

# Using Rainforest Research

## Spotted-Tailed Quolls: living fast and dying young

May 1998

Despite reports from as early as the 1880's the spotted-tailed quoll remained, until very recently, one of north Queensland's most enigmatic mammals. Celebrated as north Queensland's "mythical beast", this elusive creature is somewhat of a mystery to science. Until recently only 14 specimens have been accessible for study in Australian Museums and only a handful have been captured alive by scientists over the past 100 years.

As a consequence, very little is known about their secretive lifestyles. However, sightings of this cat-like creature have become even more infrequent, which has led some to surmise that numbers of Australian quoll species have dramatically declined in recent times. My investigative mission: an ecological study of the spotted-tailed quoll in north Queensland, to find out why these cat-like creatures are so uncommon. Are they endangered? Are they being threatened by some outside force?

To answer these questions, I needed to begin to unravel the secrets of their cryptic life history. I had to go undercover, deep in the forest to really get a clear picture of how many quolls there are, where they hide out, what habitat they prefer, what they eat, and how far they venture from their hide-outs.

I surveyed the bush for signs of them and managed to capture and radio-

collar several individuals to monitor their movements. I've also been digging into their personal quoll habits – examining their droppings – to get a better idea about what they eat.



I left no scat unturned in this investigation.

### Fruits of the search

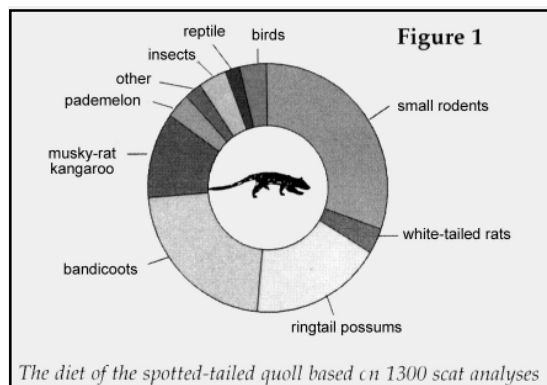
What has all this snooping around told me about their population structure and life span? Ecologically speaking, spotted-tailed quolls "live fast and die young". They live only about three years, and those three years are action-packed. Females have only one litter per year, mating in winter and weaning their young in late spring or

summer. They usually have a maximum litter size of 6 young which are carried in a rudimentary pouch. Females breed in the season following their birth but have a breeding life of only two years after that time.

The spotted-tailed quoll hides out in rainforests from the upland Daintree to Tully, although it has been sighted at sea-level at Cape Tribulation. Spotted-tailed quolls which were once found to the south of Koombooloomba and the Seaview Ranges seem to have all but disappeared since the 1940's.

### Carnivorous, but not fussy, eaters

My investigations revealed that spotted-tailed quolls are the most carnivorous mammals on mainland Australia: they only eat meat. The Tasmanian devil is equally carnivorous but is restricted to Tasmania. Other quoll species, feral cats, dingos and red foxes all regularly consume plant material, but not spotted-tailed quolls. This reclusive carnivore has a particular fondness for other mammals – Daintree and Herbert River ringtail possums, long-nosed



Providing science for the conservation and management of Australia's World Heritage tropical rainforests.

COOPERATIVE RESEARCH CENTRE  
FOR TROPICAL RAINFOREST  
ECOLOGY AND MANAGEMENT



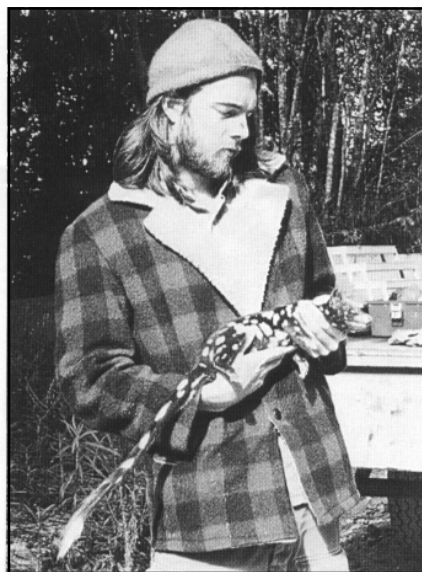


bandicoots, musky rat kangaroos and Melomys. It eats anything of animal origin, alive or dead (see Figure. 1).

Apart from prey remains, their droppings are laced with a cocktail of hormones which convey information about the sex, the age and the reproductive condition of the animal.

#### All in a day's work

Spotted-tailed quolls will venture quite a distance from their home. Several females I radio-tracked, frequently traveled straight line distances of 1 km in a couple of hours during the day in search of food.



Wary of its sharp teeth, Scott Burnett gently holds a captured spotted-tailed quoll.

#### Hardly hygienic habits

A particular intriguing behaviour is the propensity for spotted-tailed

quolls to use communal latrines for scent marking. Unfortunately, these latrines are very often placed in the centre of maintained dirt roads. This seemingly reckless habit makes them very vulnerable to unfortunate encounters with motor vehicles, cane toads, dingos and feral cats.

#### Why are spotted-tailed quolls endangered?

The spotted-tailed quoll is probably its own worst enemy. Populations of the species are vulnerable to extinction if they fail to raise young or suffer unnaturally high adult death rates over a number of successive years.

This vulnerability is further exacerbated by the behaviour of individual quolls which can result in a high chance of their having a fatal interaction with humans or with lethal, introduced animals (cane toads, dingos). Quolls' limited natural distribution and, consequently, very low numbers suggest that it may be taking its "living fast and dying young" reputation to a detrimental extreme.

My research is now completed, but, important questions still remain, particularly about gene flow. Conservation efforts for this unique Australian animal would be advanced from understanding the genetic relatedness of spotted-tailed quolls in different populations within the wet tropics. The ecology of quolls at the rainforest-agricultural landscape

boundary also remains an important question which has a bearing on the future survival of spotted-tailed quolls in north Queensland.

If you have seen a quoll, I would like to add your sighting to my database, or if you would like further information, please contact me at:

Scott Burnett  
 Department of Zoology and Tropical Ecology  
 James Cook University  
 Townsville 4811  
 Ph: 07 4781 5552  
 Fx: 07 4725 1570  
 Email: [scot.burnett@jcu.edu.au](mailto:scot.burnett@jcu.edu.au)

#### Quick Facts about Quolls

- Two quoll species inhabit north Queensland, the spotted-tailed quoll (front picture) and the northern quoll (above)
- The northern quoll is smaller than the spotted-tailed quoll, has no spots on its tail, and is confined to non-rainforest habitats.
- The word quoll comes from an aboriginal word from the Cooktown area, Ja-quoll.
- The spotted-tailed quoll is a marsupial belonging to the genus *Dasyurus* which includes three other Australian and two New Guinean species. The quolls' closest living relative is the Tasmanian Devil.

