Captive Breeding and Reintroductions

Principles and Practice

OFTEN QUOTED CRITICISMS OF CAPTIVE BREEDING

- SOME SPECIES BREED POORLY IN CAPTIVITY.
- HIGH COSTS.
- TAKES THE FOCUS OFF SPECIES IN THE WILD.
- DISEASE OUTBREAKS.
- GENETIC CHANGES AND DOMESTICATION.
- NEED FOR LONG TERM SUPPORT.
- OFTEN STAFF ARE INADEQUATELY TRAINED AND RESOURCE POOR.
- SPECIALISTS ARE OFTEN NOT AVAILABLE (e.g. specialist veterinarians, nutritionists, geneticists etc.).

STRENGTHS OF CAPTIVE BREEDING

- RAISES THE PROFILE OF THE SPECIES
- MANY SPECIES BREED READILY
- TECHNIQUES OF CAPTIVE MANAGEMENT IMPROVING (e.g. Bottle-nose Dolphin, Fruit bats, falcons, tortoises)
- PROVIDES OPPORTUNITIES FOR DETAILED RESEARCH

Captive breeding projects should be in country of origin

ADVANTAGES OF CAPTIVE BREEDING IN-SITU

- Involves local people
- Facilitates comparative study of wild and captive populations
- Less chance of exposure to exotic diseases
- Techniques developed on captive stocks can be applied to wild individuals (e.g. veterinary techniques, handling, egg and brood manipulations of breeding biology of birds)

- CAPTIVE BREEDING PROGRAMMES PROVIDE EXPERIENCE FOR HANDS ON WORK WITH WILD ANIMALS
- WORK WITH HIGH PROFILE SPECIES ENCOURAGES HABITAT RESTORATION

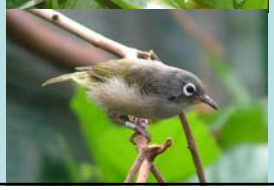
- CLOSE PROXIMITY TO WILD POPULATIONS WHICH FACILITATES THE EXCHANGE OF ANIMALS BETWEEN CAPTIVITY AND THE WILD AND VICE-VERSA

When working on Endangered species need for model species to develop techniques

We have used model species for:-

- Foster rearing young
- Developing captive management techniques
- Staff training
- Release techniques
- Comparative studies

Use model species



- Common Kestrel for Mauritius Kestrel.
- Various doves and pigeons for Pink Pigeon
- Ring-neck Parakeet for Echo Parakeet
- Grey White eye for Olive White-eye
- Madagascar Fody for Mauritius Fody
- Mauritius Fruit Bat for Rodrigues Fruit Bat

Captive breeding can save species

TAXA EXTINCT IN THE WILD REINTRODUCED FROM CAPTIVITY

- Guam Rail
- Californian Condor
  Black-footed Ferret
- Red Wolf
- European Bison
- Arabian Oryx
- Pere David's Deer
- Mhorr Gazelle
- Przewalski's Horse
- Española Giant Tortoise

Española Giant Tortoise

- 1973 took 14 wild individuals (2:12).
- Island restored removing goats and planting *Opuntia*.
- 1981 repatriated 5 captive bred animals to island.
- Total of 1,357 re-introduced 1981-2006.
- Start breeding ~25 yrs old.
- Now breeding in wild.

TAXA EXTINCT IN WILD SURVIVING ONLY IN CAPTIVITY

- **Ten species of *Partula* snails**
- **Several species of Lake Victoria cichlid fish**
- **Two Mexican Desert fish**
- **Alagoas Curassow**
- **Socorro Dove**
- **Spix Macaw**
- **Micronesian Kingfisher**
- **Hawaiian Crow**
- **Bali Starling**
- **Queen of Sheba Gazelle**

SPECIES THREATENED IN WILD BUT POPULATIONS HAVE BEEN SUSTAINED BY REINTRODUCTIONS

- Western Swamp Terrapin
- Galapagos Tortoises
- Hawaiian Goose
- Mauritius Kestrel
- Pink Pigeon
- Golden Lion Tamarin
- North American Bison
- Scimitar horned Oryx *Addax*
- Persian Fallow Deer

Three Stages to a Reintroduction

- **Pre release** (captive/bred/ reared, harvested from wild)
- **Release** (hard or soft release)
- **Post-release support**

Pre-release

- Appropriate socialisation.
- Avoid imprinting to humans.
- Rear in groups.
- High stimulus environments.
- Predator conditioning.
- Disease monitoring.
- Genetic considerations.

Main Release Techniques

- Soft release.
- Hard Release.
- Fostering.
- Cross-Fostering.

Translocations, ‘Marooning’

- Wild birds taken from one island to another.
- Usually onto predator cleared islands.
- High chance of success.
- May need post release care (Kakapo, Magpie Robins)
- Several species now only found on islands outside their native range.

Post Release Care

- Predator Control
- Supplemental feeding
- Provision of nest sites
- Disease Control
- Close Guarding
- Genetic Management

The lack of post release care is a main reason why re-introduction projects fail

OBSERVATIONS ON REINTRODUCTIONS

- Most weak on the post-release support.
- Analyses pay little attention to post-release support.
- About two-thirds of all attempts were considered successful by releasers.
- Some groups can be reintroduced with a high degree of success (e.g. diurnal birds of prey: 75%).

Taking captive breeding into the field

- What we do here in Mauritius!
- Species restored using intensive management.
- Avian paediatrics plays a major role.
- Suitable for species difficult to keep in captivity.
- Need highly skilled staff.

Captive Breeding and Reintroductions stimulate Habitat Restoration