Restoring island biodiversity: the reintroduction of endemic Mauritian reptiles

Dr Nicholas Cole - Durrell Wildlife Conservation Trust, University of Bristol
Dr Carl Jones - Durrell Wildlife Conservation Trust, Mauritian Wildlife Foundation

Aims of the Darwin Initiative Project

- **To initiate the restoration of reptile communities on the offshore islands:**
  - **re-establishing populations back within their former range**
- **Training of Mauritian staff from MWF and NPCS:**
  - **Herpetological field techniques**
- **To build the capacity for Mauritians to drive future reptile conservation work**

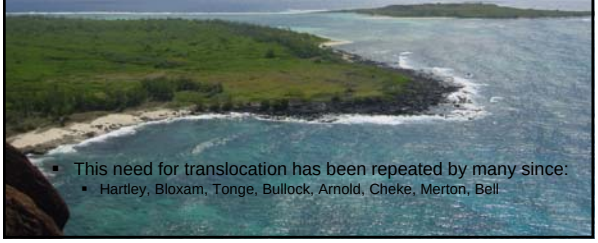
Mauritian reptiles

- **A valuable contribution to one of the most important global biodiversity hotspots**

- **Mauritius once maintained one of the richest reptile diversities in the World**
- **Unique reptile dependent ecosystem**
- **Habitat destruction and introduction of non-natives has mostly destroyed the unique ecosystem**
  - **The loss > 60% of reptile species from the main island**

The need for translocation

- Of what survived is now restricted to just a few offshore islands
- These remnant populations are extremely vulnerable to further disturbances
- This threat was recognised 30yrs ago - as was the need for translocation



- This need for translocation has been repeated by many since:
  - Hartley, Bloxam, Tonge, Bullock, Arnold, Cheke, Merton, Bell

The need for translocation

- 30yrs ago little was known about the ecology of the reptiles
- Many of the islands still harboured predatory mammals
- Since then the Forestry Service, DWCT, MWF and NPCS have been instrumental in restoring these islands and eradicating mammalian predators
- Extensive reptile research:
  - >40 scientific publications, numerous reports and academic studies

- Consultation with numerous international experts with experience translocation techniques and Mauritian conservation we now ready to conduct the first reptile translocations in the Mascarenes

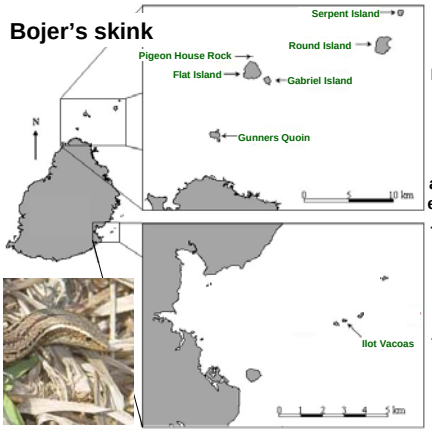
Skinks and geckos

- Essential to start with the ecological building blocks (most widespread and abundant)

- The skinks
  - Bojer's skink, *Gongylomorphus bojerii*
  - Telfair's skink, *Leiolopisma telfairii*
- The geckos
  - Durrell's night gecko, *Nactus durrelli*
  - Lesser night gecko, *Nactus coindemirensis*

Bojer's skink
Gongylomorphus bojerii

Bojer's skink



Most abundant in the northern islands

Has gone extinct on the mainland and all SE islands except Ilot Vacoas

The population is genetically distinct and at great risk

ACTION must be taken now before extinction

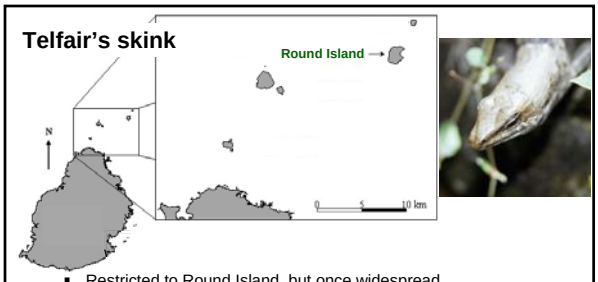
Bojer's skink

- **The future survival of the SE population is dependent upon translocation**

- **Present on Ile aux Fouquets until 1972**
- **Shrews no longer present**
- **Jan 2007 the first translocation of 20 skinks**
- **Repeated annually whilst monitoring the Ilot Vacoas population**

Telfair's skink
Leiolopisma telfairii

Telfair's skink



- Restricted to Round Island, but once widespread
- Represents the next ecological building block in restoring reptile communities and island ecosystems
- A robust generalist and ideal candidate
- The replacement of a lost:
  - Predator / Seed Disperser / Pollinator / Potential Prey Item

Telfair's skink

- **Two islands have repeatedly been identified for the first Telfair re-introductions:**
  - **Ile aux Aigrettes**

- **Gunners Quoin**

- **Both Islands have suitable habitat and an abundant food source - rats have been eradicated**

Telfair's skink

- Currently 30 individuals collected from Round Island
- Taken to the Aviaries BR for screening to obtain baseline data on health/body condition

- December 2006 high publicity release
- February 2007 220 translocated to Ile aux Aigrettes
  250 translocated to Gunners Quoin

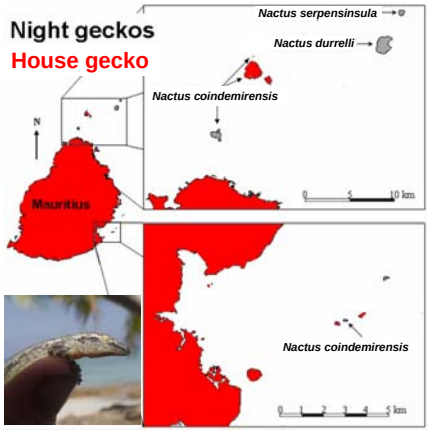
Night geckos
Nactus spp.

- Lesser night gecko
  Nactus coindemirensis
- Durrell's night gecko
  Nactus durrelli
- Serpent Island night gecko
  Nactus serpensinsula

Night geckos

- The most abundant reptiles in pristine Mauritius
- Catastrophic reduction in range caused by the introduced house gecko *Hemidactylus frenatus*

Night geckos
House gecko



- Night geckos only exist in absence of the house gecko
- At risk from further invasion
- Few islands left for translocation
- Beneficial to translocate two night gecko species to the same island
- Currently segregated

Night geckos

- Research has shown that the Lesser and Durrell's night gecko probably once co-existed
  - To test this theory we have moved 30 of each species to:

Ilot Chat

Lesser night gecko
Nactus coindemirensis
Ilot Vacoas

Durrell's night gecko
Nactus durrelli
Round Island

- Ideal site to test co-existence
  - No introduced competitors or predators
  - Suitable habitat and prey abundance
  - Small (0.08 ha) easily controlled and monitored

Monitoring populations

- The importance of monitoring

- Each season over the next 3yrs each translocated population will be monitored:
  - Survival
  - Recruitment
  - Dispersal
  - Home range
- Comparisons with donor populations:
  - Diet
  - Microhabitat use
  - Health

Monitoring populations

- Seasonal assessment of impact:
  - Native reptile populations

  - Non-native terrestrial vertebrates

Monitoring populations

- Seasonal assessment of invertebrate abundance

- Determine prey selection and impact upon invert groups

Training

- Important component of this project

- Staff from NPCS and MWF involved at every stage
- Trained individuals will drive future reptile conservation in Mauritius