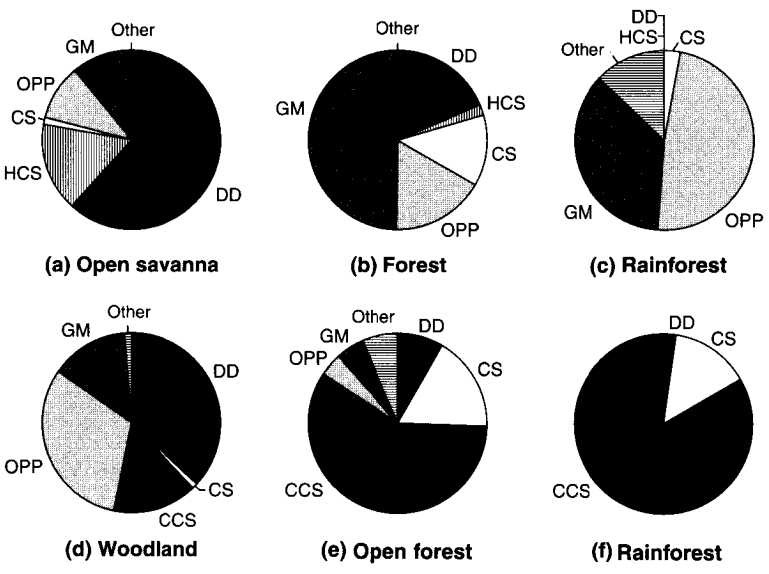

Figure 3.4. Effects of vegetation on functional group composition in the monsoonal tropics of northern Australia (a–c; data from Andersen 1991c; Andersen and Reichel 1994) and in cool-temperate southern Australia (d–f; data from Andersen 1986a, 1986b). Functional groups: CCS, Cold climate specialists; CS, Cryptic species; DD, Dominant Dolichoderinae; GM, Generalized myrmicines; HCS, Hot climate specialists; OPP, Opportunists.

predominant vegetation is savanna, and functional group composition is similar to that in the arid zone (predominantly Dominant dolichoderines, Hot climate specialists, and Generalized myrmicines; Fig. 3.4a). The long-term absence of fire increases the structural complexity of the vegetation (Andersen 1996), thereby markedly reducing insolation at the soil surface. This dramatically reduces the abundance of Dominant dolichoderines and Hot climate specialists, and increases the abundance of Generalized myrmicines (Fig. 3.4b; Andersen 1991c).

In local patches of monsoonal rainforest, where insolation at the soil surface is even lower, Dominant dolichoderines and Hot climate specialists are absent altogether, and most ants are either Generalized myrmicines or Opportunists (Fig. 3.4c; see also Andersen and Majer 1991; Reichel and Andersen 1996). In cool-temperate southern Australia (Fig. 3.4d–f), the abundance of Dominant dolichoderines and Generalized myrmicines is generally low, and Opportunists and Cold climate specialists are usually among the most common ants. Dominant dolichoderines and Generalized myrmicines are usually only abundant in open habitats (Fig. 3.4d), and the relative abundances of cold climate specialists and cryptic species increase with decreasing insolation (Fig. 3.4e,f).

The ground-foraging ant faunas of different rainforest types have distinctive functional group signatures. The lowland tropics feature Generalized myrmicines (particularly *Pheidole*), Cryptic species, Tropical climate specialists (including army and leaf cutter ants), and Specialist predators (primarily large ponerines; Chapter 8). With increasing elevation or latitude, the diversity and abundance of cryptic species and particularly Generalized myrmicines and Specialist predators declines, and Tropical climate specialists are replaced by Cold climate specialists (including *Stenamma* in the New World). The faunas of cool-temperate rainforests are composed almost entirely of Cold climate specialists (including *Lasius, Leptothorax, Prenolepis,* and *Stenamma* in the