

## Supportive care for macropods

### Adaptations to fire

- Fortunately for kangaroos, they may be able to outrun a fire. Unfortunately, they can also be trapped by fences and back-burning fires as the smoke and low visibility confuse them into running back into the approaching fire.
- Smaller macropods, such as the wallabies, have the ability to avoid both wildfire and prescribed burns (Garvey et al 2010).
- Capture myopathy is the most significant sequelae to burns and may be seen as a consequence of attempting to outrun the fire, or from the stress of captivity. The kangaroo may die up to eight weeks later from capture myopathy.

### Treatment of burns in macropods

Burns to the hind feet and the tail occur when the macropods travel over hot, burned ground. Some issues with these areas healing are:

- The burn contacts the ground at all times while the animal stands. So the burns continue to bear weight during healing which can delay the resolution of the burn. Well-padded dressings are required and soft flooring or confinement to pouches.
- There is very little covering over the sole of the foot. Thus most burns are full thickness or deeper. Damage to underlying tendons, bone and soft tissues precludes successful rehabilitation.
- Both feet and tail easily account for more than 10% of total body surface area. So, underestimation of the extent of the burn often occurs.
- The surface area of the tail is unknown and varies in this group of animals. The whip tail of the Swamp wallaby is very different to the thick tail of the Eastern Grey.
- The tail is easily bandaged with adhesive tape at the ends to prevent the bandage from slipping.
- Lower legs are easily bandaged. Hands are more difficult to bandage and need to be bandaged in a flat hand bandage.
- It is not recommended to rehabilitate burnt adult macropods due to the high likelihood of capture myopathy, pressure ulcers from recumbency and risk of further injury while in care.

### Medications

- Anti-anxiolytics such as azaperone (Stresnil®, Elanco) for short-term, or fluphenazine (Modecate®, Squibb), for longer term, are required to reduce fear in the captive setting of all but very young macropods. Diazepam (valium) has a duration of 2–4 hours and thus will not last a sufficient period of time in the day to be used as an anxiolytic in this species.
- Pain relief with tramadol has been used in this species. Opiates (buprenorphine, methadone) may be required if pain is severe—these must be administered under veterinary supervision.
- Antibiotics: Give antibiotics for 7–14 days for burns, longer for deeper or infected burns. If bone infection of the toes is present, and treatment is still elected (which would contraindicate the Code of Practice), antibiotics would be indicated for 4–6 weeks.
- Weekly injections with vitamin B and C may promote appetite. Vitamin C has demonstrated efficacy in reducing healing times in burns.



*Top: Kangaroo with exposure of bone of large toe with loss of nail. This warrants euthanasia. Photo: Zoos South Australia.*

*Bottom: Deep partial and full thickness burns to the foot of a Swamp wallaby. Photo courtesy of Michelle Thomas.*

## Housing burnt macropods

- **Intensive care:** A hanging pouch that permits easy entry inside an enclosed room/stable. Enclosures need to be in a quiet area, with minimal traffic. Recumbent macropods are at high risk of myopathy and pressure sores over the points of the hips and legs. These complications should be expected and monitored as they adversely impact the welfare of the animal. Thick bedding with straw, dog beds or foam mattresses may be used in the intensive care stage. This is the stage that the animal is housed in until the skin on the burns has healed, but full pigmentation has not yet returned.
- **Intermediate care:** A 10–20m long enclosed yard with hessian-lined fences may be used during the day with the animal housed back in intensive care housing at night.
- **Pre-release enclosures:** A 50–100m long paddock is used to regain fitness once burns have healed. Line the enclosures with shade cloth to act as a visual barrier.

## Feeding burnt macropods

A nutritious diet should be offered daily:

- Grass hay with some Lucerne could be fed short-term as this offers higher protein.
- Macropod pellets (Wombaroo® or Barastoc) formulated for this species. Coccidiostats in cattle and sheep pellets are fatal to macropods. Most horse and goat formulations are lower in Vitamin E than required for macropods.
- Fresh grass held in buckets of water.
- Browse for wallabies: tea tree, Hakea, Allocasurina, Grevillea, Callistemon, gum and wattle tree branches. Three to five 1 m branches are offered daily.

Avoid mixes that contain seeds and short pieces of chaff, e.g.: Completo or rabbit/guinea pig mixes. These foods are associated with the development of lumpy jaw in kangaroos due to the sharp pieces present in these diets. The grass seeds and chaff puncture the gums and introduce bacteria in and around the teeth, resulting in infection of the soft tissues and later the jawbone (lumpy jaw). Seed diets are low in protein, vitamin A and E, all of which is required for healing.

Joeys should be fed a milk with adequate energy, fat and protein for their growth requirements.

## References

Garvey N, Ben-Ami D, Ramp D, Croft DB (2010). *Survival behaviour of swamp wallabies during prescribed burning and wildfire*. Wildl Res; 37, p 1–12.