

Dasyurids

Dasyurids are an almost unknown creature to many. Carnivorous marsupials are a large and diverse group of animals spread across our continent and New Guinea. There is a remarkable variation in all aspects of the species whether dunnart, planigale or quoll. Partly due to their adaptation to a range of environments from arid desert to damp rain forest.

Australian carnivorous marsupials

Order : Dasyuromorphia

Family : Dasyuridae

Genus Species : 55 species in 12 genera

Family : Thylacinae

Genus Species : one species in one genus

(*Thylacinus cynocephalus* - Tasmanian Tiger)

Order : Notoryctemorphia

Family : Notoryctidae

Genus Species : two species in one genus

(*Notoryctes caurinus*, *Notoryctes typhlops* - both Marsupial Moles)

Dasyuridae is largest family of carnivorous marsupials. Emphasis will be given to the Fat tailed Dunnarts and Kowaris, as these are currently the only two species that can be held privately on the Victorian Wildlife schedules. Dasyuridae is a family with diverse species ranging in size from 3 grams to 9 kilograms. There are 68 species in total. 53 occur in Australia and 13 in New Guinea. Two species occur in both regions. 8 are endangered and 6 are listed as vulnerable to extinct. The smallest are planigales, ninquis and dunnarts. Medium sized are the antechinus, mulgara, kowari and phascogales. The larger and more commonly known species are the quolls and devils.

“Dasyurids are characterised by a biting and cutting dentition with four pairs of pointed upper incisors and three lower pairs; well developed upper and lower canines; two or three pairs of upper blade and lower blade-like premolars and four pairs of upper and lower molars with sharp, shearing cusps.” (Strahan 2002)

The species has a relatively short lifespan. Across the species lifespan generally increases with size. Animals live longer in captivity than in the wild. More young are produced in the smaller dasyurid species than larger species, the reason for this is not know.

Body shape does not differ a great deal across the species with the sight exception of the Kultarr which has very long hindlimbs. “In arboreal species the hindfoot is broad and has a small, mobile hallux.” (Strahan 2002) The hallux is less developed in species that combine an arboreal and terrestrial lifestyle and is absent completely from terrestrial species. (Hallux - the inner most digit of hindfoot).

Teats range from 4 to 12 depending on the species. Not all species have pouches, phascogales have teats on the abdomen in a circular patch. In other species lactating females develop lower lateral folds on the sides of the mammary area. These folds do not offer much protection for the young.

Smaller dasyurids feed on insects, arthropods and small vertebrates. The larger species feed on mammals and carrion. The more arboreal species like the quoll will also feed on birds. Quolls and Tasmanian Devils have been know to take “prey several times their own body size”.

Not a lot is known about the social behaviour of carnivorous marsupials. In captivity they can display random aggression towards other animals. Nesting together outside the breeding season. Many dasyurid species are solitary in the wild and only come together during a mating period. Records of communal nesting (in the wild) of many species are during times when food is plentiful, changing to solitary behaviour when food is scarce. In the wild Kowaris are reported to show threat displays towards each other rarely making contact. In captivity females will be aggressive to the male during the oestrus period. Observation of relationships of species in captivity is essential as they change quickly.

Dasyurids use a number of reproductive strategies. Antechinus, phascogales and Little red kultarr females are monoestrous with a restricted mating period. This is due to males being reproductively senile and dieing after each breeding season. It is thought the die off is due to “stress associated with social demands of the mating season, a time when males stop feeding, live on their reserves and seek all opportunities to mate.” In some male species during this time “stress hormones reduce the effectiveness of the immune system, allowing them to succumb to parasites of the blood and intestine and to bacteria infections of the liver”. (Strahan 2002) Females usually survive to breed a second season, however reproduction is low.

Dunnarts and Kowaris are polyoestrous, males have perennial and extend mating periods. There are suggested sex ratios for keeping dasyurid species in captivity. For Fat tailed Dunnarts a 1:1 ratio is suggested, removing the male after pouch young are discovered due to possible aggression from the female. Groups of animals have been reported to share a nest, however males where observed fighting with other males.

Kowaris should be allowed to nest solitary and introduced as a 1:1 ratio, during the breeding season.

For captive breeding, it is suggested that males be introduced to a females already established environment. Breeding success has been achieved when introducing the males to the female when she is in oestrus.

Oestrus can be determined by presence of cornified epithelial cells, found in urine collected and viewed microscopically. Alternatively behavioural oestrus can be seen in Fat tailed Dunnarts and Kowaris this technique can be utilised instead of urine collection and observed for 1-3 days in kowaris and 2-3 days in dunnarts.

With Dasyurid species it is important to consider holding a number of animals and rotate them to maximise breeding opportunities this is practice essential to avoid population die out.

Reproduction and development of Kowari & Fat Tailed Dunnart (Jackson 2003)

Dasyuroides byrnei

Litter size : 4-6
First detached : 55 days
Permanent pouch exit : 70-78 days
Weaning : 100-120 days
Sexual Maturity - male : 8-9 months
Sexual Maturity - female : 8-9 (or) months
Mating period : May - October
Birth Season : June - December
Reproductive life in captivity : male 7-48 months, female 8-49 months
Oestrous pattern : Polyoestrous

Sminthopsis crassicaudata

Litter size : 3-10
First detached : 43 days
Permanent pouch exit : 59-63 days
Weaning : 65-68 days
Sexual Maturity - male : 4 months
Sexual Maturity - female : 5 months
Mating period : June - January
Birth Season : July - February
Reproductive life in captivity : male 4-30, female, *no record*
Oestrous pattern : Polyoestrous

Dasyurids are an extremely diverse species, living in a range of environments all with equally diverse requirements in captivity. Due to their short life span they can be a challenging species to keep and maintain via captive populations.