

Tropical Topics

An interpretive newsletter for the tourism industry



Dasyurid marsupial carnivores of the Wet Tropics

No. 50 October 1998

Notes from the Editor

Dasyurids are true marsupial carnivores. They are not the only marsupials to feed on other animals — bandicoots and striped possums, for example, eat a variety of insects — but these animals are omnivores whereas the dasyurids are predatory carnivores and eat relatively little plant material.

Dasyurids have well-developed canines ('eye' teeth) and other dental features found in other carnivores. They are enthusiastic and expert hunters. Researchers are very wary about handling them — they are not timid and are not slow to sink their teeth into a finger.

Much remains to be discovered about dasyurid distributions. If you find a dead one, such as a road kill, it would be much appreciated if you could freeze it and send it to the Queensland Museum or to any DEH office. Please record as much information as possible about your find as well as your name, address and phone number.

Many thanks to Daryn Storch and Mike Trenerry who helped with this issue.

Please note

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Quoll woes

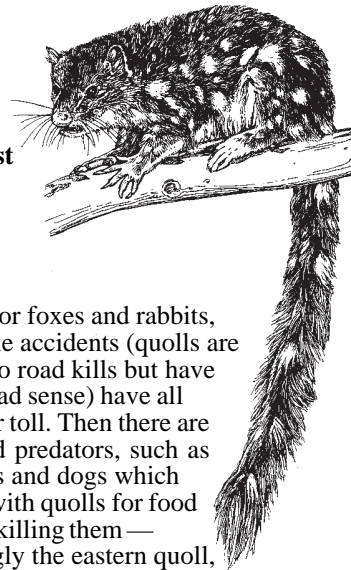
Quolls, which were common two hundred years ago, have suffered badly* since the arrival of Europeans in Australia. At that time they were considered all too common. Considered 'one of the settlers' greatest pests' and the 'dreaded enemy of poultry', bounties were put on their heads. They were even blamed for thwarting initial attempts to introduce rabbits into Australia and poisoned with strychnine as a result.

The persecution of quolls was soon regretted as rabbits, as well as rats and mice, started to become a nuisance. However, the best natural defence against such pests only suffered further as quolls became incidental victims of rabbit traps and poisons. Then, to make matters worse; an epidemic (possibly toxoplasmosis, spread by cats) appears to have devastated quoll populations at the end of the last century.

In more recent times habitat destruction has been the main cause of continuing quoll declines as land is cleared for agriculture and forestry. Destruction by cattle and rabbits of vegetation around creeklines — identified as prime breeding areas for northern quolls — is almost certainly having an impact. In arid regions, the cessation of traditional Aboriginal burning practices which, in the past, created good conditions for many medium-sized mammals, is thought to have affected quoll populations.

In addition, illegal shooting (mainly around poultry pens), continued destruction by traps and poisons

** The eastern quoll, once plentiful, is now probably extinct on the mainland. It is found only in Tasmania (15 percent of its former range). The western quoll, once found across most of the continent, is reduced to about 6000 in a corner of WA (5 percent of former range) while the northern quoll, which occupied a band stretching across the north, has been reduced to small pockets (25 percent of former range). The spotted-tailed quoll is the only species still occupying a reasonable proportion of its former territory, although it is not common.*



intended for foxes and rabbits, and vehicle accidents (quolls are attracted to road kills but have terrible road sense) have all taken their toll. Then there are introduced predators, such as cats, foxes and dogs which compete with quolls for food as well as killing them — interestingly the eastern quoll, which is the most terrestrial of the quolls, now survives only in fox-free Tasmania. In northern Australia, there is also strong evidence that the cane toad is causing quoll declines; frogs feature on the quoll diet but toads poison them. However quolls may eventually learn to avoid toads — the two animals are found together in places such as the upper Palmerston and the western Atherton Tableland.

Researchers are trying to work out how many quolls remain. If you see one please contact Scott Burnett, PO Box 394, Glasshouse Mountains, QLD 4518; Ph: (07) 54969266 or Mobile: 0408 963 350; e-mail: burnettscott@hotmail.com



WET TROPICS
MANAGEMENT AUTHORITY



Department of
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Heritage

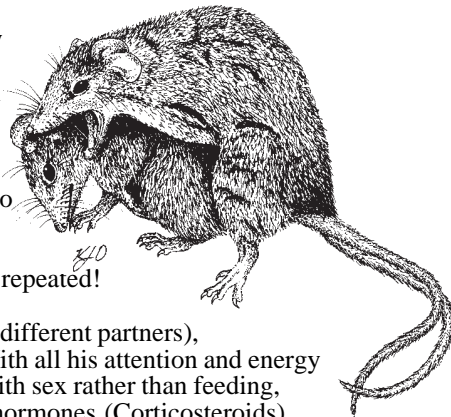
Sex, death and infanticide

Dasyurids become sexually mature when about one year old but many males (about 20 percent of dasyurid species) do not last longer than one season.

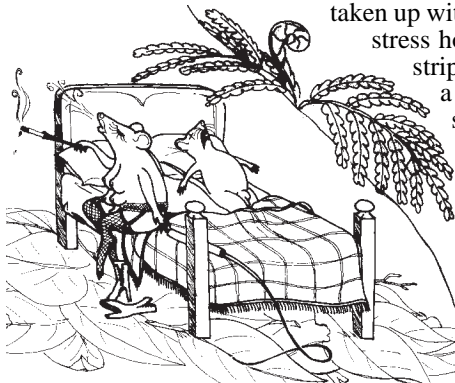
The most extreme example is the antechinus, where the mating season is a frantic two-week long and fatal act. Preparation for this may begin several months beforehand. Studies of brown antechinus have shown that they spend a considerable amount of their time in communal nests. Up to 20 unrelated animals of mixed sexes mingle in these nests, moving from one to another, presumably to familiarise themselves with all possible mates in the neighbourhood. (Later, females with suckling young always nest alone.)

The short mating season is well synchronised, apparently stimulated by a certain increase in daylight during the second half of winter (July, in northern Australia). Males travel extensively between communal nests at this time in a hectic mating frenzy. Time is limited — their bodies have manufactured a finite amount of sperm but it is leaking away in their urine. They are keen to put it to better use so the pressure is on for a male to mate as early and as frequently as possible in the short season and thus pass on as many of his genes as possible. He will never have another chance. As the mating season wears on, males become ever more frantic as they dash around in search of mates.

When a male does catch a female (literally — by the scruff of the neck) copulation usually lasts for over five hours and even up to 12 hours. If the female tries to escape she is hauled back into position. This may serve to reduce competition. Certainly no other male can have access to that female during this time — and perhaps the female subsequently avoids other males for fear the experience will be repeated!



After mating (possibly several times with different partners), death is almost inevitable for the male. With all his attention and energy taken up with sex rather than feeding, stress hormones (Corticosteroids) strip his body of protein and fat. The result is a breakdown in the animal's immune system, and death within two weeks. Males seen at this time are usually balding and in very poor condition. (A very few males may survive in very favourable circumstances — but only a small minority.)



About a month or so later the females give birth, the tiny youngsters attaching themselves to the mother's teats. They should be safe there — but studies* have shown that the mothers sometimes snack on their young. This is not a random case of the munchies — it seems that sexual discrimination is at work. First-time mothers seem to kill most of the girls but second time round eat the boys.

There may be a good reason for this. Sons grow faster and larger than

daughters, requiring more maternal energy, which is perhaps easier for a younger mother to cope with. After they are weaned, however, sons leave home, whereas daughters remain in the area — to eventually compete with their mothers during the next breeding season. If Mum does survive to the next season (many don't) that will definitely be her last. With her dwindling energies she can more easily raise daughters — and doesn't need to worry about competition the following year, because she will not reproduce again. From the point of view of passing on genes, males are more risky. If successful they can father many children, but if not they are a waste of investment. Daughters, however, are almost certain to produce at least some grandchildren.

Reproduction risks

This particular reproduction strategy — where most, if not all, males die after mating — is shared by all antechinus, phascogales, and some northern quolls. (There seems to be a high mortality among northern quoll males which live in areas where survival is difficult, whereas those in more quoll-friendly areas may live for two, or occasionally three, years.)

It is rather a risky strategy. Although the removal of virtually all males from the population leaves more resources for the mother and her young, if predation is heavy or weather particularly bad, an entire local population could be wiped out if no young males survive. In the case of phascogales, where densities are naturally low, and their woodland habitat often fragmented by farmland, there is little chance for an area to be recolonised.

Most quolls, planigales and dunnarts are more flexible in their breeding patterns, males lasting to breed several times. (The spotted-tailed quoll lives for an average of three years and may survive for up to five.)

Planigales and dunnarts are less seasonal, the former probably breeding in late spring and summer here in the north. Females often produce two litters in a year. Dunnarts may produce two or three litters in a season and some seem to breed all year round. Producing up to 10 young at a time their numbers can increase rapidly if conditions are right. Dunnarts have some of the shortest gestation periods of all mammals (12.5 days for the common dunnart from conception to birth).

Marathon men

Most dasyurids engage in extended mating episodes — apart from the antechinus 12-hour marathons, spotted-tailed quolls have been recorded taking up to eight hours and planigales over two hours.

Overproduction

For some reason many dasyurids seem to go for overproduction of their young. Eastern quolls, for example, have been recorded giving birth to up to 30 babies, each of which is no larger than a grain of rice, but since the mother has only six teats only the first six to attach themselves survive. Many female dasyurids reproduce only once or twice, so they must maximise their chances of success. By giving birth to extra babies (which, at this early stage, have taken relatively little energy to produce) they can be sure that each nipple is occupied.

*See Bookshelf

Out and about

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This is the **50th issue of *Tropical Topics***! To celebrate, an index of the issues to date has been prepared. Some readers have been requesting this — but it takes time! If you would like a copy, e-mail the editor, Stella Martin, (address at the back) or send an A4-size self-addressed and stamped envelope.

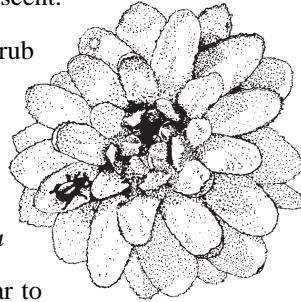
Some items, past their 'use-by date', have been removed from the web version of the newsletter.

In response, presumably, to the unseasonably heavy rain at the end of August, many plants have been showing flushes of new growth and many are blossoming as spring advances. The **native daphne** (*Phaleria clerodendron*) periodically sprouts clusters of white tubular flowers from the trunk and branches throughout spring and summer. These have a beautifully sweet, slightly coconutty, scent.

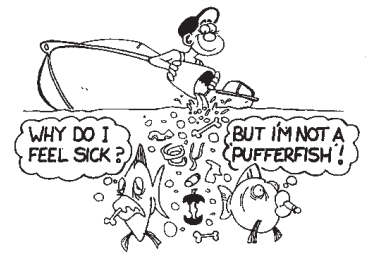
Another shrub producing perfumed flowers at this time of year is the **bolwarra** (*Eupomatia laurina*).

What appear to be petals are actually sterile stamens which have fused together and taken on the function of petals, attracting the small weevils which pollinate it. As these insects clamber about feeding on the flower, they carry pollen from the adjacent fertile stamens to the female stigmas. They then mate and lay eggs. The larvae eventually hatch out and feed on the fallen flower.

Spectacular clusters of small white flowers on roadside trees throughout the Wet Tropics make the branches of the **brown kurrajong tree** (*Commersonia bartramia*) look as if they are covered with snow. (In northern NSW, where flowering is later, it is known as the scrub Christmas tree.) This is a fast-growing pioneer species which thrives in a variety of situations. Its oval or heart-shaped leaves have serrated edges and the fruit, which ripens in March to July, is covered with soft bristles.



Keep Your Butts off the Beach!



Butts can kill reef fish!

Marine Parks

Great Barrier Reef
Department of Environment and Heritage

Because they are so small, cigarette butts are often overlooked as litter. However, most are made of cellulose acetate, a synthetic plastic polymer which does not degrade. Their small size makes them attractive to fish and other animals which often eat them. The butts then swell up inside the animals, blocking their digestive tracts and causing death. The problem lies not only with butts dropped on the beach or directly into the water; thousands of them line our roadsides and are washed down the drain to the sea every time it rains.

Researchers believe that this year's **coral spawning** is most likely to take place 7-10 November 1998. On the Great Barrier Reef, this usually happens in spring, if the water is warm enough (above 28deg.), three to six nights after the full moon. This year there is a full moon on 4 November and since water temperatures have been high, conditions seem right for a November spawn. It is thought that this event will be reef wide. (In some years parts of the reef in warmer waters spawn a month before those in cooler waters.)

Of course, this is a natural event so any prediction is necessarily a guess. There is no guarantee whatever that the little coral critters will co-operate.



Wet Tropics dasyurids

Dasyurids are ferocious animals. If they were bigger they would, from the human point of view, be the most feared creatures on the planet. Luckily for us, however, most are tiny. Several species inhabit the Wet Tropics, but are rarely seen. They are nocturnal and quite sparsely distributed.

Quolls

All quolls have a pointed snout, a hairy tail which is almost as long as the body and head together, and brown or black fur with cream spots. There are four species in Australia. The larger ones feed mainly on vertebrates and the smaller ones on insects as well as birds, frogs, small reptiles and some fruit. They are nocturnal, although the two species found in the Wet Tropics may sometimes forage and sunbake during the day. They shelter and breed in dens in tree hollows and rocky crevices.

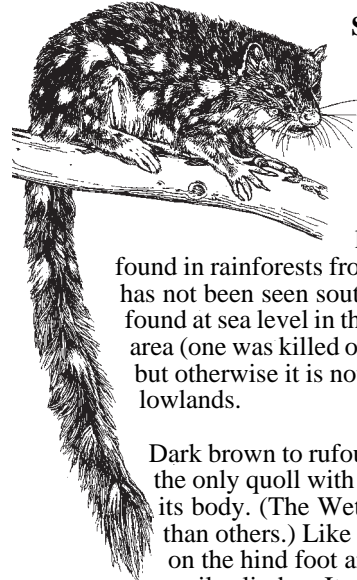
Northern quoll

The northern quoll has grey-brown or brown fur with cream spots above and a paler belly. There are no spots on its tail. It can climb well, especially over rocks. The species name, *hallucatus*, means 'notable first digit'. This refers to the short 'thumb' on the hind foot, a feature which helps it to grip. (This is absent in the eastern quoll, a ground-dwelling species.) The soles of the feet are also equipped with ridges.

Within living memory, this animal was common across most of northern Australia from SE Queensland to northern WA, but it is now found only in small pockets which include the Atherton Tableland. It has not been recorded from the top of Cape York for some years, its disappearance closely following the arrival of cane toads. Within months, in areas where they had been plentiful, quoll carcasses were found. Soon afterwards the animals appeared to have vanished.

The northern quoll seems to prefer, and do best in, broken, rocky country and open woodland. It

is the smallest of the quolls, but has a reputation for being the most aggressive. It eats large insects and small vertebrates such as rock-rats and reptiles as well as some fruit. It is not afraid, at times, to approach homes and camping grounds. It appears to have few natural enemies and seems to be avoided by dingos and rufous owls. This is perhaps because of its strong smell, which Aboriginal people have mentioned as a reason for not eating it.



Spotted-tailed (tiger) quoll

This cat-sized quoll is the largest marsupial carnivore found on the Australian mainland. Although the subspecies found in the Wet Tropics is smaller than its southern cousin (see Facts and stats, p6) it is, nonetheless, our largest marsupial predator. It is found in rainforests from the upland Daintree to Tully but has not been seen south of this since the 1940s. It is found at sea level in the Cape Tribulation-Noah Creek area (one was killed on the road there in October 1997) but otherwise it is not now normally found in the lowlands.

Dark brown to rufous brown above (paler below) this is the only quoll with cream spots on its tail as well as on its body. (The Wet Tropics subspecies is spottier than others.) Like the northern quoll, it has a thumb on the hind foot and ridges on its pads, making it an agile climber. It often moves around in the canopy stalking prey from the trees and coming to the ground to mount an ambush.

Other quolls and even cats, dingos and foxes sometimes eat plant material but spotted-tailed quolls are pure carnivores; they eat only meat. Favourites are rodents (including the fearsome white-tailed rat), bandicoots, ringtail possums and musky rat-kangaroos. They have a ferocious reputation — one has been known to kill a large tom cat, and another to keep two Irish terriers at bay — but they are said to be indifferent to humans.

Spotted-tailed quolls tend to deposit their scats in communal latrines, hormones in the droppings conveying information about sex, age and reproductive condition. Unfortunately these latrines are often placed in the centre of dirt roads which brings the quolls into contact with vehicles as well as cane toads, dingos and feral cats.

Dunnarts

These are thought to be among the most successful of the marsupial insectivores — there are 19 species in Australia. They are small and mouse-like but with very large eyes, large erect ears, needle-shaped incisors and tails covered with short hairs. If cornered, unlike mice but like other dasyurids, they are likely to adopt an open-mouthed threatening posture. They are just a ferocious; some time ago when two were transported in a box together only one arrived — it had eaten the other. They eat a wide variety of insects and, possibly, small lizards.

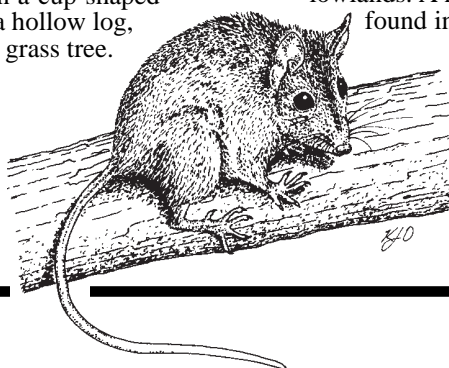
Common dunnart

In spite of its name, this dunnart is not often seen. It seems to prefer sclerophyll forest but has been found near rainforest. Studies in NSW have shown that it becomes much more plentiful two to four years after fire. During the day this dunnart rests in a cup-shaped grassy nest in a hollow log, grass clump or grass tree.

Red-cheeked dunnart

As its name suggests this species has rufous fur on the side of its head. Elsewhere the fur is dark grey, white tips to the hairs giving it a speckled appearance, and paler below. It frequents long rank grass and swampy areas, particularly on the coastal lowlands. A number have been

found in traps set for rats next to canefields, south of Cairns, suggesting that, although they are not often seen, they may be reasonably plentiful.



White-footed dunnart

Only a few specimens of this dunnart have been found in north Queensland — 2100km from the next nearest population in southern NSW! These have been found in wet uplands, above 700m, where reliable rainfall of 300mm in the dry season (May-September) may be necessary for their survival. Interestingly, the northern subspecies of the brown antechinus is found in the same environment — 1100km from its nearest living relatives! (The two also live closely further south.) It is therefore thought that in the Wet Tropics both these animals represent relict populations which became isolated on cool wet mountain tops, during the Ice Ages, when Australia was even drier than it is today.

This northern white-footed dunnart shares the pink, white-haired feet of its southern cousins but has grey cheeks, unlike their pale ones, and a slightly different skull and teeth.

Antechinuses

The next time you see what you believe to be a rat scuttling or rummaging through the undergrowth, look again. It might be an antechinus. Look out for a long conical snout which, on closer inspection, you would find full of sharp dagger-like teeth quite unlike the chisel-like incisors of rodents. And if you had got that close you would probably have discovered that the antechinus is not shy about using its teeth.

Antechinuses are very active (mostly at night) running up and down trees and through the leaf litter with swift, jerky movements. However, during the breeding season, in about July, males are often seen during the day.

Antechinuses are always ready to pounce on insects and even small skinks. Their life is frantic, but short, virtually all males dying after one year (see Sex, death and infanticide, page 2) and most females after two. There are three species in the Wet Tropics.

Yellow-footed antechinus

This antechinus is found in a variety of habitats in most mainland states of Australia, sometimes making itself at home in suburban gardens and houses. In the Wet Tropics it is found in both upland and lowland areas, eucalypt woodland and rainforest. It has two pale crescent-shaped markings above and below the eyes — although these can be difficult to see — and the subspecies found in the Wet Tropics is distinguished from those elsewhere in Australia by its larger size and the rich russet fur of its body, which contrasts with its grey head.

This antechinus is a very agile climber, using serrated soles and sharp nails to scamper along, often upsidedown, under branches, with ease. Signs of its presence may be the remains of vertebrate prey, such as mice or birds, which have been turned inside out.

Atherton antechinus

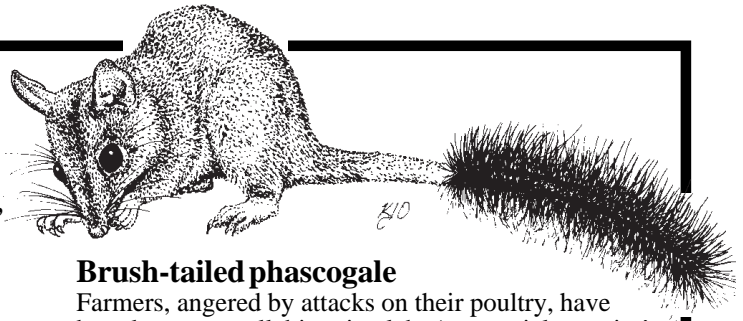
This species is found only in the Wet Tropics, above 600m, in the cool wet rainforests between the Lamb and Cardwell Ranges. It is larger than the other two species, has rufous brown fur, a fairly naked tail with a crest of hair on the tip and particularly small eyes. In fact, it is thought to rely more on hearing and smell; blind animals have been observed moving about with ease and catching food. Its larger size means that it is capable of killing small rats. It is less likely to climb trees than the other two species.

Common planigale

The common planigale is tiny; an average adult weighs as much as a 20 cent coin and is no bigger than a small mouse. Nonetheless, this little creature is as fierce as the other dasyurids, using its 40 sharp pointed teeth to attack and eat insects and even young mammals, almost as large as itself. It usually kills swiftly with a bite to the head and will happily consume its own weight in insects.

Planigales have triangular pointed snouts with flattened heads. This, and their particularly small size, enables them to pursue insect prey into small crevices which are out of reach for most mammals; those species which inhabit the arid zones frequent the cracks in dry soil and have particularly flat heads. In fact, this feature, combined with their sinuous movements have led to them being compared with reptiles. The common planigale of the Wet Tropics lives in a variety of habitats including swamps, sclerophyll forest, rainforest and even suburban gardens. It is largely ground-dwelling.

Cats, snakes and cane toads are known to kill planigales, up to six at a time having been found in the stomachs of cats.



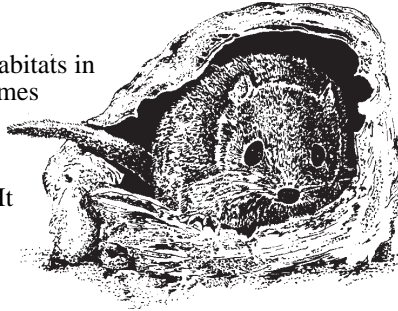
Brush-tailed phascogale

Farmers, angered by attacks on their poultry, have been known to call this animal the 'marsupial vampire' but in the wild it dines mainly on insects — usually found under the bark of trees — and some small vertebrates. It is a superb and acrobatic climber, scampering speedily, if jerkily, under branches and spiralling around tree trunks using its long sharp claws and the inward folding edges of the hindfoot sole. The hindfoot, which has a flexible first toe, can also be swivelled around to allow the animal climb easily up or down; it often holds a position, head down, tail extended, on a tree trunk.

The most noticeable feature of this smoky-grey animal is its tail which is longer than its body and head combined and ends in a bottlebrush of long black hairs. When the phascogale is alarmed these hairs become erect. This is thought to attract the attention of predators, rather like the false eye on the tail of a fish, directing their attack to the wrong end of the animal. When threatened, the phascogale also taps its front feet so loudly the noise can be heard 20m away. This is thought to be a warning to predators letting them know that it is aware of their presence and will not be easily caught.

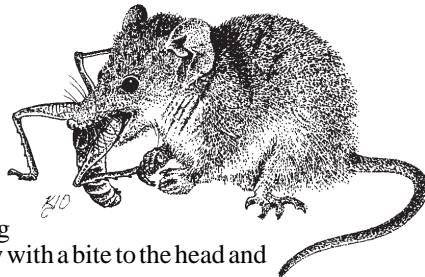
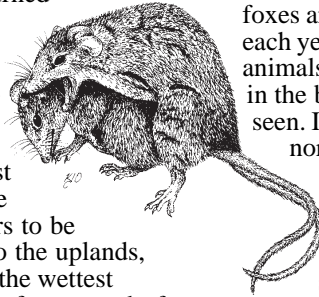
Nonetheless, many phascogales fall victim to cats, foxes and owls which kill two-thirds of the young born each year (Victorian figures). Densities of these animals are very low, with just one in every 35 hectares in the best habitat. The Wet Tropics species is rarely seen. It inhabits mainly dry sclerophyll forest, from north of Cooktown to Lamb Range in places such as Black Mountain (Cooktown), Shiptons Flat, Mt Molloy and Davies Creek.

The female makes a large cosy den of leaves, shredded bark and so on in a tree hollow, preferring those with a small entrance to keep predators out. These hollows are only found in older trees so logging of old growth forest removes not only food sources but also den sites. In addition, clearing allows access to foxes and cats and studies have shown that these areas quickly lose their populations of phascogales.



Brown antechinus

This species is the smallest of the three and appears to be confined to the uplands, preferring the wettest densest rainforests and often nesting in epiphytic ferns. It is a fairly uniform greyish brown and has large eyes.



And on Cape York ...

The **cinnamon antechinus** lives only in semi-deciduous rainforest between the Iron and McIlwraith Ranges on the east coast of Cape York.

A handful of **chestnut dunnarts**, a species which is found in southern New Guinea, have been found in the monsoonal woodlands of northern Cape York.

Questions & Answers

Q I have heard that male freshwater eels remain in the ocean and that only females move into freshwater. Is this true?



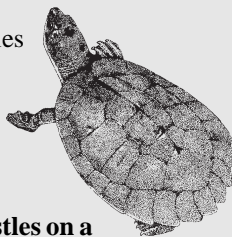
A No. Adults of both sexes gather to spawn in deep channels in the Coral Sea and probably die afterwards (none of them return to land). The resulting larvae spend up to three years in the sea until they reach coastal waters. Developing into adults, both sexes then move, sometimes in huge masses, upstream. They spend the next 20 years or more in freshwater streams and lakes until they feel the urge to return to the sea to spawn — and die.

Q How long do terrapins — freshwater turtles — live? Can you tell me something about their breeding?

A Freshwater turtles can live for about 20 years. Most nest by digging a hole in the earth, the females excavating to where the earth is moist. Some travel only a metre or so from the water's edge while others travel up to a kilometre. Three to 30 (usually up to 12 or 15) elongated eggs with brittle shells are laid before the mother covers up the hole. The babies hatch 7-11 weeks later.

Terrapins do not occur naturally in Australia — they are a type of freshwater turtle found in America. There are no native tortoises in Australia either. Although the term is often used, tortoises are strictly land animals, not found in water, and they have club feet, unlike the flippers of marine turtles or the webbed feet and claws of most freshwater species.

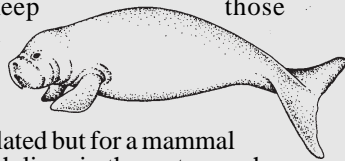
The saw-shelled turtle is one of the most common freshwater turtles of the Wet Tropics. It breeds in spring and summer.



Q Are the bristles on a dugong's snout hairs? Does a dugong have body hair?

A Hair is one of the characteristics of a mammal. Trapping air it serves to keep those which live on land insulated but for a mammal which lives in the water, such as a dugong or whale, it is of little use.

These animals depend instead on layers of blubber beneath the skin to keep them warm. The dugong, therefore, has no body hair apart from those thick sensory bristles on the upper lip of its large and fleshy snout (and, possibly, eyelashes). The lip bristles are believed to be important for detecting suitable food plants in muddy water.



Q What do sea urchins eat?

A Most are herbivorous, scraping up algae with a jaw apparatus consisting of 40 limestone pieces. Coralline algae, which look like red and pink splashes of lichen, or paint, are included in the urchin diet and provide calcareous material needed for shell-building. Some urchins consume any organic matter they encounter and may even eat small molluscs.

Facts and stats on dasyurids

The subspecies of the spotted-tailed quoll found in north Queensland (*Dasyurus maculatus gracilis*) weighs an average of 1.75kg (males) and 1kg (females), compared with its southern cousin (*Dasyurus maculatus maculatus*) which averages 3.5kg (males) and 1.8kg (females). Males can weigh up to 7kg.

Weighing no more than a 10 cent coin, with a head and body the length of a standard car key, the long-tailed planigale is the smallest marsupial and probably the smallest mammal in the world. It lives in arid western Queensland, NT and WA.

The brush-tailed phascogale was first recorded in NSW as early as 1790. It was given the Aboriginal name tapoatafa, now part of its scientific name.

The kultarr is normally an arid country animal, but one or two are recorded as having been found at Cedar Bay, south of Cooktown, in the last century. This may well be a case of mislabelling since this is an unexpected place for it to live and it has not been seen there since. This animal is dunnart-like with very large ears and eyes and very long hindfeet and tail.

It has been suggested that the large proportion of highly venomous snakes in Australia evolved to deal with dasyurids; the snakes needed to kill before they were themselves killed!

In 1866, when rabbits had become established, the year's tally of sport shooting on one estate read 14 253 rabbits and 622 'native cats'.

The male quoll has an appendage on his penis. Observations of mating, from beneath a wire-floored cage, showed that this may enter the females rectal passage, thereby ensuring correct positioning of the penis in the vagina below.

Quolls feed to excess. Western quolls have been recorded eating up to 43 percent of their body weight in one evening.

Other dasyurids found in Australia (but not in the Wet Tropics) include dibblers, Tasmanian devil, kowari, pseudantechinuses, parantechinuses, mulgara, kaluta and ningauis. The termite-eating numbat of WA and the extinct thylacine (Tasmanian tiger) are closely related but in different families.

Tourist talk

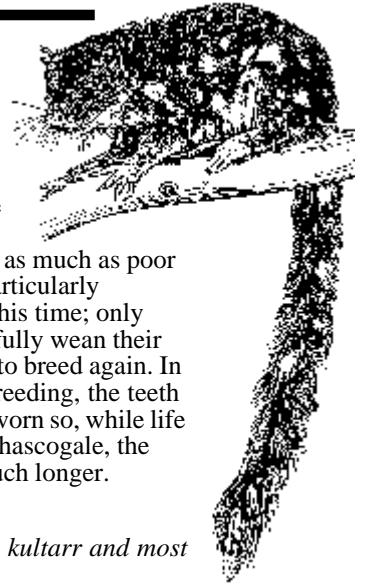
ENGLISH	GERMAN	JAPANESE
marsupial	Beuteltier	yuutaimoku no
carnivore	Fleischfresser	nikushokujuu
predator	Raubtier	hoshoku dobutsu
to hunt	jagen	kari o suru
weasel	Wiesel	itachi
spots	Flecken	hanten
pouch	Beutel	onaka no fukuro
to mate	sich paaren	koubi suru
to die	sterben	shinu
to decline	abnehmen	suibi suru
		有袋目の肉食獣捕食動物狩りをする
		いたち斑点
		お腹の袋交尾する死ぬ衰微する

Virtually pouchless marsupials

The spotted-tailed quoll* is the only dasyurid in the Wet Tropics with a permanent pouch. Outside the mating season, the females of other species are virtually pouchless. As the mating season approaches, or after conception, temporary pouches develop but many of these, particularly those of the phascogales and antechinus, are quite rudimentary. At best, folds of skin develop from the sides of the mammary area but often it is simply a matter of the mammary area becoming deeper, within a fleshy rim. This arrangement may completely enclose the young when they are first born but as the young grow mothers of almost all species end up having to function with several babies dangling down from their bellies, rather like bunches of grapes, until they are old enough to be deposited in a nest. Little dunnart mothers often have to carry 10 babies, an almost incapacitating burden.

* Among the dasyurids, apart from the spotted-tailed quoll, only the Tasmanian devil, the kultarr and most ningauis have permanent pouches.

Feeding so many babies is an exhausting business — studies have shown that individual brush-tailed phascogale babies weigh about half as much as their mother by the time they are weaned and the entire litter can weigh over three times as much as poor Mum. The mothers seem particularly vulnerable to predators at this time; only about half of them successfully wean their litters and only a third live to breed again. In addition to the strains of breeding, the teeth of these animals are badly worn so, while life is very short for the male phascogale, the females do not last very much longer.



Inappropriate names

Quolls were probably the first marsupial carnivores to be encountered by Europeans in Australia.

Captain Cook collected them along the east coast in 1770 and recorded 'quoll' as their Aboriginal name; 'ja-quoll' is used in the Cooktown area. Later Captain Phillip, the first governor of the colony, gave them the name 'spotted marten'.

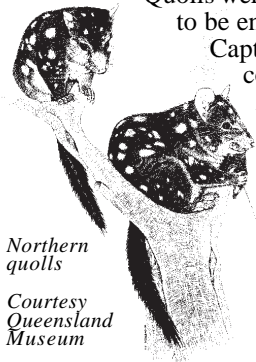
Another early name was 'native polecat' (referring to the European weasel-like animal).

Later, however, this name was shortened to 'native (or spotted) cat' which was much less appropriate since

these animals more closely resemble martens, polecats, stoats and weasels than any member of the cat family.

Antechinus were once known as 'marsupial mice' but beyond superficial appearances these animals are quite unmouse-like in character; 'marsupial shrew' would have been a more accurate name for these little predators. Later the scientific name was adopted as the common name; antechinus means 'resembling hedgehog', a reference to the bristly hair of these animals.

Dunnarts were originally known as 'narrow-footed marsupial mice' and planigales as 'pygmy marsupial mice'. This inappropriate mouse-tag lives on in the scientific name for the dunnart — *Sminthopsis* — which means 'mouse-like'. On the other hand, planigale means, more appropriately (if Eurocentrically) 'flat weasel' (presumably a reference to the flat head of this species) while phascogale means 'pouched weasel'. The brush-tailed phascogale is known as 'tuan' and 'wambenger' elsewhere in Australia.



Northern quolls

Courtesy Queensland Museum

Cultural Heritage news

What is cultural heritage? Many people think heritage is just about buildings, but it isn't. Cultural heritage sites are those places or parts of the landscape which are important to the community (or sections of the community) for their associations with past events or activities. They may be of social, historical, spiritual, aesthetic, architectural or archaeological significance. It is generally agreed that some places are important enough to keep and preserve for future generations.

In Queensland, places must be at least 30 years old to be considered of heritage value, but age is only one factor in this assessment. Cultural heritage places include both indigenous and non-indigenous places and there are many different types. Examples are Aboriginal story places, rock art sites, occupation sites, burials and cemeteries, ruins, buildings still in use, old mining sites, memorials and places where significant historical events occurred. More specifically, a cultural heritage site might be an Aboriginal ceremonial ground, a pioneer's house and contents, a shop, a 40 000 year-old Aboriginal campsite, a 1900 brick veneer house, a shipwreck, a garbage dump, a local war memorial, a garden, an Aboriginal rock painting or a band rotunda.



Chillagoe smelter

Bookshelf

The Mammals of Australia

Ronald Strahan (Ed)
Reed Books (1995)

Carnivorous Marsupials

Michael Archer (Ed)
Royal Zoological Society of NSW
(1982)

Two volumes include 64 research papers. Vol I concentrates on biology, behaviour and ecology of various dasyurids.

Using Rainforest Research (leaflet)

Spotted-tailed quolls: living fast and dying young

Scott Burnett
CRC TERM (1998)

Summarising Scott's 10-year research, this leaflet is available from CRC TERM, PO Box 6811, Cairns QLD 4870. Ph: 07 4042 1246; Fax: 07 4042 1247.

Quolls of Australia Fact Sheet
Environment Australia (1997)
Biodiversity Group, PO Box 636,
Canberra, ACT 2601.

Endangered animals of NSW
Native quolls and tiger quolls
Judy Caughley
NSW Parks and Wildlife (1980)

Pacific Conservation Biology Vol 3 No 1
Feb. 1997

Colonizing cane toads cause population declines in native predators.
Scott Burnett

**Nature Australia Vol 25 No 3*
Like mother like daughter
Danielle Clode

An investigation into infanticide among brown antechinus mothers.

Australian Natural History Vol 24 No 7

The return of the little predator
Lynda Sharpe

Reintroductions of brush-tailed phascogales.

Nature Australia Vol 25 No 2 Spring 1995

Fluffy-tailed foot-tappers

Brush-tailed phascogales.

Australian Geographic July-September 1996

Out on a limb
Susan Rhind

Brush-tailed phascogales in WA.



This newsletter was produced by the Queensland Department of Environment and Heritage (now The Environmental Protection Agency) with funding from the Wet Tropics Management Authority.

Opinions expressed in *Tropical Topics* are not necessarily those of the Department of Environment and Heritage (EPA).

While all efforts have been made to verify facts, the Department of Environment and Heritage (EPA) takes no responsibility for the accuracy of information supplied in *Tropical Topics*.

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