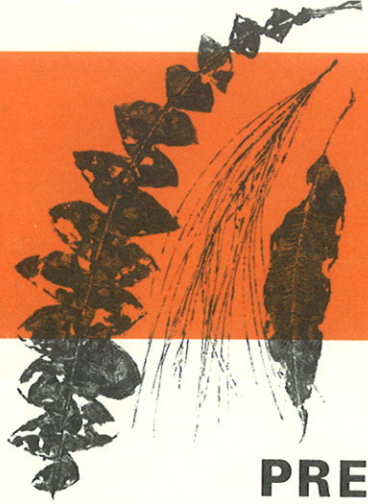

INFORMATION SHEET 14

PRESCRIBED BURNING AND FOREST MAMMALS

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It is possible from examination of charcoal remains in old peat bogs to show that fires have been present in our forests for a very long time. Evidence from plants themselves also indicate that fire has been a major factor in the evolution of our forest plant species and communities.

Animals depend on plants for food and shelter and it is therefore not surprising to find that the animals living in our forests today are also adapted to fire. If they were not they simply could not have evolved and survived to live in our forests.

In the past, prior to the arrival of European man, fires burnt through the forests during the hot dry seasons of the year. Fires were started naturally by lightning and later by the Aborigines. They burnt in a random manner, their direction, intensity and duration varying with the wind, the weather and the physical character of the country. Such fires produced a mozaic pattern of burnt and unburnt patches of forest.

It is just this sort of mozaic patchwork that determines the distribution of many species of mammals after fire. Animals in the unburnt sectors survive and it is largely their progeny that recolonise the burnt areas later on. This is not to say that all the animals in the burnt areas succumb during the fire; far from it; mammals rarely die during the fire except under exceptional circumstances such as during a very bad wildfire.

The large grey kangaroo shows little fear of fire and easily avoids the flames. Indeed on occasions they have even been observed to jump through the flames to emerge unscathed and safe on the burnt and charred soil beyond. The smaller wallabies move into the unburnt patches, mostly along creek beds, the possums are safe in hollow trees, and the smaller animals hide in burrows, old logs, stumps and other crevices.

After a fire there is a re-adjustment of the population. Predators such as cats and foxes, owls and the like take many of the animals whose former habitat, now denuded and bare, offers little refuge while they forage for food.

A succession of species invade the burnt areas as the vegetation returns and conditions become favourable for them once again. The large herbivorous animals such as the kangaroo are the first to return. They like to roll in the fresh ashes immediately after a fire, and later they come to feed on fresh green shoots that soon emerge. Conditions also favour the introduced house mouse (*Mus musculus*) at this time and they may proliferate for a season providing food for many predatory animals. Later, after one or two seasons as the scrub becomes denser, conditions will favour other animals such as the bandicoot (*Isoodon obeselus*) and the native bush rat (*Rattus fuscipes*). Thus each different seral stage in the plant succession favours a distinct species of animal.

This is a natural phenomenon, indeed it would not be possible for many species of animals to survive without periodic fires. For example, the tammar (*Macropus eugenii*) lives in thickets which must be a certain age so that visibility underneath the scrub is good but the stems are still dense enough to enable the animal to elude its predators. If these thickets remain unburnt they gradually degenerate and become too open for the tammar and it will disappear from the area. Periodic fires are necessary to rejuvenate the habitat of the tammar.

Nowadays it is not possible to let wildfires burn unchecked through the forest because of the damage to timber, towns, farms, sawmills and for many other reasons. To reduce the fire hazard prescribed burning is carried out by the Forests Department. This practice reduces the fuel build-up periodically, so reducing the chances of dangerous wildfires occurring.

Prescribed burning does not exactly reproduce natural fire conditions since the burns are always relatively mild, and are carried out on a regular basis. However it does compensate well because a patchwork of burnt and unburnt scrub results, which is suitable for the range of animals occurring within the forest.

Much has yet to be learnt about the fire ecology of our forest mammals and research is currently in progress which will give us more information on the requirements of the individual species. Certain forest areas rich in mammal species are being set aside as fauna priority areas. In these areas, after enough research has been carried out, special burning programmes can be introduced to create favourable habitats for all the species of mammals in the area. It is likely that such programmes will involve some hotter fires to re-create wildfire conditions over limited areas for the benefit of particular species.