Honey Possums

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▲Honey Possum feeding on *Banksia grandis* on Millbrook Nature Reserve showing the characteristic three dark longitudinal stripes down the back of the animal. (Photo S. Hopper)

Honey possums are among the most remarkable animals found in Australia because of their adaptations to a diet of nectar and pollen. They are small agile marsupials, weighing 7-20g when mature (females are usually a few grams heavier than males), and have three distinctive stripes along the back. An elongated snout, highly reduced dentition and brush tongue enable the animal to probe deeply into the stiff wiry flowers of banksias and other native plants for nectar. The tail is prehensile and up to 11 cm long, while the body is up to 10 cm. The combination of these and other features make the honey possum so unusual among marsupials that it is classified in its own superfamily separate from all other possums.

Honey possums are confined to south-western Australia, favouring health, scrub and open low woodlands on light sandy soils where plants such as banksias, dryandras and eucalypts flower in profusion.

Recently, a good deal has been learnt about the ecology and reproductive biology of the species by research teams at Murdoch University, the Western Australian Institute of Technology and at the Western Australian Wildlife Research Centre.

Life History

The Murdoch team monitored a large population near Manypeaks over a period of three years. They found that most animals lived out their lives within less than one hectare of land. This finding was unexpected because previous authors has presumed that honey possums were nomadic. Females with young were especially confined in their movements, 80% of them being captured over several months in areas less than 50 m in diameter.

The Murdoch team established that, on average, a honey possum lives for 12 months from birth — 3 months to weaning, 3 months as a weaned juvenile, and 6 months as an adult. Breeding occurs all year round but peaks in autumn, winter and spring when banksia flowers are most abundant. Usually 2 or 3 young are in each litter. Like kangaroos, the females are able to delay development of young embryos while they carry pouch young.

Studies recently initiated at the Western Australian Institute of Technology are aimed at investigating the honey possum's energy requirements under varying conditions of temperature and food availability. So far, it has been established that the animal goes into a state of torpor either when it's cold or when food is in short supply.

▼ Honey Possum feeding on *Dryandra formosa* at Cheyne Beach W.A. (Photo S. Hopper)

▲ Honey Possum on *Banksia nutans* at Two Peoples Bay Nature Reserve. (Photo S. Hopper)

▼ Honey Possum on *Beaufortia heterophylla* at Cheyne Beach Nature Reserve (Photo S. Hopper)

Pollinators

The Wildlife Research Centre team has focused on the role of honey possums as pollinators of native plants. The accompanying photographs illustrate the wide range of plants from which honey possums obtain pollen and nectar. Banksias are particularly important as food plants. Species of Jug flowers, *Adenanthos*, One-sided Bottlebrushes, *Calothamnus*, and Kangaroo Paws, *Anigozanthos*, regarded in the past as being pollinated only by birds, are also food plants of honey possums.

Although honey possums feed predominantly at night, it was found that they also feed in daylight during cool or overcast conditions at Cheyne Beach, east of Albany. This allowed the team to compare honey possums and honeyeaters feeding on banksia and eucalypt flowers. Honey possums were much slower at extracting nectar and they preened their fur of pollen more often than honeyeaters preened their feathers. As a result, captured honey possums were found to carry far less pollen than honeyeaters, and were not as important as pollinators of the plants under study (*Banksia grandis* and *Eucalyptus angulosa*). However, recent work at Millbrook Nature Reserve north of Albany suggests that honey possums may be the main pollinators of *Banksia goodii*, a very rare species that produces flowers at ground level over summer.

Conservation

Western Australian Museum records indicate that honey possums range widely throughout south-western Australia. They have been collected as far north as Kalbarri, as far east as Cape Le Grand National Park, and as far inland as Dragon Rocks and Lake Magenta.

They appear to be most abundant in south coastal areas. For example, pit trap surveys of the Department of Fisheries and Wildlife, the Western Australian Museum and Murdoch University indicate that honey possums are trapped 5-45 times more often near Albany and Esperance than they are in wheatbelt nature reserves such as at Tarin Rock,

Yornaning and Marchagee. The animals are 370 times more frequently captured near Albany than they are in banksia woodland at Jandakot south of Perth. In excess of 200 honey possums per hectare have been recorded near Manypeaks by Murdoch University staff in one of the areas where the species is abundant.

Habitats favoured by honey possums are typically heath, scrub or low woodlands that provide a year-round nectar and pollen supply. The vegetation is usually rich in species of the Proteaceae (e.g. *Banksia, Adenanthos, Dryandra, Grevillea* or *Lambertia* spp.) and the Myrtaceae (*Eucalyptus, Calothamnus, Beaufortia, Melaleuca* spp.). Sandy soils poorly suited to cereal agriculture prevail in these habitats. This has been fortunate for honey possums because many areas of these light soils have been set aside for flora and fauna conservation in nature reserves and national parks.

Honey possums are known to occur in at least 12 such reserves, including several given class A status (e.g. Millbrook and Two Peoples Bay Nature Reserves, and Fitzgerald River, Stirling Range, Cape Le Grand and Kalbarri National Parks). While the species as a whole appears in no danger, the extinction of local populations is accelerating with the encroachment of agricultural development into the northern and southern heathland areas of the south-west. Farmers can clearly make a significant contribution to the conservation of honey possums by leaving even small areas (a few hectares) of banksia scrub on poor sandy soils uncleared on their properties.