



# Upper Waiau Toa Black- fronted Tern Management

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## Upper Waiau Toa/Clarence River

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- Head waters of the Waiau Toa/Clarence River
- 700-900m ASL
- Mean summer flow 15 cumec
- DOC estate - St James and Molesworth Station





## Pre management research

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- Three seasons – 2012, 2013, 2014
- Good population – estimated 720 birds
- Low hatching success 42%
- Productivity 0.13 chicks/nest





## Predator identification

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- Trail cameras at nests
- Ferret, feral cat and hedgehog top predator
- Little avian predation (no southern black-backed back gull and minor harrier predation)



# Five Year management project

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- 2015-2019 breeding seasons
- First season mostly setting up





# Island enhancement

- Improve three known breeding islands
- Deepen and widen channels
- Remove woody vegetation



- Clear gravel Islands with good channels on either side





# Predator control

- Trap network around the three enhanced islands





## Results - Island enhancement

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- Islands survived well – medium sized river
- Needed maintenance after 3 year to fix channels
- Annual weed spraying





# Results – predator control

Average kill traps results per site

- 42,000 trap nights at each site
- 5 cats
- 10 ferrets
- 40 hedgehogs
- 5 – 25 stoats





# Results – predator control

- Average leg hold traps results per site
- 500 trap nights per site (two sessions annually)
- 4 cats
- 2 ferrets
- 20 hedgehogs
- 25 harriers





## Results – Hatching success

- Improved hatching success at treatment colonies –
- Treatment colonies – 44%
- Non treatment colonies - 26%





## Results - Productivity

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- Improved productivity at treatment colonies
- 0.33 chicks/nest at treatment sites
- Only 0.04 chicks/nest at non-treatment sites



# Results – predator ID

## Treatment colonies

- Feral cat got to islands once each on two seasons
- SBBG (6 nests) and harrier (1 nest) predation

## Non treatment

- Feral cat and ferret still high
- But SBBG and Harrier increasingly significant predator



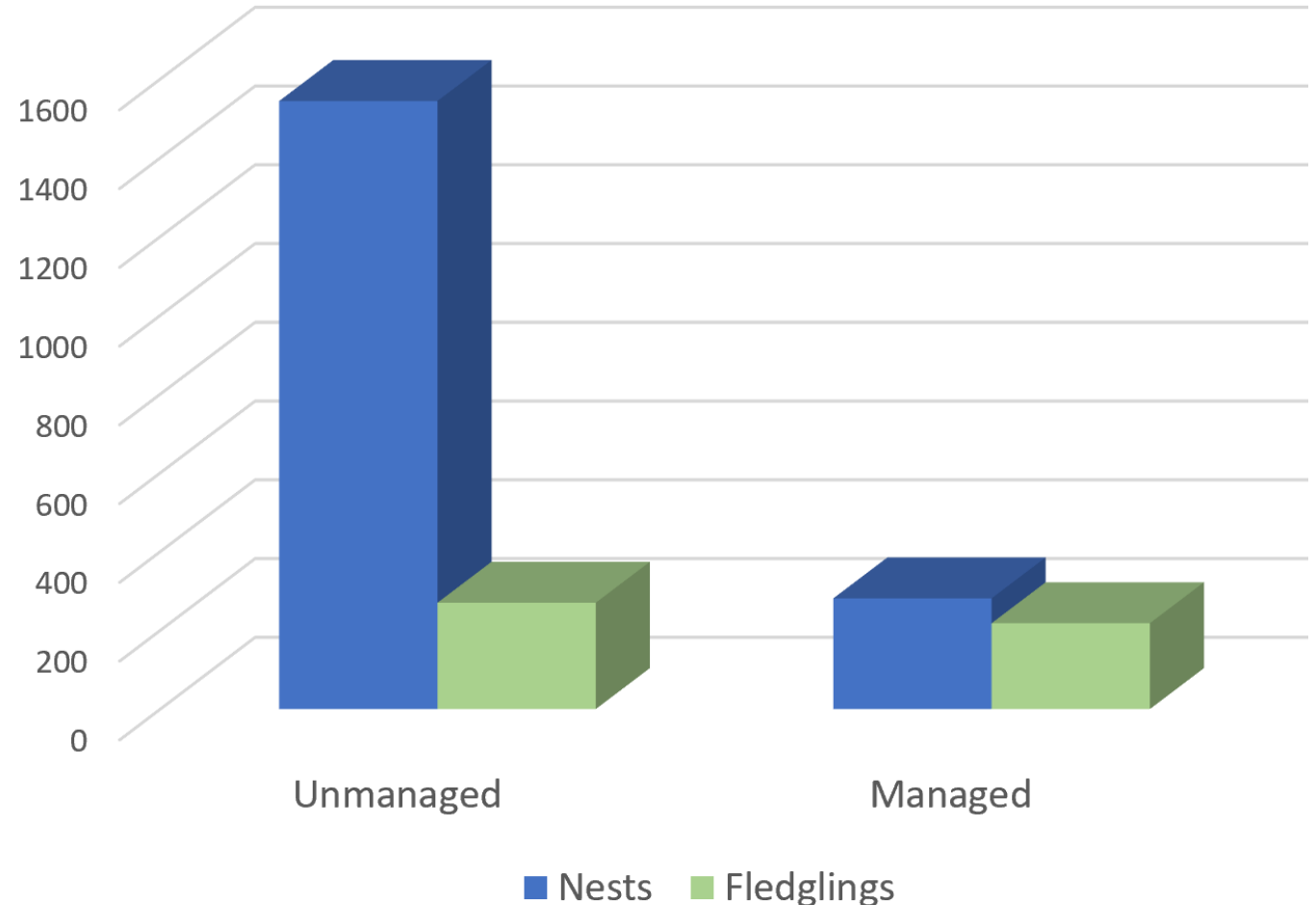
# Conclusion

- Islands prevent hedgehogs 100%
- Islands with trapping 95% successful in dealing with mammalian predators
- Harrier control likely to be successful at reducing harrier predation

# Future

- Holding pattern this next season
- Review underway, looking to see if can scale up (cost the limiting factor)
- Almost same number of fledglings from 1/5<sup>th</sup> the nests

Mean number of nests & fledglings by management area





# Love braided rivers....



Ltl Acorn



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