

# Queensland's quolls

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# Australia's quolls

- Four species
  - western quoll (900 – 1300g)
  - eastern quoll (700 – 1000g)
  - northern quoll (350 – 1100g)
  - spotted-tailed quoll (1000 – 3000g)



# Australia's quolls

- Four species
  - western quoll **VULNERABLE**
  - eastern quoll **ENDANGERED**
  - northern quoll **ENDANGERED**
  - spotted-tailed quoll **ENDANGERED**

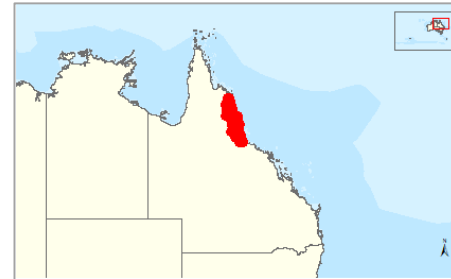


## Spotted-tailed quoll (*Dasyurus maculatus*)

- Two subspecies

- northern Qld (*gracilis*)

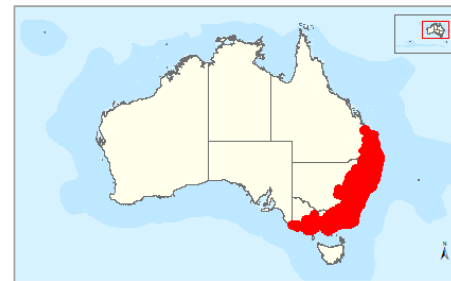
ENDANGERED



- mainland & Tas (*maculatus*)

ENDANGERED on mainland

Not listed in Tasmania



# Australia's quolls

- Marsupials (pouched mammals)
- Belong to family Dasyuridae (carnivorous)



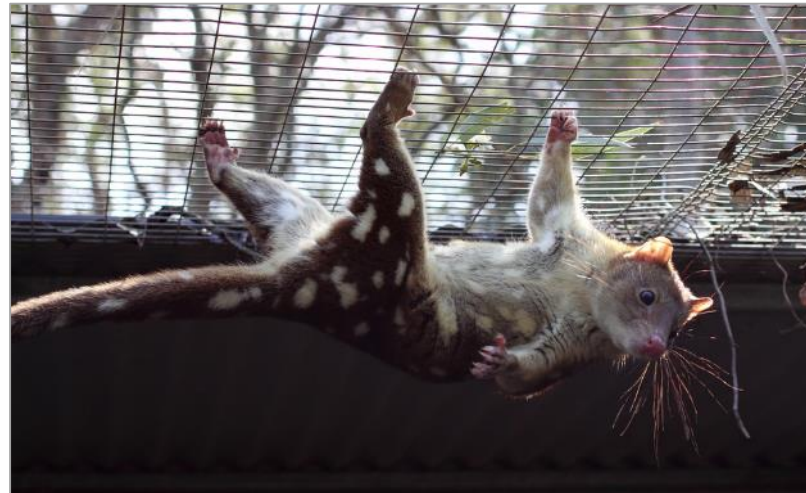
# Australia's quolls

- Spotted-tailed quoll is largest marsupial carnivore on mainland
- STQ more than 50% larger than other quoll spp.



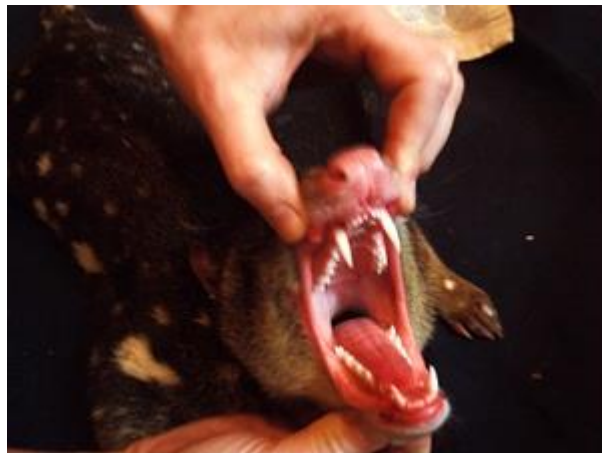
# STQ

- Agile climber but mostly ground-dwelling



# STQ

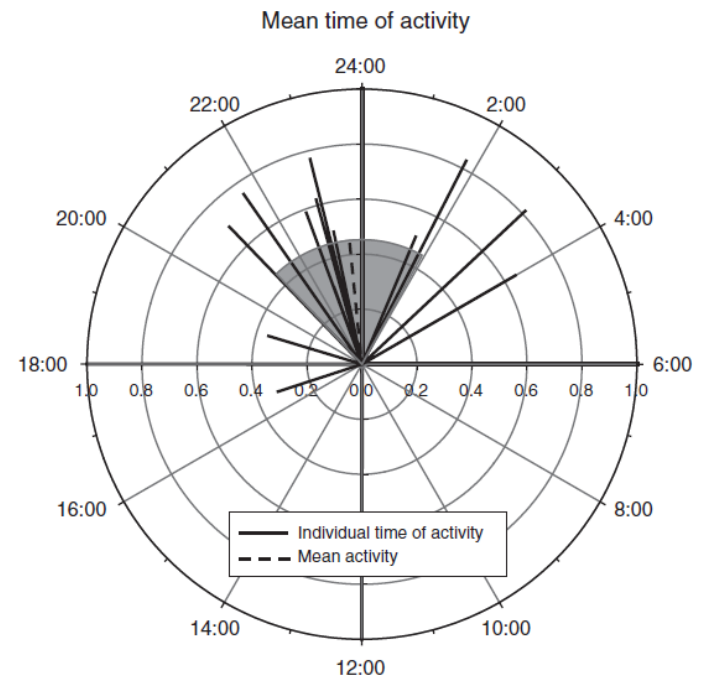
- Serious teeth! Wide gape & powerful jaw muscles





# STQ

- Mostly nocturnal but some daytime activity



From: Kortner et al. (2015) Home range and activity patterns measured with GPS collars in spotted-tailed quolls. *Aust. J. Zoology*

## STQ diet

- Mostly consume medium-sized mammals such as possums, gliders, bandicoots, rabbits & small wallabies
- Can eat carrion (dead animals) incl. road-kill
- Can also eat birds and eggs, incl. poultry - which can lead to conflict with humans
- May eat seeds, berries, plant matter
- Small mammals, reptiles and invertebrates important in diet of juvenile quolls



# STQ life history

- Live 3-5yrs, sexually mature at 2yrs
- Defined breeding season during winter; females will mate with multiple males
- 21d gestation period; avg. litter size 4-6 young; one litter per year
- Young off teat after 7wks and left in den while female hunts; independent at 18-20wks (Nov)





## **STQ habitats**

- Occurs in a wide range of habitats
  - tropical, subtropical & temperate rainforests
  - vine thickets
  - wet & dry eucalypt forest
  - woodland
  - coastal scrub
  - heathland
- Can also exploit human-made environments  
e.g. rubbish dumps, farmlands
- Dens in hollow logs, rock crevices/caves, wood piles, tree hollows & built infrastructure

# STQ ranging behaviour

- Quolls are solitary and extremely mobile
- Massive home ranges
  - females 200-1000ha
  - males 500-2500ha (up to 5000ha)
- Ranges often non-overlapping so populations generally occur at very low densities
- Takes 3-4wks to cover entire home range; move 3-5km per 24hrs (recorded >7km per night)
- Use multiple den sites

# STQ ranging behaviour

- Use communal latrines (toilets) – sites where repeatedly deposit scats & urine; often on prominent areas e.g. top of boulders or logs
- Convey information on reproductive status of females and presence/territories of males; important form of communication in such a dispersed species



# STQ threats

Numerous threats but most declines attributed to:

- Habitat loss, degradation & fragmentation
- Introduced predators (predation & competition)
- Inappropriate fire regimes





# STQ threats

Other influences:

- Persecution by people (due to poultry losses)
- Road mortalities
- 1080 baiting for introduced predators
- Cane toads



## Our STQ research program

- Aim is to better understand the distribution, ecology and health of STQs in southern Qld and northern NSW
- These populations have been poorly researched but are thought to be declining

# Assessing distribution

- Quolls are very cryptic and difficult to detect, esp. low density populations
- We use motion sensor cameras with baits to try and determine if quolls are present
- Also talk with local landowners
- Quoll detection dogs offer a new tool for surveying quolls



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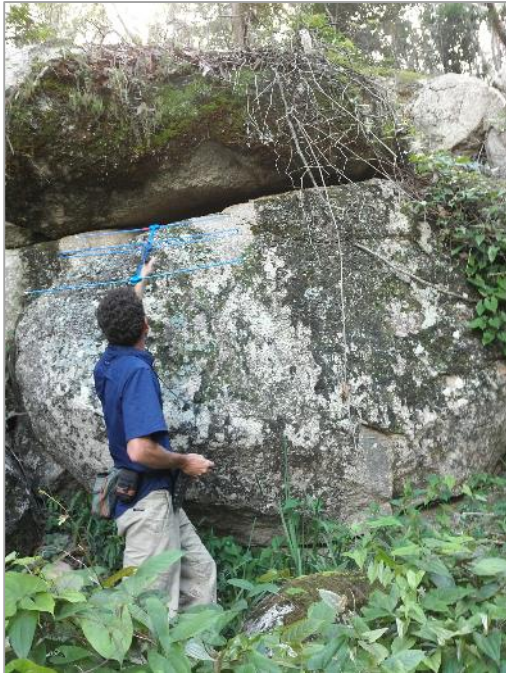
# Examining ecology

- Conduct trapping surveys to catch quolls
- Record sex, age, weight, spot pattern
- Fit with GPS/VHF collar to monitor movement and behavior



# Examining ecology

- Track to den sites (rock crevices, logs)



# Examining ecology

- Use cameras to monitor den use



# Examining ecology

- And presence of other species













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23°C



HC500 HYPERFIRE



















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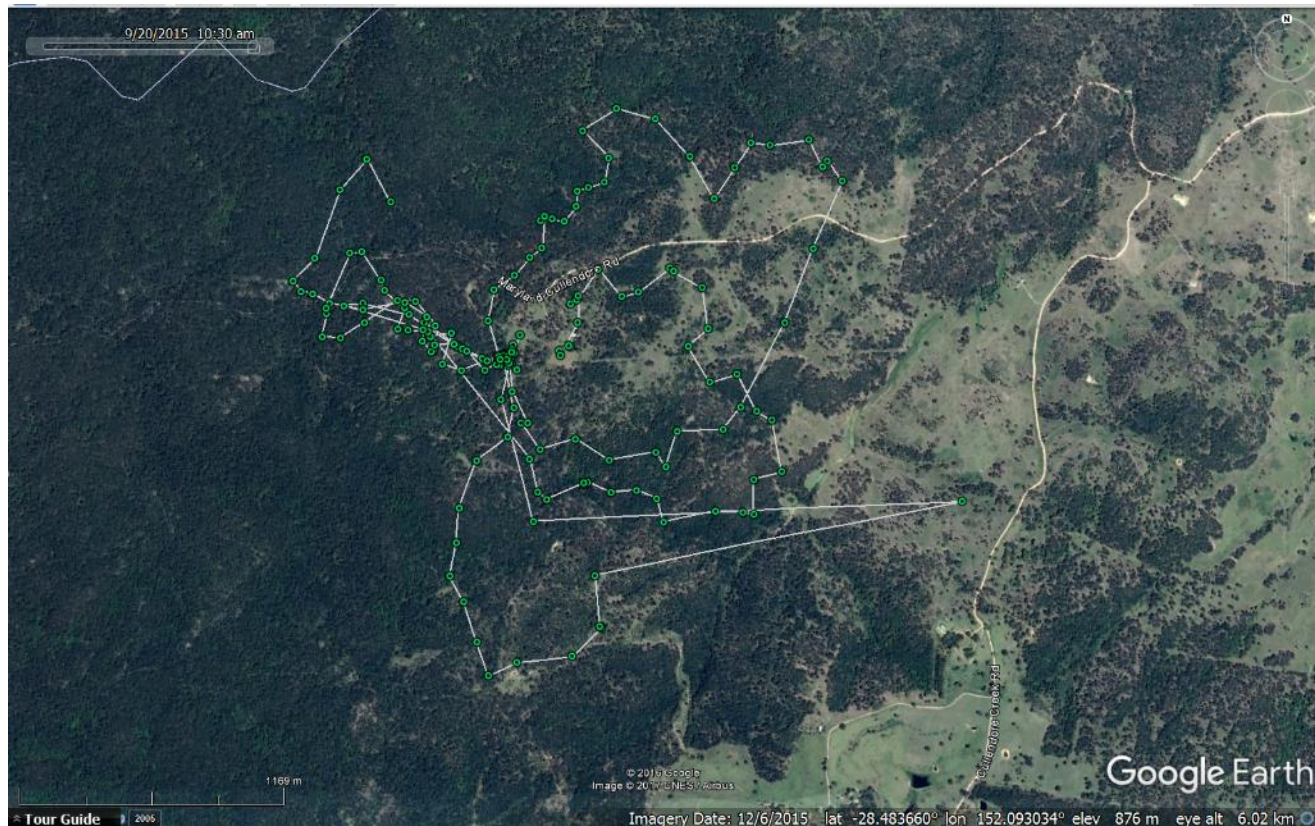
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HC500 HYPERFIRE

# Examining ecology

- Ranging behaviour – crossing agricultural paddocks and protected/non-protected boundary



# Examining health

- Full veterinary examination in the field under anaesthesia
- Assess age & reproductive status
- Collect samples & assess physical health



# Examining health

- Examine blood parameters for signs of inflammation or disease; toxoplasma analysis
- Collect tissue biopsy for genetic analysis
- Dental exam (helps to age quolls)
- Check skin for sores/dermatitis & ticks
- Collect swabs for chlamydial analysis



## Challenges to conservation

- Quolls need large areas to maintain viable populations
- Old growth areas support dense prey populations, esp. gliders and possums
- Baiting for feral predators can result in some unintended deaths of quolls
- Persecution by people still happens despite quolls being listed as endangered under EPBC Act



## What can you do

- Assist habitat protection and restoration efforts
- Promote awareness of quolls, their ecological importance and their conservation requirements  
(WPSQ new quoll brochure)
- Assist survey efforts; report all sightings
- Be a responsible pet owner
- Join Quoll Seekers Network (WPSQ)

# Acknowledgements

- WPSQ & QSN
- Residents in the study areas
- QPWS & NSW NPWS staff
- The study animals
- Photographers of the many images I have used here

