

Reptile conservation in Mauritius: Restoring island biodiversity

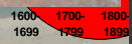
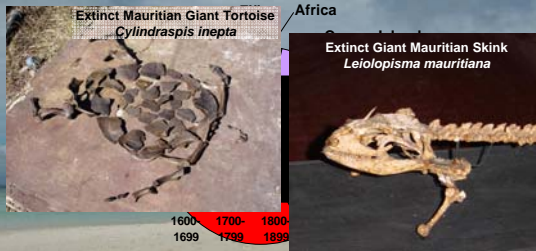


Reptile conservation in Mauritius: Island Biodiversity & Extinction

- The island of Mauritius is a species diversity hotspot
- naturally rich in island endemics, but has lost 90% of its original biodiversity
- The need for reptile conservation and translocation
- Since the 17th Century 75% of all animal extinctions have been for Mauritian reptiles
- Islands therefore maintain some of the richest biodiversity in the World

Island Biodiversity & Extinction

- The island of Mauritius is a species diversity hotspot, but has lost 90% of its original biodiversity
- Since the 17th Century 75% of all animal extinctions have been for Mauritian reptiles



Mauritian reptiles

- Although the Mascarenes have lost more species than anywhere else, Mauritius still maintains one of the richest reptile diversities in the World



Mauritian reptiles

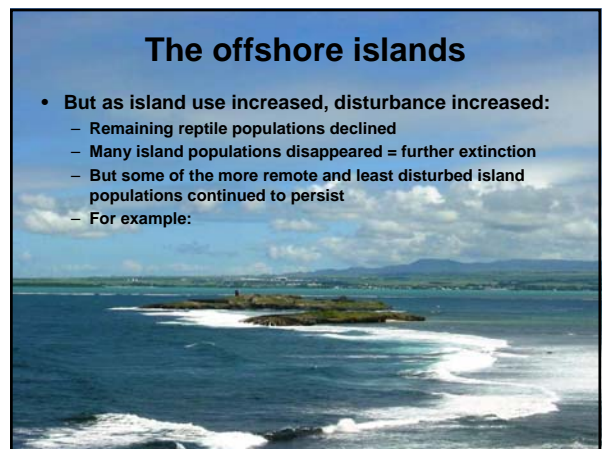
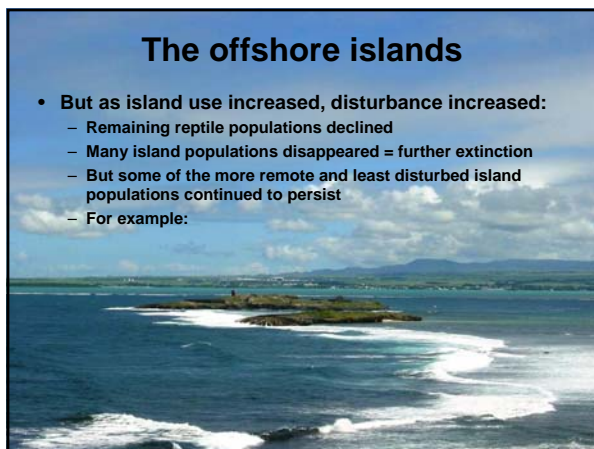
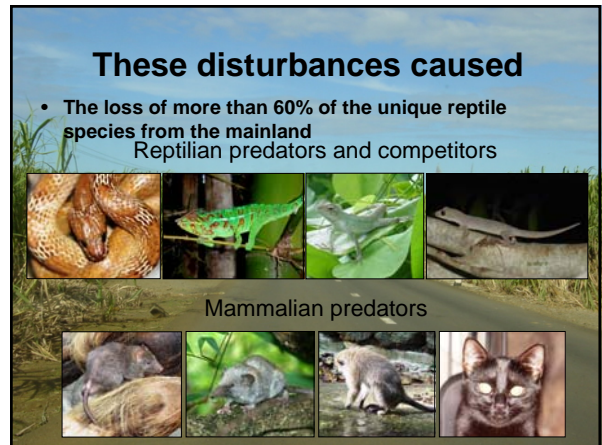
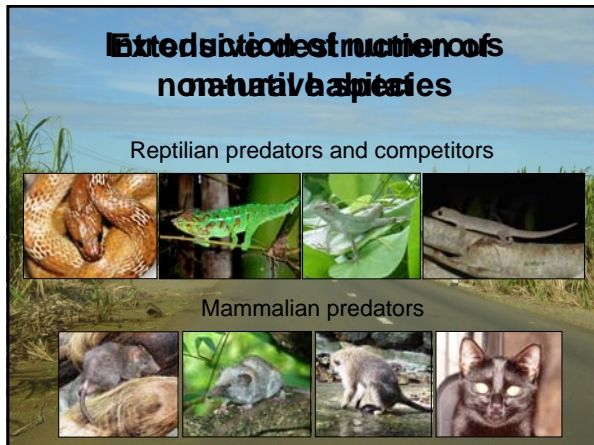
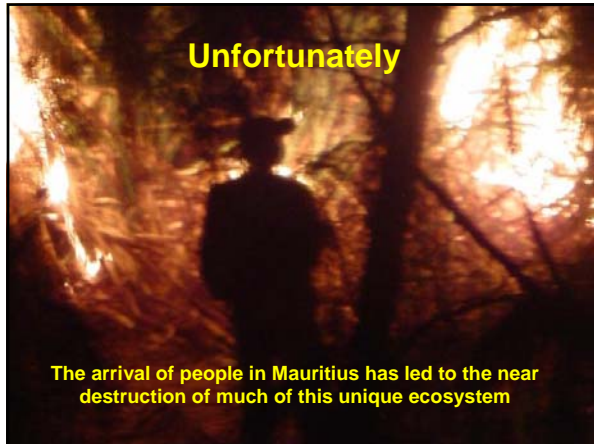
- The island of Mauritius is a species diversity hotspot, but has lost 90% of its original biodiversity



the formation of an ecosystem with:

- REPTILIAN BEHAVIOUR: REPTILES play a role in the ecosystem through browsing & grazing





Round Island

- ~~It is the last reptile locality of other~~ **It is the last reptile locality of other**



Ornate day gecko, *Phelsuma ornata*



Bojer's skink, *Gongylomorphus bojerii*

**HOME TO THE LAST SEMI-INTACT
REPTILE COMMUNITY
WITHIN THE MASCARENES**

Bouton's skink, *Cryptolepharus boutonii* Bullock & North 1975

The need for conservation

- 30 years ago it was recognised that:

The ~~30 years ago it was recognised that~~ **30 years ago it was recognised that**
 the ~~30 years ago it was recognised that~~ **30 years ago it was recognised that**
 should the ~~30 years ago it was recognised that~~ **30 years ago it was recognised that**

The need for conservation

- ~~Most of the population were known to be~~ **Most of the population were known to be**



There ~~reptiles' additional requirements~~ **reptiles' additional requirements**
 remove and re-establish elsewhere

The need for conservation

- ~~It had been established that the~~ **It had been established that the**
 health and disease, and past and present distributions
 = **TRANSLOCATION**
 = Some islands now suitable for reptile re-establishment




The need for conservation

- ~~The movement of a species from one location to another~~ **The movement of a species from one location to another**
 from release to what was suggested 30 years ago:

- Introduction: species release outside its natural range
- Re-introduction: species release within its former range
- Re-stocking: species release within an existing population

TRANSLOCATION



Translocation

- ~~Re-introduction and restocking are some of the most powerful conservation tools~~ **Re-introduction and restocking are some of the most powerful conservation tools**
- ~~However, some question the validity of this tool~~ **However, some question the validity of this tool**
- ~~for reptiles, because success and impact has been poorly documented~~ **for reptiles, because success and impact has been poorly documented**
- ~~The International Union for the Conservation of Nature and Natural Resources (IUCN) have set guidelines for species translocation~~ **The International Union for the Conservation of Nature and Natural Resources (IUCN) have set guidelines for species translocation**

Re-building reptile communities

- In 2006 (Darwin Initiative funding) we initiated the first reptile translocations in the Indian Ocean
- It was essential that we chose species based on
 - ~~scarcity~~ ~~conservation~~ ~~status~~ “vulnerability to extinction”
 - ~~current~~ ~~stability~~ within the donor populations
 - knowledge of their ecology and role in the ecosystem
 - lack of introduced predators
 - stable populations of resident endemic species
- Four reptile species and four islands were selected:

Re-building reptile communities

- Telfair’s skink *Leiolopisma telfairii*
 - Restricted to Round Island, but once widespread
 - Dec 06 to Feb 07
 - 250 skinks to ~~Calamagrostis~~ ~~Guilford~~ ~~destroyed~~ by ~~fire~~
 - Re-rep ~~ecc~~
 - As ~~po~~

Re-building reptile communities

- Ilot Vacoas Bojer’s Skink, *Gongylomorphus bojerii* sp.
 - Restricted to Ilot Vacoas, only 1ha!
 - 400 skinks inhabit the island
 - ~~As~~ ~~sub~~ ~~species~~ to the Bojer’s
 - ~~20~~ ~~skinks~~ to ~~the~~ ~~island~~ ~~of~~ ~~Guilford~~

- Once widespread in the SE
- This is the first of several annual translocations from Ilot Vacoas to the neighbouring islands since the 1980s & 70s
- Vacoas island populations preyed by shrews and elsewhere by wolf snakes

Re-building reptile communities

- Night geckos, *Nactus* spp.
 - ~~These~~ ~~small~~ ~~geckos~~ ~~were~~ ~~once~~ ~~widespread~~ ~~and~~ ~~possibly~~ ~~the~~ ~~most~~ ~~abundant~~ ~~vertebrates~~ ~~in~~ ~~pristine~~ ~~Mauritius~~
 - Underwent catastrophic reduction in range following the introduction of the house gecko, *Hemidactylus frenatus*

Re-building reptile communities

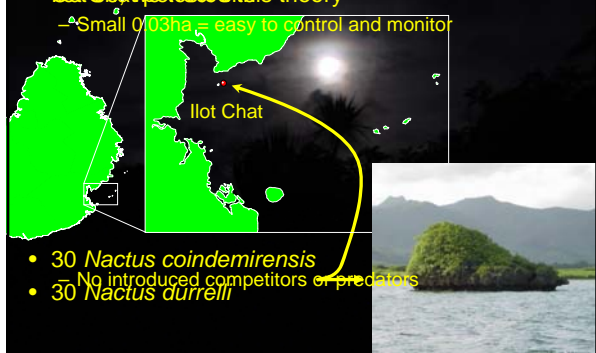
- Nactus ocellatus* ~~islands~~ where the house gecko has not reached
 - Gunners Quoin
 - A small area of rock on Flat Island
 - Pigeon Rock

Re-building reptile communities

- Nactus durrelli* restricted to Round Island
- Both night geckos are now segregated from one another
- Translocation is limited, because of house gecko distribution
- Beneficial to translocate both night geckos to the same island
- But could we successfully translocate both night geckos to the same island at the same time?

Re-building reptile communities

- **Outbreaks of disease theory**
 - Small 0.03ha = easy to control and monitor




Ilot Chat

- 30 *Nactus coindemirensis*
- No introduced competitors or predators
- 30 *Nactus durrelli*

Re-building reptile communities


- **MONITORING progress reptile was given its own importance of impact on population monitoring**



- Telfair's skinks were PIT tagged
- All others too small for tagging given photographic IDs
- Pattern of scarring, missing toes/claws, tail breaks recorded

Re-building reptile communities

- **Baseline disease status** scored prior to and at regular intervals after translocation
 - Survival and recruitment



Telfair's skinks on Gurney's Quail

Re-building reptile communities

- **Decrease the IMPACT** the islands to:
 - Survey the resident terrestrial species prior to and after translocation
 - Provide reptiles from the small populations on Ilot Jacoas



Re-building reptile communities

- To determine the adaptability and ecological role of the translocated reptiles on the recipient islands



seasonal comparisons with donor populations' utilisation of habitat and diet

The future for Mauritian reptiles

- Is there a brighter future for Mauritian reptiles?



- Yes, as long as we can continue to protect and restore island habitats and prevent further alien introduction

The future for Mauritian reptiles

- The impact of invasive predators with potential benefits to native reptiles and other groups
- These are the foundations to restoring island reptile communities from which we can build upon.



- Adding possibly using some as analogues for extinct species with degraded prey sources
- As well as the young ones with degraded populations

**Reptile conservation has been a team effort involving many people
Only with collaboration can we continue to restore these unique communities
Thank you!**