9

Bandicoots and the bilby

The bandicoots and the bilby fall within the order Peramelemorphia. There are three families: Peramelidae, Chaeropodidae and Thylacomyidae. All species in the families Peramelidae and Chaeropodidae are bandicoots, and the bilby is in the family Thylacomyidae. They are found only in Australia, New Guinea and surrounding islands. There are 21 recognised species, of which 11 are found in Australia and three of these are now extinct. The family Peramelidae contains eight species in three genera: *Perameles* (long-nosed bandicoots), *Isoodon* (short-nosed bandicoots) and *Echymipera* (spiny bandicoots). The extinct pig-footed bandicoot (*Chaeropus ecaudatus*) is classified into a separate family, the Chaeropodidae (Tyndale-Biscoe 2005). The family Thylacomyidae comprises a single genus, *Macrotis*, containing two species: the lesser bilby (*Macrotis leucura*), now extinct, and the greater bilby (*Macrotis lagotis*) (Lynch 2008).

The bandicoots and bilby share anatomical characteristics with both major groups of Australian marsupials: the polyprotodonts and diprotodonts. Like the dasyurids, they have polyprotodont dentition, possessing three or more pairs of incisors in the maxilla and mandible. However, they also display syndactyly of the second and third digits of the pes, a characteristic shared with the diprotodont macropods, koala, wombats, possums and gliders. These characteristics collectively separate the bandicoots and bilby from all other marsupials (Gordon and Hulbert 1989). This separation has been supported by analysis of mitochondrial DNA. The divergence of the bandicoots and bilby from other Australian marsupials is estimated to have occurred approximately 60 million years ago (Tyndale-Biscoe 2005; Lynch 2008).

Bandicoots and the bilby are small to medium-sized omnivorous marsupials. The tail is one-quarter to one-half the length of the head and body and adults weigh 200–4700 g. They are usually nocturnal. They are stocky with short limbs and neck. The forelimbs are shorter than the hindlimbs and are designed for digging in soil to extract ground-living invertebrates and other food items. The elongated muzzle and powerful, flattened claws of the manus are used for probing crevices and rooting and digging in soil (Fig. 9.1). They are opportunistic feeders, exploiting a wide range of food items, have a rapid reproductive rate, grow quickly and are not long-lived (Gordon and Hulbert 1989; Lynch 2008).

In this chapter, anatomical descriptions and radiographic images focus primarily on readily accessible species. The greater bilby has been chosen as the primary representative of this taxonomic group for images in this chapter because they are anatomically very similar to most bandicoots and radiographic features are more readily identifiable because of their relatively large size. However, when radiographically available, relevant anatomical features of other species are included.

Skeletal system

Appendicular skeleton

Pectoral girdle and forelimb

Bandicoots and the bilby are the only marsupials that lack clavicles (Owen 1839; Jones 1924) (Fig. 9.2).