trap setup. The body of a large hawk-moth is visible in its hand (top-right). © Jamie C. Weir.