

## HANDREARING MARSUPIALS

### HEAT SOURCE

A Marsupial joey is unable to regulate its own body temperature, and thus relies upon an external heat source. Until the joey is well furred and old enough to leave the pouch, a pouch temperature between 30-32 degrees Celsius must be constantly maintained. The most reliable and convenient method for keeping a kangaroo or wallaby joey warm is a small electric blanket, available through our Veterinary surgery, which is hung on the inside of a box or carton with the joey's pouch hung against it. The pouch temperature can be controlled by adding (or removing) layers of cloth placed between the pouch and the heat source. Slow combustion stoves and hot water bottles can also be used, provided you are prepared to check that they are always maintained at a constant 30-32 degrees Celsius.

For possums use a 15-watt globe in a large tin covered with soft, woollen material as an external heat source. Punch holes around the top of the tin to stop the heat build-up from breaking the globe. It is possible to "cook" the joey and kill it from overheating, so be careful to keep the pouch temperature controlled. A joey is unable to lower its own body temperature by perspiring, although as the animal gets older, it does learn to achieve some cooling from evaporation by licking its fore paws. If the joey is licking its fore paws in the pouch, then it is too hot. Placing your hand into the pouch will give a guide to the temperature. DO NOT fold electric blankets around the joey as overheating can result. Emergency heating can be achieved by placing the joey down the front of your jumper.

### SUBSTITUTE POUCHES

Pouches are ideally made of soft, washable material, such as old blankets, old sheets, jumpers and windcheaters. The joey should be wrapped up and placed in such a way that it remains in a natural position. With unfurred marsupials, it is wise to rub the skin with baby oil to reduce the fluid loss and maintain humidity.

**KANGAROOS:** The pouch should be just big enough for the joey to move around in, but keep the joey snug. It is advisable to keep the joey's pouch inside a larger bag or sack, which can be suspended, making sure the bottom of the bag is not touching the ground. When the joey reaches the stage where it is emerging from the pouch, the bag should be kept closer to the ground so the joey can leave or enter the pouch unaided.

**POSSOMS:** A sock or small woollen hat is suitable as a substitute pouch. For small, pre-emerging from the pouch stage possums, a safety pin securing the top of the pouch prevents the possum from getting out and becoming lost and cold. Older possums eating solids should have their substitute pouch in a cat or cocky cage, so that the possum can move around and feed during the night. Place a ring of wire around the top of the sock to keep it permanently open, so the possum can enter or leave the pouch unaided.

**WOMBATS:** The pouch, with another blanket inside, can be placed in a solid wooden box with a secure lid, essential as the wombat gets older. An electric blanket can be placed underneath half of the box to maintain a constant temperature, but enable the animal to cool off if necessary. Wombats control their body temperature much better than kangaroo joeys.

### STRESS

The newly orphaned joey is likely to be suffering from shock and stress as a result of the incidents leading to its rescue. Injuries, such as fractures or bites, will require veterinary attention. Stress will be suffered as a result of separation from the mother, due to loss of warmth and nourishment.

Make your joey secure in a substitute pouch with warmth if required. Leave the joey alone until it has settled, and restrict initial handling to one person. Handling, particularly by small children, can be stressful and can lead to death. Any cuddling and handling should be done with the joey in its pouch where it feels safe. The joey needs the same kind of treatment as a premature human baby, and should not be treated like a cuddly toy. Your orphaned marsupial needs quiet, security and nourishment.

### DIET

DIVETELACT is a low lactose milk powder, which is easily made up with warm water, and is readily available through our Veterinary Surgery. The amount fed depends on

the weight and age of the joey, all directions are on the bag, and our helpful staff are always ready to help you if required.

When feeding, warm the required amount of milk, checking the temperature on the inside of your wrist. Feed the joey using a bottle and a teat. The joey should be fed in its pouch, as this reduces stress, however, remove the joey from the pouch to toilet it. If the joey struggles and makes it difficult to feed, hold the animal securely into your body, cup your hand under its chin and gently cover its eyes. This quiets the joey and makes feeding easier.

**TEATS:** A joey's mouth is easily damaged, and ulcers or small irritations can occur if normal baby teats or hard tubing are substituted for the correct teat. Feeding bottles and a range of specially made soft rubber teats, designed for various marsupials are available from our Veterinary clinic. As an emergency measure, however, a piece of tubing or a plastic eyedropper can be used.

### EMERGENCY DIETS

The following formulae can be used until advice and the correct milk replacer can be obtained.

**Kangaroos:** Full cream evaporated milk or powdered milk at half strength, warmed and given using a long teat.

**Possums:** Full cream powdered milk, at half strength, sweetened with honey, slightly warmed and given using a small teat or dropper.

**Wombats:** full cream powdered milk, at half strength, with baby cereal (eg Farex) added to it. This mixture is spooned into the wombat joey.

### INTRODUCING SOLIDS

Intermediate kangaroos, those which are emerging from the pouch, should be introduced to solid foods. They should be supplied with fresh grass, including the roots and attached soil, lucerne hay, in moderation, rolled oats, kangaroo pellets, carrots, apples, bark and salt bush. The grasses should be tied into a bundle and hung on the inside of the pouch. Early in the season the grass may not have dried out, so care should be taken when feeding grasses as the high water content can lead to diarrhoea. Do not exceed the recommended quantity of milk replacer, or the joey will not be hungry to eat solid foods.

When initially introducing wombats to solid foods, they can be fed a couple of teaspoons of Heinz high protein baby cereal mixed into the milk replacer. You will need to wrap the wombat very tightly in a towel to restrict its movements while you feed it with a teaspoon. Carrots, apples, Lucerne hay, rolled oats and lucerne pellets are all foodstuffs wombats can be weaned onto, not forgetting their natural diet of grass and roots.

Possums enjoy fruits such as apples and pears, vegetables, gum leaves and bottlebrush. Roses are particular favourites, however, beware of Pesticides.

### CLEANLINESS

Joeys are normally stimulated to defecate and urinate by the mother's licking, so after each feed, gently but firmly rub the genital area of the joey with a tissue or toilet paper to stimulate the joey. Continue stimulating until the joey stops defecating and urinating. Failure to do this may lead to urinary tract / kidney and bowel disease.

If there are episodes of diarrhoea, a nappy may be needed, but utmost care and frequent changes are required to prevent chaffing. A nappy can be made out of square piece of material. Place the nappy on your knee/thigh with padding a third of the way up. Place the joey facing downward straddling your leg, with the padding under the anal area. Bring the corners in to meet at just above the tail, and pin. Disposable nappies are easier and can be used by cutting an opening for the tail. If diarrhoea persists, seek professional advice.

## IDENTIFICATION

Kangaroo	Euro	Grey	Red
Coat texture	Thick and coarse Distinctly hairy	Woolly, soft No long hair	Fur short, close No long hair
Coat colour	Brown and black	Dusty brown	Male red, doe Smokey grey

The red kangaroo colour may reverse depending on area.

Brushtail possum – end of tail is black

Ringtail possum – end of tail is white

## TROUBLE SHOOTING

### Dry skin

Use baby oil, hand cream or lanolin. Dry skin occurs because the substitute pouch is dry and unlike the mother's skin pouch.

### Diarrhoea

Once established on milk substitute, diarrhoea should not be a diet related problem, although if excess quantities of milk are used a volume related diarrhoea can occur. Avoid chills, fear (stress), and handling by strangers. These can cause an attack of diarrhoea, which once started is often difficult to stop. Albicarb, Electrolytes, Kaomagma, ADM, and Pectin (Jamsetta) are worth trying along with reduced volumes of milk per feed. These substances are fed independently of the milk.

Sometimes a newly acquired joey takes 24 – 48 hours to settle in due to stress and adjusting to the milk formula. Do not confuse this with diarrhoea. Do not panic if the joey is loose when you toilet it, if it is holding on between feeds it is still adjusting.

Sometimes joeys develop diarrhoea due to a lack of digestive organisms in the gut, and these need to be introduced. This can be done by soaking a normal pellet from an adult kangaroo in water, separate off the solid material and squirt 5 ml into the mouth with an eyedropper or syringe. This should be done once.

Dehydration is the biggest danger of continued diarrhoea. The simple test for this is pinch the skin anywhere it is loose. If it drops back into position quickly when released the animal is alright. If it stays up the animal is dehydrated and needs attention.

### Sickness

Wild animals do not show symptoms as plainly as dogs or cats and when they do it means they are really sick, so contact your local Vet quickly. Symptoms may be a lack of appetite, drinking less per feed, weakness, falling over, lethargy – in short, anything which is different from its normal behaviour.

Kangaroos chew their cud, in the same manner a cow or sheep does, so what you may think is vomiting or choking is in fact a perfectly normal "bringing up of the cud".

### Immunisation

All kangaroos and wallabies are susceptible to tetanus and it is most important to have your animal immunised. 5 in 1 vaccine can be used but preferably use Tetanus Toxoid – available through our Veterinary Surgery.

### Castration

A tame buck is as dangerous and unreliable as a bull. No matter how gentle he has been, one day he will treat you or your children as a mate or rival, and either can be

equally traumatic.

Do not use elastrator rings for castration because the hole is too large and will allow blood through. The best time to have your kangaroo castrated is before it is totally out of the pouch, which depending on species, is normally between the age of 8 – 12 months. Contact your Vet for further advice.

Entire possums, especially brushtails, and entire male wombats can be particularly belligerent once sexually mature and should also be castrated if being kept. It should be noted that once female wombats reach sexual maturity they can also become quite antisocial.

#### **Release**

Never release a hand-reared animal into the wild without thinking through the problems. Has it learnt to recognise a food source in the area?

**Is it a native to the area?**

**Can it recognise predators?**

**Will it suffer undue stress?**

**Will it stress existing fauna?**

Ringtail possums will be content in captivity all their lives but brushtails are best released once adults. Wait for the warm weather of the summer and leave food out until it stops coming back for it.

Never release a castrated animal or one that has permanent disability.

Tame kangaroos can not be released to the wild with any safety, and as they live up to 20 years, think hard before you decide to keep a kangaroo or wallaby in captivity.

NOTE: In South Australia, it is illegal to release any animal into the wild without prior written permission from the Director of the National Parks and Wildlife service.

#### **Weaning**

Weaning is a time when most mistakes are made. Kangaroos and wombats are on milk for as long again once they leave the pouch as they were in the pouch.

During this time the pouch should be available for the joey to return to in case it feels threatened or cold. Ideally, the pouch should be hung in a small draught free shed, which opens into a small yard. Solid food should be freely available.

A heater light should be hung in the shed for inclement weather and for macropods out of their normal range, eg. Reds in Adelaide. Wombats also need a heater light if a suitable burrow is unavailable.

The longer wombats and kangaroos are kept on milk, the friendlier they remain.

Possums tend to wean themselves, so a thick walled log should be provided once this has happened and the pouch is no longer needed. If they are going to be released then this log should be “released” with them to provide an initial haven. Ideally the possum should be kept over its first winter and summer, as this is when food is hardest to come by. Provide the foodstuffs that will be available in the environment the possum is to be released into (eg. The leaves of trees and shrubs native to the release area).

The animal should leave its small pouch for a secure environment, which mimics that which it has just left in that it is draught free, has a constant temperature and provides minimum stress. Only once the animal has settled into this new environment – a process that takes several weeks, not days, can reduction in the number of daily feeds be commenced. You must first ensure that large volumes of solids are being consumed and regular weighing of the joey is a good method to check progress. Most times the joey will tell you if it wants the bottle or not. Remember, even adult kangaroos like the occasional bottle.

It is always better to bottle feed for too long and have a healthy joey than to wean too quickly and have either a stunted joey or worse still a joey that dies. If you are unsure, then please seek advice from someone experienced in these matters.

## KEEPING ADULTS

### Kangaroos

You will need to provide shelter and warmth for your joey until it is at least 2 years old. The first winter out of the pouch is a critical time and it is advised to have the animal in a shed at night with a heater light in it. These are available from stock agents. Preferably, all perimeter fences should be 8 ft high and fox and dog proof. Try and keep the yard clean and as well drained as possible. Do not keep too many kangaroos in a small area otherwise they will suffer stress-related problems.

Do not keep kangaroos in chicken coops with poultry, or that have contained poultry, as such environments may be contaminated resulting in coccidiosis infection in the animals. Adequate natural shelter from the elements such as trees and shrubs, plus sheds protecting them from prevailing weather are essential. Don't forget to take into account which way the worst of the winter weather comes from.

### Wombats

Wombats require a yard with a strong fence (ie. cyclone) dug about a metre into the ground and a substitute for a burrow such as a concrete pipe with at least ½ metre of earth over it. Alternatively, a mesh floor can be used, once again with a metre of soil and concrete pipe burrows underground. Wombats have a very low tolerance to heat so the burrow must be cool even in the hottest of weather. If the burrow is not satisfactory, cooling may be required. A thermometer to check the temperature in the burrow is a good idea, but do not attempt this when the wombat is in residence. The yard should be well drained and preferably have some shelter and the capacity to be artificially heated if need be. Beware, burrows may flood in wet weather, and your wombat could drown.

### Possums

Once possums leave the pouch, they like to live in hollow logs which they often line with gum branches and leaves. You should provide your possum with a log in a large cage or small aviary, which itself should be fairly protected from inclement weather. In fact, possums destined to be released should ideally be trained to use a log while captive, then released with the same log to maintain certain continuity.

### FURTHER INFORMATION AND ADVICE

Regulations in South Australia require you to obtain a Rescue Permit from National Parks and Wildlife Service when handraising marsupials, even if you intend to release them. Permits can be obtained by writing to the Director, NP&WS, 55 Grenfell Street, Adelaide, 5000 or from your local regional office.

Help is always available. If you need professional advice, information booklets and growth charts or supplies of milk replacers, teats bottles etc. Please contact your local Veterinary Surgery.