durrell

Intensive Management of Island Populations

What techniques have been used?

Lessons from Mauritius

Why Intensively Manage populations?

What are the aims?

Increase Population Size

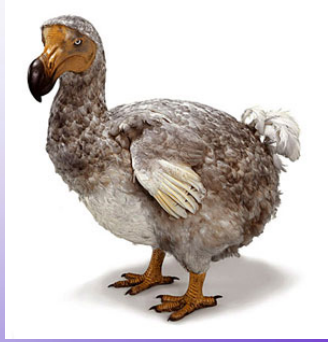
Improve productivity

Improve survival

Game bird management, development of techniques

- Restriction of hunting
- Predator control
- Protection of habitat
- Restocking with captive produced animals
- Population management, controlling food, cover, nest sites, disease

Lessons from Mauritius

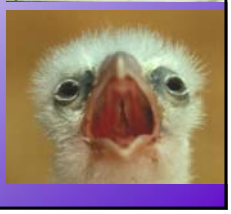


Mauritius Kestrel

Falco punctatus

Increasing Productivity in the Mauritius Kestrel ?

- Population declined to 2 wild pairs in 1974
- No known breeding in 1975
- Established a captive breeding project initially failed
- Later established a breeding project with intensive management of wild population
- Provision of breeding sites
- Clutch manipulations
- Brood Manipulations
- Reintroductions and Translocations

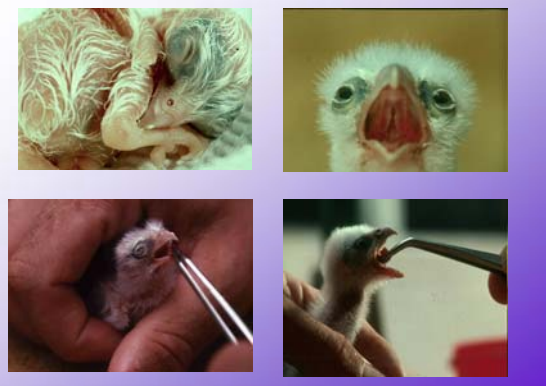


Egg Manipulations

- **Removed whole clutches that encouraged the species to lay additional clutches.**
- **Established captive birds from first clutches.**
- **Continued clutch manipulations of wild birds for decade, doubling wild productivity.**

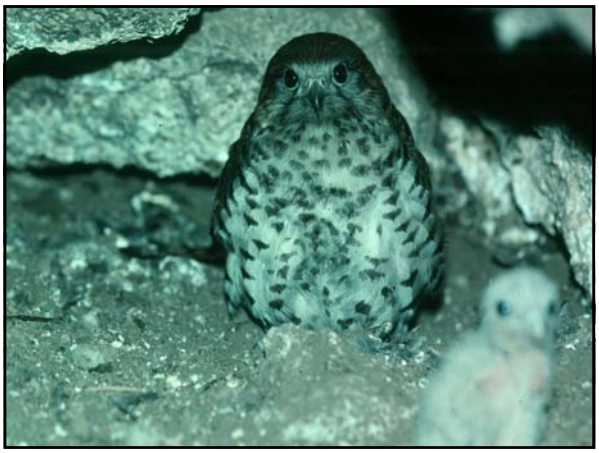
Hand-rearing

- With experienced personnel, can expect 95% rearing rates.
- Birds reared in groups to avoid imprinting problems.
- Kestrels released in groups. Hand reared birds survived and bred as well as birds reared by parents.

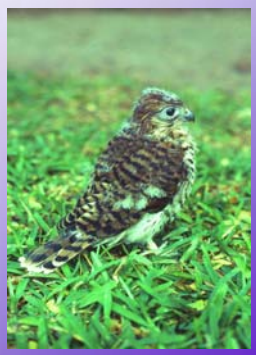


Release young by fostering

- **Foster young to pairs with few young or infertile eggs at 6-14 days.**



Kestrels are put out at release sites at about 30 days



Soft Release

- **Release groups of 3-6 work best**
- **Soft release technique of hacking**

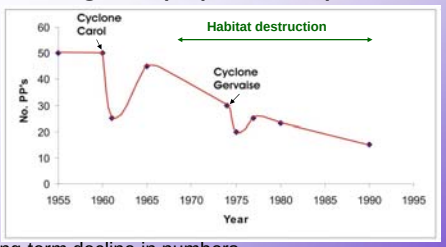
Mauritius Kestrel

- **Declined to four wild birds in 1974**
- **Captive breeding and reintroduction project**
- **333 birds reintroduced, three subpopulations**
- **Some management of wild birds, nest-boxes**
- **600-1000 birds in 2007**

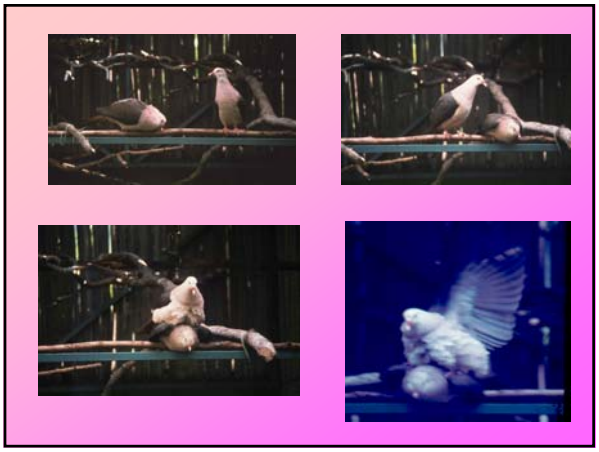
Pink Pigeon

Nesoenas mayeri

Pink Pigeon population pre 1990



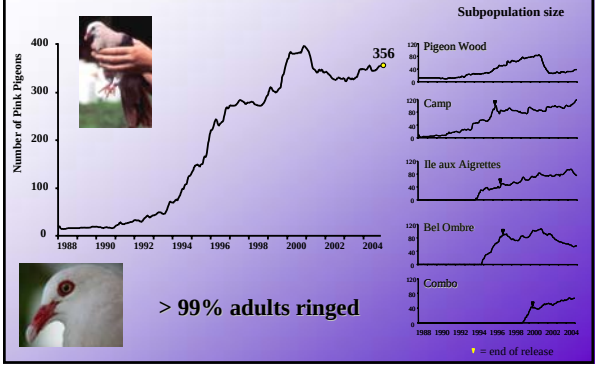
- Long-term decline in numbers
- Big cyclones affect population badly with up to 50% mortality
- Population recovered rapidly from effect of cyclone
- Accelerated decline due to habitat destruction in 1970's
- Declined to 9 birds in 1990



Released Population Management

- Provisioned with supplemental food
- Predators controlled (rats, cats, mongooses).
- Disease studies
- Long term monitoring of productivity and survival.

Pink Pigeon total population size



> 99% adults ringed

Pink Pigeon

- 9 or 10 wild birds in 1990.
- Predicted extinction by 2001.
- Captive breeding and reintroduction.
- Five sub-populations.
- 370 free-living birds 2007.
- Need for long-term supplemental feeding, predator control and disease management?

Echo Parakeet

Psittacula eques

Early Work

- Field work, on numbers, distribution & ecology.
- Nest studies.
- Provision of nest boxes.
- Some supplemental feeding.
- Disease studies.

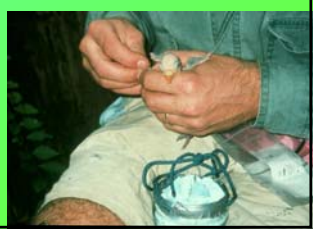
All nests visited to:

- Enhance the nest cavity.
- Replace substrate.
- Treat with pesticide to kill parasites.
- Check progress of eggs and chicks.

Nest-site Management

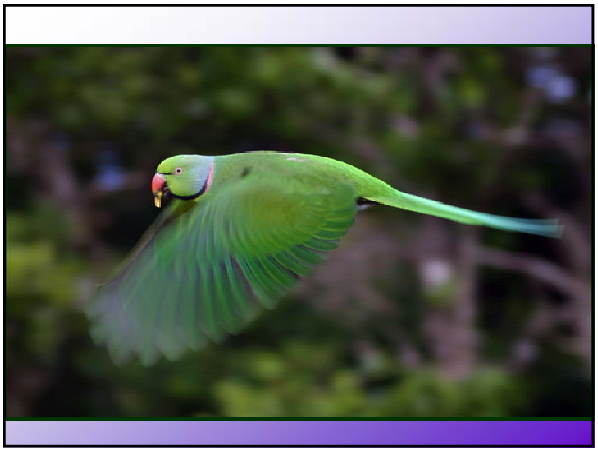
Echo Parakeet chicks are checked :

- To monitor weight and development.
- Those that are failing are harvested for captive rearing

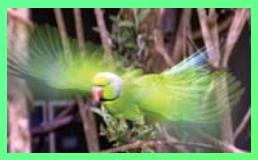


Harvested/Rescued Young:

- Hand reared in groups by experienced personnel.
- Used to establish captive population.
- Most released to wild



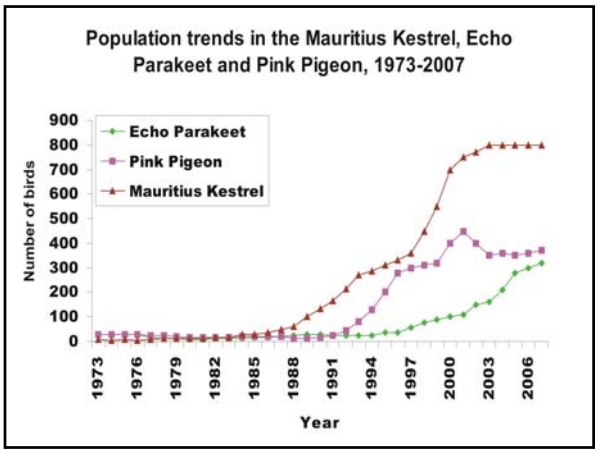
Echo Parakeet



- Captive breeding and reintroductions.
- 8-12 wild birds known in 1987.
- Intensive management of wild population.
- Nearly 340 free-living birds 2007.
- Need for long term nest-site management and some supplemental feeding?

Causes of population decline and corrective management

PROBLEM	SOLUTION
Food shortage	Supplemental feeding
Predators and competitors	Predator and competitor control
Disease	Disease control
Shortage of breeding sites	Create breeding sites, nest boxes



Five Stages of Species Restoration

- Know your species
- Understand Limiting Factors
- Intensive Management (critically endangered species)
- Population Management (addressing controlling factors)
- Monitoring and research

Know your species

- Life history
- Ecology
- Population size
- Distribution

Understand Limiting Factors
Why is the species rare?

- Collect available data on why the species is rare
- Reduced survival and or productivity
- Possible limiting factors, food, disease, predators, nest sites, habitat, anthropogenic factors

Test Hypotheses

- Propose and test hypotheses empirically (e.g. supplemental feeding, provision of nest sites etc)

Intensive Care
(Critically Endangered species only)

- Clutch and brood manipulations
- Close guarding
- Captive breeding and reintroductions
- Translocations

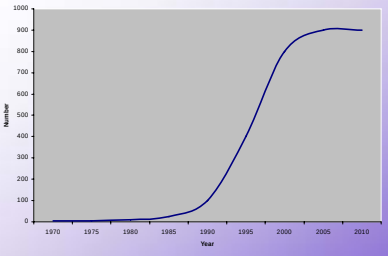
Population Management: addressing controlling factors

- Supplemental feeding
- Predator eradication, control or exclusion
- Disease control
- Improve nest sites
- Habitat protection and restoration

Monitoring and Research

- Survival
- Productivity
- Distribution
- Population structure and numbers
- Project evaluation

Mauritius Kestrel Restoration



1) _____
2) _____
3) _____
4) _____
5) _____

Long-term Minimum Management

- For many island endemics need for long-term management.
- Necessary while the habitat is compromised.
- Need to develop the concepts and techniques of long-term minimum management.
- Captive management techniques being applied to wild/free-living populations.
- Better than maintaining species indefinitely in captivity.

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