WORKING PROJECT TITLE	What traits promote invasion success in Guttural Toads?
CORE TEAM MEMBER	John Measey
ACADEMIC LEVEL OF THE PROJECT	Post-doc
PROJECT BACKGROUND	The cane toad, *Rhinella marina*, has become an invasion 'poster child' due in part to the work of the Shine Lab on the Australian population. This has provided insights into the adaptive and evolutionary responses of this species over 200 years of establishment and spread. But this species is known from many other localities where it has been poorly studied, but new studies on Hawaii are suggesting a suite of different responses by this invasive amphibian (e.g. Gruber et al. 2018). Invasive populations of the Guttural toad, *Sclerophrys gutturalis*, are known from Mauritius and Reunion for nearly 100 years, but were first found in Cape Town as recently as 2000. These island and mainland invasions provide a natural experiment to explore the factors influencing invasion success in this toad. Studies to date have shown that these toads are colonising an increasing periurban area (Virmercatti et al 2017), where they are adapting to different environmental conditions (Virmercatti et al 2018). This post-doctoral position is to investigate the traits of Guttural toads that promote their invasion success. Morphology and performance capacity have already been found to be of interest in other amphibian invaders, but key insight may also be gained from studies of behaviour. The successful candidate will have a background in performance work in herps, with preference given to candidates that can incorporate a behavioural component. A working knowledge of work on Cane toads would be a distinct advantage. Outputs from this project are expected to be in Q1 journals in the biological

	sciences, and candidates should have a good track record for publishing in such journals.
FURTHER READING	Gruber, J., Brown, G., Whiting, M.J. and Shine, R., 2018. Behavioural divergence during biological invasions: a study of cane toads (*Rhinella marina*) from contrasting environments in Hawai'i. Royal Society Open Science, 5(4), p.180197. Vimercati, G., Davies, S.J. and Measey, J., 2018. Rapid adaptive response to a mediterranean environment reduces phenotypic mismatch in a recent amphibian invader. Journal of Experimental Biology, pp.jeb-174797. Vimercati, G., Hui, C., Davies, S.J. and Measey, G.J., 2017. Integrating age structured and landscape resistance models to disentangle invasion dynamics of a pond-breeding anuran. Ecological modelling, 356, pp.104-116.
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