SHORT COMMUNICATION

Controlling the African clawed frog *Xenopus laevis* to conserve the Cape platanna *Xenopus gilli* in South Africa

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SUMMARY: A five year control programme of the African clawed frog *Xenopus laevis* resulted in improved population demographics in the Cape platanna *Xenopus gilli* in comparison to a population without removal.

BACKGROUND: The Cape platanna *Xenopus gilli* is a pipid frog endemic to the south-western Cape, occurring in only four locations, with IUCN Endangered status. The African clawed frog *Xenopus laevis* occurs in sympatry with *X. gilli* throughout its distribution (Picker & De Villiers 1989, Fogell *et al*. 2013), and is thought to threaten *X. gilli* via predation, hybridization and competition (Picker & De Villiers 1989, Fogell *et al*. 2013). In this study we compared two of four known *X. gilli* populations: Kleinmond and the Cape of Good Hope Section of Table Mountain National Park (CoGH). The Kleinmond population is situated on privately owned land without active conservation interventions. In CoGH, active *X. gilli* conservation began in 1985 with annual removal of *X. laevis* (Picker & De Villiers 1989, De Villiers 2004), but removal of *X. laevis* ceased in 2000 after CoGH came under new management (De Villiers 2004).

ACTION: In 2010 we began monitoring *X. gilli* at CoGH in collaboration with South African National Parks (SANParks). *Xenopus laevis* were removed annually from all areas by seine netting. Each impoundment was seined until the net came back three consecutive times without any *X. laevis*. In 2014 we started monitoring the effect of *X. laevis* on *X. gilli* demographics. Both species were collected by seining and trapping at each site. Trapping sessions were within three to six weeks of each other and lasted three days. In Kleinmond, both species were tagged (9/10 mm passive integrated transponder) and released at the point of capture. In CoGH all *X. gilli* caught were tagged and released, but all *X. laevis* were euthanized using tricaine methane-sulfonate (MS222: Sandoz) by SANParks staff. All *X. gilli* were also photographed on a scaled background to measure snout-vent length using ImageJ. A total of 2,126 *X. laevis* were removed from CoGH in the five year control period, while we tagged 1,699 *X. laevis* over 18 months in Kleinmond.

CONSEQUENCES & DISCUSSION: A marked increase in CoGH juvenile and young adult *X. gilli* (<45 mm) corresponded to the same five years during which *X. laevis* were controlled. In Kleinmond, recruitment appeared suppressed, with a lower overall number of *X. gilli* (Figure 1). Our treatments were not replicates, but we have no reason to believe that other factors caused the observed differences. Our data suggest that (a) *X. laevis* does have a negative impact on *X. gilli* through predation and/or competition, and (b) control of *X. laevis* by regular seining and/or trapping is a viable way to conserve *X. gilli*. We found that small numbers of *X. laevis* can produce hundreds of adults within relatively short periods (e.g. 18 months). Such events then take a concerted effort to clear (27 person days for 338 *X. laevis* from one impoundment in this study), while regular seining can be as little as eight person days per year. This underlines the importance of regular, consistent monitoring. Our study also illustrates the importance of institutional formalisation of conservation actions. The regular removal of *X. laevis* at CoGH is now part of the Annual Plan of Operations for SANParks, and we intend to negotiate a formal arrangement for the Kleinmond site.

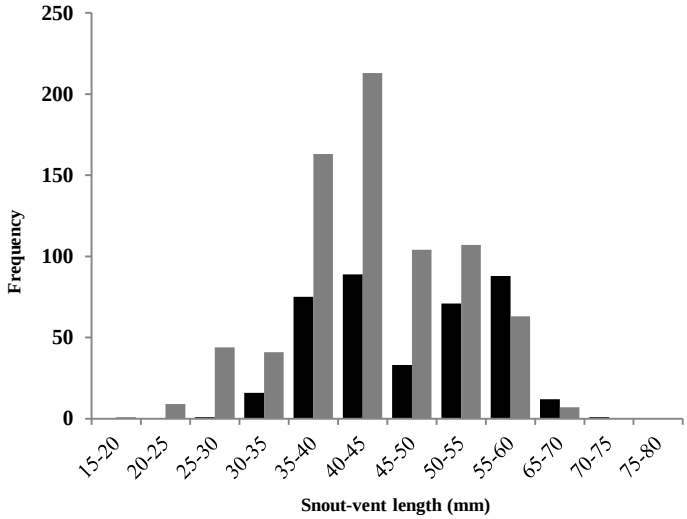

Figure 1. The frequency of snout-vent length classes of two populations of the *Xenopus gilli*. Grey bars represent frogs from CoGH (n=752), black bars frogs from Kleinmond (n=386).

ACKNOWLEDGEMENTS: We thank the numerous field assistants who have aided in *X. laevis* control. This research was funded by the National Research Foundation of South Africa (NRF Grant No. 87759), NRF incentive funding, the DST-NRF Centre of Excellence for Invasion Biology and BiodivERsA:INVAXEN. Research permission came from CapeNature (AAA007-01867) and SANParks.

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ISSN 1758-2067