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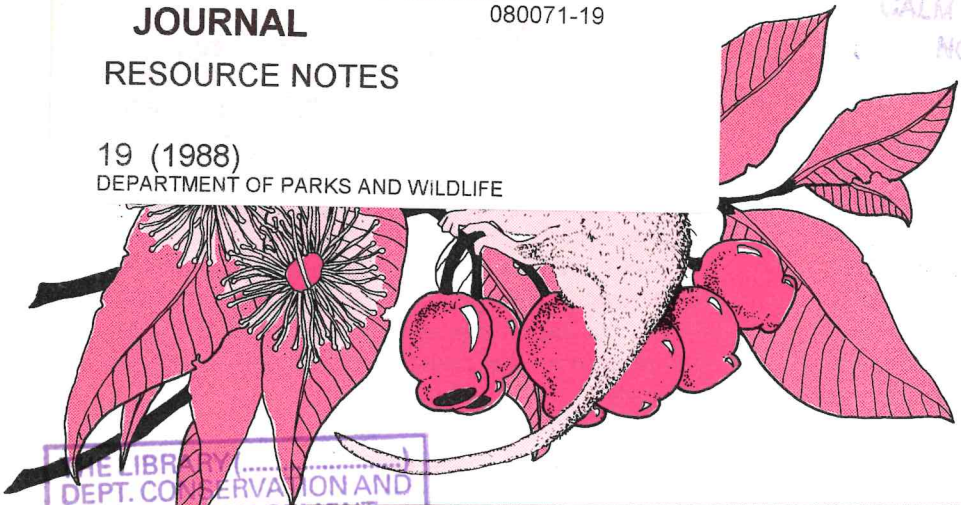
DEPARTMENT OF PARKS AND WILDLIFE



Resource Notes

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POSSUMS, HABITAT TREES AND FIRE

A vast array of animals use hollows in trees. Thirty-four per cent of Australia's vertebrates - that's almost 350 species - require hollows. Many of these are obligate users, that is they must have hollows in trees for the completion of their life-cycle. Tree hollows are homes for birds, like parrots and ducks, as well as many small native mammals such as numbats, phascogales, and, of course, possums. Brushtailed Possums use hollows for refuge, particularly during the day.

Possums are nocturnal feeders; during the day hollows provide shelter and safety from predators. Wedge-tailed eagles and owls could pluck possums from open exposed hollows, and large goannas are able to climb trees and enter shallow

hollows, so Brushtailed Possums favour trees with hollows deep enough - at least 16 cm - to provide protection from predators. Also they choose a hollow with a relatively stable internal environment. A possum at the bottom of a hollow well-insulated with wood or thick bark will not suffer from draughts and temperature variations. Thus it does not need to expend any extra energy regulating its body temperature to keep warm.

Possums emerge at night. They often spend some time grooming, then they may travel up to 200 m to the most nutritious feeding site, where they browse on leaves. Although possums move rapidly over the ground, once out of the safety of their hollows they are vulnerable to predators. Foxes and feral cats are their biggest danger at night. (In the Perup forest east of Manjimup about 30% of the foxes' diet is possums). After feeding for most of the night, they move rapidly back to their hollows.

One individual may occupy up to 11 trees, at different times, which it considers its home. These habitat trees are strongly defended. Near habitat trees, possums have totem poles; small saplings that they mark with scratches and smelly secretions to proclaim ownership. They are quite vocal and will defend their habitat trees with threatening growls and fierce displays.

The size of the possum population is limited to a large extent by the number of available habitat trees in an area. A young possum stays with the mother until it is able to fend for itself (at about six to twelve months), then it must leave and find its own hollow. Possums may briefly share hollows with a mating partner at certain times of the year, but other than this possums do not seem to share hollows

New hollows may take several hundred years to form. Hollows in trees are created by a combination of factors. A branch breaking off can leave a wound through which fungi can infest the tree. This in turn provides a place for termites to invade and excavate a hollow. Fire speeds up the process. By damaging trees and causing them to lose crowns and branches it creates new sites for fungal infection. In addition, a fire may expose hollows already present in the tree. Many possums are killed during and after a fire, but many hollows are created. As well, many of the nutrients locked up in the ecosystem are suddenly released by fire creating a habitat of higher nutrient value than normal. Thus the quality of the habitat is improved and other possums rapidly recolonize the area, taking advantage of the vacant habitat trees and the increased food supply.

*TABLE 1: DIMENSIONS OF 32 HOLLOWS SURVEYED FOR THEIR SUITABILITY FOR USE BY POSSUMS.

Parameter	Mean	Range
Height of the tree above ground (m)	12.8	3.5 - 23.0
Height of the hollow above ground (m)	6.7	0.5 - 10.0
Diameter of the entry hole (cm)	17.6	6.0 - 49.0
Diameter of the cavity interior (cm)	17.8	8.0 - 48.0
Mean thickness of the wall (cm)	14.3	3.0 - 44.0
Depth of the cavity floor below entry hole (cm)	77.7	0.0 - 390.0
Height of cavity roof above entry hole (cm)	6.0	0.0 - 40.0
Angle of inclination (degrees)	60.9	-65.0 - 90.0

*Interactions between Possums, Habitat Trees and Fire A.N.U. 1985,Gary Inions.