

**A PRELIMINARY SURVEY FOR DWARF CHAMELEONS (*BRADYPODION GUTTURALE*) AT
WILDCLIFF NATURE RESERVE, WESTERN CAPE, SOUTH AFRICA**

Technical Report
Submitted to Wildcliff Nature Reserve
By Njal Rollinson
July, 2008

SUMMARY

Between 30 May and 5 July, 2008, I surveyed Wildcliff Nature Reserve, Western Cape, South Africa, between the hours of 6pm and 11pm for the Dwarf Chameleon, *Bradypodion gutturale* (during favourable weather conditions). After logging an estimated 25 person-hours, no chameleons were encountered, despite searching in an area where a dead chameleon had been found 4 months earlier. I suggest that chameleons do inhabit this reserve, but their overall abundance (at least in the areas I searched) is likely very low. One of three local farmers confirm seeing at least one chameleon in the last 20 years, and they say fire plays a key role in limiting the abundance of these creatures. The last fire swept through this area 7 years ago (according to the farmers), so it's possible that many chameleons were killed during this event. I speculate on the possibility that chameleon "pockets" exist on this vast reserve: highly localized areas where fire did not extirpate these animals, and where they persist in higher abundance.

INTRODUCTION

Chameleons are found throughout Africa (with the exception of the Sahara Desert), and a few species are also found in southern Europe and India. There are at least 160 species of chameleon in the world (Tolley and Burger 2007), but surprisingly, few species have been studied extensively, despite their fascinating ability to change colour, swivel their eyes independently and extend their tongue greater than the length of their bodies. As such, we are still exploring the distribution (Tolley and Burger 2004), systematics (Tolley et al. 2006), habitat preferences (Tolley and Measey 2007) and even basic life-history traits (Tolley and Burger 2007) in many of these species

Wildcliff Nature Reserve (Western Cape, South Africa) was founded in 2007. It consists of 955 hectares of mountainous fynbos ecosystem near Heidelberg, in the Western Cape of South Africa. The directors of Wildcliff, Ian and Jenny Giddy, are conservation enthusiasts and are dedicated to the preservation of South Africa's natural heritage. In February of 2008, Brett Noppe (the manager of the reserve) discovered a dead Dwarf Chameleon (*B. gutturale*) while performing managerial duties in the mountain fynbos. I undertook this study in collaboration with Dr. Krystal Tolley (Cape Town University) to (1) establish how common this species is on Wildcliff Reserve and (2) to collect DNA samples for Dr. Tolley, which would be subsequently used to investigate the systematics and phylogeography of this species (e.g. Tolley et al. 2006).

METHODS

Chameleons are easy to detect at night because their bodies reflect torchlight in a peculiar manner, making them readily apparent against background vegetation (Tolley and Measey 2007). Between 5 June and 5 July, 2008, myself, Brett Noppe and Kristen Harvill-Strughton surveyed Wildcliff Nature Reserve, Western Cape, South Africa, for the Dwarf Chameleon. Between the hours of 6pm and 11pm (during favourable weather conditions), one to three persons participated by hiking to the appropriate survey area and shining torches over the vegetation (Figure 1).

RESULTS

An estimated 25 person hours were logged during the surveys, but no chameleons were located.



FIGURE 1: Approximate areas (in red) where searches for Dwarf Chameleons (*B. gutturale*) were performed. Boxes are areas where thorough searches were performed; the red line is Fynbos Road, which was casually surveyed while walking between search locations. The yellow dot (top of the figure) is the approximate location where the dead chameleon was found in February. Note that 1cm ~ 250m.

DISCUSSION

Despite searching in an area where a dead chameleon was found in February (Figure 1), no chameleons were located on the reserve. However, it is probable that a population of chameleons has persisted in this area for some time, as one of three local farmers (Mike Clark) claims to have seen at least one chameleon in the last 20 years. According to another local farmer (Bob Brown), a fire occurred approximately seven years ago, and this anecdote likely accurate as evidence of fire can still be seen on some vegetation on the reserve (N. Rollinson, pers. obs.). Periodic brush fire – which occur every 4 to 25 years in fynbos ecosystems (Tolley and Burger 2007) – likely limit population size in Dwarf Chameleons, so this may one reason chameleons do not appear to be abundant on the reserve. However, assuming the brush fires are not all-pervasive (that is, particular areas do not burn), it is possible that chameleon ‘pockets’ exist on the reserve: highly localized areas that host a higher abundance of chameleons by virtue of not being burned during the most recent fire. If these areas exist, they are perhaps most likely in areas of the reserve that are relatively moist, such as the stream that runs through hidden valley (Hidden Valley is a marshy fynbos area high up in the mountains). Although I did search close to this stream on one occasion, this stream is very long and I may not have been in an appropriate area.

I suggest that future researchers undertake casual chameleon surveys, especially in hidden valley. Although it is unlikely that *B. gutturale* persists in numbers great enough to perform ecological (i.e. life-history) research on the reserve, it would be valuable to discover the true extent to which this species occurs on the reserve. Such data could be collected and analyzed in terms of spatial distributions to test the validity of the chameleon ‘pocket’ theory. Moreover, DNA could be collected and molecular work could performed, which will ultimately help answer outstanding phylogeographic questions (Tolley et al. 2006).

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