

# 5. Systematic arrangement of the Australian palm flora

This and the following chapters introduce aspects of the relationships among Australian palms and place them in a global and regional context. The most recent classification system for the Arecaceae, as presented in *Genera Palmarum: The Evolution and Classification of Palms* (Dransfield *et al.* 2008), is followed in this work. Australia has representatives of all of the five subfamilies recognised in the family. Despite limited mid-level classification diversity in the Australian palm flora, there are some instances of unique evolutionary development, primarily in the Areceae in the Arecoideae, with eight endemic genera, and the Ceroxyloideae with one endemic genus. The Calamoideae and Coryphoideae have no endemic genera but have high levels of species endemism. Nypoideae, and its only species *N. fruticans*, occurs in outlier populations in northern Australia, to a centre of distribution in west Malesia and south-east Asia.

## ■ PHYLOGENETIC RELATIONSHIPS OF AUSTRALIAN PALMS

There are five major lines of evolution in the Arecaceae (Asmussen *et al.* 2006; Dransfield *et al.* 2008) and representatives of each occur within the Australian palm flora. The major lines of evolution are classified systematically as five subfamilies (Fig. 5.1; Tables 5.1 and 5.2). These are further divided into tribes and subtribes, and it is at these levels that the Australian palm flora becomes restricted. For example, of the 14 tribes in the largest subfamily Arecoideae, only two, Cocoseae and Areceae, occur in Australia; of the 11 subtribes within the Areceae, five have representative genera in

Australia. Similarly, the Coryphoideae, with eight tribes globally, has representatives of three tribes (Trachycarpeae, Caryoteae and Corypheae) in Australia. The Calamoideae and the Ceroxyloideae are even less represented, with only a single genus in each: *Calamus* (eight species) in the former and *Oraniopsis* (one species) in the latter. The fifth subfamily, Nypoideae, is monospecific and has representation in tropical Australia with its single species *N. fruticans*.

Despite the deficient representation of mid-level classification in the Australian palm flora, the presence of some lines suggests that Australia and nearby islands have acted as a minor centre of evolution for the family. The Arecoid subtribes Archontophoenicinae, Ptychospermatinae and Linospadicinae and the Ceroxyloid tribe Ceroxyleae have endemic genera in Australia. There are no endemic genera in the Calamoideae or Coryphoideae, although both have relatively large numbers of endemic species in the genera *Calamus*, *Livistona*, *Licuala*, *Caryota* and *Arenga*. There is well-supported cladistic and molecular evidence to indicate that the Australian species of *Livistona* form a separate clade from all other species in the genus (Dowe 2001; Isagi *pers. comm.*).

## ■ FAMILY DESCRIPTION

*Arecaceae* Schultz-Sch. *Nat. Syst. Pflanzenr.* 317 (1832) *nom. cons.*; *Palmae* Juss., *Gen. pl.* 37 (1789) *nom. alt.*

Small to tall plants, monoecious or dioecious, polygamous, polygamodioecious, polygamomonocious, and hapaxanthic or pleoanthic. **Stems** solitary or clustered, acaulescent to arborescent, erect or climbing, slender