

## The survival and dispersal of Cape *Xenopus* (Anura: Pipidae)

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**Abstract.**— The genus *Xenopus* (Anura: Pipidae) is a principally aquatic group of frogs occurring throughout sub-Saharan Africa. There are two species present in the south Western Cape; the widespread *Xenopus laevis* (Common Platanna) and the Endangered *X. gilli* (Cape Platanna). During the winter rains, *X. laevis* move into *X. gilli* sites where both species breed. This creates conditions for competition, hybridisation and direct predation. In this study we principally investigated the difference in survival between *X. laevis* and *X. gilli* during their shared winter occupancy and compare these to survival of an *X. gilli* population where *X. laevis* are removed (Cape of Good Hope Nature Reserve). In addition, we also investigated the difference in dispersal of these two species. Preliminary results indicate that *X. laevis* have higher survival than *X. gilli*, however there is no difference in the survival of the two *X. gilli* populations. We also show that *X. laevis* (Mean: 312 ± 89 m; Max: 439 m) have dispersed further than *X. gilli* (Mean: 241 ± 151 m; Max: 533 m), although the difference is not significant.

Key Words.— dispersal, interaction, survival, *Xenopus laevis*, *Xenopus gilli*

## Is dietary niche breadth linked to morphology and performance in sandveld lizards *Nucras* (Sauria: Lacertidae)?

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**Abstract.**— The functional characteristics of prey items (such as hardness and evasiveness) have been linked with cranial morphology and performance in vertebrates. In lizards particularly, species with more robust crania generally feed on harder prey items and possess a greater bite force, whereas those that prey on evasive prey typically have longer snouts. However, the link between dietary niche breadth, morphology, and performance has not been explicitly investigated in lizards. The southern African lacertid genus *Nucras* was used to investigate this link because the species exhibit differing niche breadth values and dietary compositions. A phylogeny for the genus was established using mitochondrial and nuclear markers, and morphological clusters were identified. Dietary data

of five *Nucras* species, as reported previously, were used in correlation analyses between cranial shape (quantified using geometric morphometrics) and dietary niche breadth, and the proportion of hard prey taken and bite force capacity. Dietary niche breadth and the proportion of hard prey eaten were significantly related to cranial shape, although not once phylogeny was accounted for using a phylogenetic generalized least squares regression. The proportion of evasive prey eaten was a significant predictor of forelimb length when phylogeny was taken into account. We conclude that, in *Nucras*, the percentage of evasive prey taken co-evolves with forelimb morphology, and dietary niche breadth co-evolves with cranial shape. However, although head width is correlated with the proportion of hard prey eaten, this appears to be the result of shared ancestry rather than adaptive evolution.

Key Words.— bite force, co-evolution, geometric morphometrics, phylogenetic generalized least squares regression, phylogeny, southern Africa, sprint speed

## Home on the range: Spatial interaction of two sympatric tortoises (*Psammobates oculifer* and *Stigmochelys pardalis*) in the thorn-bush savanna of central Namibia

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**Abstract.**— The opportunity to study the ecology of sympatric tortoise species is rare, nonetheless one place it is possible is southern Africa, home to more than one third of the world's 45 tortoise species. Due to its Africa-wide geographic distribution and large size, the Leopard Tortoise (*Stigmochelys pardalis*) has been relatively well-studied. However, its interaction and potential for competition with sympatric species is less understood. In the thorn-bush savanna near Windhoek, this species occurs sympatrically with the smaller Kalahari Tent Tortoise (*Psammobates oculifer*). We are studying the habitat (micro-climate and ecology), thermal ecology and movement patterns of translocated tortoises (seven *P. oculifer* and six *S. pardalis* discussed here). In this talk we present our preliminary findings on home range and core activity area within and between species. We use minimum convex polygon to delineate the extent of the home range and kernel density estimation to delineate the core activity area within the home range. We characterize differences in the spatial distribution of the core activity areas within and between species, and overlap as a possible indicator of competitive interaction. GPS loggers (30 min logging interval) have recently been attached to three *P. oculifer* and two *S. pardalis*. We will discuss in brief these new findings.

Key Words.— *Psammobates oculifer*, *Stigmochelys pardalis*, home range, GPS logger