

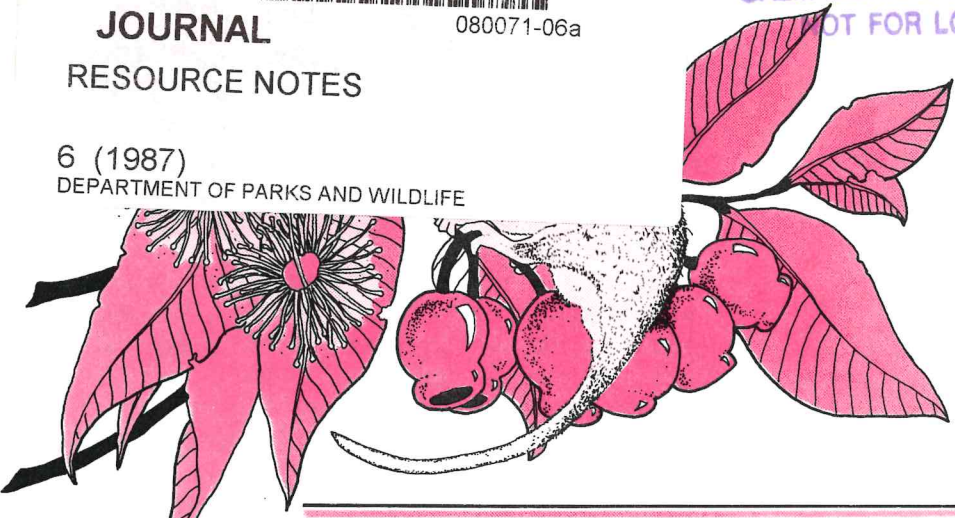


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THE TAMMAR WALLABY AND FIRE

The Tamar (*Macropus eugenii*) is a rare medium-sized wallaby weighing approximately 5-7 kg. It is uniformly greyish brown in colour above, with lighter underparts. The males are slightly larger than the females. Tammars live for six or seven years and are slow breeders, producing one young each summer. They live in group territories. The Tamar was once widely distributed across the southern parts of the Australian mainland, occurring wherever there was suitable habitat. It also occurred on several of the offshore islands along the south and west coast, including Garden Island where it still exists.

Tamar populations have declined since European arrival because of predation by the fox, the effect of clearing for agriculture, and fire. The frequency with which fire occurs in natural areas has changed radically since European settlement, and this has also resulted in the destruction of the Tamar's natural habitat thickets.

Ironically, fire can also be used to create the best habitat conditions for the Tamar. One of the few remaining areas where Tamar populations occur is in the Perup forest east of Manjimup. Here there are surviving populations of several rare species, and once their requirements are known, burning patterns are used to create the most suitable habitat for each of them.

In the Perup the Tamar's habitat consists of thickets of scrub species, either ti-tree (*Melaleuca*), or the poisonous heartleaf (*Gastrolobium bilobum*). Within the thickets there must be space enough to allow the animals to move about freely, but at the same time sufficient overhead cover to protect them from predators such as Wedge-tailed Eagles.

Grasses are their main food, though they also feed on scrub. Especially large populations occur in situations with grassy areas next to thickets.

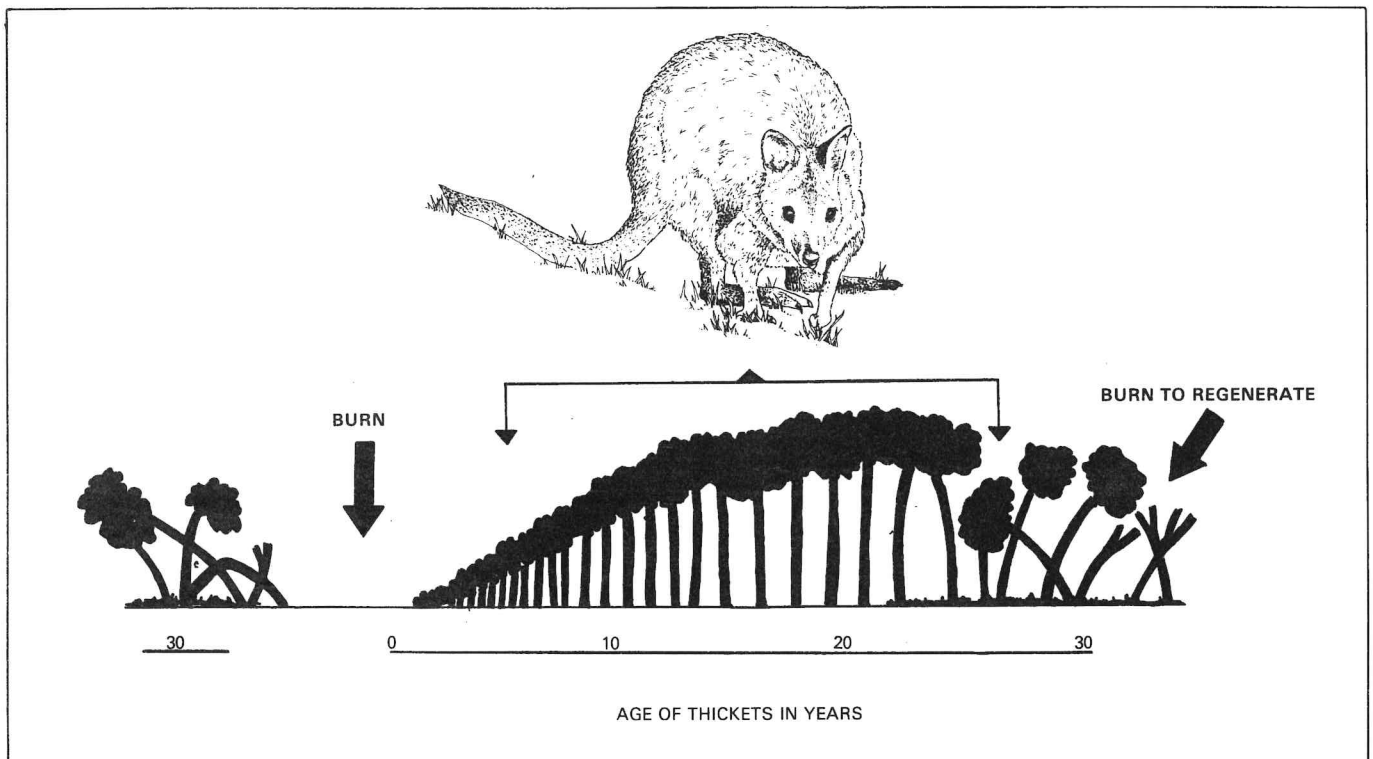


Tammar distribution is influenced by habitat, and therefore by the effect of fire on the habitat. The thickets which form the Tammar's habitat are often of fire dependent plants, and are only suitable for Tammars at a certain stage of their life-cycle. The thicket species only live for 20-30 years. While young they provide inadequate shelter, and later as the plants grow and thin out the thickets become too open. Eventually the plants die. The thickets break down and will not regenerate without a hot fire to germinate the seed.

The natural fires which once periodically regenerated the Tammar thickets can no longer be relied upon. In some of the farming districts the remaining small patches of native vegetation where Tammars occur are either isolated from wildfires or burnt too frequently for the Tammar. In parks and reserves they are often protected for too long from fire, and the forest areas are burnt too frequently to successfully regenerate the thickets. The mainland Tammar population is therefore declining as more areas of thicket become unsuitable for the wallaby. The introduced fox, now a major predator of the Tammar, is hastening the decline of the species.

What may be done to save the mainland populations? With the knowledge which we have about the Tammar and its fire dependent habitat, a management program has been devised and is currently being tested at Perup.

Fires are deliberately lit to regenerate old thickets. Tammar thickets occur scattered throughout the forest. Because they occur in the wetter valleys, and because the Tammars tramp around and keep the grass down, fires need to be very hot to burn the vegetation, and so are lit in autumn, at the end of a dry summer. Hot fires are also necessary to crack the hard seed coat. The fire provides a fertile ash bed, and clears away the old, dead vegetation which would shade out the young seedlings. Every 8-9 years areas of Tammar thicket are burned, but burns are rotated so that individual thickets are burned only every 25 to 30 years, just as they are starting to decline and become unsuitable for the Tammars. This scheme creates a mosaic of Tammar thickets of different ages ensuring that there are always enough thickets suitable for the wallabies. The forest surrounding the thickets is burned to provide a protective fire break, without burning the regenerating tammar thickets, by lighting fires in spring under cool mild conditions.



The fires also have an effect on the Tamar population. During a fire Tamars tend to stay in their home range, and may be killed. Though many do survive in patches of unburned vegetation, after the fire food is scarce and they are without shelter and vulnerable to predators. Thus in the burned areas the population numbers are drastically reduced. But after about six weeks grass regrows and the area becomes a suitable feeding site and eventually, as the thickets regrow, young animals looking for their own territory migrate from surrounding areas, thus ensuring the long term survival of the population. This reduction in numbers serves a useful purpose whilst the thickets are regenerating and still unsuitable for habitation. If too many Tamars survived numbers would build up in the surrounding thickets with disastrous consequences for the populations.

An interesting aspect of this work is the effect of the management program on other species. It has been shown for example that the intense autumn

fires necessary for successful regeneration of the Tamar thickets have a devastating short-term effect on possum populations. Numbers are drastically reduced, but soon recover by means of migration from surrounding unburnt forest. Woylies, numbats and other rare animals found at Perup, have different requirements. Information about their food, habitat, home range and life cycle, are used to plan burning patterns to protect their environment. This type of research needs to be continuous, and carefully monitored to ensure the best long-term survival conditions for all these important rare animals.

by Dr Per Christensen

Dr Per Christensen has conducted research into fauna in W.A.'s southern forests for over 15 years. He studied the biology of the tamars in relation to fire for his Ph.D. thesis.
