

## 27. Arthropod and other ectoparasitic diseases in terrestrial mammals

Perhaps the most important aspect of arthropod infections in free-ranging wildlife is their role as vectors of microbial and protozoal diseases. Discussion in this chapter, however, is essentially restricted to illness and lesions caused directly by the arthropods themselves.

Except for several species which dwell in the respiratory or upper alimentary tract, arthropods are overwhelmingly true ectoparasites, being present in the skin and adnexa where they sometimes cause disease. In contrast to disease caused by endoparasites, the manifestations of arthropod parasitism of skin are mostly apparent on clinical examination rather than at necropsy. Accordingly, much of the literature on ectoparasitism in wildlife species relates predominantly to clinical observations. Emphasis in this chapter is on pathological findings, especially those that may aid diagnosis and prognosis, and perhaps provide a clearer understanding of pathogenesis.

A major constraint in dermatopathology is the occurrence of dual or multiple infections, such as may occur when bacteria and perhaps fungi infect lesions caused initially by arthropods. In such instances, although careful attention to case history may help identify the primary pathogen, experimental infections may be necessary to confirm pathogenicity.

### PENTASTOMES

Mammals, including humans, may serve as both definitive and intermediate hosts for pentastomes, worm-like parasites that are related to arthropods.

In Australia, a minute (~1 mm in length) cephalobaenid, *Rileyella petauri* gen: nov., sp. nova (Spratt 2003) and a porocephalid pentastome, *Linguatula* sp., occur respectively in the lungs and nasal sinus of the marsupial sugar glider and in the frontal sinus of the dingo. The nymphal stage of another pentastome, *Armillifer arborealis* in tree pythons, occurs in the lungs of the short-nosed bandicoot (Spratt 2001). Pentastomal nymphs of *Armillifer* spp. or *Waddycephalus* spp. have been found in other locations, such as the body cavities of northern quolls, the northern brown and long-nosed bandicoots, the southern dibbler, the little red kaluta and the Cape York rat (Riley *et al.* 1985; Riley and Spratt 1987; Oakwood and Spratt 2000). A single pentastome nymph was detected at post-mortem of a free-ranging bridled nailtail wallaby (Turni and Smales 2001).

No descriptions of clinical signs or pathological changes in these infections were found. In domestic dogs in Europe, however, the presence of the so-called tongueworm in the nasal cavity may be a serious pest, causing serious irritation with sneezing, coughing and often a mucoid, blood-stained nasal discharge. Affected animals may rub their noses and snore in their sleep (Seddon and Albiston 1968c).

### MITES

In a number of surveys of arthropod ectoparasites of Australian native mammals many mites were identified but overwhelmingly their presence was not associated with clinically overt disease or lesions. Only disease or