

# ToGOTo

CENTRAL SOUTH AFRICA including LESOTHO

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**Lesotho**  
4x4: A unique  
experience

**Dronkylei**  
How it got its name

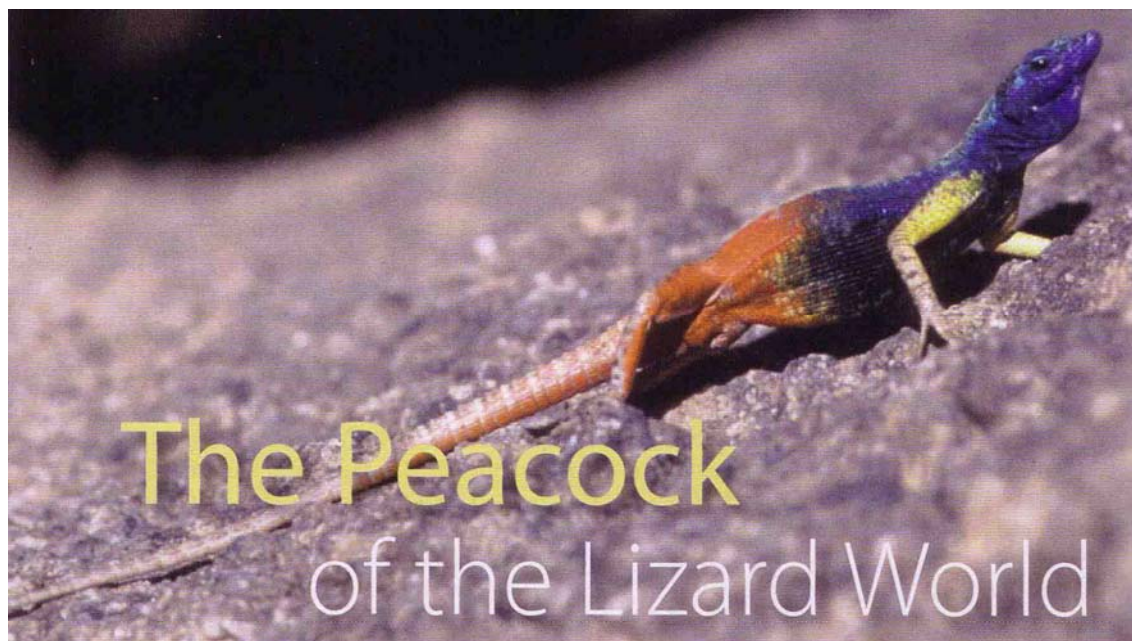
**Sehlabathebe**  
*A wonder world of rocks,  
flowers and water*



**Karoo** - Flying  
over it with your own wings

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*Text and photo by Martin J Whiting*

If peacocks represent the textbook example of gaudy ornamentation in the animal kingdom, then male Augrabies flat lizards could just be the scaled-down, reptilian equivalent. Male Augrabies flat lizards (*Platysaurus broadleyi*) are a splendid mixture of yellow, orange, turquoise, various shades of blue, and ultraviolet (UV).

Unfortunately, humans can't see in UV, otherwise we would see an even more impressively colored lizard! These bright colours are best viewed at ground level, as a lizard would see them, while their dorsum is mostly drab brown or gray, as a kestrel (their primary predator) would see them. This is the product of using colour to signal to others of your kind but at the same time remaining relatively inconspicuous to your enemies. Each time one sees a male Augrabies flat lizard however, they appear anything but inconspicuous!

Traversing the rocky terrain on their way to the falls, visitors frequently see flashes of movement as lizards scuttle out of the way. They would be advised to stop and observe. This lizard community is a veritable laboratory of animal behaviour and during the breeding season in particular, they are all action. In fact, they share two of our less desirable human traits, intense male-male competition for mates and sexual harassment.

Augrabies flat lizards are mostly insectivorous and at their most spectacular when performing acrobatics to catch the same little black flies that park visitors curse. Black flies

have aquatic larvae that emerge in the fast flowing sections of the Orange River. Emerging female flies disperse as much as 100 km (if the winds are right) in search of a blood meal (often an unsuspecting sheep) while male flies swarm in hopes of intercepting and mating with females. These fly swarms act as a magnet to lizards and they are able to gorge themselves in short order. Many lizards make special trips to fly hot spots on a daily basis.

Like many animals, lizards love variety, especially if that includes a juicy red Namaqua fig. Unfortunately for lizards, ripe Namaqua figs are patchily distributed in the landscape and difficult to find. Lizards are not the only animal with an eye for this ripe fruit. Birds make short work of it and have the added advantage of easily covering large areas thanks to flight. Fruiting fig trees quickly abound with fluttering birds and as it happens, the fluttering attracts the attention of nearby lizards, who are extremely sensitive to movement. Lizards attracted to the fluttering birds enjoy an added bonus - ripe figs! To test whether lizards located fruiting fig trees through the unwitting assistance of birds, scientists conducted a series of simple field experiments.



In the main experiment, one cage containing birds and one without (the control cage, to ensure that lizards were not simply attracted to cages), were placed in a selection of fig trees and the number of lizards that travelled to the tree were counted. To make certain the lizards were not lured by the ripe fruit itself, the cages were placed in trees without figs. Trees with a cage filled with birds attracted significantly more lizards than trees with empty cages, supporting the hypothesis that it is bird activity that attracts lizards. Regardless of whether lizards are simply attracted to bird movement, or whether they make the connection between a flock of birds in a tree and fruiting figs, the pay-off for the lizard is the same; juicy, ripe, *Namaqua* figs!

Augrabies flat lizards are unique for many reasons but especially for a particularly interesting recent discovery by scientists. While studying fighting behaviour in male lizards, a group of scientists discovered that males have UV-reflective throats. As with most colours, the spectral purity of the throat varies such that some males have very pure UV throats, while others have a mixture of UV and violet. Males with pure UV throats win the most battles for turf and status, while those with UV-poor throats are often banished to the margins of lizard society. Just how did scientists determine that males with UV-pure throats are good fighters? First, they marked more than 100 lizards in the field and measured their body size, colour (using a spectrophotometer) and even their testosterone levels. They then recorded what occurred when two known individuals encountered each other in the field. Having observed 100 contests between known individuals, they were able to determine that throat UV was the most important variable (compared with other colours, size and testosterone levels) in predicting who would win a showdown. To make absolutely sure that UV was as important as they thought, the next step was to experimentally verify this. Dr. Jessica Stapley, a postdoctoral fellow at Wits University, found that a mixture of car wax and sun-block significantly reduced the lizard's throat UV-reflectance. The next step was to reduce (temporarily) the UV throat signal of males in the wild and see if this affected their assessment by rivals. Results showed that males with UV-reduced throats

were challenged more often by opponents, because they perceived them to be weaker than they really were. This signal reduction did not change their fighting ability, however. Males still won fights as they would have before but they fought more frequently and for longer. These results suggest that males truthfully signal their fighting ability to rivals. The advantage of this honest signal is that when males are faced with a superior rival, they can back down without injury. Better to dent your ego, than expend valuable energy and risk injury. At present, this is the only case of a lizard using a UV signal to advertise their fighting ability.

Although we tend to think of sexual harassment as a uniquely human feature, especially in the corporate office environment, it also occurs in many animal species. In many species, males do no more than contribute sperm and have no further contact with the female after mating. Where males are larger and stronger than females, they may try and coerce females into mating. In this scenario, females may relent simply to avoid injury and essentially, to be rid of the male.

More commonly, they will counter the male's strategy with a trick or two of their own. At Augrabies, territories are at such a premium that about half of the males have to adopt a floater strategy. These same males often harass females, especially as they travel to feeding areas or crevices, where they refuge overnight. (Territorial males also engage in sexual harassment, although probably less so than floaters.) In some extreme cases, females are attacked by several males at the same time and each with its own agenda. To counter this, females appear to associate more with territorial males that keep rival males at bay. They may have to put up with persistent courtship instead but it is better than being simultaneously yanked in different directions by several males trying to secure their Darwinian fitness. The life of a female flat lizard can be a challenge. Nevertheless, like human females, they often gain the upper hand over their male counterparts. ①

*Learn more about Augrabies flat lizards and what scientists are discovering about them at <http://www.wits.ac.za/Science/APES/mwlab/>*