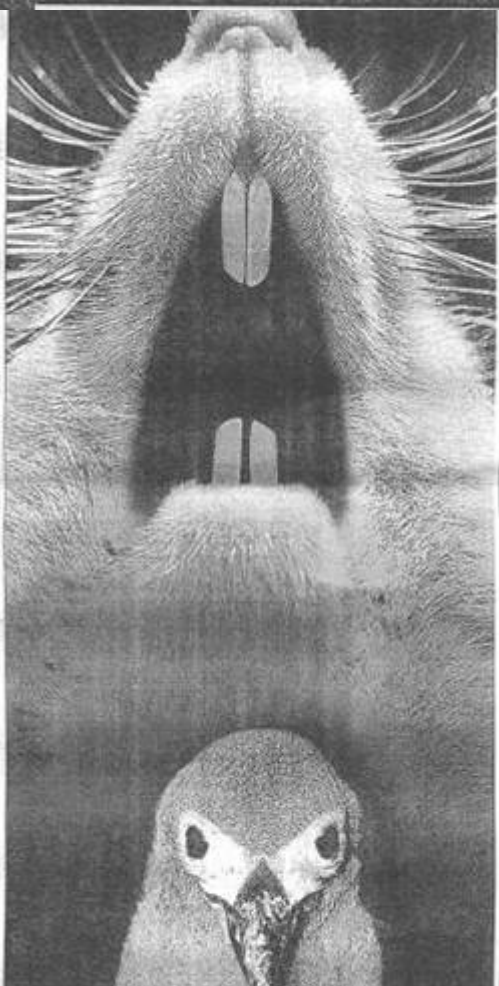


# The Introduced Rodents of Tristan da Cunha and Gough: Impacts and Solutions



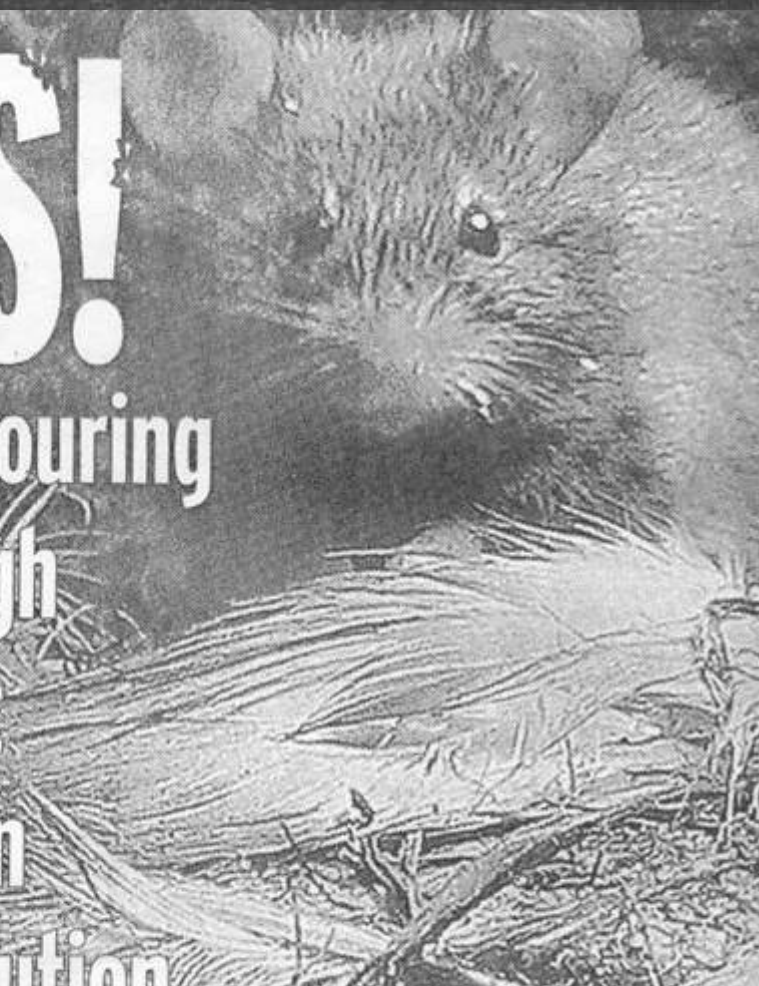
# DANGERMOUSE

Rampaging monster rodents who eat seabirds alive



## GNAWS!

The albatross-devouring giant mice of Gough Island reveal what happens when Man meddles with evolution









# Characteristics and rodent presence

	Area (km <sup>2</sup> )	Population	House mouse	Ship rat
Tristan	96	300 residents	From late 18 <sup>th</sup> century	From 1882
Gough	65	Weather station	Absent	From before 1882 (1810?)
Inaccessible	14	Uninhabited	Absent	Absent
Nightingale	4	Uninhabited	Absent	Absent

# Global conservation value

	Tristan	Gough	Inaccessible
Zero Extinction Site	No	Gough	Inaccessible
World Heritage Site	No	Yes	Yes
Endemic Bird Area	Tristan	Gough	Tristan
Important Bird Area	100%	100%	100%
Threatened bird spp	5	8	7
Nesting seabird spp	14?	20	17-20
Seabird pairs	~30,000	>5 million	>3 million

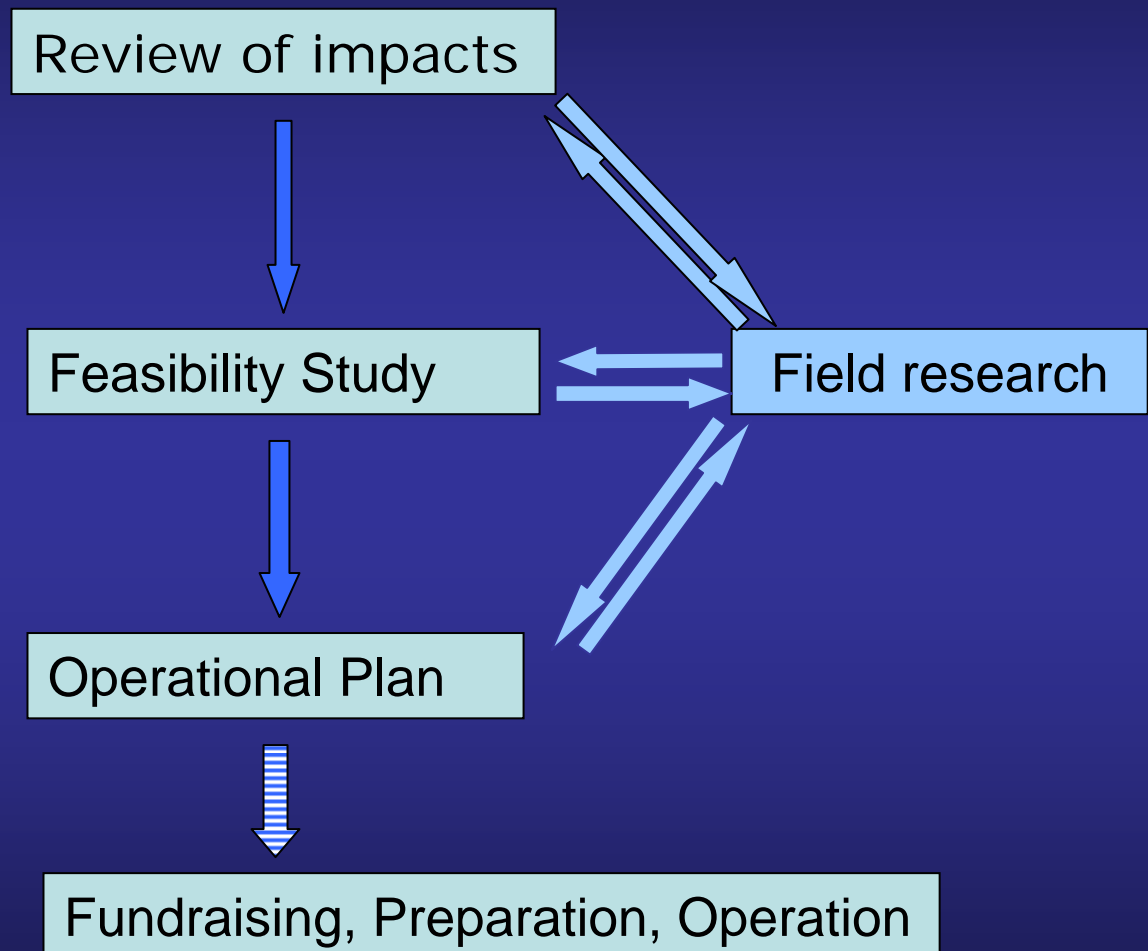
# The process

What is conservation justification?

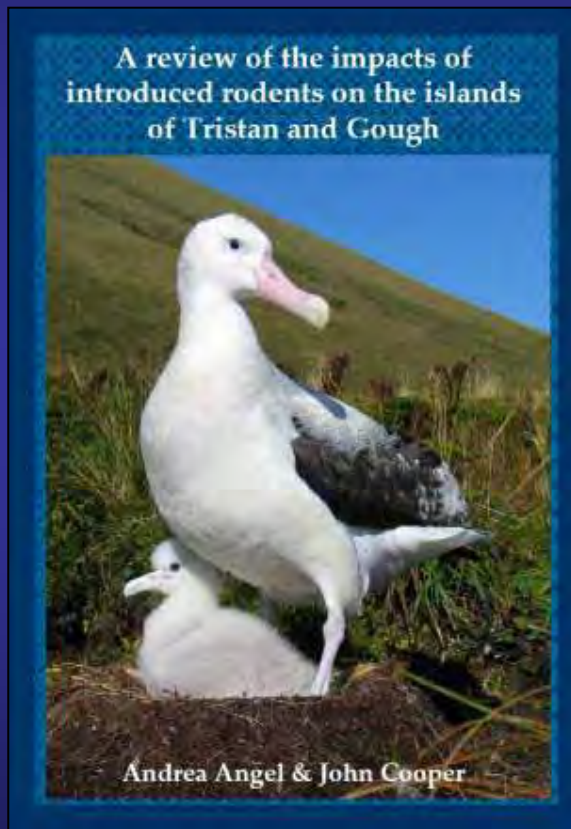
Can it be done?  
What is best approach?

Detailed plan,  
budget

Action



# Review of Impacts: the conservation justification



- Historic impacts
- Current (ongoing) impacts
- Future impacts (end-point)
- Effect of reducing impacts

# Past impacts - Tristan

- Loss of seabird mega-colony & associated processes
- Transformation of vegetation dynamics, nutrient/energy cycling
- Extirpation smaller seabird spp & two landbird spp
- Other seabirds non-sustaining remnants
- Extinction of undescribed inverts
- Major socio-economic damage



# Current & future impacts - Tristan



- Continuing decline in vulnerable seabirds
- No recovery of native biota or processes
- Risk of introduction to neighbouring islands
- Continued socio-economic problems

# Effect of removing rodents - Tristan

- Recovery of seabird populations & associated processes
- Reduction of introduction risk to other islands
- Socio-economic opportunities
- Potential re-introduction of extirpated taxa
- Potential unpredictable effects on other invasives



# Summary of impacts - Gough

- Decline of endemic Tristan albatross (EN), Atlantic petrel (VU)
- Probable historic decline of Gough bunting (ongoing?)
- Unknown, potentially large declines in small/winter-breeding seabirds
- Unknown, declines/ extirpations of native invertebrates



# The future for Gough



- Decline of Tristan albatross, Atlantic petrel, other seabird species  $\Rightarrow$  extirpation/ extinction?
- Extinction of bunting?
- Loss of seabird mega-colony & ecosystem functions?
- No barrier to recovery if rodent impacts removed

# Feasibility studies

- **Tristan**

- Derek Brown, Sept 2005
- Cape Town workshop, Oct 2005



- **Gough**

- John Parkes, Sept 2007



# Tristan feasibility study



- Eradication the best option
- Technically feasible
- Helicopter drop of anticoagulant poison
- Very challenging:
  - People
  - Livestock
  - Two target species
  - Non-target species
  - Size, climate, terrain



# Tristan in context

Species	Island	Area (ha)	Terrain
<i>R rattus</i> & <i>M musculus</i>	Tristan	9,600	Cool temperate
<i>R norvegicus</i>	Campbell	11,100	Sub-Antarctic
<i>R rattus</i>	St Paul	800	Cool temperate
<i>M musculus</i>	Enderby	710	Sub-Antarctic
<i>R norvegicus</i> & <i>R exulans</i>	Raoul	2,983	Sub-tropical
<i>R rattus</i> & <i>M musculus</i>	Flat	253	Tropical
<i>R rattus</i> , <i>M musculus</i> , <i>O cuniculus</i>	<i>MacQuarie</i>	12,000	Sub-Antarctic

# Tristan Operational Plan

- Commissioned 2006, based on positive feasibility
- Derek Brown
- Preparatory actions, Team, Equipment, Operational logistics, Health & Environment, post-operation etc etc
- Budget = £2.5 million

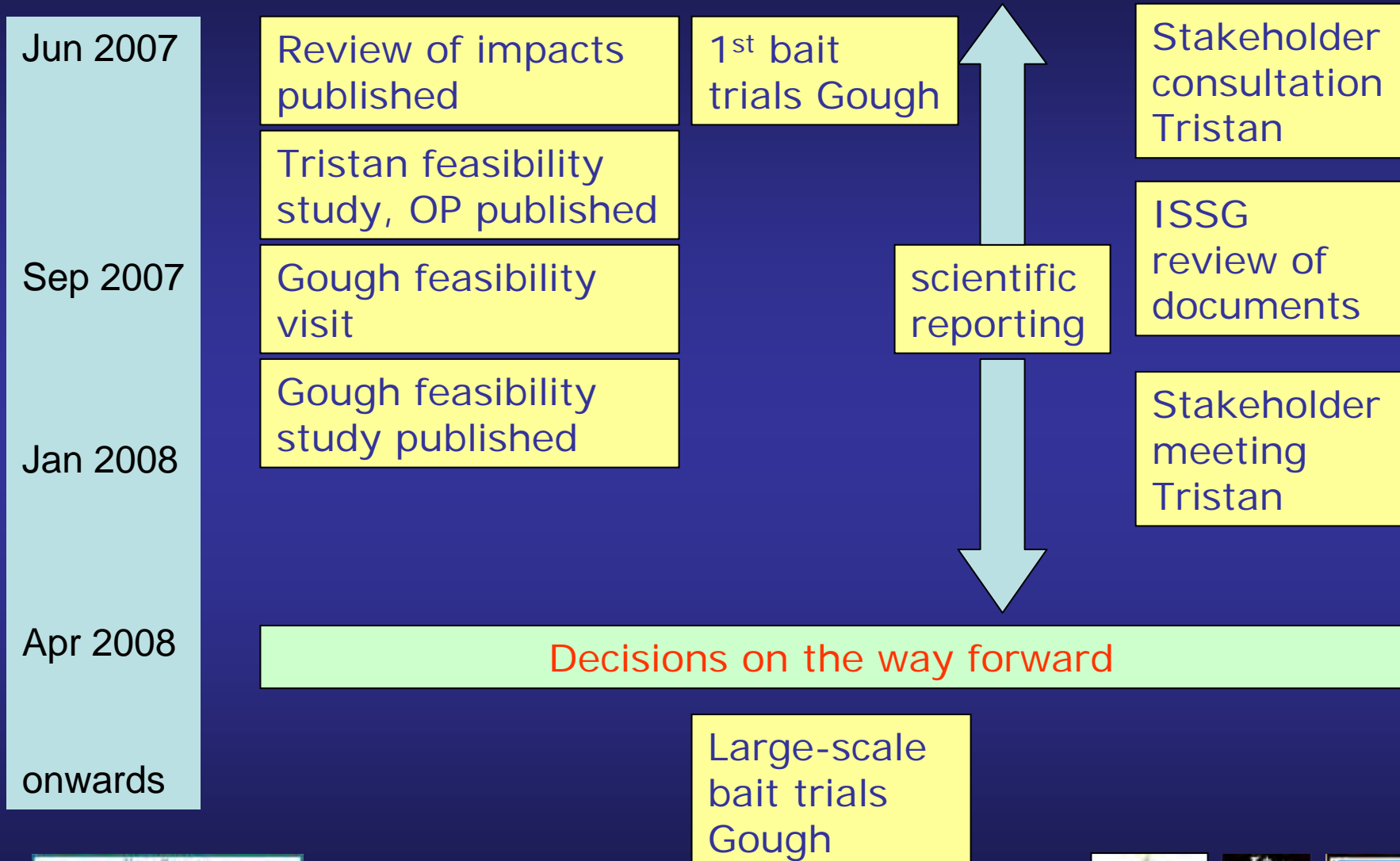


# Gough feasibility issues



- Size, climate, terrain not insuperable
- No people, livestock
- Mouse eradication less developed
- Key issues:
  - Precision of bait drop
  - Palatability & behaviour
  - Species interactions
  - Alternative food sources

# Next steps



# Partners

- Tristan da Cunha:
  - James Glass, Simon Glass, Trevor Glass
  - Mike Hentley
- Cape Town
  - Ross Wanless, Andrea Angel, Peter Ryan, John Cooper
- RSPB
  - Richard Cuthbert, Clare Miller, Sarah Sanders
- NZ
  - Derek Brown, John Parkes, ISSG, IEAG....

