

POSSUMS

Juvenile to Adult



Dear Wildlife Carers

Some people can put their thoughts and observations to paper very easily; I am not one of those people. I have to be pushed or in the mood and I must say my passion has thinned these last few years. Perhaps it's because most of the possums who shared our land and I knew so well perished during the 2000 bush fires. We did manage to save a few burnt animals; A Greater glider, two Ringtails and a couple of Brushtail possums which made their way to the house area seeking water from the pond a day or so after the fire. We consider ourselves lucky as we managed to save our home unlike some residents who lost everything. Many old hollow bearing trees (widow makers they call them) are just waiting to drop as they never recuperated from the fire and the lack of rain. There was no understory for such a long time. But, the bush is slowly coming back, thanks to the recent rains.

Maybe that's why I decided to get involved with Bush Regeneration in my area. I have always had an interest in native plants especially trees but viewed plants as a means of 'fodder' or shelter for wildlife. I also noticed after the fire that the little green that did come back quickly amongst the black charred bush, were weeds! So if you have some spare time, check out your local council for a listing of Bush Regeneration groups in your area and give them a hand. Habitat such as creek lines, streams and bushland is being choked by aggressive garden escapees a bit like 'feral cats' preying on the indigenous plants which are having trouble trying to cope with the invasion!

The following notes are based on my own experience and I hope they are a help to new carers. Hands on is the best way to learn, that, and asking questions no matter how dumb you think they are! Ask them anyway, you would be surprised how many problems can be stopped from escalating by asking dumb questions and maybe save an animal's life! Please remember these notes are only a guide because situations vary so much, and generally there are many ways to arrive at the same outcome - successful rehabilitation.

I would like to thank the veterinarians for without their service, dedication and expertise many animals would be lost. And thanks to the researchers and their students, who spend many nights over many years wandering around the bush, documenting and publishing their findings so carers like me can also get an insight into the private world of possums.

Most of all, I want to thank you, the wildlife carers who give their time, energy and money to care for these special creatures that really belong to us all.

Cheers

Sonya



Golden Brushtail possum
- Tasmania 2003

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Comments and feedback are welcome.
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FAMILY TREE OF POSSUMS

MARSUPIALS

Order - DIPROTODONTIA

FAMILY

Common name - Genus - Species

ACROBATIDAE

Feathertail glider - *Acrobates pygmaeus*

BURRAMYIDAE

Eastern pygmy-possum – *Cercartetus nanus*
Little pygmy-possum – *Cercartetus lepidus*
Western pygmy-possum – *Cercartetus concinnus*
Long-tailed pygmy-possum – *Cercartetus caudatus*
Mountain pygmy-possum – *Burramys parvus*

DACTYLOPSILINAE

Striped possum – *Dactylopsila trivirgata*

PETAURIDAE

Sugar glider – *Petaurus breviceps*
Squirrel glider – *Petaurus norfolcensis*
Mahogany glider – *Petaurus gracilis*
Yellow-bellied glider – *Petaurus australis*
Leadbeater's possum – *Gymnobelideus leadbeateri*

PHALANGERIDAE

Common brushtail possum – *Trichosurus vulpecula*
Short-eared possum – *Trichosurus caninus*
Mountain brushtail possum - *Trichosurus cunninghamii*
Scaly-tailed possum – *Wyulda squamicaudara*
Common spotted cuscus – *Spilocuscus maculatus*
Southern common cuscus – *Phalanger intercastellanus*

PSEUDOCHIRIDAE

Common ringtail possum – *Pseudocheirus peregrinus*
Western ringtail possum – *Pseudocheirus occidentalis*
Herbert River ringtail possum – *Pseudochirulus herbertensis*
Daintree River ringtail possum – *Pseudochirulus cinereus*
Green ringtail possum – *Pseudochirops archeri*
Rock ringtail possum – *Petropseudes dahli*
Lemuroid ringtail possum – *Hemibelideus lemuroides*
Greater glider – *Petauroides volans*

TARSIPEDIDAE

Honey possum – *Tarsipes rostratus*

Preface

The name possum is a familiar one. Though it did come about in odd circumstances. It was first named by Sir Joseph Banks after Captain Cook's ship ran aground on the Endeavour River. Banks a botanist, recorded an animal thought to be related to the American species of the Opossum. If only he had been able to ask the local natives they would have told him it was a 'bobuck' or some other indigenous name. So our first possum - a Common ringtail was christened 'Opossum'. The name Opossum means 'white- face' and describes the Virginia opossum the only marsupial found in North America. A few years later the 'O' was dropped, to emphasize the difference between the American and Australian family. Unlike the first discovery of a macropod, which was killed and eaten, our first possum is still on display in a museum in the Netherlands.

The Opossum has many sharp teeth and are Omnivorous-eats just about any thing! It is solitary by nature and slow moving and if frightened and unable to escape may fall into an involuntary shock-like state 'playing possum' unlike their Aussie cousin who does not play possum!

Opossums can have up to 20 young after a gestation period of 11-13 days, but the female has only 13 teats and not all may function, so the excess young will die. I believe few Opossums are lucky to survive beyond a year in the wild but in captivity some have been known to live 5 to 10 years.



The North American Opossums could only be loved by their mothers. Australian possums are definitely cuter! Unless, your an American Wildlife carer like Dan Shea who supplied the picture of the young Opossums above

About this course

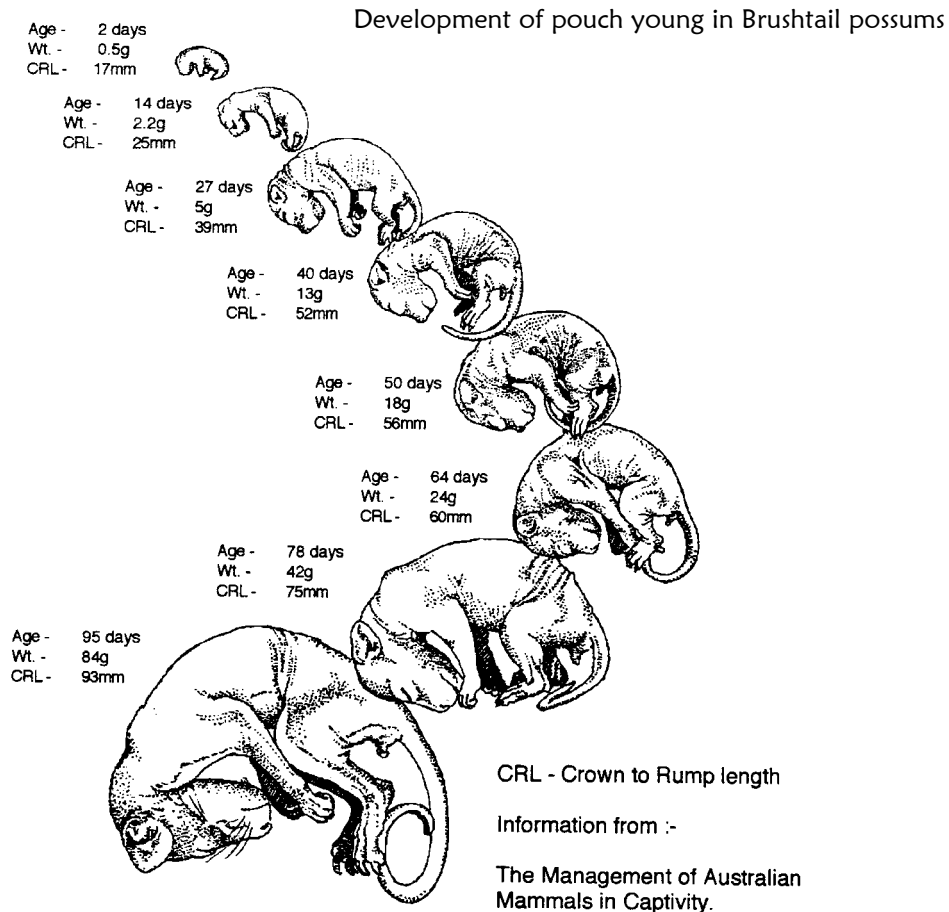
Today we will cover the possums that are known to be in this area, and likely to come into care. This course is only a beginning, it is up to each of you as individual carers to learn as much as possible about the local possums which inhabit your area. There are some great books which are reasonably priced and very informative about the natural history of possums.

Find out

What natural foods they prefer - Where they live - Natural history

Remember all animals covered by the 'Threatened Species Conservation Act 1995' must be reported to NPWS, along with the location. This will allow the NPWS to compile a complete listing for the fauna atlas records. Don't waste a dead possum, maybe your local university could do with a few bodies to help educate vets on wildlife or try the museum.

Introduction to Possums



Possums are marsupials. This means they give birth to very small undeveloped young which are blind and naked. Their development is finalised within a pouch. At birth the hind limbs are nothing more than fan-shaped buds, unlike the forelimbs which are more developed and have sharp curved claws. Using these forearms the newborn makes its way from the cloaca by climbing and clinging to the mothers fur until it reaches the pouch.

Once inside the pouch its first priority is to locate a teat and clamp it's mouth firmly around it. It remains attached like this for about 3 months in the case of a brushtail and less for the smaller possums. In this second stage of development possums grow rapidly, the ears and eyes open, whiskers and teeth develop and a thick coating of fur covers the joey. It's referred to as a pouch young.

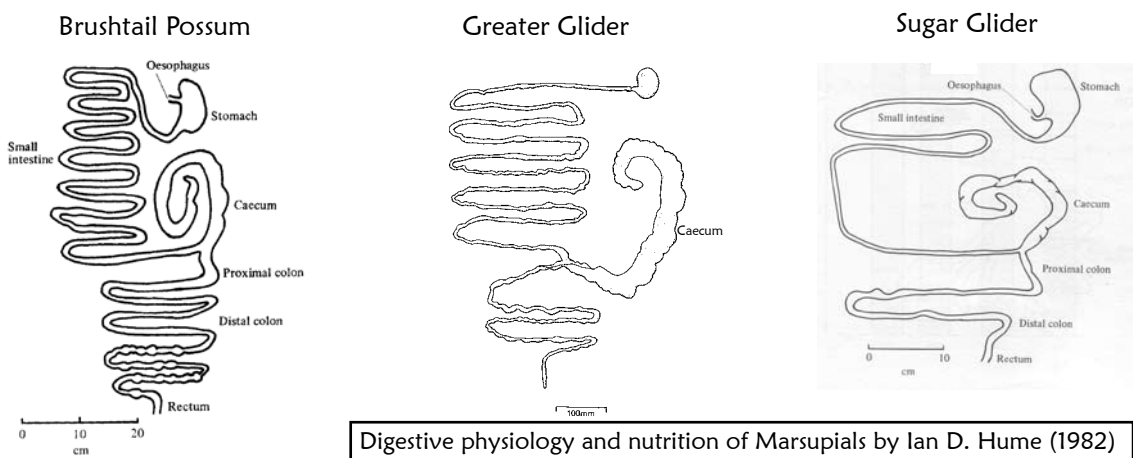
As the baby grows it becomes too large for it's pouch nursery and starts to cling to the mothers back or is left in the den whilst mother forages for food. Its now called a back young.



All possums are nocturnal and mainly arboreal. Some are strict herbivores, others are insectivores, a few are nectivores and the common brushtail could almost qualify as an omnivore. Their hands and feet have been designed to grip branches, and their claws enable them to vertically scale trees. All possums have a grooming claw, and some have prehensile tails. Gliding possums have an extra fold of skin between the fore and hind limbs called a patagium and their tail is used as a rudder when gliding.

All possums are hind gut fermenters - their digestive system is designed to break down plant material (cellulose) and extract the nutrients by a process called microbial fermentation' (good bacteria = gut flora), which takes place in the colon and caecum. Possum digestive systems vary slightly with each species and is structured to cope with their particular diet. Possums like the Greater glider are specialist feeders and have developed a large caecum and colon to aid in the digestion of eucalypt leaves.

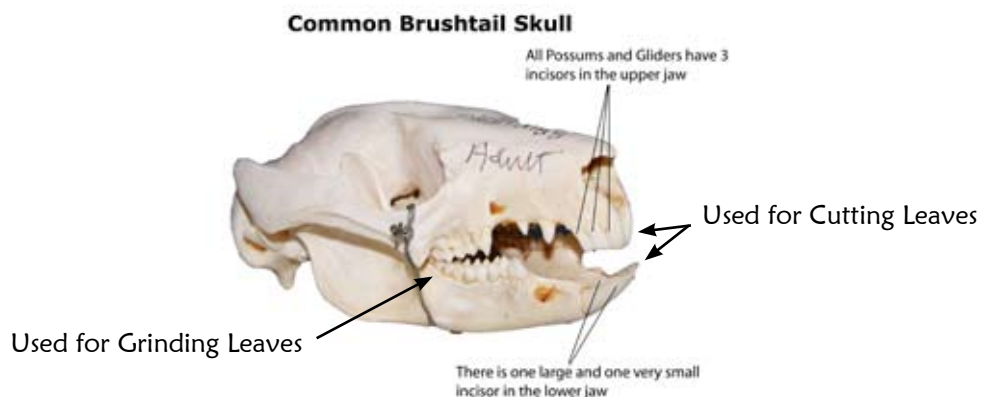
Ringtail possums recycle their pellets, allowing them to get the B vitamins that were missed first time round.



Marsupial body temperatures are a couple of degrees lower than ours around 35.5. Some of the smaller possums such as Sugar & Squirrel gliders, Pygmy possums and Feathertail glider can enter torpor (lower their body temperature) to conserve energy during adverse weather conditions.

This also reduces the need to forage for food when its in short supply e.g insects, sap, nectar and pollen.

Tooth structure is basically the same in all species, strong upper and lower incisors are used to cut leaves, gouge the bark for sap and insects and open nuts and fruit. The molars are used for crushing and grinding food.



All possums have scent glands, the males are more prominent than the females and are used to mark their territory and family members.

Mammary glands (female) are found inside the pouch and the number depends on the species. Sexually mature females have reddish-brown stained fur around the pouch area. This is secreted from pouch glands and may assist neonates in locating the pouch after birth.



Ringtails have four teats, but only the required number are active, - two joeys two teats with milk

Some possums such as the Yellow-bellied Glider are very vocal, others like the Greater glider are silent, however all have good hearing and an acute sense of smell.

There are 27 species of possums in Australia, though similar in many respects, each species fills a different niche in the available habitat.

Some species are very territorial and will defend their territory from others of their own kind. Some are compatible and have been sighted in very large feeding groups whilst others are solitary.

A few species are common but the majority are endangered or vulnerable due mainly to habitat loss in some areas. A small group of Mahogany gliders thought to be extinct have been located on private property in Queensland. The Leadbeater possum in Victoria lives in a confined area and is at risk. The Yellow-bellied glider is also threatened due to logging in it's preferred habitat. Most possums do not adapt to changes to their environment.



Common Brushtail possum *Trichosurus vulpecula*



Introduction

Brushtails are the most studied of all the possum families because they are common and easy to capture and maintain in captivity.

Possums are hind-gut fermenters with a simple stomach but an expanded colon and caecum (Hume 1999). This means, their digestive system has been adapted to utilize low-quality foliage which is the bulk of their diet. Brushtails are less efficient at doing this than other more strict folivores like Ringtails and Greater gliders. This is why Brushtails can also supplement their diet with high-energy / high nutrient foods when they are available. Eucalypts contain very little protein and are also low in carbohydrates but are high in toxins. "Gut flora" is the GOOD bacterium that helps with the (breakdown) fermentation of plant material and this is why we do not give antibiotics by mouth as it upsets and can also destroy the "gut flora" causing diarrhoea.

It's unsure how possums tolerate poisons found in plants. Sodium monofluoroacetate (1080) found in plants is used to poison pest species like feral cats, wild dogs and foxes but the Common brushtail in Western Australia can tolerate a higher concentration than the possums in NSW.

Life span is around 10 years; the oldest recorded brushtail was 14 years old. Predators are quolls, dogs, foxes and back young are taken by Powerful owls and probably feral cats. Aborigines hunted them for food and used their pelts to make rugs and clothing.

In the 1850's the Brushtail was introduced to New Zealand from Tasmania, Victoria and NSW to establish a fur industry - it soon became a pest!

They keep munching on New Zealand's forest, bringing it closer to extinction because they do not have any predators to keep the numbers down. Brushtails also threaten New Zealand's native birds as they eat young chicks and eggs. They also carry bovine tuberculosis in New Zealand and are a threat to dairy and beef industries. I can understand when a New Zealander rings up hoping to have the "vermin" removed from their property because most do not realize Brushtails are protected in Australia and not considered a pest! ...Well only by a few! New Zealand spend around NZ\$50 million each year to help diminish the Brushtails impact - it has been estimated there is between 60 and 70 million Brushtails in New Zealand!

Identification

About the size of a large cat with thick grey fur tipped with black guard hairs on top and a creamy under belly. Males having a wet reddish brown stain on the fur in the middle of the chest area caused by secretions from a chest gland, these, along with chin and anal glands are used for scent marking their territory. The ears are large and pointed and the thick furred tail is black and bushy (hence the name) with a thin bare strip underneath to help grip the branches. Males are larger and heavier than females and the female's chest scent gland is less obvious than the males. Around 18 months of age the males' fur gets a rufous tinge on their shoulders. The large brown eyes are highlighted by black markings and the nose is pink with long black whiskers protruding from the muzzle.

Habitat & natural diet

A variety of habitats from woodland to rain forests to farm lands with a high density in urban areas. They need hollows for dens but are not fussy where they sleep as long as it's quiet, dry, warm and dark. Rooves, roller doors, chimneys, wood boxes and even under houses are used for sleeping quarters which is not always appreciated by the human residents who share the same environment!

Because Brushtails have learnt to coexist with humans its diet their expanded, from the natural, which includes native foliage, fruits, flowers, insects, bird's eggs, nestlings to the exotic such as pizza, meat pies, scraps left in compost bins, herbs, introduced fruit, veggies and other exotic plants, like roses and geraniums.

Digestion takes 1.5-3.0 days for both synthetic and natural foliage diets (Foley & Hume 1987).



This pair recognise each other by smell

Social Structure

Brushtails communicate through sound and scent. They can be very verbal during the breeding season with sounds ranging from harsh screeches and growls to the soft call a male makes (similar to a distressed juvenile calling for its mother) when courting a female. Females have a close relationship with their young but once the joey leaves the pouch it must maintain contact with its mother if it is not going to be left behind. The resident male is very tolerant towards their young sometimes giving them a gentle clip if they jump on their back instead of mum's. Male and female adults do not share the same den but their home ranges may overlap.

Brushtails are very territorial and the dominant male (boss) will attack and chase subordinate males especially around breeding time. Their home range (the area where the animal feeds, breeds and lives) is determined by population density which depends on the availability of food and housing. In New Zealand population densities of up to 8 per ha have been recorded, 6 times higher than Australia!

Males comprise about 33% of the adult population.

Mortality is high for juveniles from 7 to 18 months when the young leave the security of their mothers den to find their own niche.

Breeding

Brush-tails are polygamous meaning they mate with more than one partner at breeding time. They are also very vocal during breeding season as the dominant male tries to ward off other suitors, male testes increase in size and are very large around breeding time. Females can breed as early as 12 months and males from 16 months. Most births occur during Autumn and a smaller birth season in spring (September-November) but births have been recorded in every month. Over 90% of females breed each year and 50% may breed in both seasons. The gestation period is 16-18 days and at birth the young will weigh 0.2 grams -13mm (Smith 1980) lactation starts once attached to the teat.

Most males are not mature until the second breeding season after birth but testes usually reach adult size around 12-14 months and sperm is produced.

If a female loses a young she will return to the oestrus (fertile) cycle after eight or nine days. In Australia the sex ratio of pouch young seems to favour males in some areas.

The female has two teats inside her pouch but only one young is reared at a time, twins are rare - in a sample of 64 only 2 examples of twins were found (Hughes & Hall 1984). Young remain in the pouch for 170 to 190 days then ride on the mothers back while she forages for food.

Weaned around 250 days they leave their mothers maternal den between 7 and 16 months, males leave earlier than females. Survival of pouch young is about 85% in Australia.

! Weaning means animals are off the bottle, but are lapping milk out of a dish, not off milk altogether!

Status

Secure in most areas with the exception of central NSW

A guide to Age & stage of development

see also the charts pages 73-79

Over the last 16 years my management practice has changed and I find the less I fuss, the better they do - a buddy system not only assists the animals to become better possums it also helps the foster carer from bonding with a single young.

Along with food, warmth, and good management skills an understanding of the species natural history will ensure a healthy well adjusted possum. One that has a good chance of survival when released back into the wild.

Introducing a buddy

It is important to buddy animals up when they are **not** confined to a beanie otherwise they can suck and scratch each other. I usually buddy them around 400 grams, this is the age they have finished with mothers pouch and become a back young.

To help them adapt to another possum, I put both possums inside a pillow slip (during the day), place my hand inside and scruff them together, this way they are totally confused and each has the smell of the other on them. I place them with the slip inside a possum box and then place the food in two separate dishes inside the cage before dark. Usually they come out a bit late because they are not sure what's going on and feel a little intimidated! Some times they growl at each other but

if I open the door of the room they both jump into the box together -And that's it. I have put a young 350 gram wild pouched young (mother was killed by car) with a 450 gram hand reared young. The hand reared young was much more insecure than the wild one and would hang onto him constantly - but they settled down.

If one continues to cling to the other its time to separate them. The possum which is being clung too will suffer severely from stress.



Clingons



Approx 150 days old
& weighing 400g
Perfect buddying age!



Brushtail five months old (approx.)

390-500 grams - lapping two milk feeds per day, a good time to buddy up. Sleeping in a possum box placed in a large cage with a large size stuffed toy to mirror mother, which they can cling to (makes them feel secure). Place native foliage in cage and a small amount of mixed fruit (apple, pear, banana, rock-melon). Milk is still important at this stage for growth and development. Wild young would still be suckling and clinging to mum's back (out of pouch)

Brushtail six months old (approx.)

500-700 plus grams - lapping one milk feed per day, can still buddy up. Place into larger cage on the porch (start acclimatising) with the possum box it will have when it's transferred to the aviary. You can add more native plants (new green tips), it is important to introduce plants from the area it will be released into. Do not feed exotic fruits, keep it simple! You can also add small piece of corn, a slice of sweet potato a few grapes, apple and some insects like beetles and moths. I place the milk in first then add the dish with a small amount of fruit once the milk has gone. Weigh your fruit and only add more if the plate is empty and the leaves (tips) are being eaten. Add burnt or fresh bark off native trees and place fresh foliage during the afternoon. This is a good time to clean the cage (when they are asleep in their box) very rarely do they pop their heads out and then only if there is a loud noise - they prefer the security of their possum box. Spray foliage with water to keep it fresh. This is the right age to begin to distance yourself and dehumanise the possum. Do not use Protein supplement while it's still on milk!

Brushtails seven months approx.

700-800 grams - lapping one milk feed per day - can still be buddied up but should be done before they are placed into release aviary. If all is well place them into the release aviary with their box. Make sure the branches are new and have two feeding stations. Weigh the possums before they go in and once a week for the first two weeks. Weight loss will tell you there is a problem - contact advisers ASAP (experience carer). If you find one on the ground take it out immediately. If there is lots of food left they may still be settling in (2 days max) contact an experienced carer for advice.

Wild possums would still be with their mum and some may still be suckling, if it goes off its milk do not worry. Use protein mix (when off milk) on fruit, make sure you weigh the fruit and the protein mix as it can make animals bulk on too much weight!

Do not feed during the daytime, clean aviary and replace foliage before dark. Place fruit plate into aviary just before dusk. Make sure water is always available, if they should want it. I take the whole box inside and put each possum one at a time into a pillow slip to weigh them.

If your animal has lost weight contact an adviser ASAP (experienced carer).

! Protein mix for Brushtails 2-5 gms of supplement over 100 grams of fruit.

Brushtails nine months approx.

1000-1200 grams- Soft release means allowing the possum to return and leave at will with support feeding for awhile.

When its time to open the hatch, watch from a distance and make sure your domestic animals are contained. Sometimes they have a little trouble gripping as their nails can be blunt from climbing on wire or dry branches. But do not rush to them if they fall they are quite resilient to falls. Leave the hatch open but do check if any of the locals are visiting as they will eat the food. Do not leave lots of fruit in the aviary as rats and free loaders will be visiting every night. It usually takes a week for them to find a niche outside the aviary and some times you don't see them for a few nights but they will return! Mine have always come back for a fleeting visit to grab some food or just because they know it's a safe place for them. Try not to release around breeding season as adult males and females can be very aggressive. If you release them too old you will make life very hard for them as possums are territorial creatures and can inflict nasty wounds. If they are too old the female will be harassed by the local males and the males will be chased from the area. Young animals are not a threat to adults as their hormones have not peaked and they are given a larger window to acclimatise!

Note! weight is only a guide, knowing the age of your possum is more important - you may have a possum that is younger, but it may eat more than another the same age.



Scratch marks on tree trunks are a sign that possums are using the tree as a pathway



Don't look Junior!
It's that strange creature with the bright light again!!

Suitable Brushtail Possum Housing



6 Months approx - Still lapping milk
outside covered area



Large cage (on porch - undercover)
1400mm high by 1100 wide by 600 deep



7 Months approx
Juveniles - outside aviary



Outside aviary (commercial)
minimum size
2100mm high by 1800 wide by 2400 deep



9 Months approx
Soft release
Freedom!



Outside aviary (purpose built)
Recommended size
2400mm high by 2400 wide by 4800 deep

Mountain Brushtail *Trichosurus canius*



Photo courtesy Debbie Newell

Northern NSW species

Common names - Bobuck, Short-eared Brushtail possum

Identification

Dumpy in shape has short rounded ears, black bushy tail, tail naked underside, tip of tail naked. Fur colour varies- from silver grey to dark grey, white underbelly. No fleck of cream fur at base of ear like Common Brushtail or rustic chest stain. A melanistic form lives in rainforest in northeastern NSW. The calls are similar to the Brushtail.

Weight & size

2.5 - 4.5 kg. Head-body length 45-57 cm

Habitat

Wet sclerophyll and rain forest from north of Brisbane to Wilsons Promontory, southern most tip of the mainland.

1 possum to 3.3 ha in northern N.S.W. (How 1972).

Lives in dens in tree- hollow, logs or occasionally epiphytes such as elks.

Diet

Eats a wide variety of plant species. *Owen and Thomson* (1965) examined 51 stomachs and recorded a variety of herb layer species, fungi, lichens, leaves of shrubs and trees. Mature foliage of Eucalyptus is preferred. Will eat fruits, buds and insects. They do not consume large amounts of eucalypt leaves like the Common Brushtail. Male cones of the Monterey pines and wattle are also eaten.

Breeding

Female matures during the second breeding season after birth, only 50% produce young when 2 years old. Usually breed successfully at 3 years old. Also a slight decline in breeding amongst animals older than 4 years, with the result that only 80% of females in the adult population produce young (How, 1972). Breeding season is March-May. Females do not breed every year.

Juvenile development

Gestation period is 15-17 days, with a pouch life of 5-6 months.

Lactation continues for a further 2-5 months. Dispersal of young occurs between 18 - 36 months. Females usually disperse earlier than males. Females are mature between 24-36 months.

Adult

There is some evidence to suggest that some Mountain Brushtails pair off. The mortality among adults, (over a 4 year study) was about 15% per annum, some individuals were still present in the population at an age in excess of 10 years. Females can live up to 17 years. The scent gland on the chest secretes a clear fluid there is no staining on the chest like the common Brushtail.

Range

Males - 7.67 ha and females 4.85 ha. Northeastern NSW population density is approximately 1 per 10 ha.

General

Compared to the Common Brushtail the Mountain Brushtail has one short breeding season and a slower growth rate. A high mortality among the dependant young of this species along with the reproductive failure of some females 4 years or older, seems to keep the population of the Mountain Brushtail under control. Contrast this with the Common Brushtail, which has a wider range, 2 breeding seasons, and is adaptable to most areas.

The southern population of the Mountain brushtail has been proven to be a separate species. It occurs in Victoria and southern NSW and the Northern species occurs in Queensland and as far down as Newcastle in central NSW. *The results are published by D.B., Dubach, J. & Viggers, K.L. Aust. Journal Zoologist .vol.50.*

This possum was reared as a Common Brushtail it was not until it matured that the carer thought there was something different about the animal. The carer had reared many Brush-tails previously and wanted another opinion. When I saw it I identified it as a Mountain Brushtail. The shorter rounded ears, dumpy appearance and different smell are clear indicators of a Mountain Brushtail possum. I wonder how many Mountain Brushtails have been misidentified?



Common Ringtail Possum *Pseudocheirus peregrinus*



Introduction

Ringtails are the second most numerous possum to enter the WIRES system - mainly through the involvement of the local moggy.

This possum is more fastidious than the Brushtail and its digestive system is much more complex. Their digestive tract has a greatly enlarged and complex caecum which along with good bacteria, help assist in the breaking down (fermentation) of food. The Ringtail can survive on a fibrous diet because it can retain most of the nutrition from eucalyptus leaves. The Ringtail also recycles some of its pellets (coprophagy), these are different to the hard dry pellets produced at night. These special soft pellets are produced during the daytime and, when absorbed through the digestive system a second time make more nutrients available for utilisation. Do not give antibiotics by mouth as it will upset and unbalance their gut flora - if antibiotics are specified by a vet make sure that only injectable antibiotics are administered.

Identification

This is a medium sized possum weighing from 600-950 grams and adult males are larger than adult females. This possum is easily identified by its sparsely furred tail which is white for the last $\frac{1}{3}$ to the tip, sometimes it can be a dirty off - white colour. Their prehensile tail is very important because it is used as a fifth hand whilst climbing and carries nesting material. The ears are short and rounded with a whitish tuft of fur on the lower part of the ear and a cream fur patch on the cheek area. The fur is short and thick and varies from greyish brown to rufous with a whitish under belly. I suppose you could say they have a rat like face due to their long whiskers, some people often mistake them for rodents!

Habitat & natural diet

Ringtails occupy a variety of habitats from rainforest to sclerophyll forests as long as this contains a well developed under-story. They build a sphere-shaped nest called a drey made out of shredded fibrous bark, leaves, twigs and bracken interwoven into leaves of Turpentine, Eucalypt trees, privet - hedges and Banksias, some have built nests inside roller doors and amongst urban gardens. They also build nests inside hollow branches of trees, like all possums they retain more than one home.

Their native diet consists mainly of Eucalypt leaves, flowers, native fruit, tea tree, callistemon wattles and Grevilleas. They also have a fondness for roses, non native fruit and plants and have been known to ring bark lemon trees.

Social Structure

Ringtails are territorial and mostly solitary, but male and females have been known to regularly visit each other. My own personal observations have noted the male is never too far from the female when foraging at night. Males will defend their territory from other males and the size of territory depends on the availability of food and shelter. The female shares her nest with her young and also carries them around once they leave the pouch stage at around 4 months. When they are too heavy or she has to travel further for food, she leaves them in the nest.

Communication is by smell and sound, their high pitched twittering call could easily be mistaken for a bird call.

When in care they have been known to lunge at their keepers, especially females with young - I nearly knocked myself out on a branch whilst trying to escape an adult female with nesting young and that was during the daytime! Care must be taken when introducing Ringtails as they can be quite nasty to each other, but they do much better if they have company. Females can be just as aggressive as males.

Breeding

Sexual maturity can be reached around 12 months for males and earlier for females in a captive environment. Birthing season extends from March to November when a litter of 1, 2 or 3 young are born. The gestation period is not known even though they have been bred in captivity. Females have 4 teats but the average litter size is two. The young are carried in the pouch until they are around 120 days old. Once they leave the pouch the percentage of dependant young surviving, in the wild decreases greatly. It has been noted that some male ringtails support the female when the young leave the pouch, by letting the young ride on their back and share the males nest. Maybe he is giving her a break because she is going to produce a second litter? Weaned from six to seven months, dispersal is around 8-12 months.

Grouping possums

Ringtails should be buddied up before they are placed into the release aviary. Just like Brushtails care and observation is important for the well being of the possum. If one is found out of the possum box then it will have to be removed. Sex does not matter when placing young ringtails together but they should be around the same age and weight. I would not put more than 4 together and I would supply two boxes just in case they have a fall out. I personally believe 2 or 3 is enough as 4 may split the camp into two groups which may create a problem.

Do not house wild ringtails with hand reared ones as the wild one will be more dominant and 'bush wise'. If ringtails are part of a litter of 2 or 3 they should remain together, if you have 3 and another comes into the system you can take one out and pair it off with the new arrival as long as it is healthy, there may be a problem introducing a single possum with three acquainted ones.

The weights and measurements shown in the following pages were by PJA Presidente on ringtails maintained in captivity in Victoria -The management of Australian mammals in captivity 1979.

These weights and measurements are only a guide, and remember these were captive animals so they could well be bigger than wild specimens.

A guide to Age & stage of development

Ringtails five months 150 days

150 -180 grams - snout to rump 17cm/tail length 22.5cm - lapping one milk feed per day (evening) small amount of fruit (no exotics) keep it simple - mainly soft new Eucalypt tips, buds, flowers, callistemon, Grevilleas, Leptospermum, Melaleuca and Acacia, - try any

local native vegetation.

Good age to buddy up if single. Wild young should be checked to ensure they do not have mites and also to see that they are lapping and eating OK before introducing to others. If you are going to buddy up with a wild arrival place them inside a pillow slip during the daytime so they can get used to each others smell or place both inside a new clean nest box with new material. Weigh them before you introduce them and have two separate feeding areas, add new fresh foliage during the day time. They should settle in very quickly but do watch for signs of one clinging onto the others fur for security (clingons) as it is very stressful and could cause an injury.

Mother reared

Wild ringtails out of pouch are left in the nest stage if mother has to travel for food. Males (presumed father) have been known to assist in caring for the young once they leave the pouch permanently, grooming and baby sitting them while the mothers are off foraging. A larger cage under cover is recommended but do keep in mind outside temperatures - this allows the possum to acclimatize before it goes into the release aviary. If it's snowing or there is a heat wave bring it inside. A stuffed toy (mother) tied to a branch, helps the possums to feel secure and they can cling to it between exploring during the night. Place fresh branches for climbing and chewing with a variety of foliage in small plastic (vase like containers).

A nest box or two (size depends on how many) with a woollen beanie or other material to snuggle into and keep warm.

Food containers need to be cleaned each day and water should always be available in a shallow dish. Cover the whole cage with nylon shade cloth for privacy - this helps the possum feel secure you can view the possum through the shade cloth without disturbing it. It also keeps the flies away from the food.



Left in nest stage or
back young
Approx. 140 days old

Ringtails six months - 180 days

240-320 grams-snout to rump 22cm / tail length 26cm- May still want to have one milk feed per day or it may be weaned. Adult diet, mainly new tips and native flowers.

Housing

If there are 2 or 3 together and they are eating well I would place them in an outside aviary.

Do not play with the possums - you should be getting them ready for their world which is very competitive as far as housing and food goes; besides you cannot follow them around when they are released.

Ringtails seven months - 210 days

350-420 grams-snout to rump 24cm / tail length 30cm fully weaned off milk and eating mainly native flora from the area it will be released into. Small quantity of fruit must be suitable size to suit the possum paws otherwise it will fall to the ground and you do not want possums to go to the ground for food. Apple, pear, rockmelon and a few grapes as a treat, corn niblets, and carrot can be offered. I use Protein supplement on fruit 2 grams per 100 grams of fruit, once they are off milk.

Release: This is the age I soft release from the aviary, I open the release hatch and watch from a distance; do not interfere with them even if they look like they are a bit clumsy. The claws may be a little blunt from scraping them on the wire and metal. Once they get the hang of 'freedom' they go a little crazy or become hesitant in the 'big' space. This is when they are most vulnerable to predators because they have not yet developed bush skills. Soft releasing allows animals to gain bush skills but also gives them a safe house to come back to if they should need it. They usually return every night from their sortie for up to a week, just leave a small amount of food in the aviary, but only if they are in their box. Make sure the local Brushtails are not raiding the food dish. After a week they may visit once or twice and then they are on their own. Lock the aviary up once the possums stop returning, or the locals may decide to treat the empty aviary as a bed and breakfast!

Ringtails eight months -240 days - **should already be released!**

520-580 grams - snout to rump 25cm / tail length 31cm

9 months - 580-630 grams /snout-rump length 26cm / tail length 32cm

10 months - 670-720 grams / snout-rump length 27cm/ tail length 33cm

11 months - 680-760 grams / snout-rump length 28cm / tail length 34cm

12 months (mature) - 850-1030 grams / snout-rump length 30-32cm/ tail length 36cm



Suitable Ringtail Possum Housing



5 Months
Should be paired up
Needs more room



Larger cage on porch - undercover
minimum size
1400mm high by 1100 wide by 600 deep



6¹/₂ - 7 Months
Juveniles - outside aviary



Outside aviary (commercial)
minimum size
2100mm high by 1800 wide by 2400 deep



8 Months
Soft release - learning bush skills
'Freedom'



Outside aviary (purpose built)
recommended size
2400mm high by 2400 wide by 4800 deep

Sugar glider *Petaurus breviceps*

Squirrel gliders *Petaurus norfolcensis*



Sugar Glider



Squirrel Glider

Introduction

The Squirrel glider was collected in 1789 during Governor Phillips voyage to Botany Bay. It was mistakenly name *norfolcensis* due to some confusion with notes from Port Jackson and Norfolk Island, Squirrel gliders have never existed on the island, but the name was never changed.

Sugar gliders are the most widely spread possum and one of the hardiest but the species was not documented until 1839. They were also imported into Tasmania in the 1930's and still exist there today.

Sugar gliders are the third most numerous species of possum that we get into the system. Squirrels gliders also enter the system but most carers would not know the difference, that takes some experience. It is import to register Squirrel Gliders with the *threatened species animal officer* as well as the Possum coordinator.

Identification

Both species share the same habits such as breeding, diet, nest-building and a variety of calls like, the wind - up call (droning) when disturbed (means come near me and I will bite you!) Hissing and hi-pitched screams are made to intruders, the most common call which can be heard on a still night is the sound of a young pup 'yapping' in the distance. A soft chattering call can be heard as they settle into their nest after a nights foraging. They may be identical in their looks and it is near impossible to identify them gliding or scaling up a tree trunk whilst spot lighting at night but when rescued the weight of adults can easily determine their identity. Don't let these cute flying fluff balls deceive you as they can inflict a deep wound if not handled correctly.

Their flying membrane extends from the wrist to the ankle. The tail is used like a rudder, steering the volplaning glider to its target, they have been know to glide up to 60 metres in a single flight

The Gliding membrane is called a patagium. In this Squirrel glider it stretches from the wrist to the ankle



Sugar glider

Size: weight 100-160 grams, head-body length 160-210mm 150-200mm tail length.

Fur: Pale grey to brownish-grey above and a creamy coloured underbelly, some times flecked with grey. A black dorsal stripe starts from the middle of the eyes to the rump area. The tail is narrower at the base not as tapered as the Squirrel gliders; Sugars can also have a white tip on their tail.



Pictures from: Possums and Gliders,
Edited by Ian Hume & Andrew Smith

Squirrel glider

Size: weight 180-300 grams, head-body length 180-230 mm, tail length 220-300 mm.

Fur: Thick soft pale grey on top with a distinct black dorsal stripe starts between the middle of the eyes down to the rump area. A white fur sometimes can be tinged with yellow on the underbelly, a more pointed muzzle with narrower ears than the Sugar glider. A broad and fluffier tail across the base area and tapered with no white tips being recorded.



Habitat & natural diet

Sugar and Squirrel gliders inhabit a wide range of habitat from woodlands to tall open forests and have survived in patches of forests surrounded by cleared land used for farming and grazing. Sugar gliders seem to prefer acacia under-story, banksias, along with tea trees and other shrubs. A favourite tap tree is the Red Bloodwoods. The winged seeds from the she-oak nut, wattle gum and seeds are also eaten. Spiders, insects, lerpes, insect galls, beetles, moths, nectar and pollen along with sap and probably small nestlings and eggs. Squirrels seem to prefer more insect than sap and gum from plants. These possum do not eat leaves, flowers or buds!



These teeth are well suited for
gouging bark to get to the sap.
They can also inflict a nasty bite

Social structure

Like all possums they have their own territory which they protect from intruders. The size also depends on nest hollows and availability of food. A group usually consists of one mature male and female with young. I have known two adult females both with two pouch young, share a den along with other adults. The females came into care and were later returned to the area in a possum box. A colony can vary throughout the year, increasing

during the colder months probably to conserve warmth. They also go into torpor to conserve energy and minimise the need to go into the cold to search for food.

Each group have its own distinct smell usually from the male's scent gland; his scent rubs onto the fur of his family members. These cute gliders have been known to attack intruding gliders which have entered their area.

I have also heard of a carer who had placed a new glider in an aviary with two other gliders, it was found dead and partly eaten. Sugar gliders have also been known to attack ground birds like quails in an aviary.

Breeding

It has been documented that a Northern Squirrel glider bred with a Southern Sugar glider producing a fertile young, in captivity.

I doubt if hybridisation would happen between wild populations as they would stick with their own species.

Birth time is from June to January for the Squirrel gliders and Aug to Dec for Sugar glider. Sexual maturity for a male Sugar glider can be from 8-15 months of age and females around 12 months. Squirrel gliders reach sexual maturity around 12 months of age for both sexes. Males mate with more than one female (polygamous).

Sugar gliders can produce two litters per year. Females have 4 teats but only produce 1-2 offspring, which vacate the pouch around 70 days for Squirrel gliders and 60 days for Sugar gliders. They are then left in the nest as they are too heavy to glide with - emerging from nest around 110 days for Squirrel gliders and around 100 days for Sugar gliders. Young Sugar gliders disperse in the first breeding season after their birth - breeding time for parents and would also prevent interbreeding and rivalry for a mate.

When a glider leaves its birth area to establish a niche of its own their survival prospects are very slim, due to predation, lack of nest sites, and competition from other groups. A new glider may only be accepted by another group if the family needs to replace one of their own which has died. The longevity for a Sugar glider has been recorded for 12 years in captivity and 5-6 years in the wild.



Sugar Glider

Acacia sap is a very important food source during Winter

Pouch young - approx.
40 days
Weight 3 grams



Introducing a new comer!

Smell plays an important part as far as possums knowing and accepting each other, so care must be taken when introducing possums together. The scent gland is not usually active till around 6-8 month of age. If you have an animal that already has a scent it would be from the scent gland of the parent, this smell seems to stick with the animals, whilst it's in care. The best time to group gliders is when they are at nest/pouch stage if possible before their scent gland becomes active. If it's older and both have a scent then caution must be taken.

Place both gliders inside a pillow slip during the day time, place a gloved hand (yours) inside the pillow slip and rub them together (gently) so they are not only confused but their smells will spread on each others fur. Leave them in the slip for at least 3 hours, and then place them into a clean box with new bedding in a clean cage with new foliage. They will stick together because they are a social species and also for protection (safety in numbers). Try to have a mixed sex group so they will stay together as a family after release.

Do not mix the two species because I am not sure of the consequences it could create after release?

The biggest problem for small possums is carers who tend to baby them.

They should not be encouraging the possum to leave their nest box during the day time other wise they will end up being an expensive loss (consider the money and time spent whilst in care) and an easy meal for the local predators - pythons, owls, goannas, local moggys and resident gliders.

Make sure you pair gliders before they are placed into the outside aviary so you can keep an eye and ear for any disagreements that may occur and therefore remove the introduced glider before it gets injured.

Glider ages and stages

Emerging from nest

Sugar glider - 100 to 120 days old weight 54 grams plus

Squirrel glider - 110 to 130 days old weight 85 grams plus

Housing

Place a large cage on the porch with a nest box to suit the possum's size lined with short sheep skin. The cage should be covered in shade mesh for privacy and will also keep flies and bees away from the food. Ants can be a problem during the hot weather, so, place the legs of the cage into a dish of water, surround it with non perfumed talc powder or rub Vaseline jelly onto legs of cage. Place branches for climbing and acacia and eucalypt foliage in small vase like containers to keep fresh.

Only clean the cage out during the day time, do not disturb them during the night, you do not want to entice them out of their box. Place milk (> 0.8), 8mils per glider in separate small shallow container so the possum will not climb into it! To stop the container from being toppled over, apply 'blue tack' under the base. Once they have drunk their milk quota you can then place solid food inside the cage. Fruit must be a suitable size for the glider to hold, small moths, crickets and beetles can be placed into the cage for them to seek out. I also give a couple of pine nuts, She-oak seeds and acacia seeds each night with a few meal worms.



A Large planted aviary which uses 12 X 25 X 1.2 mesh is ideal for Squirrel and Sugar Gliders

Check nest box for unwelcome guests before introducing new residents



Gliders have acute hearing and they also need to stimulate their senses, it also helps them to learn to forage for food. If they get too fat they may have trouble gliding once released! In the wild at this age they leave the nest to forage with mother and are weaned off milk.

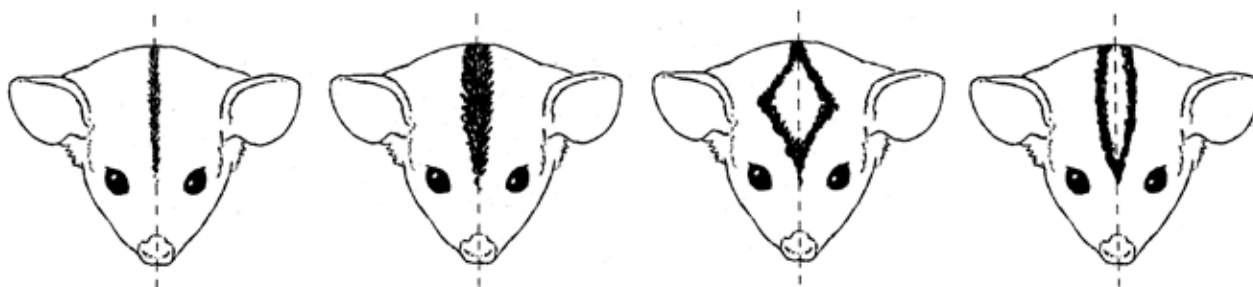
Sugar glider -120 days old weight 74 grams

Squirrel glider - 130 days old weight 105 grams

Place into outside aviary with box. Note! if you are changing the box include their bedding from the old box. A light can be placed outside the aviary to attract insects into the aviary. Place fresh branches into aviary, include acacia - gliders like to chew on them. Make sure gliders cannot climb into the containers and drown.

Release Sugar glider from around 80 grams Squirrel glider from 130 grams.

Open the hatch, try and have as little clear space between the release hatch and the bush as they can be easy pickings for owls. Keep a watch out for the local pythons. Check that the possum box is not occupied before you close off the release hatch; some times they come back for a month, usually once or twice a week before they finally disperse and some times they even bring back a mate!



Markings on the forehead come in different shapes. The scent gland in the middle of the forehead can be seen by the moist patch of fur, more prominent in males.

Sugar Gliders often make their home in Telstra pits.

Unfortunately snakes have also been found in these locations.

Rescuing Gliders from this situation doesn't always turn out well.

Firstly many of them escape into the pipes or up the pole and secondly its pointless as the gliders will return as soon as its safe.

As with possums in rooves the access points must be blocked.



Feathertail glider *Acrobates pygmaeus*



Introduction

This dainty, smaller than a mouse, nocturnal gliding possum has a gentle nature and possesses the cutest elfin like face. Usually when they come into care, it's because the pet moggy has brought one home to show their owners what they caught in the bush. Because feathertails live in groups, it is important to explain to the caller that the rest of the group is now also at risk. Once a cat finds the feathertail nest, it will go back regularly to stalk the remaining group.

I rescued one which had been found by the owner of a dog who though it was fitting, as it tried to rid itself of the petrified glider hanging on for its life. I have also rescued a sugar glider and a very young brushtail found in the same scenario - you never know who is going to hitch a ride when dogs are walked in bushland areas at night! It is very important to make the community aware of these miniature possums because often the first sign of them being in the area is when the circumstances described above occur.

The area where these animals are found should also be documented due to the difficulty in finding them in the wild.

Feathertails have been caught up in mist nets used for catching micro bats and the chances of finding them by spotlighting is remote - spiders have brighter eye shine. Because of their agility and size, you should consider yourself privileged, if you ever see one in the wild!

Identification

The first thing you notice is their very long whiskers extending from the pointed snout and the thin rounded ears and flattened head- along with the flat tail, fringed with stiff hair all the way to the tip. This of course makes it look like a feather, hence their name!

Adult weight ranges from 9 to 15 grams. Their soft silky fur is greyish-brown above with a white underbelly and a thick gliding membrane extending from the elbow to the knee.

Tails are very important to Feathertail gliders as they are used for steering and braking whilst gliding and also act as a stabiliser. Feathertail gliders have the usual clawless large toe for grasping branches and fused grooming claw but this little possum also has serrated pads under the toes that help it to climb smooth vertical surfaces. Although tiny they have been known to glide more than 30 metres.

Habitat and natural diet

Feathertails live in Eucalypt forests and woodlands feeding on nectar, pollen, sap, small insects, manna, lerps flowers and foliage. Although arboreal they tend to inhabit the under story to gain access to nectar producing plants like Mountain devil, Banksia, tea tree and also Acacia.

Social structure

Feathertails can live in large or small groups (29 have been observed sharing a den) inside tree hollows where they make a ball shaped nest constructed from dried leaves and shredded bark. They have been found using birds nests, ringtail dreys and even Telstra boxes on telegraph poles. They have also been found inside the plastic bags covering bananas and a nest was found inside a pocket of an old coat left hanging inside a shed. Their home range can be less than half a hectare to two hectares with a population density from one to forty per 100 hectares. Feathertails are polygamous.

Breeding

Females have four teats but usually have 2-3 young per litter, breeding occurs from July to January but they can produce young any time of the year in the warm northern areas. Females can mate again after birth but the fertile eggs stop developing and remain in a state of 'suspended animation' known as 'embryonic diapause' much like female kangaroos. When the existing pouch young are weaned, the embryos begin to develop and make their way to the pouch to latch onto the nearest teat. The young are left in the nest 50 to 60 days after birth, eyes open at 70 days old and weaned at 95-110 days old. Females can breed between 6 to 9 months of age and longevity is around 3-4 years in the wild, and one has lived 7 years in captivity.

Feathertail Glider						
Age (days)	Size (mm)	Weight (grams)	Tail (mm)	Eyes	Ears	Development Stage
20	5-10					In Pouch
30	10					In Pouch
40	15					In Pouch
50	20					In Pouch
60	30-33	1.3 - 1.7	19 - 21	Closed	Erect	In Nest
70	40	3	25 - 29	Open	Erect	In Nest
95-100	60	6 - 7.5	47 - 52	Open	Erect	In Nest

Adopted from "Possums & Gliders" edited by Andrew Smith & Ian Hume



Feathertail gliders and Pygmy possums make their nests inside hollows with small openings

Eastern Pygmy possum *Cercartetus nanus*



Introduction

My Scottish friend said it reminded her of 'a Dormouse' but this little possum is a marsupial not a rodent and is listed as 'Vulnerable' under the 'Threatened Species Act 1995'. If one comes into your care it is important to let your local NPWS office know the exact location, age, sex and condition of the possum so it can go onto the Wildlife atlas (dead or alive).

Despite a large number of intensive trapping programs undertaken in the eastern forests and woodlands of New South Wales in recent years, only a small number of captures (154) have resulted from a total trapping effort of 315,000 Elliott trap-nights and 57,000 pitfall trap-nights (Bowen and Goldingay 2000).

Identification

The average weight of this nocturnal, mouse size possum is 24 grams. They are very quick and agile and can leap considerable distances. It has a dumpy appearance, a short pointed snout with a pink nose and the head is framed with large rounded ears accentuating the large bulging eyes. The prehensile tail is sparsely furred with the base being thick especially during winter (fat reserve). The back feet have the usual fused grooming claw and the clawless large toe used for grasping branches found on all possums.

Their long brush-tip tongue is perfect for licking nectar and collecting pollen from banksias, flowering gums and mountain devils, insects are also part of their diet. In the colder months they enter torpor and this enables them to conserve energy at a time when food is scarce. During this time they live off their fat reserves - stored during the warmer months when insects, pollen and nectar have been plentiful. Torpor can be over a few days or up to a period of two weeks, which is convenient when the temperature drops during winter and can bring snow to the mountains. When in torpor they roll their body up like a ball and feel icy cold to touch. The ears flop over the eyes and the head is buried into the chest so it's not easy to know the back from the front end. These small animals have been found curled up on walking tracks and after being tucked into a warm pocket, come to life by the time the walker gets home and makes that phone call! They must be fed straight away to keep their energy levels up. I do not place them on a heat pad, I usually feed them and weather permitting take them back to exactly where they were found as soon as possible in a suitable possum box.

Social structure

Non breeding animals are solitary by nature and females with suckling young share a nest. The female has 6 teats but usually has 2- 4 offspring which spend about 42 days in the pouch. Later these tiny furless babies are left in the nest while mum forages for food.

Development of these little possums is rapid and they can breed at 6 months of age. Birth season is from September to April but it has been suggested that in the warmer areas and places with an abundance of food they could breed throughout the year. By the way, they do bite and will emit a hissing sound when handled. One has lived in captivity for 7.5 years without eating animal protein or associated products. These little possums may play a vital part in the pollination of native plants.

Educating the community is one the most important responsibilities of being a wildlife carer.

Case history 1

We all know what it's like: having friends over for dinner and just as you are about to sit down to eat, the phone rings for a rescue! The phone coordinator has tried umpteen other members and now it was my turn. Fortunately for me the caller lived in the neighborhood and was willing to bring it to my home!

I opened the door to a very surprised neighbor, who realized we had already met on a previous occasion! He handed me a cloth and inside was a small furred animal, he thought it was probably another mouse left on his door mat. But, decided to get it checked out, thanks to our last conversation when I rescued a young rat his cat had dumped on the door mat!

We had a very in-depth conversation about the local wildlife sharing his property-a lot of property owners are usually unaware of the local (small) wildlife coexisting on their land. This was indeed a local, a young Pygmy possum - unfortunately it died. He assured me he would keep his cat inside at night from now on!

Cats cannot help themselves, their natural instinct is to hunt and they cannot distinguish introduced rodents from indigenous creatures of the bush.

Case History 2

I was given a female possum to pair up with mine - I named her 'Pudding' because she was somewhat over weight (38 grams). Pudding was reared by a dedicated foster carer from just 2 grams- the size of a jelly bean! My little fellow was called 'Jaws' he was a wild little sod who would sink his teeth into my hand at every opportunity. Jaws, was rescued from a bath tub found in the bush by an inquisitive child exploring the area. Both eyes and ears where badly fly blown he was only 15 grams and badly dehydrated. This poor little mite must have fallen into the tub and couldn't climb the smooth sides to freedom or he may have been knocked of a branch by an owl, trying to get a quick snack!



The vet and I decided to give him a chance, the maggots where flushed from his eyes and ears and cream applied to the eyes twice a day along with a drop of Amoxil by mouth three times a day. He was finally allowed to share a den with Pudding, who hissed at him for 5 days, probably due to stress, related to her new diet and the newly introduced exercise program. Pudding now weighed 30 grams and Jaws was 24 grams. Jaw's left eye was fine but the other was blind, I was concerned the loss of one eye would cause some problems, but hopefully Pudding would hang about with him for awhile after release.

I released both animals on my property and tried to follow their movements at night but lost them most of the time in the understory of Banksias and Acacias or couldn't find them amongst the tall flowering gums, there eye shine is a very pale red.

One of the problems in looking after these little possums are they tend to get over weight in captivity as they love food. I hide the food and also place live insects in the leaf litter of the cage and use a lot of Acacia as it has a lot of small insects in the foliage. They also need room to climb about; carers tend to keep small possums in small cages. Do not use plastic or glass aquariums because the ventilation is not good.

Yellow - bellied glider *Petaurus australis*



Introduction

The Yellow - bellied glider is largest of the *Petaurus* family (sap sucking gliders) and just like Sugar gliders they are a very social animals - it is, however smaller than the Greater glider. During a study on Powerful owls Paul Peake a student from Monash University observed a Yellow-bellied glider mobbing a tape recorder that was emitting the call of a Powerful owl. The gliders were calling in a loud, high pitched shriek. This behaviour (mobbing) appears to benefit this glider as they are rarely taken by owls.

I have had only one juvenile male in my care and one adult female which had to be euthanased because of an un-repairable broken wrist. The young male was very playful and liked to hang upside down from the branches in the aviary - a favourite position for these gliders.

Mostly Yellow-bellied gliders come into care because they get caught up in barbed wire fences whilst gliding. The fur must be checked for fly eggs if they have been found on the ground or caught hanging in a fence - flies like the long thick moist fur and the eggs look like tiny grains of sand attached to the fur near the skin.

Their eye shine is very poor but their presence can be determined either vocally or by the loud clunk when they hit the trunk of a tree or scamper upwards using strong claws for grip.

Taronga Park zoo have successfully bred a yellow-bellied glider in captivity in 2005 (Ozark, online wildlife forum)

Identification

Often referred to as the fluffy glider, because of its thick, long, soft silky fur, the under belly is whitish to cream for juveniles and yellow for adults, with brown - grey fur on top. A black mid-dorsal stripe runs from the neck to the lower back and the legs are black. The muzzle is short and conical and tipped with a pink nose which reminds me of a Brushtail possum. The long thick furred tail is used to carry nesting material back to its den. Head and body length (mean) 27cm, tail 43cm and weight 450-700grams. It has long pointed, naked ears, very different from the rounded furred ears of the Greater glider which it gets

confused with. The patagium extends from wrist to ankles. Yellow-bellied Gliders are very vocal, and its high-pitched screeches and gurgling calls can often be heard as they glide through the tree tops. The glider is known to glide about 100 metres- the longest glide out of all the gliders.

Habitat & natural diet

Yellow-bellied Gliders inhabit woodlands and tall open forests and range over 35 to 65 hectares per family depending on food source. They do not eat leaves! Their main diet is sap obtained from distinct feed trees which is recognized by the many wedge shaped marks on the trunk. I have also noticed their feed trees are clear of under growth around the base. Some tap marks are less than two feet from the ground, this would insure that predators would have no under growth to hide in making them less vulnerable. Why they favor a particular tree over others of the same species to tap into is still not clear. As you may imagine they have very strong incisors for chewing into the bark on the trunk and upper branches to obtain the rich sap. The sap is also appreciated by the Sugar, Squirrel and Feathertail gliders and even the versatile Brushtail possum. They also like insects, spiders and other crawlies which live under the bark. Honeydew - a sweet exudate given off by sap-sucking insects (psyllids, coccids and aphids) and Manna - a sugary secretion from insects (borers) that exudes from the damaged plant and later crystallizes (60% sugar, 20% pectin, 16% water) found under bark on the upper limbs, is also liked. When Yellow-bellied gliders feed on nectar they select trees with a greater than average floral abundance.

Sap feed trees

E grandis (Flooded gum) *E laevopinea* (Silvertop stringybark), *E moluccana* (Grey box), *E oblique* (Messmate), *E pilularis* (Blackbutt), *E propinqua* & *E punctata* (Grey gum), *E racemosa* (Narrow-leaved scribbly gum), *E saligna* (Sydney blue gum), *E seeana* (Narrow-leaved red gum) *E signata* (Scribbly gum), *E tereticornis* (Forest red gum), *Lophostemon confertus* (Brush box), *E eugenioides* & *E nigra* (Thin-leaved stringybark), *E dunnii* (White gum), *E deanei* (Mountain blue gum), *E bancroftii* (Orange gum), *E andrewsii* (New England Blackbutt), *E amplifolia* (Cabbage gum), *Corymbia henryi* (large spotted gum), *C maculata* (Spotted gum), *C intermedia* (Pink Bloodwood), *Angophora subvelutina* (Broad-leaved apple)



Social structure

Yellow-bellied Gliders are very territorial possums who live in small family groups, usually one adult male and female (a pair) and their offspring. Although found to be monogamous in NSW some studies suggest polygamy is practiced in Queensland. The scent glands on the head are more prominent in males than the female - these glands are rubbed onto each family member much the same way as the Sugar gliders scent their family members.

Breeding

Birth season August- September in the southern part of the range and in the northern area May to September. Females are sexually mature at 24 months and males at 18 months. The female has two teats and the pouch is split into two compartments but as far as we know they only produce one young. The young stay in the pouch for 100 days and

is then left in the nest for a further 50 days, when the female leaves the den to forage for food. The dispersal age is between 18-24 months. A Yellow-bellied glider lived for 16 years in captivity.

Status

Listed as 'Vulnerable' on Schedule 2 of the NSW Threatened Species Conservation Act 1995. Distribution of this species has declined up to 50% over some areas of former habitats. The protection of old growth forests containing hollows for breeding and winter flowering eucalypts for food and sap trees is a must for their survival.

Case history

I can recall travelling down to the 'snake track' just before Eden to help build an aviary in the early 90's for Miss Bebe a young female Yellow-bellied glider who was saved from a saw mill and given to a fauna park. She was later retrieved by National Parks & Wildlife Service and sent back to her area near Eden in the care of a very enthusiastic carer who knew very little about the animal put into his care. His property was not far from Miss Bebe's original home. At this stage I had only seen them in the wild, zoos, and a research centre so after receiving a phone call from the carer decided to drive to Eden with another enthusiastic friend. The carer in Eden rang me one night concerned because he had not seen her for a few days (he was keeping tags on her after release). He had also had call from a neighbour across the river who was complaining there was something banging and scratching in his roof. Yes, it was Miss Bebe; she had climbed along the phone wire to reach the other side of the river and managed to get into the roof some how. Miss Bebe was tagged before being released and lived in the area for many years - the carer also survived the ordeal!



Barbed Wire is the main reason for Yellow - bellied gliders coming into care



Greater glider *Petauroides volans*



Introduction

Most Australians know what a 'brushtail' is and maybe even a 'ringtail' but the mention of the name greater glider is usually met with the response "what is that?" or is that a Koala? When looking at a photograph of one.

They have two things in common with a Koala; they are more adapted to moving around in trees than to moving on the ground, and secondly they are both very fussy with their choice of food as their digestive system is designed to deal with eucalypts leaves which are their primary diet. I used to spotlight 'Dusky gliders' (the name given by David Fleay due to the colour of their fur) along the Blue Gum Swamp track at Winmalee for many years, when I still had 'time and energy'. I noticed they were always late risers and would venture out of their dens later than the other possums in the area. Sugar gliders were out early just as the sun went to bed along with the brushtails and Ringtails. The number of Dusky gliders spotlighted along the track never ceases to amaze me, thanks to their glowing eye shine they are easy to pick up as long as they don't turn around - mind you they are boring to watch as they just sit, sit and sit. The best time to watch them is on a full moon without a torch. These lovely creatures do not fair well in fires; I walked the track after 1994 fires and found one that had escaped the fire but died from the smoke. Many of the hollow bearing trees were still smouldering inside and reminded me of fire crackers - shooting sparks into the darkness. The powerful owls who also reside at the same address lost their home too, but have since moved back into a new den. The Blue gums are majestic as they tower over the track and of course they are one of the reasons the Greater gliders chose to live there. I don't think some of these old trees will make it, if they get hit with another hot fire. Even today there is still very little known about their social or breeding habits. Greater Gliders are very quiet animal with a gentle nature and are very reluctant to bite if handled firmly but gently. Stress plays a big part on their survival whilst in care; they do not adapt to change to their environment easily. They also like their privacy more so than other possums and stress can cause their weight to drop quickly. I would not recommend the care of these animals to new carers as it takes time to learn about behavior of animals and understanding their needs. I have known experienced carers to lose Greater gliders and I can relate to the distress caused by this experience. Caring for Ringtails is a great way to start understanding Greater Gliders, as they too are fussy eaters, and get stressed if they are not housed correctly. Carers need to pick at least 3 varieties of eucalypt leaves in the morning, every second day and once a day in hot weather unless you can place them into cool storage. Only new green tips will satisfy their fussy nature! They may eat a little apple or pear but like Ringtails 'natural food' is the way to go in keeping these unique possums contented and their digestive system happy! Their scats are smaller than ringtails.

Identification

The Greater glider is the largest member of the glider family and is often confused with the Yellow-bellied glider, however if you see them both together the differences are quite apparent. Greater Gliders have more variation in fur colouring than any other species of possums, ranging from the more common black with a cream under belly to the dusky browns, silver greys, some look like they have been splashed with a mixtures of browns, black and creams, there is also a lovely creamy-white variety.

These attractive bundles of fur with long slender body and fluffy long pendulous tail are often the forgotten possum. Probably because these timid demure animals live so high up in the tree tops and are not very verbal. I have heard them hiss (when I put 2 males near each other) and also a make call not unlike the twittering sound from a ringtail. Many people would not detect their existence unless they caught the glowing eyes in a torch beam or heard the clunk as they land on a tree trunk after gliding then scurrying back up to the nearest branch. Greater gliders have a distinct spicy smell very different to other gliders. The tail is used as a rudder whilst gliding and at other times is often carried curled up. It is not prehensile, I have never seen them use it to hold onto branches and often wondered if they carried nesting material in it but again they have never attempted to make a nest whilst in my care. In a box on my property, which was used by one I released, there was never any sign of nest building (regularly checked for about two years). The box was placed high in an *Angophora costata* (smooth-barked apple) - and believe me I hate heights! Greater Gliders have dark round eyes with large rounded fluffy ears, a short snout and their claws are thick and strong. Their (patagium) gliding membrane stretches from the elbow to the ankles, the elbows are folded and the wrists are tucked under the chin when gliding. Apparently they can glide for around 100 metres and change direction as much as 90 degrees or so I have read. I have not seen them glide whilst spotlighting. The animal looks uncomfortable and odd on the ground - walks with a waddle - a bit like Charlie Chaplin. Like the Ringtail the first two digits opposes the other three on the forepaws. Males are larger than females weight 900-1700 grams, head and body 35-45cm, tail 45-60cm

Habitat & natural diet

Greater Gliders Inhabit a variety of eucalypt forests, from low, open forest on the coast to tall forests on the ranges and woodlands west of the Dividing Range but is not found in rainforests. They are dependant on tree hollows to sleep in, usually hollowed - out tree limbs high up in the tree. And like most possum they use the same pathways at night to forage for food, the claw marks can be seen on one side of the tree.

Like the Koala it has an enlarged caecum where the bacteria break down the normally indigestible cellulose of eucalypt leaves. They like the succulent tips and flowers of eucalypts like *E viminalis* (Manna gum), *E piperita* (Sydney peppermint) *E oreades* (Blue Mountains ash) *E deanei* (Blue gum) *E punctata* (Grey gum) *E sieberi* (Silvertop ash) *E oblonga* (Narrow-leaved stringbark) *Enotabilis* (Blue Mountains mahogany) and *Angophora costata* (Smooth-barked applegum) Also the very small flowers of She-oaks (*Casuarina*) and the sweet nectar flowers of the *Syncarpia glomulifera* (Turpentine). They will also eat galls - small pinkish bulge found on leaves, an abnormal development of plant tissue caused by an insect that lives inside the gall until it matures.

Greater gliders can eat the equivalent of 20 grams of dry eucalypt leaves a night - doesn't sound much until you have to pick them and you will need at least three different tree species a feed.



Social structure

A male's home range overlaps the females and the size probably depend on the availability of food and how many possums inhabit the area. Blue gum swamp pre-fires had an amazing number of greater gliders that were easy to spot from the trail. I have only seen a couple of single animals at one time in Sun Valley and I have also noted a female with young at foot and the male was not far way, maybe three - four metres. It has been said that they share a den during breeding season until the young emerge from the pouch (4months). Adult males scent mark their territory by depositing fluid from large anal glands onto branches.

Breeding

Greater Gliders breed from March to June though females are not sexually mature until they are around two years old. The gestation period is not known as yet. Females have two teats but only produce one offspring. The Joey remains in the pouch for around four months around 150 grams. When the young leaves the pouch it is carried on the back but is also be left in the nest when the mother has to forage as the young are be too heavy to glide with. If you see a female with a back young she is usually not to far from her den tree. Dispersal age is around 9 months.

Status

Abundant in their habitats, but can not adapt to change in their environment. In the 60's a few scientists where studying an area of forest being cleared to grow pine trees in NSW. Over a six year period 1033 gliders where tagged whilst the forest was being cleared. 9 out of 10 gliders had died. The only gliders to survive, were the ones, living on the edge of the cleared area, next to a forest that was not touched. To ensure these animals survive into the future we must make sure their habitat is protected and that means mature trees, as it can take 60 to 100's of years for hollows to form in some species of trees. Powerful owls also share the same environment with Greater gliders and along with Ringtails, are their favourite food.



This male *Greater glider* was attacked by Currawongs whilst fleeing from a bush fire. The Currawongs were attacking his eyes and a concerned caller was trying to keep the birds away with a hose. He was in care for 6 weeks and during this time his eyes were bathed and cream applied daily.

Of all the greater gliders I've had this one was the fussiest eater - I had to travel lots of kilometres every second day to pick at least three species of new gum tips for him to eat. His favourite food was the flowers of Turpentines and the pink galls found on eucalypt leaves.

Equipment

It takes time and money to get together a good equipment kit

Garage sales and Op shops are good places to look for second hand cages, towels sheep-skin, beanies and sheets.

Plastic pet baskets may be OK to use to rescue an animal but not to house them as they are too small - adult Ringtail or Brushtails cannot stretch their body or stand up in them.

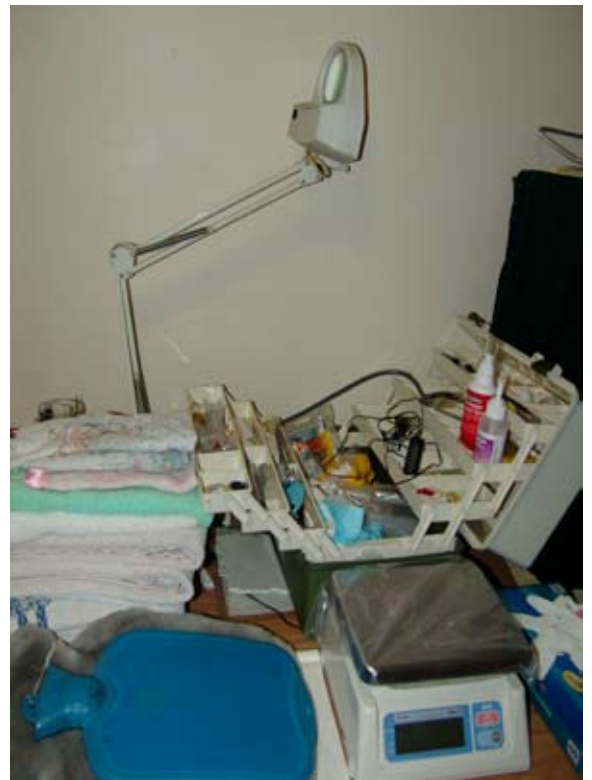
The most expensive item will be a good set of scales; these should be able to measure weights up to 5 kilograms in 1gram increments.

A thermometer should always be used to measure temperature - never rely on touch and feel.

The list below represents a typical Possum Carer equipment kit

Equipment list

- ☐ Pet carrier (sturdy wire) with cover
- ☐ Large plastic carrier
- ☐ Scales (1 gram graduation up to 5Kgs)
- ☐ Heat pad (electric with thermostat)
- ☐ Thermometer ("Vacola" glass or digital with probe)
- ☐ Wombaroo milk charts
Greater than >0.8 possum milk
- ☐ Protein powder
- ☐ Plastic eye droppers
- ☐ Beanies, liners, pillow slips
- ☐ Towels (lots) , sheep skin
- ☐ Hot water bottle with thick cover
- ☐ Assorted feed dishes
- ☐ Plastic (recyclable container) to be used to keep leaves in like a plastic drink bottle.
- ☐ Plastic ties



First-aid kit

- ☐ A large plastic Tackle box (to keep your bits and pieces together)
- ☐ Lectade (rehydration fluid)
- ☐ Otoderm (promotes new skin tissue)
- ☐ Betadine
- ☐ Cotton balls & buds, gauze
- ☐ Tape measure
- ☐ Nit comb
- ☐ Scissors, tweezers
- ☐ Disposable gloves
- ☐ Hand wash (antiseptic)
- ☐ Saline (washing wounds, eyes)
- ☐ Silverzine (burn cream) once opened keep in fridge

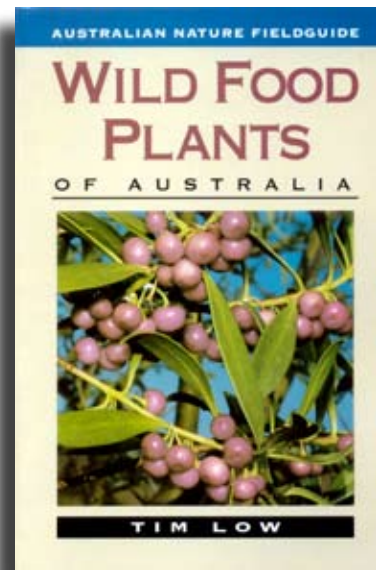
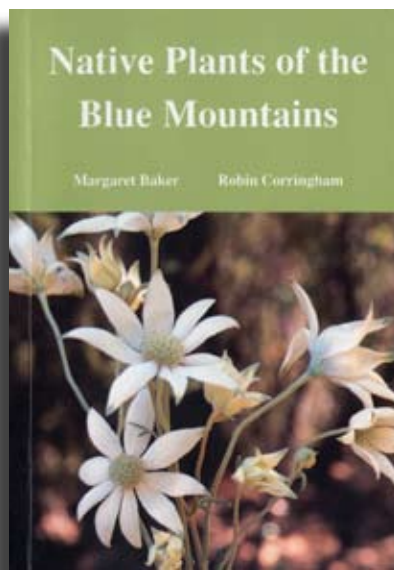
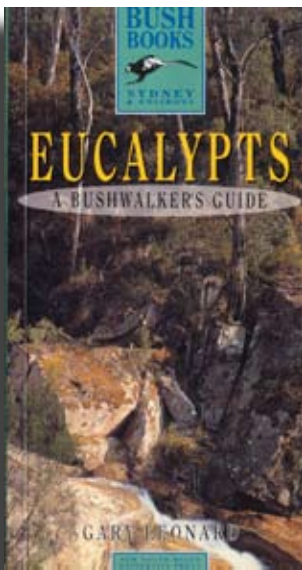
Housing

- ☐ In & out door possum boxes
- ☐ Large indoor cage with large door opening (covered with shade cloth)
- ☐ Table or stand to put cage on (cage must not be placed on the floor).
- ☐ Aviary
- ☐ Assorted unbreakable feeding dishes
- ☐ Recyclable plastic containers (drink bottles) for foliage
- ☐ Secateurs, Extendable secateurs



Extendable secateurs are handy for collecting new eucalypt tips
 Get into the habit of weighing food
 Recycled plastic products make good containers

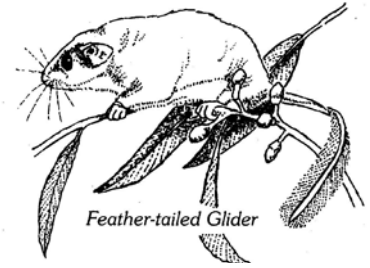
Get to know the native plants in your area



The books shown above are an excellent reference for plant identification

Feeding possums

something's to remember!



Feeding dishes

Need to suit the size of the possum. E.g. Feathertail & Pygmy possums need very tiny vessels such as a lid off a drink bottle or small glass feeding tubes as used for nectar eating birds - their long tongue fits nicely into the tube and they cannot get covered in Honeyeater & Lorikeet mix.

Use Blu-tack, a re-usable adhesive to secure the food containers in place otherwise the possum can knock it over. Never place liquid food into large dishes as these tiny possums can drown or get their fur glued together.

Honeyeater & Lorikeet, Small Carnivore, Insectivore and Protein powder should be made up as directed on the package and must be made up freshly for each feed.

- Always make sure feeding dishes are secure in aviaries.
- Place dishes in such a way that possums cannot urinate or defecate into them.
- Dishes must be taken out in the morning and cleaned.
- Honeyeater & Lorikeet mix can go off in hot weather and is very sticky.
- To stop ants from invading the food dishes, sprinkle non-perfumed talc powder onto the shelf where feeding dishes sit.
- For larger possums fruit and mixes can be placed into a bowl and placed onto a dish of water.
- All leftovers must be removed in the morning
- Pick up any fruit from the ground as it will encourage ants, rats and mice.

Mixing milk is an art!

Greater than (>. 8) possum milk can be made up daily for feeds. You will need a container e.g. A plastic or glass measuring cup used for cooking which can be purchased from a super market, cheap! Place 25 grams of >.8 possum milk powder into the container, and then slowly add the pre-boiled warm water (stirring to dissolve any lumps - like a paste) until it reaches 100 mls.

Note! Do not add 100 mls of water!

The formula is - 25grams of >.8 possum milk powder **made up to 100 mls** of pre-boiled warm water.

Fruit

When using fruit as part of a diet it should be noted that it is only used because it's convenient for the carer and it's palatable for the animal. Fruit is made up of carbohydrates, fiber, some minerals and vitamins - Protein mix needs to be added as a supplement. The fruit should be cut to size to suit the animal - if the pieces are too big the possum will take a bite and drop the rest. If it's too small it won't pick up the fruit but will try and lick it up and the fruit will spill onto the aviary floor. Possums need the fruit pieces to be a comfortable size for them to hold onto.

Do not feed exotic fruits, keep it simple the bulk should be apple plus a variety of other simple fruits that are in season and not too costly! No mangoes, they are for the carer! Besides fruit juices will only make the possums hands sticky and yucky!

Do not feed kale family such as Cauliflower, Broccoli, Cabbage or Brussels sprouts.

Do not feed herbs like parsley or certain weeds, they will eat them but, some introduced plants can cause convulsions and death. A few Pine nuts can also be offered.

Native plants

Good old Eucalyptus leaves! Possums will eat mature leaves but mostly like succulent green tips. Try to pick in the morning before the heat of the day and a couple of species if possible. Other natives like Black wattle, Tea tree, Bottle brushes, Grevillia, along with eucalypt, angophora and Turpentine flowers and buds. The seeds from wattles and casurina's are also eaten. Ripe Lilly Pilly and Breynia fruits are also appreciated.

Please do not feed roses or garden variety plants to possums; what they eat after they are released is their neighbour's problem!

Place the foliage into a bucket of water with some sugar to help the plant rejuvenate after being cut with secateurs. Do not take vegetation from national parks, these places are protected for a reason - to protect the flora and fauna for human interference.

Insects

Possums will eat spiders and bugs associated with trees and plants. Huntsman spiders which live under bark can be caught and frozen.

Mealworms can be used for stimulation and placed into leaf litter or in an escape free container, sprinkled with insectivore. Moths and beetles can also be caught and released into aviaries to get insect eating possums to hunt and catch their own prey and to also exercise. Foliage can hold lots of small insects and should be placed into the aviary so possums can seek out the insects.



Do not feed bright coloured insects!

Perches and dental health

Fresh native branches with the bark left on not only make good perches but are also good for possums to chew into, especially the sap and insect eating species. I also use vertical as well as horizontal perches.

Vases

Water containers used for holding foliage should not be too deep as possum may climb into them and drown.

Trees – A Home and a Supermarket

Using the following words, fill in the blank spaces on the diagram below: birds, sapstream, mistletoe, lizards, ants, aphids, seeds, termites, parrots, leaves, hollows, bees, bark, oxygen, cockroaches.

_____ suck the sap from young leaves

_____ eat the sap which oozes from aphid's bodies

Trees provide _____ with a place to nest which has a leafy, shady roof and helps hide the young from predators.

_____ is a plant which gets its water and minerals from the host tree.

_____ eat the unopened flowerbuds.

_____, ants and birds eat the flower's nectar and pollen.

Caterpillars eat the _____

Parrots, owls, bats and small animals live in nesting _____ in the tree.

Borer grubs eat the woody _____ under the bark.

The flat huntsman spider spends the day hidden under the tree's loose _____

_____ live in the hollows of fallen branches.

_____ eat the tree's dead inner wood, creating hollows for other animals.

Bush _____ nest in the fallen leaves during the day.

_____ scattered on the ground are eaten by ants.

What is the most important thing which trees produce that all animals use? _____



(Adapted from "Nature's Boarding House" poster produced by the Conservation Commission of the Northern Territory.)

Food glorious food - Fresh is best!



Galls



Casurina Seeds



Lerps - Honeydew



Native Blossoms



Acacia



Banksia



Sap



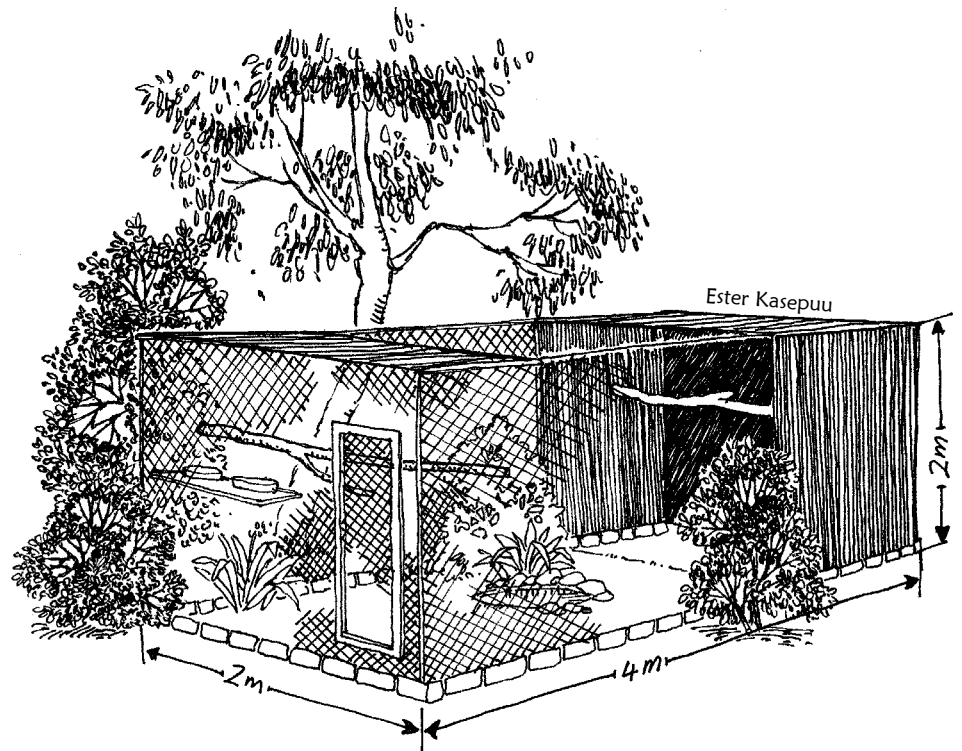
Tea Tree



Mountain Devil

Aviaries

An Aviary is a must have item if you are going to rehabilitate and release possums. It can also cost a significant amount of money and as such there are some fundamental points to keep in mind when buying or building one.



The function of an aviary

An aviary is basically a large cage designed to keep animals contained whilst providing security from predation and extreme weather conditions and allows natural behaviour and development. The size of an aviary is important in that it must allow the occupant(s) sufficient room to move and build up muscle condition in preparation for release. Contrary to what most people think only about 20% of an aviary requires weather protection. It is important that the occupants experience rain, wind and sunshine. Many birds for instance enjoy a light shower of rain.

Size

Ideally the larger the aviary the better; however practical considerations invariably limit the size. These limitations are usually based on space, cost, local regulations and other considerations such as the ability to catch an animal if it needs to be examined or moved.

Construction

If you are purchasing a commercially fabricated unit then you generally have little choice as these aviaries are usually made from zincalume coated steel and either screwed or riveted together. Lately the number of options and styles has increased dramatically compared to what was offered in the past and the suppliers are very accommodating when it comes to adding options such as shelves and escape hatches. Commercial aviaries can also be built to order to fit in with your requirements.

On the other hand you may wish to build your own. If this is the case you have a much wider range of choices with regard to building materials, and you can add items such as shelves and escape hatches which can integrate well with the structure. A popular choice of building material is treated pine for the frame, however this is not recommended for housing parrots. Be aware that this wood is impregnated with chromium, copper and arsenic and it is illegal

to burn. If it is possible that an animal can chew the frame, precautions must be taken to stop this from happening. For cladding 6mm fibre cement sheeting is ideal. This material has good heat insulating properties compared to zincalume sheeting.

Whichever style you choose it must be secured to the ground to stop it from moving or even being blown away during windy conditions.

Many commercial aviaries have three enclosed sides and a fully enclosed roof. This is not ideal, the aviary will get very hot in summer and will not allow the occupant to experience the natural weather conditions it will experience in the wild. Look for one that has at least two open sides and no more than half of the roof covered. The aviary should also contain some sort of a divider separating the sleeping area from the rest so that maintenance can be done without disturbing the animal.

Wire

Depending on the animals being housed and the size of the aviary there is a large choice available. However as most aviaries are used for general purposes (ie they may contain birds or possums or even reptiles) a good choice is 12mm square by 1.2mm thick wire. This wire is quite strong and rigid and allows for a wide variety of animals - from Sugar Glider to Brushtail Possum and all birds. This size wire also prevents some pests from gaining access. Chicken wire is not recommended. It is not strong enough to keep out dogs or quolls and will allow some pests and predators free access.

Flooring

If just keeping possums the best floor is a solid concrete. It is easy to keep clean, doesn't allow water to pond and is impervious to digging from the occupants or predators. If the aviary is to be a general aviary good results can be achieved using sand and gravel with a mulch top layer. It's important to ensure the floor is adequately drained so that no ponding occurs after rainy periods. We strongly recommend that a layer of 12mm square by 1.2 thick wire mesh is laid on the aviary floor and securely fastened to the aviary frame before the sand and gravel is placed. You might be surprised just how enterprising some animals are. We have seen lorikeets and cockatoos in addition to possums attempting to burrow out. Not to mention dogs, rats and quolls trying to burrow in!

Location

The aviary should be located in a quiet corner of the garden if possible, away from areas that are frequently used so as to provide some isolation from humans and pets. Additionally the aviary should be orientated so that open sides are facing east to north with northeast being ideal. The closed areas should face west to give protection from the hot afternoon sun during summer.

Other considerations

- ❏ Avoid aviaries that have doors less than your height. We have lots of bruises we can show you to prove that small doors are not a good idea.
- ❏ Make sure the door can be secured and opened from the inside. It is embarrassing to call for your partner to let you out, not to mention the embarrassment you will feel when an animal scoots out of the open door behind you because it didn't stay closed.
- ❏ It is beneficial to the aviary occupants to place a screen around the bottom 600mm to discourage pets and some predators. (see photo page 40)
- ❏ If birds such as parrots are to be kept make sure the wire has "weathered" otherwise chewing on the wire can induce zinc poisoning. You can "force" this weathering effect by washing new wire with vinegar – Both sides please.
- ❏ Depending on the occupants provide suitable branches so that the animal can move around without coming to the ground. (We don't want to encourage possums to come to ground)

- ☐ Try to use branches with the bark still on them for perches or connecting pieces – hard surfaces cause problems with birds and tends to blunt claws and nails.
- ☐ Check Local Government regulations regarding size and location. Ignore this point at your own peril! Some neighbours may not appreciate a large aviary on the fence line.
- ☐ Watch for sharp edges in commercial aviaries. These can inflict a nasty cut to the animals and your hands. Sometimes placing a split plastic tube over these edges is possible.
- ☐ If the aviary is used for releasing, an escape hatch is a must. Leaving the door open is not a good idea. The escape hatch should also be close to a branch or thick rope that connects the aviary to a nearby tree. If the possum has to come to ground to leave the aviary it will be severely disadvantaged if a predator is lurking nearby.
- ☐ Consider placing a lock onto the door if there is any chance that children or others may enter without your permission.
- ☐ Food scraps are rodent magnets. Especially spent or spilled seeds. Good house keeping is a must to minimize the damage that rodents can do.

Recommended size

Unless you have a lot of space, you will probably only be able to fit one or perhaps two aviaries into your yard. A good compromise would be one large main aviary and one smaller intermediate size aviary.

Brushtails, Ringtails and Sugar Gliders

Excellent	4 meters long - 2.4 meters wide - 2.4 meters high
Good	2.4 meters long - 1.8 meters wide - 2.4 meters high
Minimum	2 meters long - 1.5 meters wide - 1.8 meters high



This aviary measures 1.8 wide x 2.4 deep x 2.4 high. It has 3 open sides and more than half of the top uncovered. The bottom open area is covered with shade mesh to discourage pets and predators. Other than the small door height, this is a good aviary for a pair of Brushtails, Ringtails or a group of Sugar Gliders. Cost in 2003 was \$1700 un-assembled.



This aviary measures 2 wide x 4 deep x 2.4 high. It has 4 open sides and 20% of the top is covered. An area at the back is fully enclosed for shelter. The bottom open area is covered with fibro to discourage pets and predators. The wire is 25mm x 25mm x 2.5 mesh so it is not suitable for Sugar Gliders. This is an excellent aviary for a pair of Brushtails or Ringtails. Notice the branch leading from the aviary to a group of trees. Cost in 2002 was \$1500 for the materials only.

Housing & Holding Possums



Branches kept fresh with the ends in a bucket of water - adding some sugar prolongs the life of the cutting.

Note! fill the bucket with pebbles so that possums cannot get trapped and drown.



Sleeping quarters

Behind the tree branches of the aviary pictured to left are the sleeping quarters. This area is protected from the weather (rain and sun). It is also semi enclosed so that entry into the aviary during the day minimises any disturbance to the occupant(s)



Inside Boxes

These are made from particle board and don't weather very well



Outside Boxes

These are sturdy weatherproof boxes used when releasing.

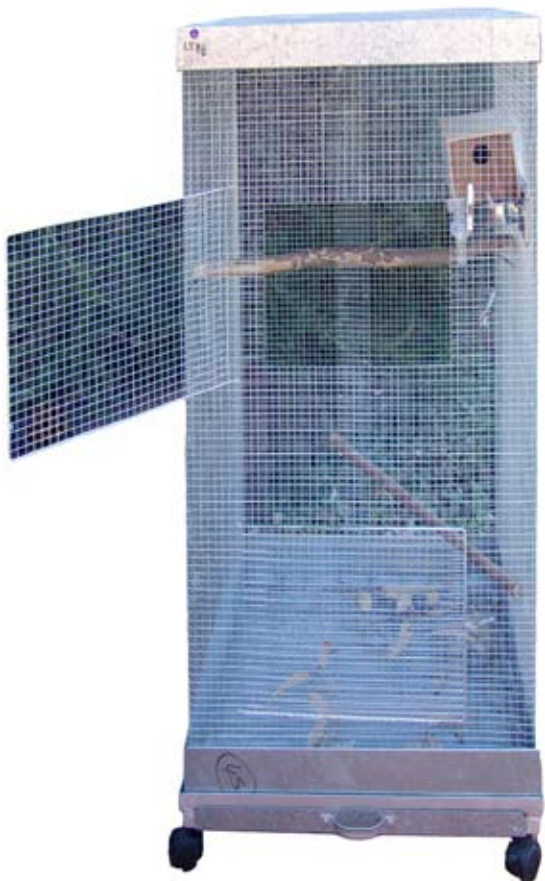
Three different boxes are shown - Ringtail, Brushtail and Sugar Glider



An assortment of pet carriers

Plastic carriers are inexpensive but are only suitable for rescue - they are too small for housing larger possums.

The wire meshed carriers are sturdier and larger, enabling the possum to stretch out if it needs to.



A cage suitable for small possums 1800 x 900 x 900. The mesh size is 12mm square out of 1.6 wire. Large doors for easy access and placement of branches



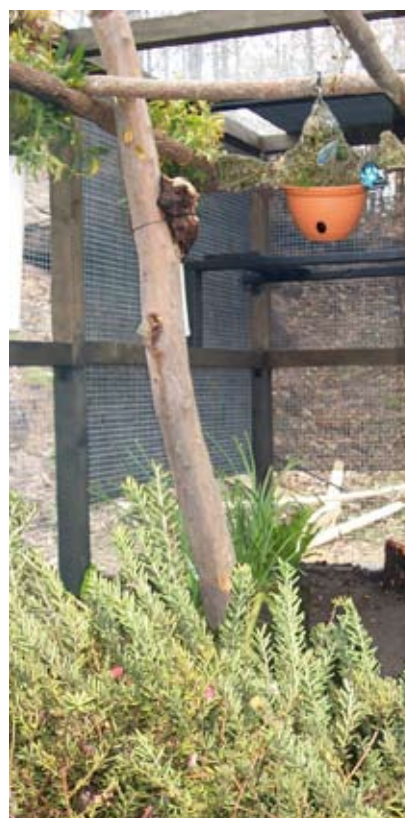
An artificial drey made from coconut fibre and wire baskets



Insect attracting light



A converted cabinet used for Feathertail Gliders - The best wire to use is 6mm mouse wire. 1.2 x .75 x .45 Metres



Planted aviaries are ideal for non-leaf eating possums. Make sure you leave bark on the branches - use vertical as well as horizontal branches. Potted plants, hanging or on the ground are great for nectar, insect and pollen eating possums. Pots can be removed when new occupants like leaf eaters are introduced

Housing injured or sick animals



Two washing baskets joined together into a makeshift cage for injured or burnt possums



Easy access for nursing and cleaning. Note! This is placed on the floor for illustrative purposes only. Keep cages at eye level



Stands are useful for keeping cages off the ground. This cage is 30cm deep X 25cm high X 22cm wide



This possum was kept in the cage to the left. Notice that it is large enough for him to stand on top of the box.

Possums will pull any covers (towels or sheets) into the cage and shred them to pieces.



An excellent cage. Easy to move and large enough for convalescing 110cms high X 80 wide X 60 deep



80% shade cloth provides privacy, keeps out flies and provides ventilation. Don't allow pets in the same room.

Initial assessment

What to look for!

You should familiarise yourself with the healthy body of a possum.

This way you will be more aware of problems and know what to look for. If a rescued possum dies look at the body, check out the pouch area to see if it has young, also look at the interior of the pouch.

It cannot bite you now!

Mucous membrane

These are the gums and the inner lining of the mouth and are used as an indication that something is wrong in the body i.e. blood loss or problems internally, normally they should be a healthy pinkish colour.

Capillary refill time

The following procedure should be practiced on younger possums or you may lose your finger or alternatively practice on your dog or cat.

Once you have assessed the colour of the mucous membranes, press your index finger firmly onto the gum. Then quickly remove your finger.

Then count the number of seconds it takes for the pink colour to come back into the area you pressed, 1 to 2 seconds is considered to be normal..

This tells us that the peripheral blood (paws, feet & tail) is circulating normally.

Breathing

Look at the rise and fall of the chest and the abdomen.

Shallow & fast breathing- chest injuries

Gasping for breath-lung injured

Hissing sound -wound in chest cavity.

Gurgling sound with frothy blood from the wound-bleeding into the chest and blood being forced out with air.

Crackling sound with slight swelling could be a punctured lung.

Shock

the mucous membrane becomes pale because the blood is being directed to the vital major organs e.g. brain, heart, and lungs and less is directed to the skin.

Burns

Electrical-smells of burnt flesh, mostly internal injuries, need veterinary assessment immediately. It can take a few days for signs of injuries to show.

Fire - apply cold water to the skin to clean and reduce the amount of damage and it will also lessen the pain. Apply a thick lashing of cold Silverzine to skin. I always bandaged the feet and paws to keep the skin from drying out and it stops the possum from licking of the cream. It will probably need antibiotics, see your vet as soon as possible.

Blisters will show in a few days on feet, hands, skin under tail and ears.

Superficial burns are very painful because the nerve endings are left intact and pain can be felt.

In deep burns the sensitive nerve endings have been destroyed.

Singed fur will also fall out in a few days because the hair follicles have been damaged, their claws may also fall out.

Smoke inhalation can cause breathing problems and pneumonia.

Ingested poison

Snail bait for example.

Signs- convulsions, rapid, shallow breathing - Immediately take to vet.

Young juveniles have been know to ingest snail bait, they have usually died.

Anticoagulant poisoning - Usually Rat bait containing Warfarin

Signs- It can take days before the poison shows any signs.

Look for bleeding from the gums and cloaca, lethargy, trouble breathing, swollen joints.

Take to a vet immediately if you suspect poisoning.

Ask the caller how much and what product was used. The possum will need a coagulant for a while (vitamin K injections)

Note: - suckling young can get the poison through the mother's milk.

Good prognosis if treated in time.

Convulsions

Could be caused from liver/kidney problem, hypoglycaemia (low blood sugar), and lack of oxygen to the brain, poisoning, bacterial infection.

Toxic plants, such as too much Parsley, a collision or a fall etc.

Take to vet ASAP.

Fractures

Broken bones need to go to the vet for assessment. Talk with your Animal Coordinator for advice regarding costs and release prospects.

Simple fractures - bone broken clearly in 2 places

Open fracture - bone protruding through wound in skin

Complicated fracture- vital organs surrounding the fracture are damaged- blood vessels, spinal cord etc

Multiple fractures - The bone is broken in two or more places.

Dislocation - a displacement of the bone which forms a joint-hip, shoulder, knee etc

Burns



Burns are amongst the most painful injuries for any animal.

It takes a few days for the full effects to become apparent. For example - blisters, loss of fur and claws falling out. Treatment can be a long drawn out procedure and even then a satisfactory outcome is not guaranteed.

This possum along with her back-young was in care for three months

Wound management

Unlike our domestic animals Possums cannot be reasoned with or bribed! They are frightened and will bite or scratch to protect themselves - don't kid yourself that they think you are going to look after them so they should be nice to you! Make sure your possum is securely wrapped in a towel or pillow slip before you exam it, an extra pair of hands may be needed.



Fly-strike

Flies will lay their eggs on an animal even before its dead, and their wriggling, wormlike larvae, known as maggots, will hatch out in just under twenty-four hours, faster in higher temperatures. Maggots can burrow into good skin tissue and may enter the ear, nasal and cloaca cavities and depending on the damage the animal may have to be euthanased. Maggots are something all carers will need to get use too! Flies do not discriminate and will lay their eggs in moist areas like open wounds, pouches, ears, under tail area and arm pits. The eggs are tiny and are attached to the fur near the skin and a nit comb is the only way to remove them. Possums with long fur like Greater gliders are usually covered with fly eggs if they have been found on the ground or caught in barbed wire fences. They are more prevalent during the warmer months but can also be found on animals during the cooler months.

You can remove most maggots with tweezers and clean the wound with Otoderm.

Puncture

Cat wounds on Ringtails and smaller possums are usually found around the neck and head area the small claw marks are hard to see. You will need to check the fur for saliva (matted fur) and blood - cover the animal up with a towel and open the towel to the area you need to investigate -blow the fur to see the skin area.

Cats' claws and teeth are very infectious because of the bacteria that stays on their claws when they dig into soil.

Dogs teeth can penetrate deep into the flesh (depending on size of dog) and may rupture vital organs, deep wounds may have to be sutured.

Cut fur around the wound and clean with cold water then take to the vet ASAP for injectable antibiotics and assessment.

Possums with wounds will need to be protected from flies and must be housed inside. If you are going to house animals in the laundry the door and windows must be screened in. You will have to move the animal when you are washing or using a dryer as the noise will not only stress the possum but the moisture from the dryer may cause skin problems. Lactating females may get stressed out and stop feeding their young.

Release

Because of their highly territorial nature adult possums should always be released back into the area they were rescued from. Personally I believe any possum kept in care for more than two weeks should go back with a possum box. This will give them some security until they can sort themselves out and hopefully be accepted by other possums that may have moved into its place.

A common mistake is to severely underestimate the amount of fauna within any given forested area. To someone who is inexperienced, the bush appears to be almost empty, but this is mostly an illusion. In fact the bush is most probably supporting the maximum number of animals that is possible. Many forested areas around the Blue Mountains are supported by sandy soils and therefore the availability of food from trees and shrubs is relatively poor. This illusion is further supported by the fact that many animals - especially possums - are nocturnal.

Reliable counts by experienced professionals have repeatedly shown stocking rates of around one to nine brushtails per hectare (that's just over 4 acres). Of course around Human occupied sites this figure can be much larger and this is directly proportional to the availability of food.

The point I am trying to make is that all habitats, be they forests or urban areas are fully utilised, and possums, being territorial, will defend their patch. Intruders (including those possums released by well meaning but un-informed carers) will face fierce competition and the outcome strongly favours the residents. And it's not just food either - tree hollows are at a premium in the bush as are other sites that offer shelter. So do the best thing for the possum you are releasing and the wild possums - keep them in their area.

Points to consider when releasing

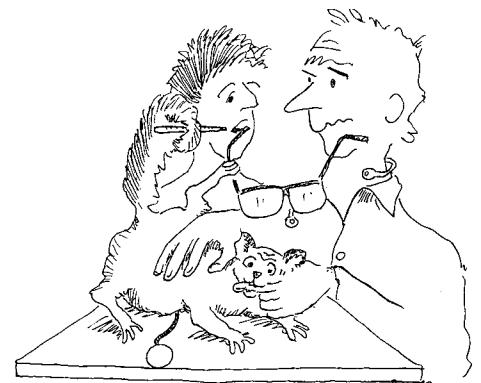
- ☐ Soft release is a must for juveniles because it gives them a safe home to come back to if they need it and allows them time to adjust to the wild.
- ☐ Do not over load your release area or your neighbours may complain about the possum's tap dancing on their roof and invading their garden demolishing their prized roses or geraniums.
- ☐ Areas that have been burnt out are a good release site but make sure there is sufficient food to sustain them.
- ☐ Ear tagging is very important if you want to know if the animal has re-entered the system.



Tagging should be done at least one week before release

Possum rescues

- ☐ Once you have received the rescue call, ring the caller to advise them you are coming and to find out if the situation has changed e.g. the possum has climbed to the top of a 100 metre tree!
- ☐ Call an experienced member to help you on the first few rescues.
- ☐ Plug in a heat pad before you leave, it might be required.
- ☐ Fill a hot water bottle with warm water, wrap in towel and place into a Pet carrier with two extra towels.
- ☐ Hoop bags can make it easy to catch possums if they are out of reach.
- ☐ Check your street directory before you leave, don't forget the animal call sheet and a torch if it's dark.
- ☐ Assess the situation when you arrive- Is the possum injured/bleeding?
- ☐ Don't swear if you get bitten just smile whilst clenching teeth!
- ☐ Contain the animal in a secured covered container.
- ☐ Fill out the paper work and get it signed by the caller.
- ☐ If the caller offers you a donation, thank them, accept it, and advise them an official receipt will be sent out.
- ☐ Secure the pet carrier on the floor behind the seat or secure it with a seat belt
- ☐ Turn the volume down low on the radio.
- ☐ If the possum is injured and the vet is open go straight there, if not take it home and contact an advisor for support.
- ☐ Attend to the animals needs and make it comfortable.
- ☐ Contact phone coordinator with animals details
- ☐ Register the possum with the Animal Officer.



Do you find possums a real challenge?
from "By the way, while you're here" - By Robert Johnson

Handling Possums

This is the scary bit. Once you have assessed the situation, you have to actually catch the possum!

I find the easiest and least stressful method (for both parties) is to throw a large beach towel over the possum. This keeps the possum confused and disorientated and allows you to be in control. In other situations where it is not possible to use a towel (for example the possum may be higher than you) I use a hoop bag. (See picture next page)

Once you have the possum secured inside a pet carrier and your knees stop shaking, you can either contact an experience carer or the Animal Officer to give you further assistance. A pillowslip used like a glove is great for grasping Ringtails and Sugar gliders and saves your hand from being scratched or bitten.

When you have arrived home or at the vets you will need to check the possum for injuries and so on. I can guarantee you, the possum will not always be hiding under the towel! Sometimes the possum is sitting on top of the towel ready to bolt as soon as you lift the lid off the pet carrier. If this is the case you will need to slide a towel under the lid very slowly covering the top of the pet carrier and then drop it onto the possum whilst holding the possum down so it won't bolt. When the possum is wrapped securely, you can proceed to open the towel to the area you need to check. Always keep the head covered and be mindful of their teeth and claws.

I often bag my possums in a very large dark cotton bag - I can feel where the head is and can control the bitey bits through the bag. Just try and remember the possum is very frightened and doesn't understand you are trying to help it. It sees you as a predator and will try to protect itself!

We all had to start somewhere and I can recall being sent on my first rescue - a very large obnoxious male brushtail - and how scared I was as it screamed when I was trying to get it into the pet carrier. I didn't hold it tight enough and consequently he bolted with me in pursuit. The poor animal had been savaged by a dog so I can understand how terrified it felt. Fortunately I did managed to recapture him ...well lets say we grabbed each other! I am much more careful these days.

Do not be afraid to take animals to another member for support and guidance.



Removing a possum from a pet carrier



Capturing a small possum with a pillowslip



Dark coloured material makes the animal feel more secure



A Hoop bag (used for reptiles) can be useful for capturing possums that are otherwise inaccessible

Case Histories

A few rescue scenarios you may encounter

Road victim or fall

An adult male Brushtail possum is found lying on the side of the road or in a front yard at 10:30pm and cannot move. The feet are clenched and cold to touch; the eyes are open and have that glazed look.

Throw a large towel over the possum, tucking the towel under the body, on all sides. Then gently but firmly support the wrapped body with your hands, and place the possum into a padded (towel) pet carrier. Small plastic carriers are not big enough for large possums to stretch out their body which may have spine or nerve injury. A large cardboard box can also be used to transport the animal home if the veterinary surgery is closed.

Once you get it home, listen to its breathing and check for signs of blood in the ear, mouth and nose. Look at the colour of the mucus membrane. Feel along the back bone for a break. The possum is in deep shock and may be bleeding internally.

Place the pet carrier onto a heat pad set at 28 deg^c, in a quiet dimly lit room. Check in an hour to see if it's warm and note if it has moved its body. Take care not to over heat the possum.

Do not try to give fluid or food to an unconscious animal. If there is no change, go to bed and check in the morning, But, if the possum has moved make sure it is securely contained and check in another hour. If the possum is still alive in the morning make an appointment to see the vet.

If it is sitting up, it is probably very sore, check that the possum's eyes are open and if the pupils are responding with a small torch. Check to see if the colour of the feet and nose (pink) have returned and its breathing is ok. (ie it is breathing normally)

Offer a drink of Lactaid with a plastic medicine dropper do not use glass as it can break if the possum clamps hard on it. If the possum seems to be getting better you can offer some fruit observe over the next 24 hours. It takes a few days for bruising to come out and it could be a bit wobbly. If he is curled up like a possum and is eating and drinking place a possum box inside the cage, he will feel more secure. If he is progressing well then release him after a week or two, just to make sure there are no internal injuries.

Mites

This possum was received into care with an irritation caused by mites. He was treated with Ivomec (injectable) and injectable antibiotic (baytril) along with regular eye and ear swabbing.

Three weeks was sufficient time for the condition to clear up



Dog attack

A juvenile Brushtail possum was found hiding in a laundry, by a barking German Shepard. It was huddled under the sink.

Place a large towel over the possum and grip firmly but carefully wrapping it up inside the towel and place into a pet carrier, secure and cover.

The young possum is petrified and will bite and claw to protect itself because it sees you as a predator not a saviour.

When you get it home, it will probably be sitting up on top of the towel, get it out to examine, just in case the dog has attacked it. Open the lid just a little; slide a large towel under the lid, covering the top of the carrier (see page 34). Drop the towel onto the possum and then wrap the possum in the towel. Open the towel carefully to the area you want to examine.

Or you can place the possum into a large pillow slip which can help make it easy for you to examine the possum without getting bitten. If unsure contact your adviser for another pair of hands and help - especially if it's an agro possum.

If you find a wound and its deep or the skin has been peeled back it may require stitches, contact the vet to organize appointment for an assessment/treatment.

Do not give food or water if you think it maybe going to have an anaesthetic

When you collect the possum from the vet after treatment it may still be recovering from the general anaesthetic, sometimes they thrash themselves against the cage, keep it in a quiet room on a heat pad set at 28deg.

Once it has recovered give tepid Lactaid, nothing cold by mouth, and then place it in a padded indoor cage for 24 hours.

If its improving, transfer it to a larger cage with a possum box until the stitches have been removed - usually around 7 days. Keep the animal indoors, otherwise it may become fly-blown.

It will probably need a course of injectable antibiotics. If the possum can reach the wound it may pull out the stitches, you will need to check the wound and clean daily.

Usually it takes around 3 weeks before the animal can be released, depending on where the wound is and healing time. Do not release possums with open wounds.



Victim of a dog attack - when rescued



After veterinary treatment

Skin problems

A Brushtail found curled up under a BBQ in the back yard, it smells rotten has crusty sores over the head and lower back. The rotting smell tells you the animal has a very bad infection and will need to go to the vet ASAP. It will need antibiotic injections and assessment by the vet to find out if it has mange, exudative dermatitis or other skin problems. Keep the possum separate from other animals, disinfect towels and wear throwaway gloves when cleaning wounds. It must be housed inside or it will become fly-blown. These possums are usually underweight. Check the pouch for infection and young.

Possums cannot always be saved and it may be kinder to euthanase as the infection may have spread throughout the body. It may have Septicemia which is an infection in the blood or Gangrene- that's when the soft tissue has died and decayed from lack of blood supply. It can also cause blindness. Possums which have a favourable prognosis do well on a proper diet along with antibiotics and good management skills.

Exudative Dermatitis is common in Brushtail possums living in urban areas where there is a high population density; maybe it is caused by a combination of social stress, fighting wounds, diet, bacterial / fungal infections or mites; the exact cause may never be known. The possum could be in care for a few months depending on how long it takes to heal. Upon release, tagging is a good idea so we will know if it returns with the same problem.

Agro an adult male Brushtail was rescued with a severe skin complaint. He was taken to a vet for assessment and cleanup. Afterwards he was prescribed long acting injectable antibiotics at the rate of one injection ever second day - four injections in all.

Agro was so named because of his aggressive nature, thankfully the carer had the assistance of a veterinary nurse (her Daughter) to help with the daily routine which included bathing the sores and cleaning the cage. Agro was in care for three months and was released back to the property where he was rescued.



When rescued - what a mess!



Thank goodness for Vets!



What a difference



Three weeks before release

Rat poison

A female adult Brushtail possum is found in back-yard shed, eyes closed, with laboured breathing and bleeding from mouth. Carefully cover the possum with a towel, this will calm the possum, then very gently lift her into a pet carrier. Check for pouch young. Rat poison has an ingredient called Warfarin (an anticoagulant) which stops the blood from clotting. Any firm pressure applied to the possum's body can cause internal bleeding. The possum must be assessed a vet immediately. The vet will administer Vitamin K by intra-muscular injection to help the blood clot.

Take the baby out of the pouch immediately to check if it's received the poison through the milk, look for pale gums and pale feet and hands (internal haemorrhage). It will probably need a Vitamin K injection to be on the safe side.

Contact the animal Coordinator to find a home for the baby- the baby can go back to the mother later if she survives.

Keep the animal in a quiet, semi-dark room and check with the vet if it can receive fluids. If the mother survives and the baby is ok they can go back together before being released. Poison victims are usually kept in care for 3-4 weeks. The possum must be cleared by the vet before it can be released. Before returning the possum make sure the property owner has securely locked up the poison as the possum will return to the shed and may not be so lucky next time.

Rat bait can be placed inside a length of PVC pipe wide enough for a rat to enter but not a possum. If the owner has a dog or cat it can also die if it consumes a poisoned rat or mouse, the urine of poisoned rodents is also harmful.

Hypothermia (extreme loss of core temperature)

A juvenile Brushtail was rescued from a drain pipe, wet and cold. Young possums will explore openings because they are very inquisitive and have no sense of danger.

If it is lethargic, the body is limp and feels cold to touch, and its temperature has dropped it could go into a coma. Dry the possum with a warm towel - this will also stimulate the possums circulation. Place the possum into a warmed padded pet carrier and cover with a warm towel - leave it for a little while until the fur is dry. Check the gums for colour and the feet and hands for warmth. If the feet and hands are cold you will need to stimulate the blood flow by massaging them gently using a warmed towel.

When it can hold its temperature and is sitting up offer a tepid drink of lactaid. I would also try some >0.8 possum milk later with some strained baby apple or pear, this will not only warm its insides but also replace lost energy.

Keep it housed inside for at least a week maybe two, and then place it into an outside aviary to see how it copes.



Bush Fire Survivor - in care for four weeks

Burns

A Brushtail with a back young was discovered inside a fire place after methylated spirits was used to start the fire. The caller heard it scream and put out the fire then wrapped the possums in a towel and placed both of them inside a cardboard box.

Take the possum straight to the vet if available. If not you will need help from an experienced carer to examine and treat the possums. If the whiskers have been burnt it could have inhaled smoke into the lungs and burnt its nose and eyes. The possum will be petrified and in pain and will try and get away from you. If the feet and hands are burnt apply a wet towel, dry and apply silverzine cream. House in a large pet carrier padded with a cotton sheet. Check it through the night and offer water with a plastic dropper or a spoon or plastic cup. Get it to the vets in the morning for assessment and some pain relief.

Burns take a few days to come out- the possum will get blisters on the ear, paws, nose and the bare strip underneath the tail. The possum may need antibiotics as it could develop pneumonia. The possum will also lose some fur in a few days and it can lose its claws. During the first week offer plenty of fluids as it can dehydrate very quickly. If the burns are deep and cover more than 15% of its body, it may be kinder to have the possum euthanased because its prospects are not good.

Waste of time!

You receive a call to get a possum from a linen press that has a hole through to the roof area. The person rents the house and had told the estate agent who supposedly informed the home owner, but nothing had been done to fix the hole. You can hold the animal for 24 hours as long as it is agreed that the point of entry will be fixed within that time. Return the possums with a box (The owner should pay for the box if possible).

If the owner refuses to have the possum back, then quietly release the possum back to the property or close to the property the next night.

We do not relocate possums as they are very territorial!

Place the leaflet from NPWS in the letter box.

In general this is a difficult situation - if the hole is not fixed the released possum will just return to its original habits. Even if the possum was to be relocated another possum will move in.

Lean times

An adult Brushtail found in a chooks pen looks thin and unkempt. These possum are usually gentle and easy to handle, they are starving and very thirsty.

Weigh the possum and feel the back bone for sharpness also check the sex of the animal in case it has a pouch young. Check the fur for mite, fleas and ticks also the pouch for any signs of infection. Are the teeth broken or long? Give it a drink of Lectaid and then offer it some apple and leaves - watch to see if it has a problem eating hard foods or chewing leaves.

If it cannot eat properly give it >.08 possum milk with strained apple or pear or mashed banana, it needs to eat. It will need some warmth as it probably has no fat reserves to keep it warm. Look for cataracts in the eyes. It may be a geriatric possum or had an injury to the jaw and has not been able to eat; lack of food can also cause cataracts.

Note! If it is out during the day time, it may have an eye problem check that the pupils are expanding during the dark and contracting during the daytime. (Most possum just want to hide away from the light and bury their head underneath the towel). If you are not sure take it to the vet for assessment.

If it is blind and it can not be reversed it will need to be euthanased.

Pet Moggy

A Sugar glider is found hanging off a screen door.

Using a glove or a pillow slip used like a glove grasp the Sugar glider and pull the bag over your hand. With the possum secured inside, tie off with an elastic band. Place the bagged possum inside a secure pet carrier.

Ask the caller if they or a neighbour have a cat.

Before opening the bag, secure the room as these little possums move like lightning. Secure the head of the glider through the bag and keep the eyes covered. Look for moist (saliva) matted fur and check for cat claw marks or puncture wounds around the neck area by blowing on the fur. If it has any cat inflicted wounds contact the Animal Coordinator for nearest antibiotics supply. It can have amoxil by mouth but injections react quicker. Check the pouch for young.

After it has had antibiotics and a drink of water place the glider into a glider box lined with sheep skin or woolen beanie to keep it warm. Place the box inside a cage with small wire as they are great escape artists and can squeeze through small holes. Supply a shallow dish of water (Blue tack so it won't get knocked over). This glider will be in care for 7-10 days just in case there is a problem.

The animal needs to go back to its area as they are also very territorial. You will need to talk with the land owner about keeping their cat in or trying to keep the neighbours cat out of their yard by hosing it etc. Make them take responsibility for the Sugar Glider. Place the Gliders box into a tree, get the kids involved if they have any.

Cuteness and size wins every time.

Cat owners need to be made responsible for keeping their cats in at night.



This Ringtail was no match for a cat



This Squirrel Glider didnt survive a cat attack

Barbed wire

A Squirrel glider has been found caught on a barbed wire fence during the daytime. Be careful how you unwind the barbs from the membrane. Some times it is easier to cut the wire instead of trying to remove the glider. Make sure you attach another piece of separate wire onto the piece you are going to cut or it will spring back and inflict a nasty wound. Then wrap the glider in a towel and place in Pet carrier. You may need another pair of hands - do take care with the sharp teeth and needle like claws.

The gliding membrane has veins which pump blood through the membrane. If the blood supply is damaged it can lose a large part of the membrane which may not heal and render the animal un-releasable. Once it has been released from the barbed wire give it a drink of Lactaid if it is active. Check the pouch, armpits under tail for fly eggs or maggots. Use a nit comb to get rid of the fly eggs. Bath the wounds with Betadine solution, then place into a glider box inside a secure cage. If the wounds are kept clean it will not need antibiotics. If the glider has large maggots coming from the cloaca, nose, pouch or ear area it may need to be euthanased. If it smells off, it probably has an infection and will need antibiotics.

Sometimes they can be caught on the fence for a few days before they are noticed. If there is no vet open, take it to an adviser for assessment.

If the gliding membrane sloughs (dies off) make sure you keep it clean with Otoderm as it helps promote new tissue and maggots don't like it. The vet may need to cut out the dead patch and sew it together if it is too large a hole to heal naturally.

The glider must be housed inside until it has healed and can be in care for 4-6 weeks. It is important that the glider is returned to its area in a glider box when it is time for release.



This Yellow-bellied Glider was cut out of a barbed-wire fence. It was in care for three months



The gliding membrane being sutured

Common Brushtail Possum Repellant Study

A summary of Possum Repellant trials carried out by Deakin University in Melbourne on fourteen products commonly used to deter possums.

Products tested:

Garlic spray
Tabasco sauce ®
Hot English mustard
Indonesian fish sauce
White King® (*bleach*)
Camphor
Naphthalene flakes
Quassia chips
Blood and Bone
Keep Off ®
Stay Off ®
D-Ter ®
Scat ®
Bitrex



These products can be purchased from supermarkets and plant nurseries with the exception of Bitrex. Bitrex is a bittering agent commonly used to make certain products unpalatable and is an ingredient in some propriety repellant products such as D-Ter®.

Products were organized in categories according to their supposed method of repellency, either by taste (gustatory repellents) or odour (olfactory repellent). Different tests were devised for each category. Two of the products were tested in both categories because they could conceivably repel by both taste and odour (garlic spray and D-Ter®).

Gustatory repellants were tested on piles of apple pieces laid out in a grid pattern, with untreated apple and three different repellant treatments tested in each trial of two hours during which wild possums had free access to the food. The behavior of the possums and the amount of food in each treatment remaining at the end of the trial period were recorded. The results showed that when possums were hungry, none of the repellants prevented them from eating all the apple provided. The products tested in this series of trials included: Tabasco sauce®, Hot English mustard, Indonesian fish sauce, Bitrex, Garlic spray and D-Ter®.

Olfactory repellants were tested by placing treated and untreated chopped apple in a cage suspended above the ground. A counter recorded the number of times a possum attempted to gain access to the contents of the cage. A large number of attempts to get the untreated apple, compared with few attempts to get the treated apple would be taken as an indication of successful repellency.

The results suggested that five of the tested compounds may show some degree of repellency. These were: White King® (bleach), Keep Off®, Camphor, Naphthalene and Scat®. The other products tested in the olfactory trials were: D-Ter®, Stay Off®, Blood and Bone, Garlic and Quassia chips.

It should be noted that these trials were undertaken on one population of possums at one site. The results do not necessarily indicate that similar responses will be displayed by possums elsewhere, or that other kinds of tests would yield similar results.

Possum Relocation Study

Trapping and relocation of problem possums was standard practice for Melbourne residents for many years and was permitted by the State wildlife authority. Relocation of possums meant in some cases relocation of problems. For example, many possums were dumped in the Royal Botanic Gardens and this led to increased browsing of plants and the need to take action to reduce possum numbers. Also, removal of possums was a poor solution to a problem, as another possum very often replaced the one removed within a very short time. Out of concern that relocated possums may suffer, the then Department of Conservation and Natural Resources encouraged Deakin University to study the fate of relocated Common Brushtail possums.

A study by Deakin University in Melbourne (Pietsch 1994) has shown that most relocated Common Brushtail possums die in stressful circumstances soon after release. As part of the study, resident possums in a proposed release area were observed over 13 weeks. During this time, no possum carcasses, partial remains, or patches of fur were found. After the release of relocated urban possums in the same area, researchers recorded numerous patches of possum fur and the remains of eight possums most apparently killed by foxes.

Another 12 possums fitted with radio collars were released, but only two were alive after 10 weeks. Seven had died within the first week. Four had been killed by predators, probably foxes; two died of stress-related causes; and one was hit by a car. Two of the collared possums could not be found – their radios went off air prematurely.

The Deakin University study showed that relocated possums spent significantly more time on the ground than resident animals, and 68 percent of their dens were on or under the ground during the first week after release. (Brushtail possums rarely sleep at ground level under normal circumstances.) Contrary to popular belief, there was no evidence of any homing tendency in the released animals. Dispersal was in random directions. Similar studies of Common Ringtail Possums in Victoria and NSW have mirrored the Deakin results. Clearly, relocation is not a humane way of dealing with the problem. As a result of the findings of Deakin University study, the Department drafted a Governor in council order that prohibits relocation of possums.

References

Coone, Janine 1998. An evaluation of commonly used deterrents for urban Common Brushtail Possums *Trichosurus vulpecula* (Kerr. 1792). BSc (Hons) Thesis, School of Ecology and Environment, Deakin University.

Pietsch, R.S. 1994. The fate of urban Common brushtail possums translocated to sclerophyll forest.



Possum Deterrents & Trapping

There are three species of possums which will take up residence in houses. The Brushtail, the Ringtail and the Sugar glider, all have been found in rooves, wall cavities, inside eaves, linen press and laundry cupboards.

Is it a possum?

You will need to determine what possum it is or if it is indeed a possum.

Another very common invader which builds nests made from leaves in the roof and wall cavities is a *Rattus rattus* (Black rat). Black rats are noisy at night and you can hear them scurry across the floor. They will also chew into the wall and timber. Possums normally leave the roof after dusk and arrive back around dawn.

Scats (droppings) can tell you if it is a possum or a rat!

Handy Hints

If a caller reports a possum in the roof, the caller will need to find how it is gaining access as it will need to be repaired, once the animal is caught.

A bright light in the roof will deter possums as they are nocturnal and it will also show up the point of entry e.g. loose/broken tile or hole in eaves. During the day sunlight will penetrate from the hole and the entry point should be easily found.

A thin sheetmetal collar **at least 2 foot** high wrapped around the trunk of a tree will stop possums from climbing and gaining access to the roof.

Trim branches near the house (at least two metres) and along fences attached or close to the house.

Place moth balls in a sealed container with holes in the top (so they don't roll all over the floor) possums do not like the smell and hopefully will vacate the roof!

Placing an 80cm diameter disc over the wire close to the house should help stop access from the power line to the house (get an electrician). Chimneys should have a thick wire grid to stop possums and birds from gaining access.

If a possum is trapped inside a chimney **a thick rope or knotted sheet** can be dropped inside the chimney - the possum can climb out at dusk and the chimney can then be sealed.

If a possum finds its way into a house at night – open the doors and windows, then gently coax it outside, don't make loud noises as it will panic and climb the curtains - the higher up it goes, the safer it feels!

Possum Trap

Trapping is a highly stressful experience for possums. The recommended possum trap type is a wire mesh box trap with mesh less than 19mm square.

If a trap with larger mesh is used possums can seriously damage their noses pushing them through the mesh. Cover the trap with a towel or suitably large piece of cloth.



Length 540mm (Min)

Height 260mm

Width 260mm

The trap must be of the foot pedal type - not a hook type. Hook type traps can cause injuries

Trapping

This should be the last resort so make sure the house owner has organized for all **points of entry** to be sealed once the possum is trapped. The owner should also provide an alternative home for the possum to be placed on the property – **A suitable possum box**. **If the point of entry is not sealed, trapping is a pointless exercise.**

A **possum trap** must be set in a stable position and protected from domestic pets, rain, cold, wind and direct sunlight. Check the trap in the early morning (no later than 2 hours after sunrise). Once trapped the possum should be covered and located in a quiet place for release at sunset on the same day it was captured - no more than **50 metres** from the capture site. (NPWS regulations)

Possums are **not relocated** as they are very territorial and will be harassed by the resident possums and chased off.

The animal can be taken into care to help the owners repair the points of entry but this should be for no more than **two days** - otherwise another possum will take up the vacancy. If the animal is injured it must be released back to the property in a **Possum Box once it has healed**.

Deterrents for plants

Spray diluted dogs urine (mix 1 part dog urine to 2000 part of water) around the plant not directly onto the foliage (it works) you could get a supply from your vet. Blood & bone fertilizer around the base of plants (lock the dog up - they love to roll in it), garlic spray, citronella oil and Quassia spray have all been used so take your pick-if you find some thing that works let me know.! Before purchasing or advising the use of commercial deterrents, check with NPWS that it won't harm the possum. Put metal collars around fruit trees. Lock up your veggies in an aviary or place netting onto a frame around the plant. Or plant herbs and strawberries out of the way in hanging pots.

Possums commonly found in roofs

Sugar glider

Sugar gliders are small cute gliding possums – light grey above with a cream underbelly. They have large eyes and a fluffy grey tail which is used as a rudder when gliding. A dark patch on their forehead is the scent gland which is more prominent in males. These animals live in small groups of up to seven adults have been recorded. Females are smaller than males - weighting from 100 to 170 grams. Females can have 1 to 2 pouch young during August which stay in the pouch until they are too heavy to carry around. Then they are left in the nest while mother forages at night. These animals are not timid and can inflict a nasty bite if grabbed. Sugars make a winding noise when disturbed in the nest and a yap call not unlike a small dog from a distance. Sugar gliders scats are small, long and narrow cylinder in shape. Usually brown but can be paler if the possum has been feeding on wattle gum. If fresh it may have a sweet smell but there is no odour when scats are dry. Sugar gliders have a pale red eye shine.



Brushtail

Common Brushtail is about the size of a domestic cat, covered in grey fur with a cream underbelly, large oval ears and a black bushy tail. They do not build nests and the female usually has one pouch young. Brushtails also have a love of (human) food! The young will stay with its mother until dispersal age around 12-18 months. Around breeding time males are very vocal with hisses, growls and screams. Fights due to territorial disputes are common at this time. Brushtails have red eye shine.



Brushtails have jelly- bean size pellets which are cigar shaped and usually brown. These are deposited in small groups of single pellets, clumps or a string of pellets - the colour varies with diet. Large and small scats may mean mother and young.

Ringtail

Ringtails weigh between 650 to 900 grams, with males being larger than females. Greyish/brown in colour with a creamy underbelly, they have short rounded ears and a long thin prehensile tail - one third of which is tipped white. Females usually have twins but can have triplets. Ringtails make a large nest from leaves and shredded bark called a drey. Vocalizations consist of high pitched twittering sounds much like a bird. Ringtails have pale red eye shine.



Ringtail scats are smaller than Brushtails' and found in small groups of 3-6 at a time. If fresh their scats may have a mild smell of eucalyptus oil - dry pellets do not smell.



Black Rat

Black rats also make a nest in roofs/walls their scats can be dark brown or black and can be found in dark corners or Scattered throughout the roof depending on how many rats are living there.

Mice scats smell mousy (musty) like mice kept in a pet shop.



Scat pictures from Tracks, Scats and Other Traces by Barbara Triggs

Possum Boxes

Possums depend on tree hollows for shelter, breeding and rearing their young and in the wild possums are known use more than one den.

Tree hollows take a long time to form - depending on the species of tree it could take from 100 to 180 years for a suitable hollow to develop for certain species of possums.

Land clearing and timber harvesting of old mature trees reduces the number of hollows available for animals and this can cause the decline of some species as competition for available shelter increases.

Nest boxes are not meant to replace 'hollow bearing' trees they are used as a support system to help return an animal back to their area; e.g. A Brushtail possum which has been trapped from a roof cavity will need a replacement home a possum box. Relocation of possums is not feasible as well as contravening the NSW NPWS regulation. Possums are very territorial and moving a possum from its home area will generally have dire consequences for the animal.

Possum boxes make excellent accommodation while animals are in care, it gives them security and place to sleep similar to that which they are accustomed to in their normal lives. A hinged lid is needed to make it easy for the animal to be checked and weighed



A comfortable fit

The box needs to fit the animal comfortably and the entrance hole should only be large enough for the species using the box. I have seen Brushtails squeeze into a Ringtail box- its amazing how thin possums are under the fur - if any carer has had to wash a possum, they would know! See the chart included for our recommendations.

Don't get hollow logs from the bush for animals in care - it only increases the demand in a already desperate situation and is just another form of environmental vandalism.

Material

The material should be 12 mm thick plywood to insure the animal is insulated from the cold and hot elements. Second hand timber can be used as long as it's free of paint. Plantation pine is probably more environmental friendly than hardwood, which is a product of native forests. Marine ply is great as it is water proof and long lasting but costly.

Construction

Possum boxes need to be screwed - not nailed together and all joints are best glued with liquid nails which assists in waterproofing and sealing the inside of the box. A good quality fencing paint (2 coats) or 'Solarguard' are great, but do not use oil or hydrocarbon solvent based paints or stains because of the fumes that can occur. Choose a natural colour such as Gum Green or a brown, that way as well as preserving the timber you will achieve a natural inconspicuous effect. Do not paint the inside.

Grooves cut into the roof of the box helps possums to get a grip and the addition of a grooved climbing piece on the inside under the entrance helps the possum to climb in and out. A piece of branch (She-oak is very good) or a piece of timber should be used as a support perch on the front of the box just below the entrance hole.

Installation

The possum box should be placed as high as possible, but no less than 3metres from the ground. The entrance hole should not face the hot afternoon sun (west) so it is preferable to mount it on the eastern side of the trunk where it may get the morning sun and is shaded and away from existing cold or wet winds. The box should rest on top of a branch and can be nailed into the tree with 100mm length nails or better still screwed using 100mm long Pineboard screws. Place drain holes (10mm) into base of box. We have found the best method to mount boxes is to attach a piece of 75 x 40mm pinewood measuring about 600mm longer than the box and including predrilled holes to the back and then mounting this assembly onto the tree. See the included photo.



Feral intruders

I have been trialing boxes for 18 years and have not had any feral intruders but then I live in a bushland area. I have seen honey bees use a possum box as a hive whilst I was checking out a flying-fox camp at Port Macquarie in this case a subdivision backed onto a park area and the possum boxes were put up for the local inhabitants by the council. Bee keepers will come and remove bee hives from boxes for a reasonable charge. Monitoring of the box is important and if any introduced species like Indian Mynahs try and take over spray them with a long range water pistol. Possum use more than one den in the wild and don't be surprised to see the box shared with other possums. Ringtails have turned up in a brushtail box and juvenile brushtails have squeezed into ringtail boxes. This only lasted for a short time as they got too big!



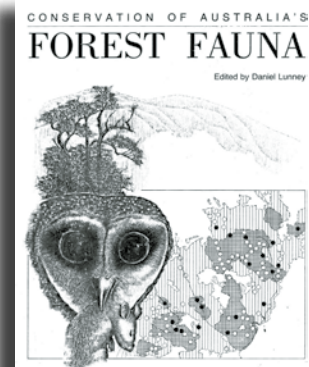
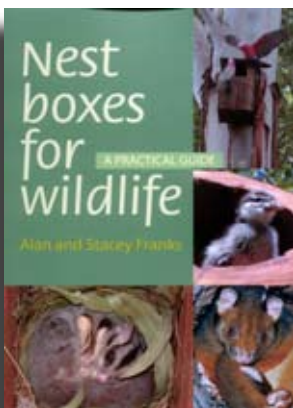
Brushtails can make themselves very thin when they need accommodation, luckily the ringtail was not at home!

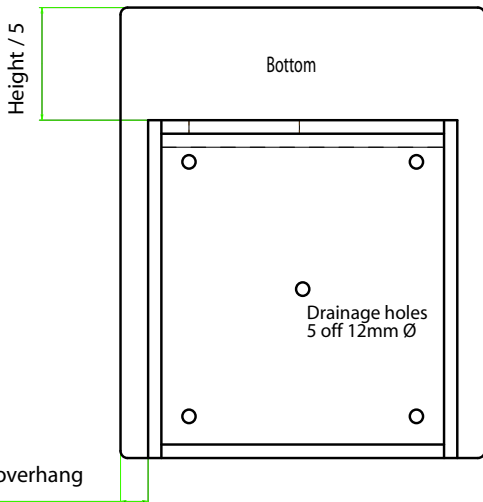
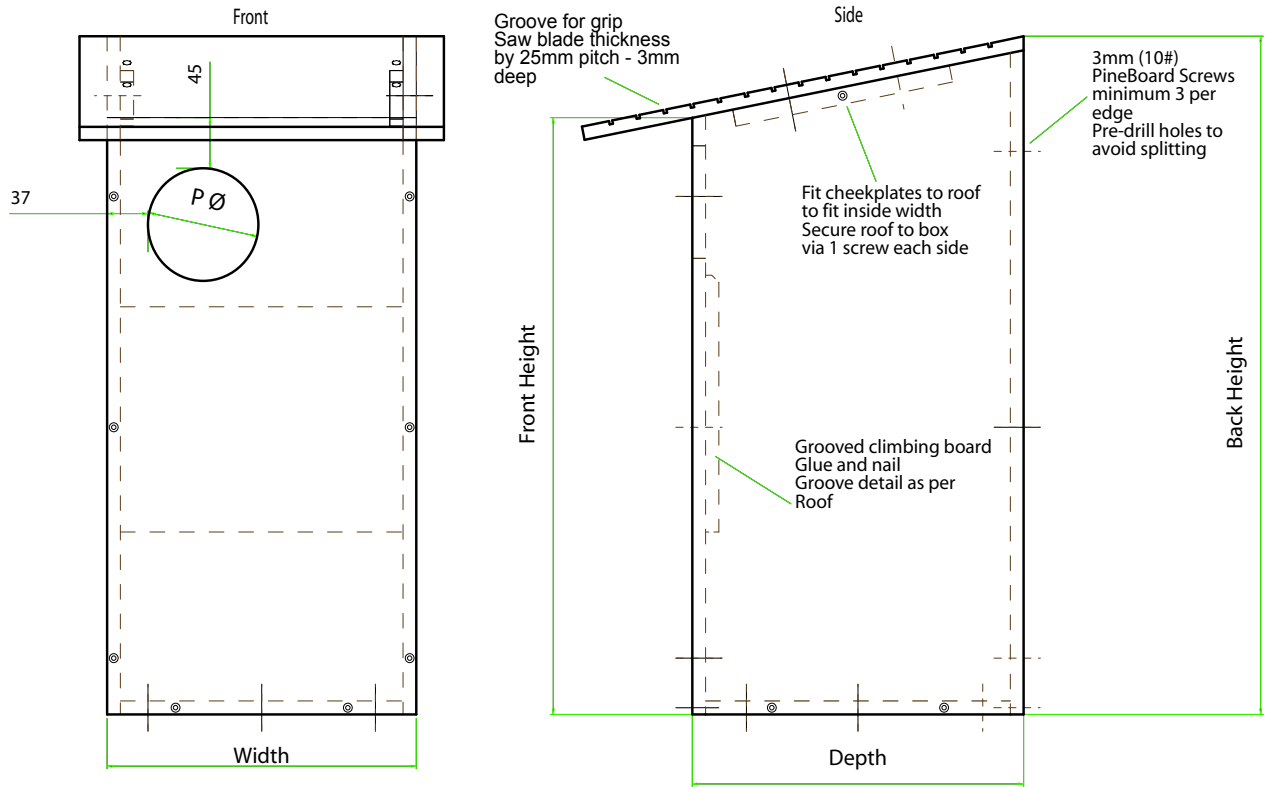


Feral Common Indian Mynas are a serious problem for biodiversity conservation in many countries other than Australia. In the year 2000, Common Indian Mynas were listed by the World Conservation Union (IUCN) as one of the World's 100 Worst Invasive Species

For more information <http://sres.anu.edu.au/associated/myna/index.html>

Recommended reading





Possum Box Schematic

Material: Plywood 12mm thick
 Glue all edges prior to fixing with
 3mm (10#) PineBoard screws
 Paint using SolarGuard or similar
 See table for actual dimensions



Possum Box Size Chart

all sizes are mm's and overall

Possum	Back Height	Front Height	Width	Depth	PØ Hole Diameter
Greater glider	600	530	280	300	100
Yellow-bellied glider	600	530	280	300	90
Brushtail	550	500	280	300	110
Ringtail	550	500	250	250	75
Sugar glider	530	480	200	230	35
Squirrel glider	530	480	200	230	40
Feathertail glider & Pygmy possum	470	420	150	180	30



Depending on the species of tree, it can take over a hundred years for a hollow suitable for possums to form.



A possum box can help replace hollows lost through fire or clearing.



A juvenile pygmy possum on a waratah flower.
Please do not pick wild flowers to decorate your home. possums and other species need them for food. Photo courtesy of Jill Dark

Spot The Difference!

Correct identification can be vital to the survival of some possum species because of their diet, family structure and housing requirements. For example a yellow-bellied glider will die if offered only fresh eucalypt tips where as Greater glider would barely survive on a diet of glider mix and insects.

Some new carers get confused by young brushtails which have not yet developed a thick bushy tail, and, because the tail curls into a ring they incorrectly identify it as a ringtail. This animal will die if the situation is not corrected.

Understanding the social structure of possums is also important, for example if you put certain species of wild possums into the same cage, the fur would fly!

Knowledge of individual species can also help you identify them when spotlighting. For example eyeshine varies between species.

Brushtails compared to Ringtails

Brushtail possums are much larger than Ringtails, have pointed ears compared to the rounded smaller ears of Ringtails. Ringtails have a white cheek patch and the last third of their tail is almost always white. When spotlighting the eye shine of a Brushtail is a brighter red.

Bobucks compared to Common Brushtails

Bobucks have a distinctive musty smell and their body shape is dumpier when compared to their close cousin the Common Brushtail. The ears are shorter and they have a cream patch of fur at the base of their ears. Bobucks are also found in a black form in some areas. The chest gland of a Bobuck secretes a clear fluid which does not stain the chest fur like the dark rusty stain found on a brushtails chest.

Bobucks may not produce off spring every year and the young have a longer association with their parents compared to common brushtails. Eyeshine for both species is red.

Squirrel gliders compared to Sugar gliders

Squirrel gliders are larger and can weigh over 100 grams more than an adult Sugar glider. Sugars have a pug like face, wider ears and the underbelly fur is a dirty off-white compared to the white underbelly of the Squirrel glider.

The base (where it connects to the body) of the Squirrel gliders tail is wider and fluffier and tapers to a black tip, where as a Sugar glider has less taper on it's tail and sometimes ends with a white tip.

Both gliders have the same pungent smell and their eye shine is the same - a pale red.

Greater gliders compared to Yellow-bellied gliders

Greater gliders are larger and have furred ears compared to the large naked and pointed ears of the Yellow-bellied glider. Both have long fluffy pendulous tails, while the underbelly of a Greater glider is white compared to a pale yellow on the Yellow-bellied glider. The patagium (the gliding membrane) starts at the ankles and ends at the elbows on Greater gliders, whereas Yellow-bellied gliders start at the ankle and finish at the wrist.

Greater gliders also have a distinctive spicy smell and their urine can be very red. Yellow-bellied gliders are very verbal compared to the quiet and demure Greater glider.

The Yellow-bellied glider has strong teeth to gouge the thick fibrous bark so that it can tap into the sap flow beneath, which is it's main food source. Greater gliders on the other hand

are fastidious eaters in the neck as they are very fussy and only like some species of eucalypts - accepting only the new green succulent tips and flowers most of the time. Greater gliders belong to the Ringtail family.

The eye shine of a Greater glider is brilliant yellow (the same as a Powerful Owl) whilst Yellow-bellied gliders have a pale red eye shine.

Feathertail Glider & Pygmy possum compared to other small mammals

Feathertails are distinguished from other smaller mammals by their feather-like tail and gliding membrane. The Pygmy possum is distinguished from mice, rats and Antechinus by the thumb and the fusion of the second and third toes that form a single digit with two claws on the hind limbs. These claws are used for grooming and all possums have them. Spiders probably have a better eye shine than any of these small possums.



Sometimes new carers misidentify young Brushtails found without their mother as Ringtails, because the tail curls and is not bushy at this age.

This 130 day old (approx.) is a pouched Joey and needs its mothers milk to survive as it is not eating fruit or leaves. Luckily the carer complained “how the possum would latch onto her arm when she put the food inside the cage at night”. The Possum Coordinator decided to check out the odd behaviour of the Ringtail and then realized a mistake was made. The visit saved the possum which was then re-hydrated and placed into a warm pouch. The possum developed into a healthy, feisty male, and was released back to the wild when he was 9 months old.

Understanding possum’s behaviour can also assist you to judge their age and development.

Spot the difference

SS 5/07/03



Slimmer build compared to a Bobuck

Common Brushtail Possum



Stocky build compared to a Common

Mountain Brushtail Possum

Spot the difference



Common Brushtail Possum



Common Ringtail Possum

Ears

Nose

Cheek Patch

Tail

Size & Weight

Spot the difference

SS 5/05/03

The diagram compares two gliders. On the left is a Greater Glider, and on the right is a Yellow-bellied Glider. Arrows point from labels to specific features on both animals. The Greater Glider is larger and has a more prominent gliding membrane. The Yellow-bellied Glider is smaller and has a more rounded body.

Ears

Nose

Underbelly

Gliding Membrane

Size & Weight

Larger than a Yellow-bellied Glider

Smaller than a Greater Glider

Greater Glider

Yellow-bellied Glider

Spot the difference

SS 5/07/03



Larger than a Sugar Glider

Squirrel Glider



Smaller than a Squirrel Glider

Sugar Glider

Face

Underbelly

Size & Weight

Tail

Spot the difference

Grooming Claw
Clawless thumb on
hindfeet

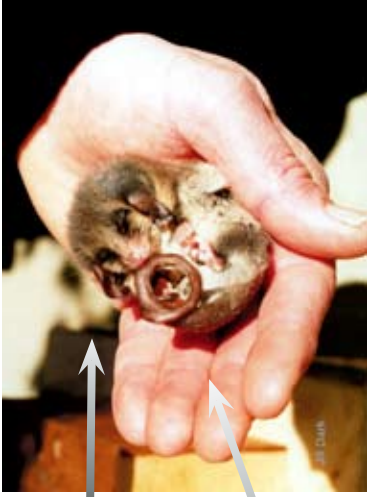
Ears

Gliding
Membrane

Tail



Feathertail Glider



Pygmy Possum



**House Mouse
Mousey Smell**

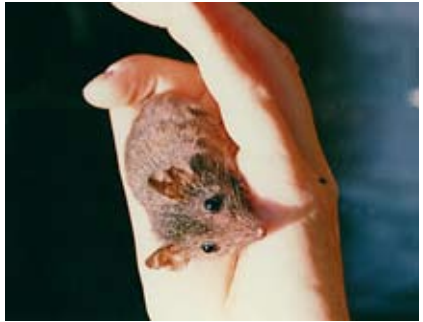


Black Rat

Face Shape

Teeth

No Grooming Claw



Brown Antechinus

Possum Summary Chart 2004

SPECIES	NATURAL HABITAT	SOCIAL STRUCTURE	Sexual maturity	ADULT WEIGHT	NATIVE DIET	CAPTIVE DIET
COMMON BRUSHTAIL	Various ...woodlands to rainforests. High densities in urban areas.	Mainly solitary with the exception of females with young.	March-November Males 18-24 months female 12 months	1.8kg to 4kg Females are smaller.	Eucalypt leaves, buds, flowers, acacia flowers, native fruits & plants. Insects, exotic plants and fruits & pine nuts.	Native diet and a variety of fruit & veg. Protein supplement on food (no kale veg).
MOUNTAIN BRUSHTAIL	Wet eucalypt forests and gullies. Rainforest, higher altitude than the Common brushtail.	Mainly Solitary but have been trapped in pairs	March-June Males 22-36 months Females 36 months Breeds every 2 nd year	2-4.5kg	Eucalypt, native shrubs, fungi, lichens, fruits, buds and flowers.	Native diet and a variety of fruit & veg. "Same as above"
COMMON RINGTAIL	Woodlands & forests along creek lines with understorey.	Pairs and small family group	April to November Male 12 months Female 12-14 mths 1-2 litters per year	600-900gms Female are smaller.	Prefers new tips of eucalypts & flowers. Native shrubs, fruits, wattle, Angophora & Turpentine flowers.	Mostly Native diet. A small amount of fruit & veg with Protein supplement.
SUGAR GLIDER	Wet and dry Eucalypt forests and woodlands with dense Acacia understorey.	Family group	April to November Males 8-15 months Females 12 months. 1-2 litters per year.	110-170gms females smaller.	Acacia gum and Bloodwood sap. Insects, nectar, pollen, lerpes, galls and wattle and She-oaks seeds. Nestlings and eggs. Like to chew on branches of acacia.	Native diet, mealworms, crickets & beetles. Fruit with protein supplement or small carnivore mix on fruit. Honeyeater & Lorikeet nectar mix.
SQUIRREL GLIDER	Wet and dry Eucalypt forest and woodlands.	Family group	May to December Male & Female 12 months. 1-2 litters per year.	180 to 300gms	Sap, gum, nectar, pollen, insects, caterpillars, galls, native seeds and fruits.	Native diet, meal worms & insects. Fruit with Protein supplement or small carnivore mix on fruit. Honeyeater & Lorikeet nectar mix.

Try and give possums as much natural food as possible. Flying insects like moths and beetles can be caught in "insect traps" just leave an outside light on and hook up a large plastic funnel under the light attached to a cotton bag. Then empty the contents into the aviary this will give the possums some thing to do and will help them use their senses to locate the insects. Breed meal worms and crickets. When cutting up fruit make sure it is a suitable size for the possum to hold. Always have water available and food containers should be secure, take care with nectar mix as it is very sticky. Take out leftover food every morning this will help prevent ants from invading the food dishes. Leaves and flowers should be picked daily if possible. Weigh the possum/s once a week for two weeks and if its weight has dropped, there is a problem, could be caused from inmate or wild possums climbing onto the aviary at night. Contact Possum Coordinator or advisor for advice. If there is more than one possum place an extra box into the aviary.

Female Possum Reproductive Cycle

Sonya Stanvic - revised July 2005

Possum	Female Body weight	Female Longevity captivity	Gestation	Teats	Litters per year	First Off teat	Eyes Open	Final Pouch exit	Weaning time	Dispersal age	Sexual Maturity Females	Birth season	
	Grams	Years	Days	Number	Number	Days	Days	Days	Days	Months	Months	Months	
Feathertail glider <i>Acrobates pygmaeus</i>	9 - 15	7	?	4	2 - 4	?	60 - 70	50 - 60*	95 - 110	?	6 - 8	Jul - Jan *all year	
Eastern Pygmy Possum <i>Cercartetus nanas</i>	20 - 24	8	17 - 30	6	2 - 3	<25	40 - 60	30 - 42*	50 - 65	?	4.5 - 5	Sep - Apr	
Sugar glider <i>Petaurus breviceps</i>	95 - 140	12	16	4	1 - 2	40 - 65	74 - 82	70*	130	7 - 10	12	Jan - Jan *Most months	
Squirrel glider <i>Petaurus norfolcensis</i>	175 - 260	5 - 6	?	4	1 - 2	?	?	?	120	?	12	Aug - Dec	
Common ringtail <i>Pseudocheirus peregrinus</i>	650 - 970	10	14 - 16	4	1 - 2	42 - 49	95 - 100	120*	180 - 210	8 - 12	12 - 14	Apr - Nov	
Yellow-bellied glider <i>Petaurus australis</i>	450 - 700	11	?	2	1	?	100	90 - 100*	180 - 240	18 - 24	24	Aug - Apr	
Greater glider <i>Petauroides volans</i>	900 - 1700	15	?	2	1	93	121	90 - 150*	210 - 270	10 - 12	24	Apr - Jun	
Common brushtail <i>Trichosurus vulpecula</i>	1800 - 3500	13	16 - 18	2	1 - 2	94	100 - 110	140 - 150	180 - 230	9 - 18	12 - 14	Mar - May *Most months	
Mountain brushtail <i>Trichosurus caninus</i>	2200 - 4100	?	15 - 17	2	1	112	110 - 120	150 - 200	240 - 275	18 - 36	24 - 36	Mar - May	
Reference books - Fauna of Australia, volume 1B Mammalia, Reproductive physiology of marsupials by H. Tyndale-Biscoe & M. Renfree, Possum and gliders Edited by A. Smith and I. Hume, Gliders of Australia by D. Lindenmayer, Possums by Anne Kerle													
							*Left in the nest whilst mother forages at night						
								*Breeds most months in warmer areas / food availability					

AGES AND STAGES INFORMATION CHART FOR BRUSHTAIL POSSUMS

Age Days	Weight grams	Feeds per day	formula per day	Wombaroo Formula	Diet	Toilet & Temperature	Fur	Housing in care	Natural behavior and Development
150 5 mths	390+	1 to 2	4emls Lapping out of shallow dish	>.08 milk is important	Introduce a Mixture of native leaves and flowers inside the cage, small amount of mixed fruit.	No need to toilet "Ambient" temperature Kept inside quiet room	Thick	Needs more room to move around, nest box or hanging pouch to sleep in. Toy (mother) stays with possum until it goes into release aviary. Can buddy up from now.	Close relationship with mother, spending more time out of pouch clinging to mums fur. Still suckling mouthing on leaves will not survive on its own.
180 6 mths	550 +	1	50mils	>.08	Same	Under cover On porch- acclimatizing to outside Temperatures day & night changes.		Buddy up before placing into cage on porch. Cheek for cling-on can cause stress to the other possum. Place possum box, branches to climb and chew on. Cage 1400high X 1100 Wide X 600mm deep	Fully emerged from pouch 190 days old. Rides on mums back, clings to her for security. Still suckling. Eating soft eucalypts tips & flowers. Mums elongated teat often hangs out of the pouch or the pouch lining (skin) is exposed because the joey is still trying to suckle.
210 7 mths	750+	1	50mils	>.08 May wean itself off milk	Lots of native plants from release area .variety of fruit & veg	Outside temperature unless its snowing!		Move into release aviary recommended size 3 wide x 4 long x 2.4 metres high. Limit contact put food in before dark and clean aviary during the day.	May still be suckling, mother will often leave young in a tree while she forages. Mother will respond to distress call of young -mortality high at this age.
240 8 mths	900+	-	-	Put Protein mix On fruit 5 gms per100 gms	Variety of native plants, insects, mixed fruit & veg. Don't feed cabbage, parsley or onions.	Appearance Looks like a small adult		May poke head out of box, when you enter aviary-do not entice it out during the daytime. What you do now may be detrimental to its survival once its released. You do not want it to seek out human contact.	Weaned off milk, eating adult diet. Exploring, but still near mum, very vulnerable age, many do not make it to adult hood. Release area should be as close to original area from where it came from if possible.
270 9 mths	1000+	-	-	Same	Avoid exotic fruits	Will lose weight in the first few weeks after release. Best time to soft release.		Branches dry out, causing claws to become blunt-replace with fresh rough barked branches. Place eating branches in secured containers with water. Open release hatch.	Dispersal 8-18 months. Independent, but protected if still in its mother's area. Do not leave food in aviary if it has not returned, only support feed if it returns and then slowly reduce the feeding every second day over a 4 week period.
360 12 mths	1800g	This possum has been kept too long and could have a pouch young if housed with an older male - they can breed earlier in captivity. If you keep your possum too long it will have a very bad time with the older possums because they will treat it as a threat. It will be moved from area to area and may not survive.			Yearlings can often lose their first young. Females often stay in their mothers home range until they have their first young- if it is not over crowded and food is plentiful. The possum environment is a hard place to survive as residents must protect their food, family and hollows to survive.				

This chart is to be used as a guide only, it is not rigid. In the release aviary weigh your possums for the first two weeks. Weight loss will indicate a problem. Keep records so that you can refer back to them if need be and for future reference. Contact an experienced carer if there are any problems.

AGES AND STAGES INFORMATION CHART FOR RINGTAIL POSSUMS

juvenile to adult 2004

Age In days	Weight In grams	Tail In mm	Snout to Rump mm	Formula <.8 or >.8	Feeds per day	Formula per day mls	Solids	Toilet	Texture Of faeces	Ambient Temperature	Fur	Housing	Natural behavior & development
150 5 mths	150 to 180	222	170	>.8	1 Or 2	17	Place fresh eucalypt tips Flowers, wattle, tea tree, Grevillia bottlebrush A small amount of fruit & veg	By itself	Firm pellets	Outside under Cover (porch)	Some may still have That lovely rufous fur	Larger cage on Porch-needs to get used to outside temperature, smell and noises.	Development rapid- will go foraging with mother. Eating a variety of natural flora.
180 6 mths	240 To 320	260	220	>.8	1	20	Include more leaves from release area in diet	-	-	outside	-	Pair up before placing into aviary at release site	Some may wean themselves off milk earlier than others.
210 7 mths	320 To 420	300	240	No milk	-	-	Feed only at night- 2-3grams Protein mix on 100grams of fruit & veg.	-	-	Outside	Thick fur	Should have been paired up by now.	Weaned 180-210 days old. Juvenile - Diet adult
240 8 mths	420 To 580	310	250	-	-	-	Release- only feed if its Returning to aviary	-	-	-	Dispersal age- 8 to 12 mts	Release hatch open - needs to be able to come back to aviary for security (soft release)	Dispersal age for some. May still stay in its mothers home range. Mortality high at this age.
270 9 mths	580+	320	260	-	-	-	Do not leave food, should be eating locally	-	-	-	Adult colour	If Spotlighting release possums-take care-	Not to attract predatory owls that live in the area.
330 11 mths	680+	340	280	-	-	-	-	-	-	-	Males larger Than females	Females sexually Mature 12-14 months. *Only place wild and hand reared together at a very young age.	Place boxes in trees for extra accommodation. Entrance hole must only be big enough for Ringtail or young Brushtails will try to hijack the box.
360 12 mths	850+	360	300+	-	-	-	-	-	-	-	Males sexually mature at 12 months.	Males sexually mature at 12 months.	Adult colour. Breeding Season April- Nov

Weigh your possum weekly and contact your Animal Officer if there is a problem. Good management and correct housing is important as it will influence weight, development and the well being of the animal. Keep records so you can refer to them if you need to and also for future reference or when passing the possum onto another carer.

Register with Animal Officer ASAP- Ringtails are a social animal (family group) and do better when paired up at the right age, if not related before they enter the release aviary. Ringtails possums are more fastidious than Brushtail possum, you must be prepared to pick native food. Carers tend to baby Ringtails because they are small and keep them too long in care and retard their development. They can inflict nasty wounds on each other if not compatible. Mortality in the first year is high (45-75%) life expectancy in the wild is around 4 years, they reach sexual maturity earlier in captivity. Age determines milk type (<.8 less than) or >.8 more than). The weight determines QUANTITY within that type of milk. Age can be determined by a combination of foot/tail measurements, appearance and weight not by weight alone. Consult Wombaroo charts for type and quantity of milk.

This chart is only a guide it is not rigid

Small Possums and Gliders Summary Chart

Sonya Stanvic - July 2005

Species	Natural Habitat	Social Structure	Sexual Maturity Birthing season	Adult Weight Status	Native Diet	Captive diet
Feathertail Glider <i>Acrobates pygmaeus</i>	Inhabits many forest types - tall, stunted, wet, sclerophyll and woodlands	Pairs, family or large groups	Male-6-8months Female - 12 months Spring-Summer Throughout the year in warmer areas	10-15 grams Secure	Pollen, nectar, insects & seeds	Honeyeater & lorikeet mix, insects, nectar producing native flowers- Tea tree, wattles, Bottlebrush, Mountain devils, Banksias
Pygmy possum <i>Cercartetus nanas</i>	Found in rainforests, sclerophyll forests & tree heath	Solitary, pairs, female with lactating young	Male- 4.5-5mths Female-4.5mths Late Spring -Autumn	15-43 grams Vulnerable	Pollen, nectar, insects, soft fruits, seeds, spiders, beetles, honeydew	Honeyeater & Lorikeet mix, small carnivore mix, native nectar producing flowers, soft fruits, pine nuts, She-oak seeds, insects, galls
Yellow-bellied glider <i>Petaurus australis</i>	Tall, wet, mature open forests. Have a very large home range	Family group - breeding male & female and offspring	Male-18 months Female-24 months August-April	400-750grams Vulnerable	Eucalypt sap, pollen, nectar, flowers parts, insects, spiders Honeydew, manna	Honeyeater & lorikeet mix, insects, spiders, fresh Eucalypt flowers and branches to chew on collect live moths and place into aviary
Greater glider <i>Petauroides volans</i>	Tall open woodlands and mature Eucalypt forests	Solitary, pairs, Female with young	Male-24 months Female-24 months April-June	900-1700grams Vulnerable	Eucalypt leaves and flowers, smooth bark apple & Turpentine flowers, galls	3 kinds of eucalypt tips (green), flowers, pink galls, Honeyeater & lorikeet mix

If you are going to care for these possums you must be prepared to collect food from their area, learn about their natural behaviour and how they interact with their natural surroundings. These possums can get over weight in captivity and Honeyeater & Lorikeet mix should be used in small amounts.

Offer insects like beetles, spiders and moths and hide them amongst the leaf litter and foliage.

To encourage hunting, I use a "blue light" to draw flying insects to the aviary. Bug zappers without the zap are also good but place it outside the aviary area and away from the house or you will be invaded!

Your local NPWS branch should be advised of their location, age, weight and sex for the Wildlife Atlas as little is known about these secretive little animals.

Ages and Stages for Sugar Gliders (adapted from Wombaroo food charts)

Age (Days)	Weight (Grams)	Head (mm)	Leg (mm)	Formula <.8 or >.8	Feeds per day	Formula per day MIS	Solids	Toilet	Faeces	Ambient Temp	Fur	Housing	Natural behaviour & development
10	0.4	8	4										Too immature to save. Still developing
20	0.8	11	6										First time off teat, can attach to teat when it needs to feed Very hard to save, still very immature
30	1.6	14	9										
40	3.2	17	12										
45	4.5	19	14	<.8	8	2		After every feed, dab with a cotton bud.	Yellowish soft toothpaste consistency	32 to 33° C		Cotton hawley inside a woolen beanie - heatbox or pad and constant heat	Hard to save but has a chance. Patience, time, good eyesight and a steady hand
50	6.2	20	16	<.8	8	3		Near cloaca - do not wash face & paws					
55	8.7	22	18	<.8+ >.8	8	3							
60	12	23	20	<.8+ >.8	6-7	4				30° C			Trail hanging out of pouch most of the time. Getting to big and heavy for mum's pouch. Twins usually vacate earlier than single young
65	17	25	22	<.8+ >.8	5-6	4							Emerging from pouch - buddy up ASAP if raising a single young
70	24	26	24	>.8	5	5							Permanently out of pouch. Left in nest whilst mother goes out to feed. Eyes may start to open
75	29	28	27	>.8	4-5	6		No need to toilet					
80	34	29	29	>.8	4	7							Eyes fully open, only puts head into pouch to feed. Clings to fur on parents belly or back.
85	39	31	32	>.8	3	8							
90	44	32	35	>.8	2-3	8							Weaned off mothers milk at 110-120 days. Will leave the nest to forage with their mother. Adult diet of invertebrates, sap, pollen, nectar, honeydew, galls, seeds from eucalypt, wattle & casuarina. Chew branches to toughen teeth & gums
95	49	34	35	>.8	2	9							
100	54	35	35	>.8	1	9							
120	63			>.8	1	10							
210	80												Soft release from aviary - Dispersal age 7-10 months in the wild. Mortality is high in the first 12 months. Obvious odour from male's forehead - oily scent gland
<p>Sexually maturity is reached between 8 to 15 months for males and 12 months for females. Try to house at least 2 or 3 together if possible before releasing. Carers mollycoddle these small possums and hang onto them for too long when they should be released ...soft release is recommended or provide a possum box with small pipette/ eye dropper/syringe with fine feeding tube attached (take care with swallowing air bubbles as the tummy will bloat causing discomfort) until it laps from small spoon e.g. sherbet / plastic ice cream spoon. Small animals need small amounts of milk per feed, don't over feed as it will upset the gut = diarrhoea.</p>													

DRAFT - AGES AND STAGES INFORMATION CHART FOR GREATER GLIDERS

Petauroides volans

Age Days	Approx Weight Grams	Temp Ambient	Formula feeds	Diet	Housing in care	Natural behavior & development
Always weigh your possum once a week at the same time and before feeding - this will let you know how your animal is doing. If it's not gaining weight then check your feed amounts and temperature.						
60		32	7-8 feeds per day	Formula of your choice - follow direction on packet to suit weight and age - per daily requirement. Then break the total up into 7-8 feeds.	Cotton liner tied off inside woolen beanie inside sheep skin pouch in pet carrier. Check heat pad/heat box maintain ambient temperature during cold snaps.	Matting March to June. (birth times may vary- depending on your area) Fully pouch stage. Eyes closed skin grey. Clean eyes with warm water and cotton bud. Toilet after each feed. Keep skin from drying out - pawpaw cream. First detachment off tent at 75 days.
90	95-150	30-28	5-6 feeds per day	Only formula Feed with syringe/bottle/eyedropper	As above	Short fur. Eye starting to open. Poking head out of pouch, cutting teeth.
120	150-200	28	5-4 feeds	Only formula but offer gum tips and flowers - so that it will get used to the smell and feel of foliage - will often chew on them.	Starting to explore - needs surrogate mother (short furred washable toy). Can chill if out of pouch for long periods in cold weather. Large pet carrier.	Eyes open Teeth more prominent, back molars should be through. Short thick fur, tail furred flat not fluffy. Emerging from pouch.
150	200-400	Surrounding temperature	3-4 feeds Maybe lapping	A variety of foliage from release area. In summer you will need to pick everyday as the foliage dries out too quickly. Should pick early morning and placed into bucket of water with 1 cup of sugar keep out of sun if picking for 2 days feed. Place into cage/aviary late afternoon. Foliage that is used for shading or climbing doesn't need to be from feed trees.	Larger indoor cage, place beanie inside nest box. Washable Toy strapped to side of cage so it can climb onto it and feel secure.	Mostly out of pouch, still suckling. Fur longer tail fur fluffier. Clings to mum, back whilst she forages close to den tree or is left in the nest. Final pouch exit around 170 days.
180	500	As above	2 feeds lapping		Outdoor cage on porch to acclimatize before going into aviary. Toy gets tired to cage for security.	Off mums back, Won't move to far from mum when foraging. Male (father) is usually close by.
210 - 270	600	As above	1 feed lapping	Include Eucalypt /Angophora leaves with pink galls, flowers and buds in at least 2-3 containers in aviary. Spray foliage with water. Leave shallow dish of water during hot weather.	Place into large out door aviary with nest box. Horizontal and vertical branches with bark still attached are used for perches.	Weaned 230 -270 days Recommended aviary size - 3 metres high x 3 m wide x 4m long. They like to spring from branch to branch. Horizontal perches should not be rigid, and needs to move on contact. Have a small door flap positioned up high for final release, so as glider can leave and return from up high, without having to travel on the ground.
300	700	NA				Juveniles independent when 10 months old, dispersal February & March. Juveniles will reside in mothers' home range for a few months.

Greater gliders are a very quiet demure possum, but also very inquisitive, they will poke their head out of their box when carers enter the aviary or, if they hear any unfamiliar noises. Longevity in captivity is 15 years and in the wild > 5 years. We still do not know a lot about these possums and dispersal is probably instigated by the male. Male offspring would be moved on earlier than females. Soft release is vital to the survival of these animals as they need to be able to come back into the aviary to feel secure whilst they are trying to find a niche in the wild. Soft release around 10 months, sometimes depending on age, February to April. Claws may get blunt from the dry branches and wire in the aviary and they may appear clumsy and may have a little trouble climbing a tree... don't panic they are OK do not interfere, let them sort it out, they are tougher than you think! They become sexually mature after their second year.

Note! Animals can be paired when young/opposite sex when older.

Note! During summer young gliders are being weaned and will require an abundant supply of nutritious food for growth which they will get from new shoots of eucalypt, this will vary in species depending on the area. It is important to note what species are producing new growth and flowers in Summer from the area your Greater glider came from so you can provide the correct leaves.

Eastern Pygmy Possum Development Chart

Age in days	Crown to Rump mm	Weight in grams	Head Length mm	Eyes	Development stage
40	37	2	12	Just opening	Exit pouch-left in nest. Dorsal fur developed around 40 days and ventral fur around 50 days.
60	39	10	22	Open	Still on milk -Weaned between 60 - 65 days
80	50	17	25		Adult diet
100	57	22	26		
120	58	24	27		
140	59	25	27		
160	60	25	27		
180	60	26	27		Sexual maturity

Adapted from the *Biology of Australian possums and Gliders* edited by R.L. Goldingay and S.M Jackson. The original study was carried out by Wendy Westman and Fritz Geiser and the study was based on a population sample of 13 individuals.

Information regarding the development of Pygmy possums has been scarce in literature. The above chart was taken from a study on captive bred possums. There is no dimorphism in size or between the sexes. Young are altricial at birth, free - ranging individuals spend 33-37 days in the pouch, then left in the nest at 38-42 days of age. Weaning takes place at 60-65 days of age. The pygmy possum can remain in torpor for up to three weeks. To assist in expanding our knowledge, it is important to document weight, age, body measurements etc. and pass it on, to help other carers.

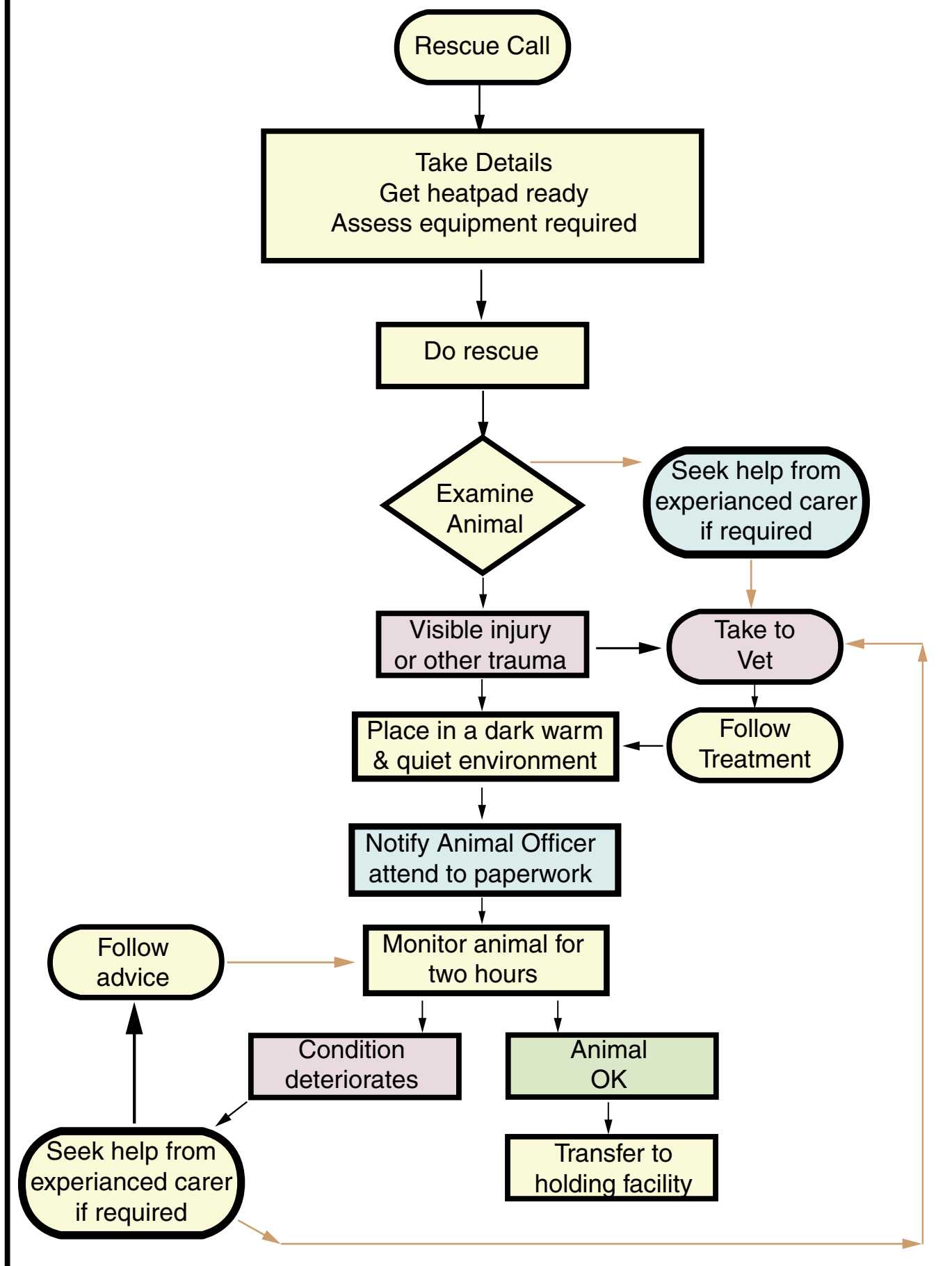


Juvenile Pygmy Possum at around 60 days old - weight 8 grams

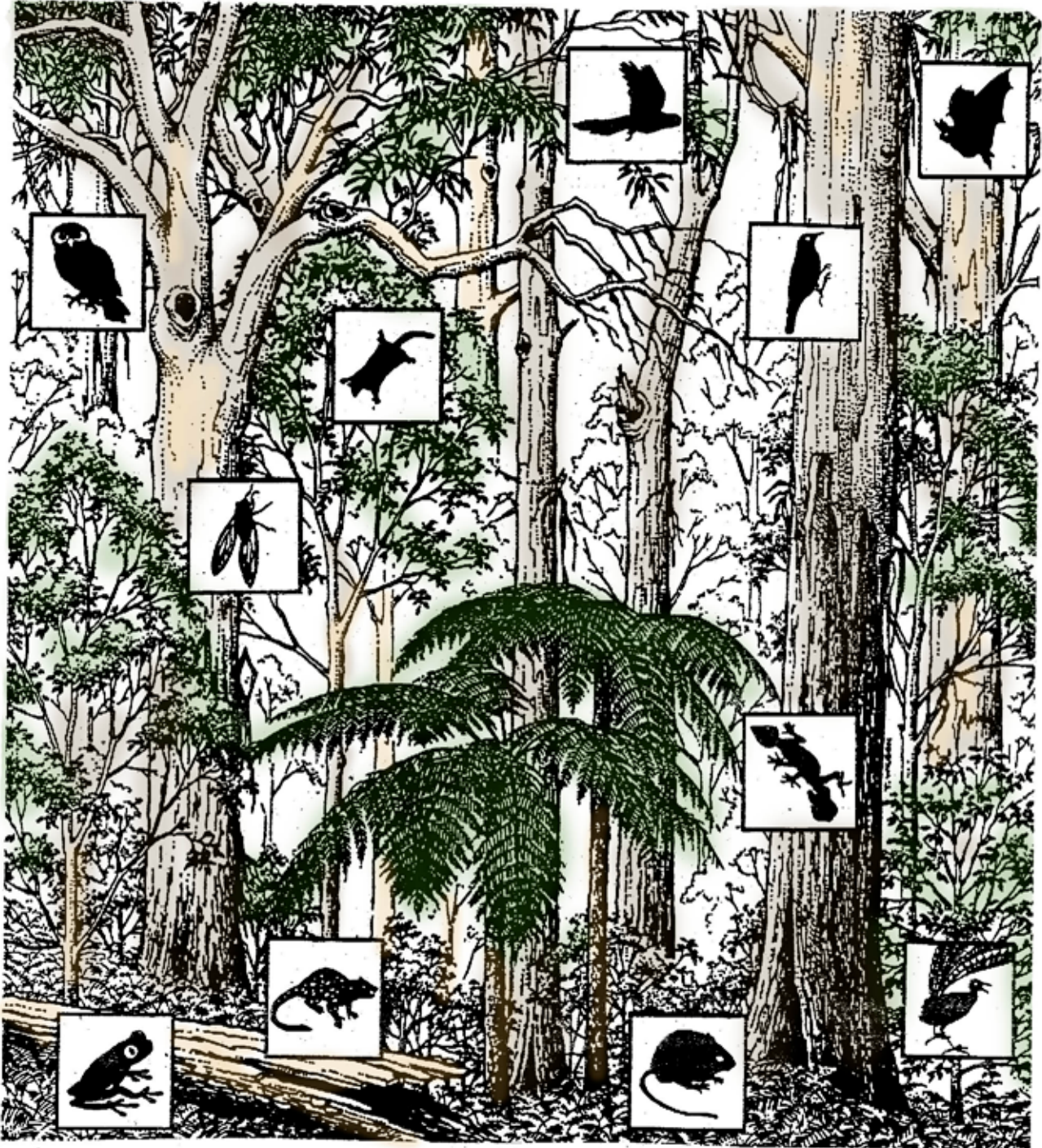


Adult Pygmy Possum in torpor - Photo courtesy of Jill Dark

Juvenile to Adult Possum Rescue Flowchart

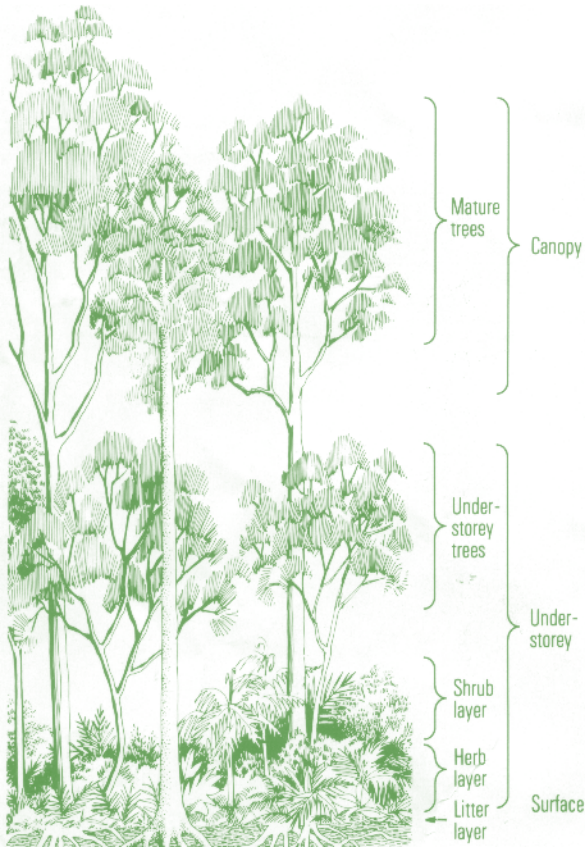


Forest for our Fauna



Drawing by Tanya Wilson - reprinted with kind permission of NPWS

Wildlife and Habitat Management



Remnant native vegetation and the wildlife that may be found therein are all part of a complex system of interactions.

A healthy remnant, to be valuable to wildlife, should contain not only living trees of various sizes and age, but other components such as standing, hollow-bearing dead trees, fallen timber, shrubs and grasses, leaf litter, twigs and more.

As components are lost from these natural systems, the health and function of the system, and its value as habitat declines. For example, honeyeaters that feed on insects and nectar need a well-structured understory of shrubs for nesting and refuge from predators and a variety of nectar-producing plants. The loss of such resources, and the birds that depend on them, can result in increased insect attack and tree dieback.

This also applies for the survival of the smaller possums like, Feathertails, Squirrel, Sugar gliders and Pygmy possums whose diet also includes nectar, pollen and insects. Ringtails also make their home amongst the understory and gather vegetation such as bracken, ferns, and leaves from a variety of native shrubs to build their dreys.

All native vegetation is valuable, however, for the long-term protection of our native wildlife, a patch of remnant vegetation needs to be managed to achieve and maintain this natural complexity to provide for the needs of a range of native animals.

Broad habitat types

Broad habitat types are typically described in terms of the dominant vegetation or vegetation community, in which it is found - Forests, woodlands, grassland, Wetlands, mallee, heathlands and shrublands.

Key habitat components

A habitat is a home! Just as we require some necessities to survive, wildlife also require certain elements from a habitat to survive, such as shelter, food and nest sites. Habitat features include both biotic (living) and Abiotic (non-living) components (rocks, mineral, water).

Vegetation is the key component to any habitat and all species are dependent on vegetation to survive. The type of vegetation, its condition (or health) and the area it occupies will determine the value of the vegetation to wildlife in the area. If a habitat is changed or components are lost in any way, the species that live there may be placed under stress, which may cause a reduction in population size, their displacement from the area or local extinction. To maintain biodiversity (meaning, diversity of ecosystems or habitat types, diversity of species and diversity of genes within species) we must keep a variety of habitat components.

These include:

Large patches of bushland/vegetation

Many animals require large areas of habitat to supply adequate food supplies or to satisfy their territorial requirements.

Herbs and grasses

The composition and structure of ground cover is important for ground dwelling animals, and seed and insect eating fauna.

Understory shrubs

Shrubs provide resting, refuge, breeding and feeding habitat for some wildlife.

Diversity of tree species

Different species of trees provide different resources that are required by a range of animals.

Tree hollows

About 20% of birds and 30% of mammals need hollows for nesting and shelter. Some hollows may take up to 150 years to form before it's suitable for large possums or gliders. Dead standing timber, also has similar value.

Fallen trees

Ground foraging birds, frogs, reptiles, and mammals require fallen timber for shelter and food.

Rocks

Provide shelter and nest sites for some species of wildlife.

How can landowners help retain wildlife?

Fencing an area of habitat allows the site to be managed differently to the surrounding paddocks. Prolonged heavy grazing has virtually removed the shrub layer from our woodlands. Fencing native vegetation to control stock access will help natural regeneration take place and preserve or restore many essential habitat attributes.

If you do not need barb wire to keep stock from escaping, then make the top 1 or 2 strands plain wire, this will aid in the prevention of gliders, bats, and birds from becoming entangled in the barbs of the wire.

Protect hollow bearing trees (dead or alive)

Hollows can take over 100 years or more to develop and are essential to many different species of wildlife. By protecting these trees you can continue to provide homes for the many species that may be found on your property.

Nest boxes can provide alternatives in the short term for hollow dependant fauna and have been used effectively for many species of wildlife.

Many hollows in agricultural land are used by feral bees and starlings. If hollow bearing trees are not protected, competition between introduced and native animals for this resource will increase.

Control feral animals

Introduced animals impact heavily on our native wildlife. Effective control of foxes and cats are critical to allow native animals to survive. Rabbits will greatly limit the success of any regeneration (natural or otherwise) where they are a problem. Work in with surrounding neighbours, Rural Land Protection Board, State forest and NSW Department of Environment & Conservation (DEC), to control feral animals in remnants of bushland.

Control weeds

Some patches of native vegetation can have good ground layer dominated by introduced plants (weeds). In some cases the density of the weeds can restrict native vegetation from regenerating through competition. It is important to control, suppress or remove weeds, particularly aggressive weeds, like Lantana, Blackberry, Balloon Vine and Wandering Jew. Check with your local council who will supply you with a brochure on identification of local weeds and how to get rid of them. Some weeds are very toxic to domestic animals and will also kill possums.

Be involved

By observing and enjoying the local wildlife, you will learn more about them, and, in doing so, you may encourage other family members and neighbours to appreciate and become aware of the wonderful native animals that we coexist with.

Join a Bushcare group - get to know what's native and what's introduced!

Albinism

Albinism is a condition which is distinguished by a lack of pigment (melanin) that gives colour to the hair, fur, feathers, scales, eyes and skin. There are different types of albinism, depending on the lack of pigment in varying degrees.

Albinism is passed genetically from parents to offspring - each cell



This Ringtail had a normal coloured mother and sibling

contains numerous pairs of genes, one from each parent, these genes transmit traits through generations - an albino offspring results from a specific combination of genes.

Albinos are infrequent because the genes for that trait are recessive, while genes for normal pigmentation (Melanin) are dominant.

If both are present, normal pigmentation occurs. If only recessive genes occur, albinism may result. Only a small percentage of animals carry the recessive gene, so the chance of pairing of recessive genes in an individual animal is slight.

“If two parents with a recessive albino gene produce an offspring, there is a one in four chance of it being born an albino and since this recessive gene is rare, it’s even rarer that both parents have it and that’s why albinos are so rare!”

In humans, for example, about one in 70 people carry a recessive gene for albinism and about one in 20,000 humans, are albino.

Bird researchers have found that albinism occurs in one of 1,764 birds.

Although albinos are rare, they are common enough for most people to have seen or know of someone who has seen albinism in some species.

I have seen various degrees of albinism in possums, macropods, birds, reptiles and amphibians. Albinism would probably occur in every kind of animal that produces melanin.

Being white doesn’t make an animal an albino- it’s whether it has pink or light blue eyes. Golden possums have brown eyes. Polar bears are called leucistic; they have normal coloured eyes and snow white fur.

Fauna Parks will often display albino animals such as macropods, birds and reptiles because visitors like to see them as they capture our attention.



Leucism is a condition characterized by reduced pigmentation in animals. Unlike albinism, it is caused by a reduction in all types of skin pigment, not just melanin.

From Wikipedia, the free encyclopedia

This female brushtail was observed over many years and although she had many young, she never produced one that matched her colour

At Risk?

Some people may feel albino animals are at risk from predators because their colour makes them stand out but some studies suggest that albinos may not be as noticeable to other predators as they are to us.

Raptors may rely on a search image for prey that primary involves shape and movement. The colour of the prey may make little difference as long as the prey looks and acts like a food item.

A lack of pigmentation may have an affect on the vision of some animals as melanin aids in the development of various parts of the eyes, including the irises, retinas, eye muscles and optic nerves.

The overexposure to sunlight may cause skin problems such as sun burn and skin cancers as melanin blocks the harmful rays of the sun, while allowing beneficial ones to enter.

Birds may have a problem attracting a mate if showing off their brightly coloured plumage is needed to entice a female. Although, I have seen a beautiful albino peacock displaying his tail feathers and the female did hatch a few white chicks!

Of course possums are nocturnal and therefore not effected by exposure to the sun.

References- John D Miller, Missouri Dept of Conservation USA.

Encyclopedia of medicine

Susan Kaneko Binkley, Color on, color off, Minnesota Conservation Volunteer newsletter.



Male Golden Brushtails - Tasmania

Glossary

Arboreal

Tree living animals which spend most of their time in trees only occasionally coming to ground.

Ambient temperature

The air temperature surrounding the animal.

Cloaca

A single outlet for the urinary, digestive and reproductive tract in marsupials, reptiles and birds.

Ecology

The study of how organisms such as plants and animals interact with each other in their natural environment.

Feral animal

A domesticated non-native animal, gone wild.

Folivore

An animal that eats mainly leaves.

Galls

Found on leaves (small pinkish bulge) an abnormal development of plant tissue caused by insects. The insect lives inside the gall until it matures.

Gestation

The period from conception to birth -before the joey enters the pouch.

Gut flora

A natural friendly bacterium that lives in the gut- this important bacteria act on the food and helps breakdown the fibre as it passes through the gut.

Habitat

A natural environment which provides all the elements needed for life to grow such as food, water and shelter.

Herbivores

Animals which are dependant on plants for food.

Honeydew

A rich sugary liquid excreted by plant feeding insects such as mealy bugs, scales and aphids.

Habitat trees

Mature trees which contain hollows used by native fauna as a home- 40% of mammals and 20% of birds are dependant on tree hollows and some reptiles.

Home range

A defined area where an animal gathers foods mates and cares for young. The sizes of the area differ with each species.

Larva

Immature young of invertebrates (insects)

Lectade/Vytrate

A non-antibiotic supportive treatment used for diarrheic, dehydrated, sick, debilitated and orphaned animals.

Not to be used long term, it will support the animal whilst sick, but it will not grow –it is not a food.

Manna

Is the substance secreted by trees at broken or damaged parts of a trunk or branches, it consists of 60% sugar, 20% pectin and 16% water.

Marsupial

Are undeveloped young raised in a pouch as opposed to placental animals which involves the baby receiving nutrients through the placenta, which is attached to the lining of the mother's uterus i.e. bats, dogs, cats, whales, rats, mice and humans.

Metabolic rate

The rate at which, an animal converts food into energy.

Nectivores

Are primary nectar feeders i.e. Feathertail gliders, bats & birds.

Nocturnal

Active at night.

Omnivores

Animals which feed on a combination of plant and other animal life.

Torpor

An inactive sleeping condition where the body's metabolism slows down to conserve energy this can be a few hours, days or in some cases- as long as 20 days during winter for the Mountain pygmy possum.

Understory

The layer formed by the leaves and branches of the smaller trees and shrubs under the forest canopy.

Reference and recommended reading

A list of some of the books I have read over the last 20 years, which may be of interest to possum carers. These can be purchased from book shops such as “Andrew Isles Natural History Books” who has a comprehensive range of used and new books.

WWW.Andrewisles.com

The care and handling of orphaned marsupials by Helen George
Emergency treatment and care of Australian mammals - Mr Gary. Reddacliff (Veterinarian)

Wombaroo charts - Brian Rich
Australian Wildlife (1985) - Post graduate committee in Veterinary Science University of Sydney

The management of Australian mammals in captivity - Australian mammal society

Complete book of Australian mammals Edited by Ronald Strahan - Publisher - Angus&Robertson

Possum and Gliders Edited by Andrew Smith and Ian Hume - Publisher Surry Beatty & Sons

Fauna of Australia volume 1B Mammalia - Australia Government Publishing service Canberra

Furred animals of Australia by Ellis Troughton – Publisher Angus Robertson

Care and Handling of Australian native Animals edited Susanne Hand - Publisher Surrey Beatty Sons

Urban Wildlife of N.S.W. edited by John Pastorelli - Publisher Angus & Robertson

Spotlight on possums by Rupert Russell - Publisher University of Queensland press.

Fauna of the Blue Mountains by Judy and peter Smith - Publisher Kangaroo press.

Living with wildlife by Eva Murry - Publisher Reed Books Ltd.

Australian wildlife by Post graduate committee in Veterinarian Science University of Sydney

Fauna by Post graduate committee in Veterinarian science University of Sydney

Digestive physiology and nutrition of marsupials by Ian Hume publisher Cambridge University. press
Gliders of the gum trees by David Fleay.

Black’s Veterinary dictionary 16th edition edited by G. P. West MRCVS publisher A&C Black

Pet Sense. by Jennie Churchill Published by Angus & Robertson

Urban Wildlife Proceedings 204, by Post graduate committee in Veterinarian Science University of Sydney

Wildlife Proceedings 233, Post graduate committee in Veterinarian Science University of Sydney

Wildlife in Australia Health & Management, Proceedings 327 Post graduate committee in Veterinarian Science University of Sydney

The Brushtail Possum- Biology, Impact and Management of an Introduced Marsupial-
edited by T.L. Montague publisher Manaaki Whenua Press.

The Biology of Australian Possums and Gliders edited by Ross L. Goldingay and Stephen M. Jackson
 Publisher Surrey Beatty & Sons Pty Ltd.

Australian Mammals Biology and Captive Management Stephen Jackson publisher CSIRO publishing

Life of Marsupials hugh Tyndale-Biscoe –CSIRO Publishing

A key and Field Guide to the Possums Gliders and Koala by Andrew Smith and John Winter
 Surrey Beatty & Sons

Possums of the world Timothy F. Flannery, GEO productions

POSSUMS, the brushtails, ringtails and Greater glider by Anne Kerle - UNSW press,
 Australian natural history series

Gliders of Australia, Australian natural history series David Lindenmayer UNSW Press

Caring for Australian Wildlife by Sharon White – A practical guide to the captive management of
 Australian

Native animals -Australian Geographic

Caring for Possums Barbara Smith Kangaroo Press

Tracks, Scats and other Traces A field Guide to Australian Mammals Barbara Triggs
 Oxford University Press

A Field Guide to the Mammals of Australia Peter Menkhorst & Frank Knight Oxford university press

Conservation of Australia's Forest Fauna edited by Dan Lunney –Royal Zoological Society of NSW.



Mother Brushtail did not even flinch as her 400 gram son squeezed into her pouch.

