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AMPHIBIAN DIVERSITY AND COMMUNITY-BASED ECOTOURISM IN NDUMO GAME RESERVE, SOUTH AFRICA

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Amphibians are declining at alarming rates globally. In comparison with other vertebrates, amphibians are at the forefront of the current extinction event. Conservation areas are mainly areas of high species richness and this is evident at Ndumo Game Reserve (NGR). Dense human population generally correlates positively with high species richness, and consequently high human population numbers are associated with increased threat to biodiversity. This trend is also prevalent at NGR as it falls within an area that is characterised by high human activity, and communities surrounding NGR are mostly rural and dependent on the reserve for resources. Pressures resulting from high human population numbers are often cited as factors contributing to rapid amphibian declines. The conflict between conservation and development

hampers attempts at effectively curbing the ongoing biodiversity loss. Community-based ecotourism or a community-based conservation project is a way of achieving development and conservation objectives simultaneously.

PHYLOGEOGRAPHY OF PELOMEDUSA SPECIES IN SOUTH AFRICA AND BEYOND

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Recent research has provided evidence that helmeted terrapins (*Pelomedusa*) represent a diverse species complex distributed across sub-Saharan Africa and the southwestern Arabian Peninsula. Using three mitochondrial genes, the phylogeography of helmeted terrapins was examined, in particular to investigate possible contact zones between different species. Within *P. galeata*, widely distributed in and endemic to South Africa, two deeply divergent mitochondrial clades were identified. One is restricted to the westernmost part of the country, whilst the other is distributed over most of the remaining regions. This

widely distributed clade consists of three subclades, one of which is largely restricted to KwaZulu-Natal. In the Kruger Park region, another species (*P. subrufa* s. str.) has been recorded, which also occurs in Namibia, southern Angola, Botswana, the southeastern Democratic Republic of the Congo, Malawi, and the Kilimanjaro region of Tanzania. It has also been introduced to Madagascar and is expected to occur in Mozambique.

CHYTRIDIOMYCOSIS MONITORING IN THE DRAKENSBURG

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Batrachochytrium dendrobatidis (*Bd*) is a fungal pathogen of amphibians capable of adversely affecting all levels of organisation up to community level. In South Africa *Bd* is widely distributed including in the Drakensberg Mountains, where it infects Phofung river frogs, *Amietia hymenopus*. Our objective was to identify factors driving disease dynamics of *Bd* in *A. hymenopus*. We made use of a 10-year dataset that resulted from monitoring this host-pathogen relationship in tadpoles from the Mont aux Sources region. Tadpoles (n = 10) were collected twice annually from four rivers: Vemvhane, Tugela, Bilanjil

and Ribbon Falls. Presence/absence of *Bd* was determined through cytological screening of tadpole mouthparts. We found no statistical significant difference between the sites, but infection was more consistent between years at sites situated along popular tourist hiking trails. Interestingly, infection prevalence, although higher in summer, did not differ significantly between seasons. High altitude coincides with moderate temperatures resulting in a repressed fluctuation on the pathogen's prevalence between warmer and colder months. Rainfall, however was negatively correlated with infection prevalence. Growth rate ratios of tadpoles indicated that tadpole size and not developmental stage is one of the main drivers of infection. Persistently low to moderate infection prevalence and low pathogen virulence implies that *Bd* acts as an endemic infection in *A. hymenopus*.

AN AUTOMATED APPROACH TO AMPHIBIAN DIVERSITY SURVEYS: A CASE STUDY FOR NORTHERN ZULULAND

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