



Black-footed Tree-rat Mesembriomys gouldii

One of Australia's largest rodents, the Black-footed Tree-rat is a spectacular creature, perhaps the Australian equivalent of a squirrel. It inhabits tropical woodlands and open forests in coastal areas of the Kimberley in Western Australia; the Top End of the Northern Territory; the east and west coastal areas of Cape York Peninsula. Early distribution records suggest that populations have contracted from southern and more inland areas of the Northern Territory around Daly Waters and the lower McArthur River in the Gulf of Carpentaria. The species is considered to be uncommon to rare in the Kimberley and Queensland and still common but patchily distributed in the Northern Territory. Patches of tall *Eucalyptus miniata* and *E. tetradonta* open forest on deep loamy soils, supporting a moderately dense midstorey of shrubs and small trees for example, *Gardenia*, *Terminalia*, *Planchonia*, *Petalostigma* and *Pandanus* species are its preferred habitat. Such areas are often associated with sites protected from fire or perennial soaks where moisture levels and food resources are relatively stable throughout the year. The Black-footed Tree-rat is nocturnal, sheltering during the day in tree hollows, pandanus stands, or even under the roofs of buildings. A radio tracking study showed that individuals may use a number of different nest sites (range 1 – 6), with hollows in large diameter *Eucalyptus*

tetrodonta and *E. miniata* trees being preferred. They were also recorded nesting in pandanus fongs, but this only occurred when availability of hollows was limited. Black-footed Tree-rats have a large home range (approximately 67 ha) and are capable of covering large distances, (> 2 km) in a night while foraging. Little is known of their diet. Analyses of stomach contents and droppings indicate that fleshy and hard fruits and large seeds are a major food item, supplemented by grass and invertebrates such as termites and even molluscs. The large fruits of *Pandanus* are particularly favoured. When the fruit is ripe in the middle of the dry season (July) the Black-footed Tree-rat may be observed in a tree, squatting on or near the fruits and gnawing these; as the fruits break up and fall, they are eaten on the ground. Individuals have been seen in small flowering *Grevillea* trees in July, eating the flowers, which are rich in nectar. Although many of these food plants are patchily distributed, most have prolonged fruiting periods and provide a relatively stable food resource. This may largely explain the patchy distribution of this species, as a shortage of refuge hollows is unlikely to be a factor limiting populations in northern tropical forests.

Breeding occurs throughout the year, peaking in the late-dry season (August and September) and declining somewhat during the mid-wet season (January March). Females are capable of conceiving about every nine months and influxes of young animals follow breeding pulses that occur at intervals of roughly two to three months. The litter size is small (typically 1-3); the oestrous cycle (averaging 26 days) and gestation period (43-44 days) are long for such a murid; but development may be relatively rapid (e.g. weaning in about four weeks) of the young . Newborn young are precocious (averaging 35 grams in weight), sparsely haired and with erupted upper incisors. Growth is rapid: the eyes open at 11 days and a weight of about 400 grams is

attained by 40 days. Young cling to the mother's teats and are dragged along by, or run after, her while still attached. Adult status is reached at about 80 days, with females weighing about 580 grams and males about 650 grams. Females outnumber males throughout most of the year and available data suggest that most animals lead a relatively solitary existence.

- Black-footed Tree-rats are very fragile in the early stages of development and have a high chance of not surviving if brought in orphaned in these stages. As they grow very rapidly (being ~400g in 4 months) they require a high protein, high fat milk supplement. The most successful milk formula is Divetalac (made following the instructions on the tin) with ~ 1ml of egg yolk added. Solids can be introduced at ~90g. Once agile they require a large cage with branches and a hollow log for nesting. Diet can consist of a variety of foods including meal worms, dry dog food, fruits, nuts and vegetables.
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A juvenile Black-footed tree-rat (Budda) ~ 9 days old. Eyes are still shut.