

# Beyond Stoats. Ferrets & Kiwi

Craig Gillies

Scientist – Predators & Mainland Islands

R&D Group

Hamilton



Department of Conservation

*Te Papa Atawhai*



Photo: D. Clerke

# Outline of talk

- Biology/Ecology of Ferrets
  - *vis-à-vis* stoats
- Outline the problem
- Management options & considerations
- Discussion



Image: Priscilla Barrett in  
'Handbook of NZ Mammals' C.M. King

# History of mustelids in New Zealand

- 1870's rabbits a serious agricultural pest in New Zealand.
- Ferrets introduced to control rabbits in 1879
  - stoats and weasels in 1884
- Ferrets present throughout North & South Islands

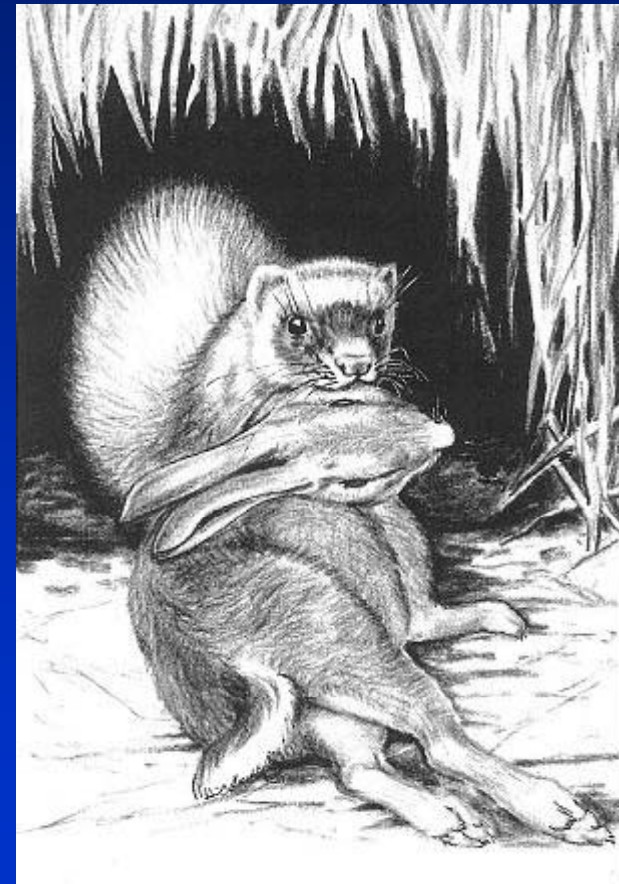
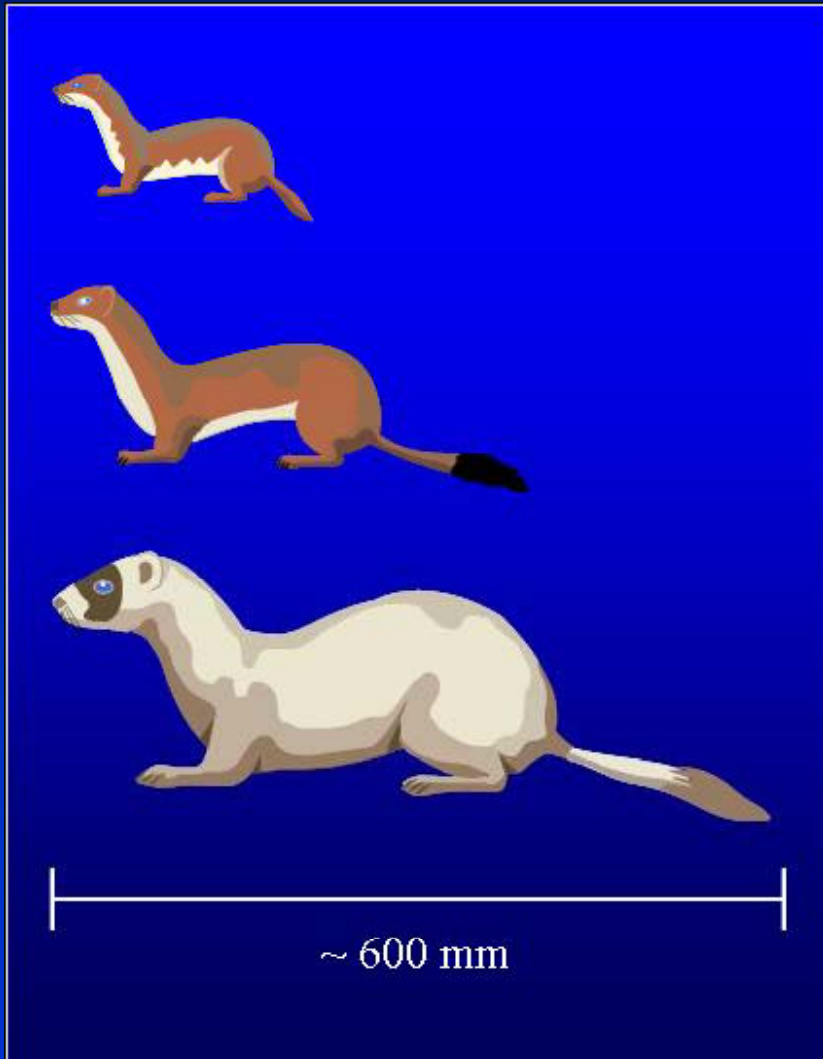


Image: Cynthia Cass in  
'Immigrant Killers' C.M. King

# The Three Mustelids in New Zealand



## Weasel (*Mustela nivalis*)

Variable line between brown and white  
Short tail, no black tip

## Stoat (*Mustela erminea*)

Straight line between brown and white  
Longer tail with black tip

## Ferret (*Mustela furo*)

Dark face mask  
Stockier and much larger

# Ferret basic measurements

- Average length (HBL)
  - ♂ 423 mm (361-658)
  - ♀ 369 mm (270-544)
- Average Weight
  - ♂ 1181 g (330-1850)
  - ♀ 636 g (258-1170)





# Ferret breeding

- No delayed implantation
  - season August to September (could last to March)
- Usually only have one litter a year
  - females could conceivably produce two in a year
  - litter size usually about 4-8 kits



Photo: J. Ragg

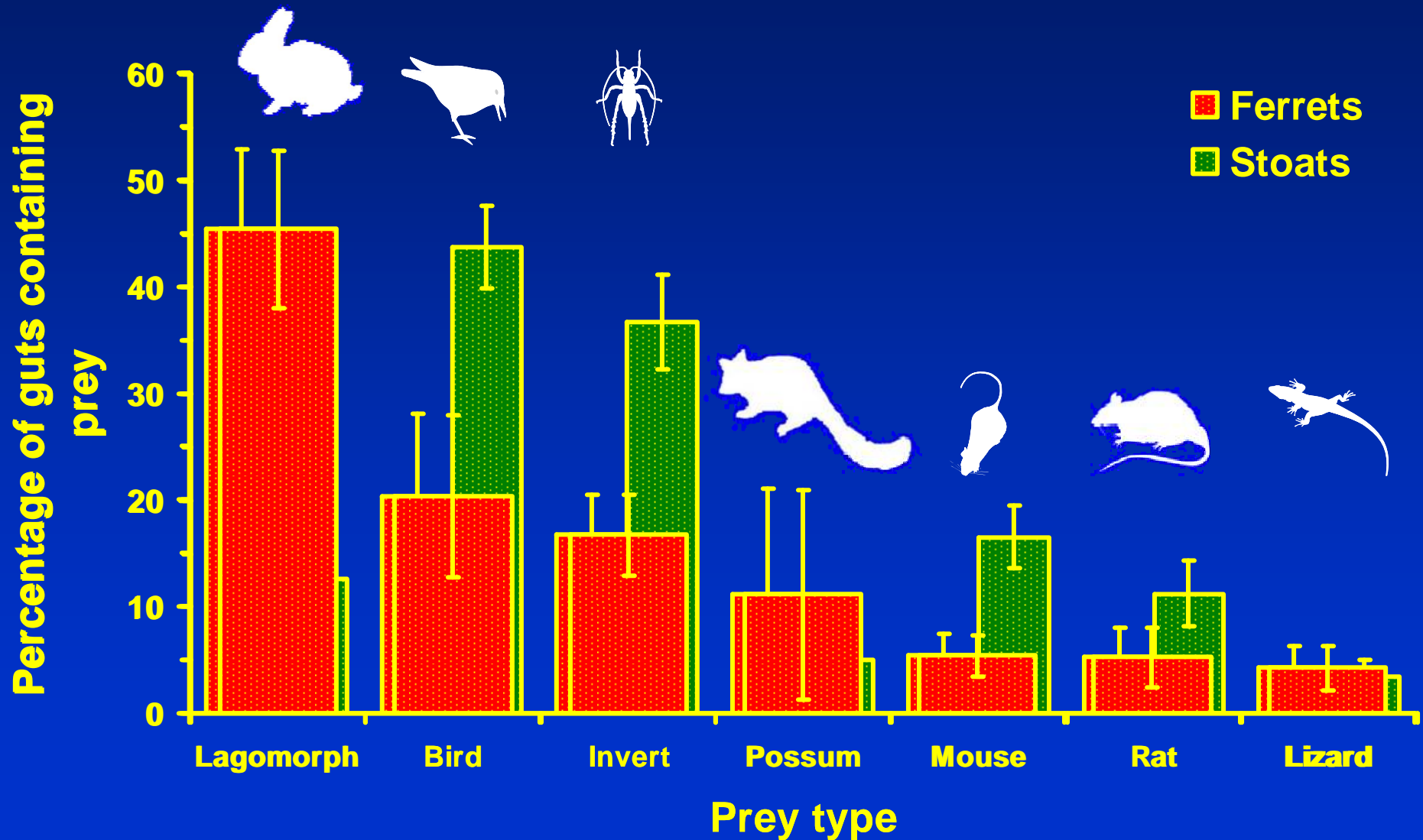
# Seasonal Abundance Patterns

- Ferret juvenile dispersal  
February – March
  - Median distances 1.2 to 6.5kms
  - up to 55 kms
- Populations peak March – April
  - varies between 1.5 to 8.2 ferrets/km<sup>2</sup>
- Differences between years related to rabbit abundance



# Ferret diet in New Zealand

(taken from freq. occur. in guts - 7 studies)





# Home ranges of ferrets in NZ

♂ Ferret mean home range size estimated from 11 studies  
199 ha (19-760)

♀ Ferret mean home range size estimated from 8 studies  
122 ha (18-265)



# Ferret Behaviour

- Ferrets are largely nocturnal hunters
- They are not fast runners and usually hunt below ground
- Scent & sound important
- They kill quickly and efficiently
- They often kill and cache prey for future feeding



Photo: R. Morris

# The threat?

- Ferrets kill adult kiwi as well as chicks
- Ferrets at Boundary Stream Hawkes Bay
  - average c.12% of mustelids caught each year
  - c. 55% of recorded kiwi predation events
- Ferrets at Trounson Kauri Park Northland
  - c. 5% of all mustelids caught
  - c. 14% of reported sub-adult & adult kiwi deaths

# The threat cont...

- c. 15 % of adult deaths in Northland
  - mostly in two separate episodes between 1994 to present
  - May – Oct-06 Purua & Hodges Bush
  - Sept-99 – May-00 Riponui & Hodges Bush
- Kawekas
  - 15 adult, sub-adult and juvenile kiwi killed by ferrets

# The Problem

- Operation Nest Egg
  - stoat only
- Mustelid trapping operations
  - many only target stoats





# When managing ferrets:

- What spp. you are trying to protect?
  - set result & outcome targets
- Ferret ecology
  - interactions with rabbits
  - habitat use
  - seasonal abundance patterns
  - feeding and hunting habits
  - home ranges



Photo: D. Peters

# DOC best practice for controlling ferrets

- Trapping
  - DOC 250 or Fenn VI
  - trap lines ~ 800-1000m apart
  - traps ~ 100-200m along lines

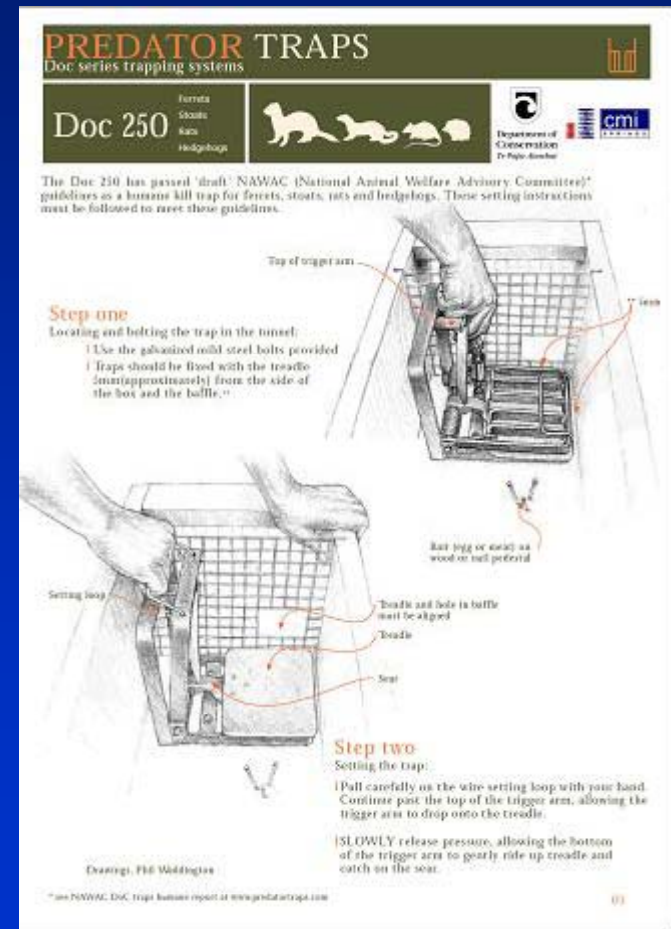


Image : P. Waddington & DOC

# Trapping cont...

- For ferrets trap lines should be
  - “run along linear landscape features...in isolated patches of cover and other preferred microhabitat, around farm buildings and offal pits...”
- Fresh rabbit meat – best lure
  - especially when rabbits are scarce



Photo: G. Climo



Photo: DOC

# Mustelid cf. stoat control using traps

- DOC 200's
  - forested area's internal trap lines
- DOC250's
  - forest pasture margins
  - roads & routes into forests
  - known rabbit or ferret 'hot spots'
- What about the risk of increased non-target captures?
  - how does that stack up against dead adult kiwi?



# Other ferret traps

- Several commercially available models
- May not have passed NAWAC guidelines as humane kill traps
- Live traps an option
  - require daily checking



All images courtesy of Landcare Research website



# Other methods

- Direct poisoning
  - Pestoff only product registered
- Secondary poisoning following aerial or ground based operations
  - will kill residents
  - reinvasion risk remains



# Future of ferret control on the NZ mainland?

- Predator dogs
  - PAPP for cats & stoats but not ferrets at the moment
- New or improved toxins?
  - PAPP for cats & stoats but not ferrets at the moment
- Improved traps/devices
  - improvements on existing designs
  - ‘high tech’ traps or bait stations?
- Fencing
  - very real potential



Photo: S. Theobald



Photo: A. Saunders

# Summary

- Ferret abundance correlated with that of rabbits
- The ferret threat (to kiwi) is disproportionate to their abundance relative to other mustelids
- Trapping operations can be optimised to control ferrets and other mustelids