



Conserving the Maloti minnow in Lesotho - a reality check

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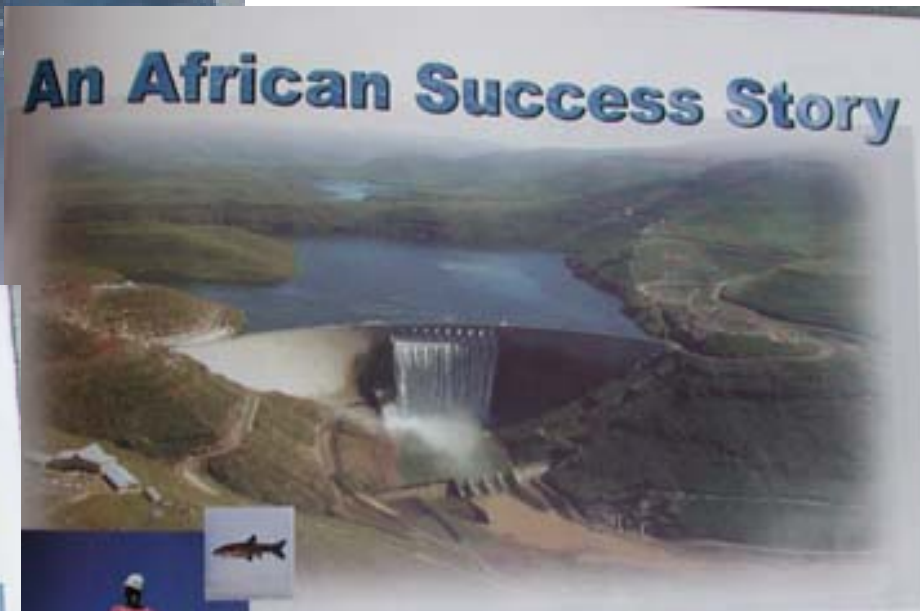
§ ECOSUN, Johannesburg, South Africa





Relating to this meeting:

- **Case study: Small country, single species = endemic fauna (apparently widespread aquatic invertebrates)**
- **Evolutionary processes?**
- **Should we define freshwater protected areas?**
- **Aim: Protection for single species without much future management needed (ideal protected area)**
- **Unpredictable opportunities to create protected areas**



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Little fish – BIG PROBLEM

By John Ledger

The Lesotho Highlands Water Project is the biggest undertaking of its kind on the African continent. It has been a world-class success story in terms of engineering excellence, completion of complex works on time and within budget, and in managing environmental impacts. One of the major concerns of the environmental programme has been the future of a tiny fish that is found only in the high-altitude mountain streams of Lesotho.



When the Muela Dam was closed on 1 November 2002, this signalled the completion of Phase 1 of this remarkable project. Water flows downhill from the spectacular Kato Dam through a long tunnel under the Maloti Mountains to spin the turbines of a hydroelectric generation plant in Lesotho. Another tunnel carries the precious liquid beneath the Caledon River into South Africa, where the crystal-clear mountain water finally

Meatuku River and the massive Muela Dam on the Senqunyane River both connected to Kato by water transfer tunnels. Kato is the highest dam in Africa, both in respect of its altitude above sea level, and its 185 metre high double-curvature concrete arch wall. Meatuku is

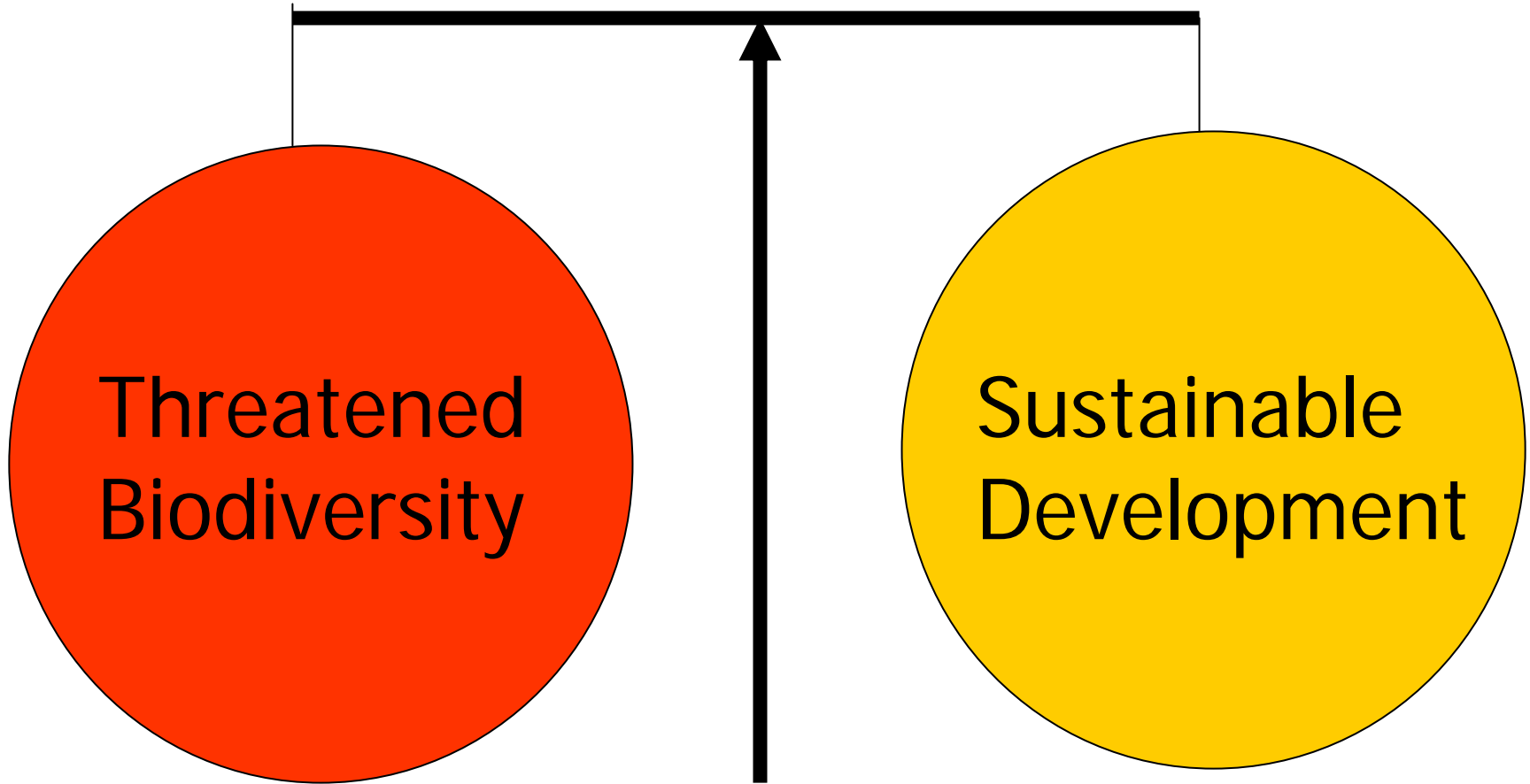
been engaged as a specialist consultant for the Lesotho Highlands Development Authority (LHDA). He has done an outstanding job of assessing the threats to the minnow from an extensive feedback in the remote corner of Lesotho. He has consulted LHDA who wanted

Since 1986, the Lesotho Highlands Water Project has been one of Africa's most successful development projects ever.

It provides high quality water to sustain industrial development and improve the quality of life in 6 provinces of South Africa. Lesotho generates enough clean energy for its own development needs and exports surplus power to South Africa.



The Problem?



Threatened Freshwater fishes in SA (IUCN)

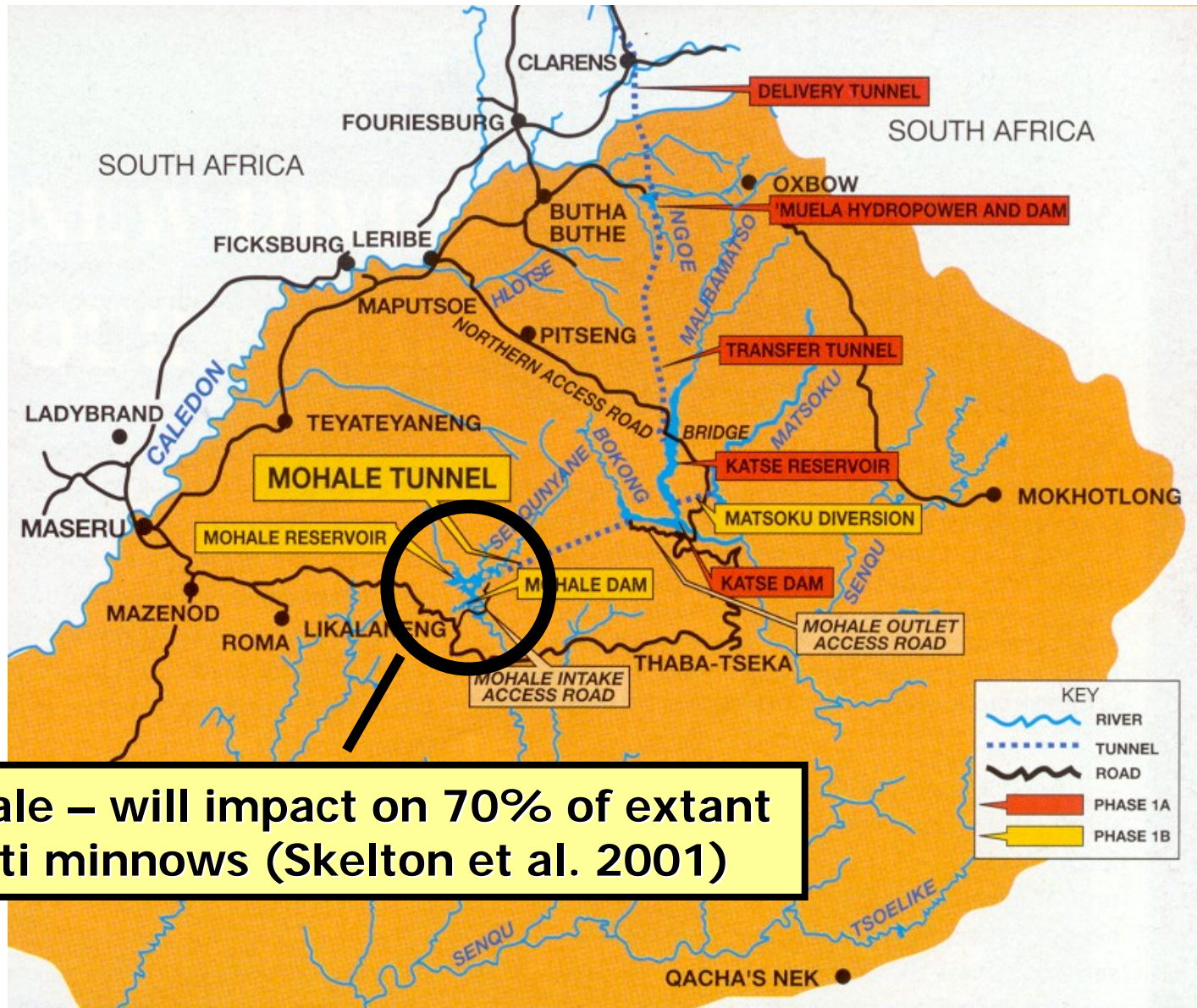
Category	No. species
Critically Endangered	7
Endangered	6
Vulnerable	9
Lower Risk	7
Total (% indigenous)	29 (30%)

Maloti minnow (*Pseudobarbus quathlambae*)



- **Described** 1938 – Umkomazana River, KwaZulu-Natal.
- **Extinct** in South Africa since +/- 1940
- **Rediscovered** in Tsoelikana River, Sehlabathebe National Park, Lesotho, 1971.
- **Critically Endangered** – 6 stream populations – major threats trout and habitat degradation

Lesotho Highlands Water Project



Mohale – will impact on 70% of extant Maloti minnows (Skelton et al. 2001)



Katse Dam



Mohale dam under construction



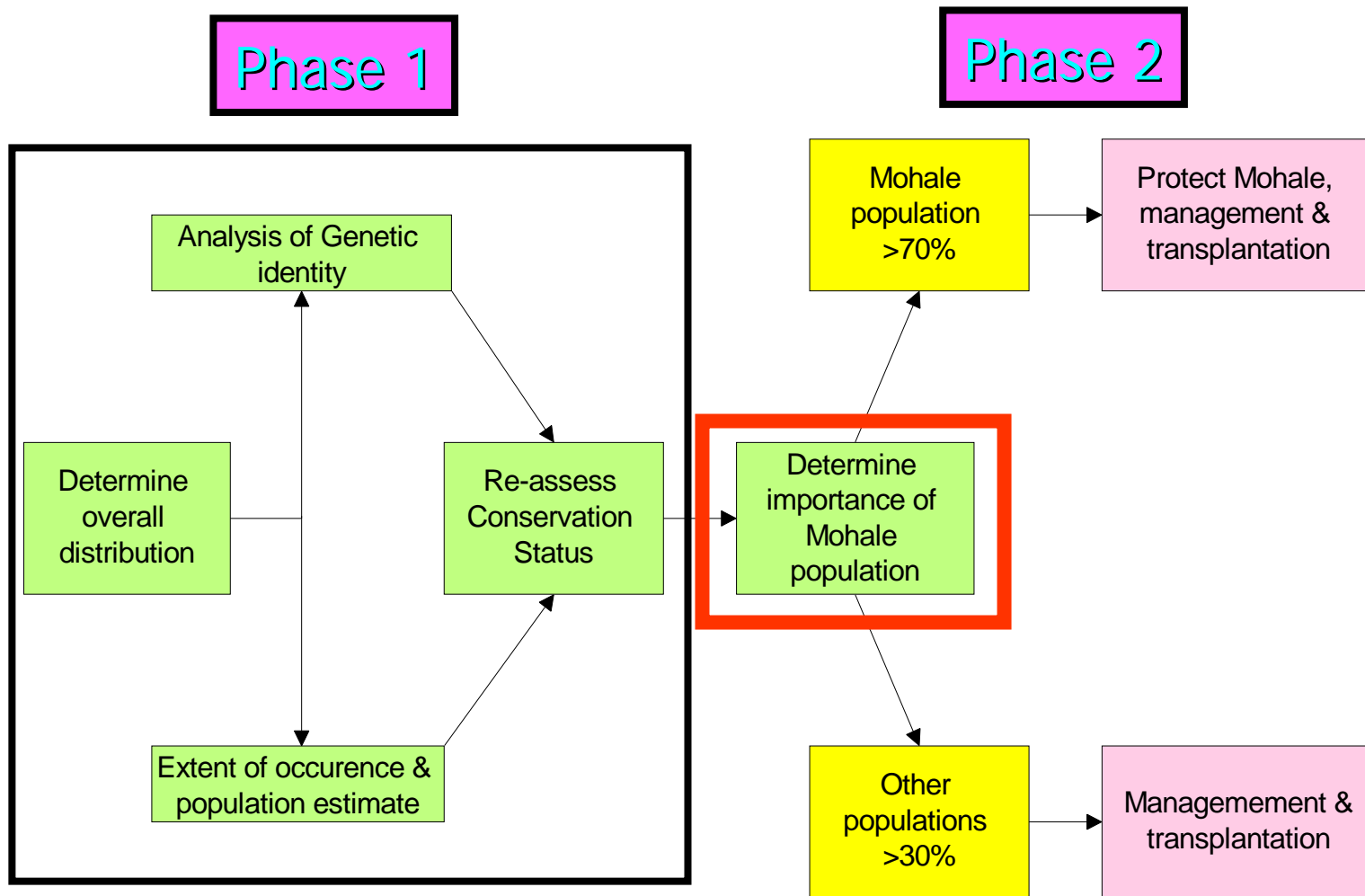
Mohale-Katse tunnel

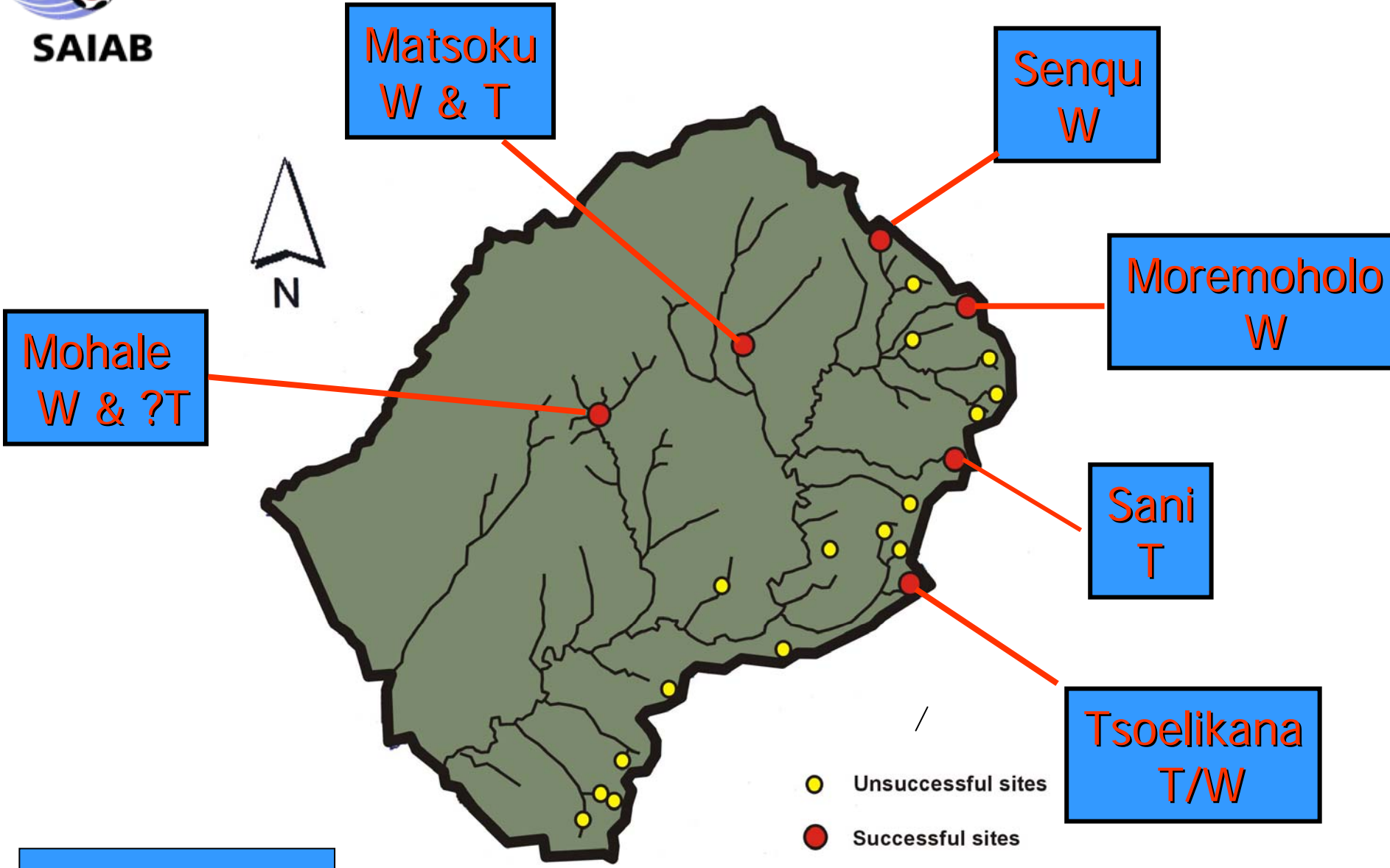
- Gravity feed
- At times Katse will reverse feed Mohale
- No internal barriers to prevent fish passage
- Trout and indigenous fishes will enter either water body



SAIAB

Contract 1041: Action Plan (Skelton et al. 2001)

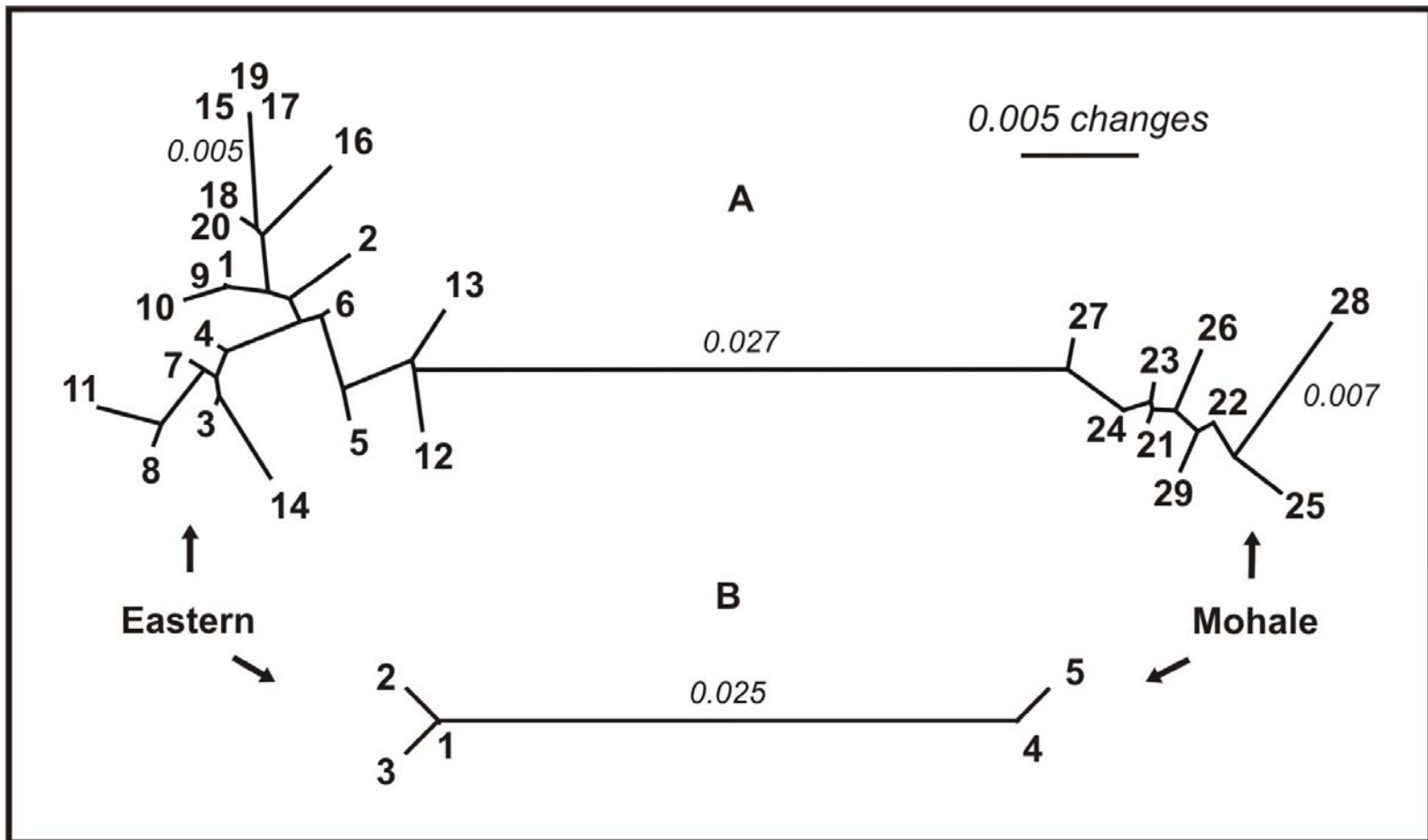




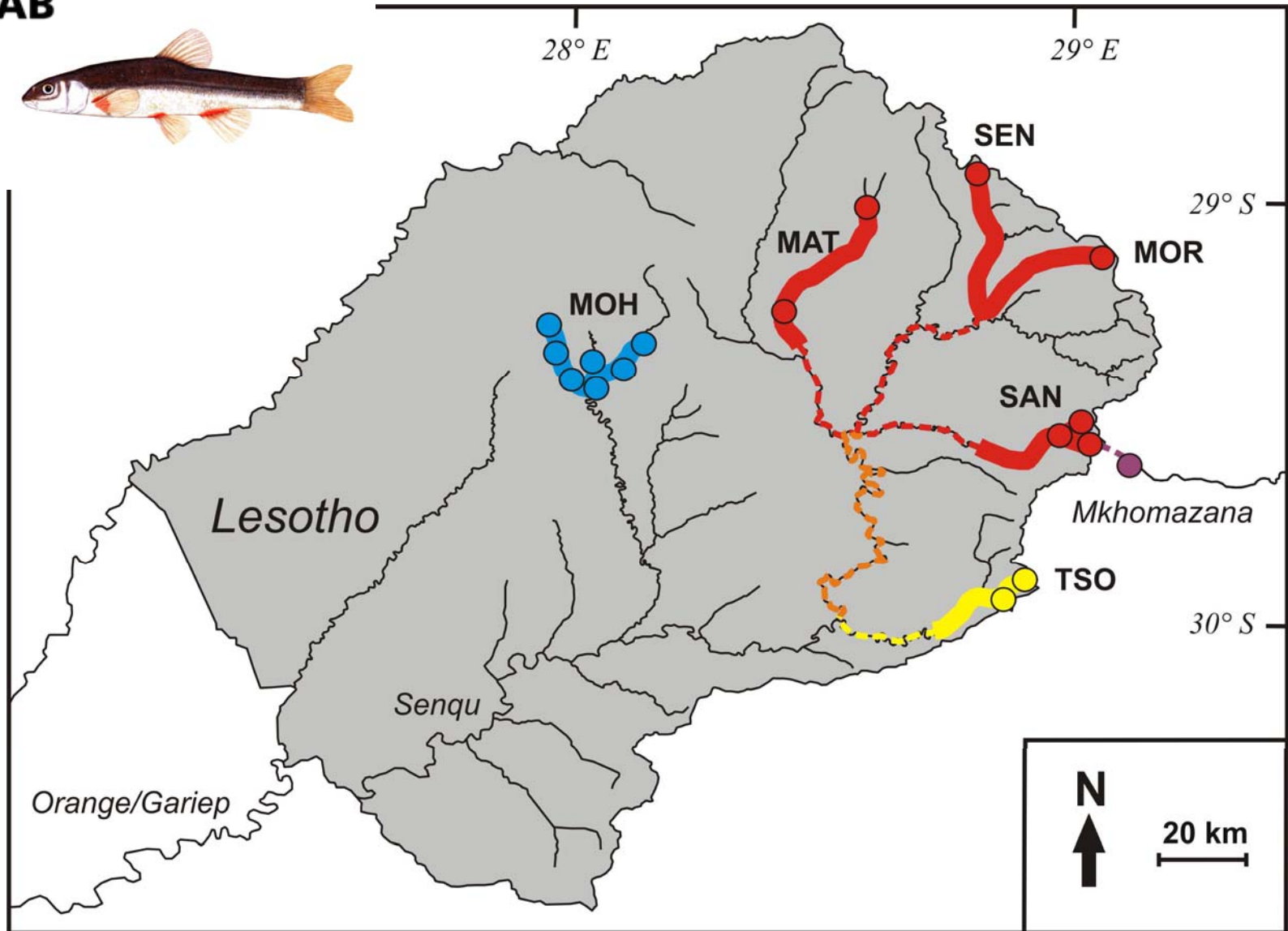
W = waterfall
T = trout

● Unsuccessful sites
● Successful sites

Conservation genetics (Swartz et al. unpublished)



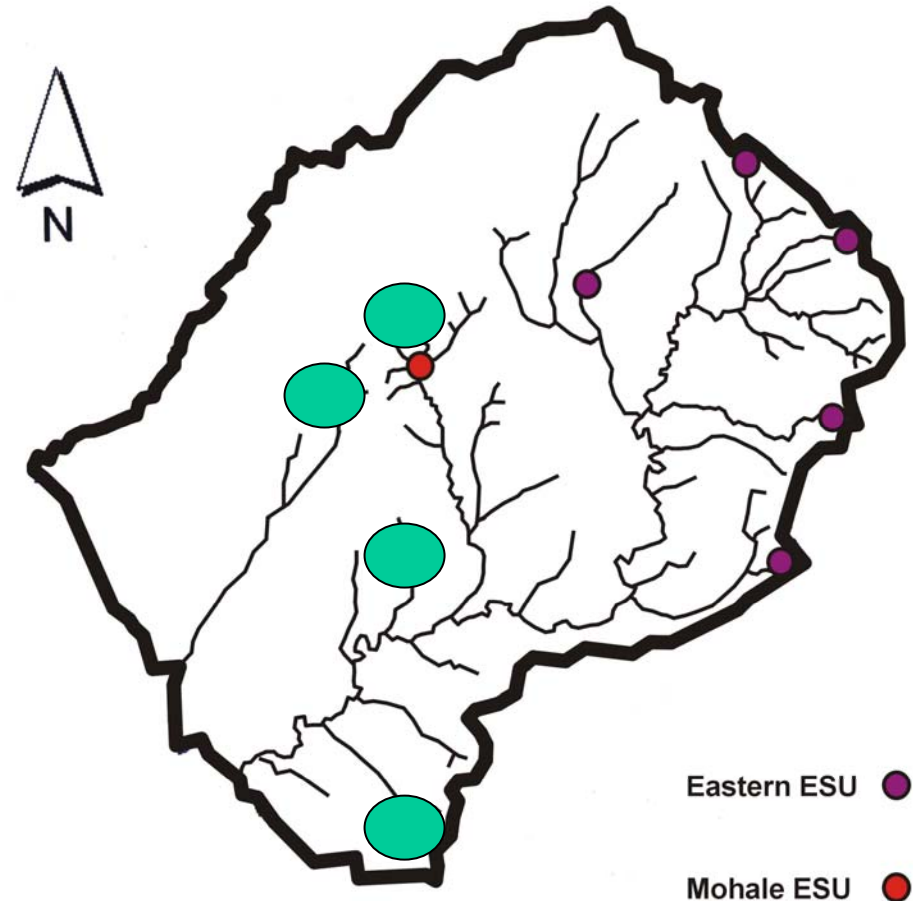
Conservation genetics (Swartz et al. unpublished)



Conservation action - outcomes (Skelton et al. 2001 and unpublished data)

Mohale Evolutionarily Significant Unit

Transplantation of
Mohale population to 4
sanctuary streams




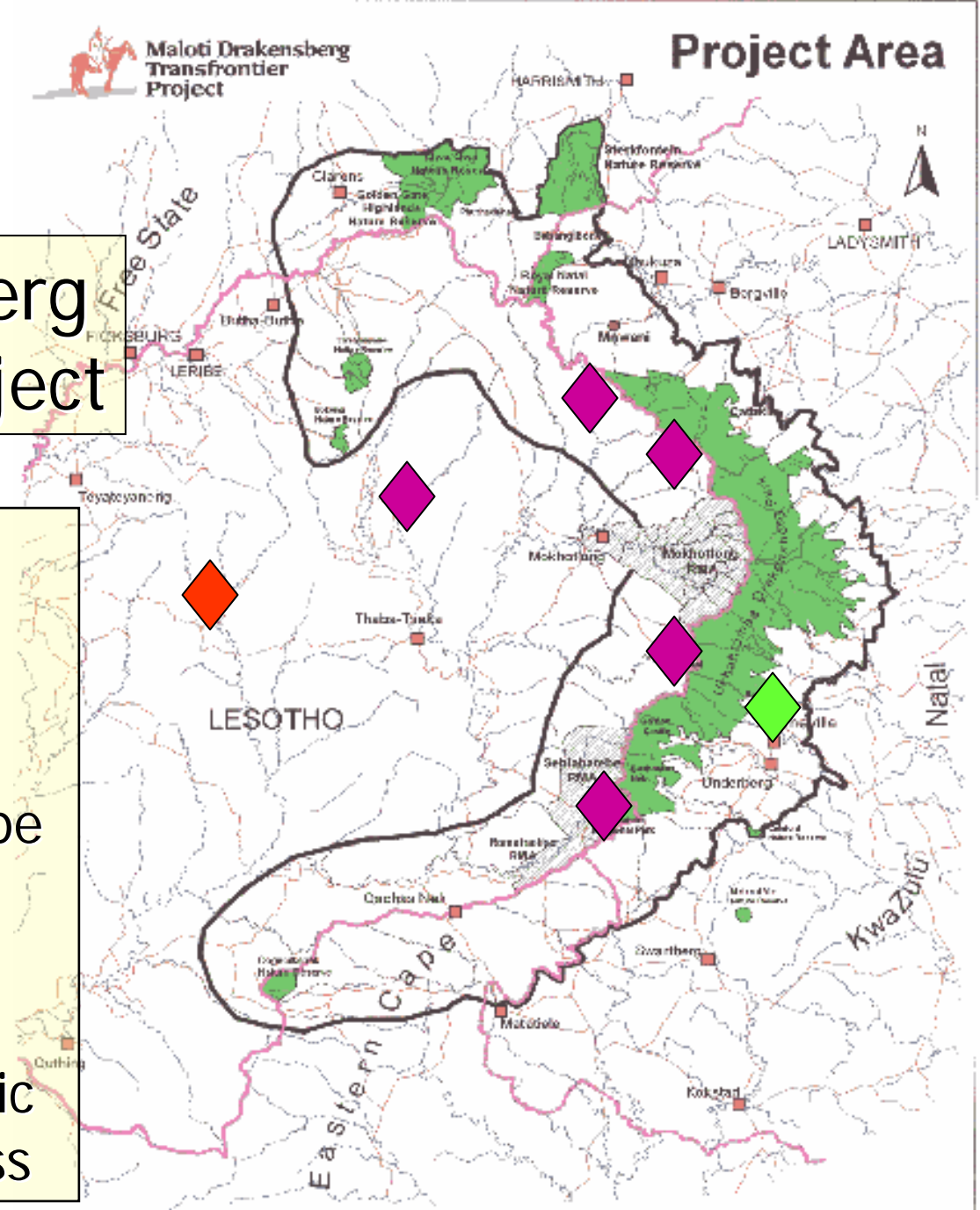


Outcomes - trust:

- **Individual interpretation**
- **Capacity & drive to do the work**
- **Buy into conservation plan**
- **More investment needed to keep trust going**
- **Lack of continuity - lack of incentives**
- **Sanctuaries no legal protection yet**
- **Maloti/Drakensberg to include parts of central Lesotho**

Maloti-Drakensberg Transfrontier Project

- Includes 4 Eastern Maloti minnow populations 
- Includes (extinct) type locality 
- Strategic plan for conservation of aquatic biodiversity in progress



Protected areas for Aquatic Biodiversity – some pointers

- In developed landscapes 'Protected areas', especially natural sanctuaries, are essential for conserving Aquatic Biodiversity
- To be effective, aquatic protected areas must ensure **ecological integrity** of ecosystem (catchments & barriers are usually important)
- Where sustainable use is an impact factor, sound scientific information is necessary to ensure balanced solutions

From this meeting:

What not to do?

- **Connectivity can be negative**

Political mechanisms or political will:

- **Opportunistic in this case - but maybe not sustainable**

**Can a freshwater protected area be an 'island'
(should we draw a line or construct a
fence/barrier)?**

- **Sometimes yes**