Conservation introduction of the Cape platanna within the Western Cape, South Africa

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Introduction

The Cape platanna (*Xenopus gilli*) has a disjunct distribution in the winter rainfall region of the south-westernmost part of the African continent. Records for this frog span a distance of around 160 km from the Cape Peninsula towards Cape Agulhas (de Villiers, 2004). It has been listed as Endangered (B1ab(i,iii)+2ab(i,iii)) in view of its declining extent of occurrence (currently 1,450 km^2) and area of occupancy, and a continuing decline in the extent and quality of its habitat (SA-FRoG & IUCN SSC-ASG 2009). The majority of its recorded acid blackwater localities have been destroyed or degraded through development and associated threats (Picker & de Villiers, 1989). By the late 1980s the species could no longer be found at 60% of known localities, including one of the originally described localities in the Silvermine River, and virtually the entire western population was effectively confined to Cape of Good Hope Nature Reserve (CoGHNR), at the tip of the Cape Peninsula (de Villiers, 2004). Few acid blackwater pools remained in this region, but several were identified in the protected upper catchment area of the Silvermine River. It was thus decided to introduce individuals from CoGHNR, over about 25 km, to this Silvermine area.

Goals

- Goal 1: To establish a new *Xenopus gilli* population in appropriate blackwater habitats in Silvermine.
- Goal 2: To seed the Silvermine River with individuals which might spread onto the Cape flats and surrounds
- Goal 3: To safeguard the genetic integrity of the Cape platanna away from the invasive common platanna (*X. laevis*) and to reduce disease threat.

Freeze brand visible on ventral surface of a recapture after ten years (inset) © G. J. Measey

Success Indicators

- Indicator 1: Sustainable populations of *Xenopus gilli* in acid blackwater ponds in Silvermine.
- Indicator 2: Absence of genetic introgression with common platannas.
- Indicator 3: Spread of *Xenopus gilli* into surrounding water bodies.

Project Summary

Feasibility: A survey of the acid blackwaters in Silvermine Nature Reserve took place in 1987 when waterbodies were also trapped to make sure that none contained existing populations of *Xenopus gilli* or *X. laevis*. Thereafter, larger waterbodies in different geographic areas within Silvermine were chosen as release sites. It was hoped that the released frogs would lead to the colonization of smaller surrounding waterbodies.

Implementation: On 23rd April 1988, 154 newly metamorphosed *X. gilli*, were translocated from the genetically pure Gilli Dam population in the Cape Point area to Silvermine. Metamorphs were released into four water bodies: Nellie's Pool, Hennie's Pool, Silvermine Reservoir and Dammetjie. Most of the froglets (69) were released in Nellie's Pool as it appeared to have the most suitable habitat.

Post-release monitoring: Monitoring was conducted from 1989 to 1990. On April 3rd, 1989 1 male *X. gilli* was captured at Nellie's Pool (by R. Rau, pers. comm.), and on 2nd November 1989 2 males and 4 females were trapped at the same site (AdV). No *X. gilli* were found during a 5th October 1990 visit. Further monitoring was left to reserve staff, but no records exist. In 1998 when we returned to one site (Nellie's Pool) to determine whether individuals were still present. Six females were captured, of which three were marked by freeze-branding (Measey, 2001). A hiatus of 10 more years passed before in June 2008 we again visited all sites where *X. gilli* had been released. Baited funnel traps were placed into each of the release points to ascertain presence of *X. gilli*. Only Nellie's Pool was found to have individuals present. Amongst those captured were two which were still marked with freeze brands from 1998.

In August 2011, we trapped on two occasions at Nellie's Pool catching a single female (and sighting one more individual). The belly pattern on this individual corresponded unambiguously to a female caught in June 2008 and had a freeze brand from 1998. Our results are of interest as we demonstrate the extreme longevity of this species in its natural habitat (>13 years). The individuals that were marked in 1998 were adult and it is not infeasible that these were the same individuals which were released in 1988.

Major difficulties faced

- Finding suitable acid black water release sites.
- Lack of suitable lowland habitat restoration.
- Insufficient monitoring to detect recruitment and dispersal of released population.

Major lessons learned

- No funding or capacity was available to systematically monitor translocated frogs in this study in the short or long term. Approval of such projects should be dependent on such provisions being demonstrated.
- Little is known about the distribution densities of this species in upland areas, with all known populations being in lowland sites. It may be that if upland sites are suitable but they occur at low densities.
- Survival of the frogs in Nellie's Pool could be because it is artificially dammed and thus contains an increased volume of suitable blackwater habitat for this species.

Success of project

Highly Successful	Successful	**Partially Successful**	Failure
		√	

Reason(s) for success/failure:

- Unexpected longevity of individuals may have facilitated successful breeding spanning unfavorable years with low winter rainfall.
- One of the release sites has remained stable throughout the study and facilitated at least occasional breeding of this frog.
- Other sites either contained predatory fish lacked suitable habitat to maintain viable populations.

References

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