have very specific diets and microclimate needs. Similar patterns of species richness may also be found in ants and particular plant, homopteran, and beetle species with which ants have obligate mutualistic interactions.

Tables 6.1 and 6.2 present some evidence in support of the hypothesis that the species richness of ants may correlate more closely with that of taxa that have similar microhabitat requirements. The species richness of canopy ants was positively correlated with that of other taxa that occur in the canopy (birds, butterflies, and canopy beetles) as well as with the richness of another ant group, the ground-dwelling ants (Table 6.1; Lawton et al. 1998). Positive associations were also found between the species richness of ants and that of plants, beetles, scorpions, termites, ground-foraging invertebrates, and low-vegetation-dwelling invertebrates (Table 6.1). All the insect taxa that were found to correlate positively with ants were collected with pitfall traps, as were the ants (with the exception of the total invertebrate fauna of Majer 1983). This suggests that these taxa live and operate in a microhabitat similar to that of ants and may therefore have similar habitat requirements.

Plant species richness would be expected to correlate with that of ants if a diverse community of ants required a variety of plants to provide nesting sites or food, or to regulate the microclimate they needed. This would certainly be the case in relatively disturbed and harsh habitats, such as the rehabilitated bauxite minesites (Majer 1983; Andersen et al. 1996). The ant species richness of any habitat, including the *Eucalyptus* woodlands (Abensperg-Traun et al. 1996) and other natural Australian habitats (Cranston and Trueman 1997), would be predicted to increase with increasing plant species richness as microhabitats and microclimate became available for specialist species with specific requirements.

Future Directions

Most scientists now agree that individual taxa or restricted groups of taxa are not sufficient for use as indicators of overall biodiversity (Noss 1990; Kremen et al. 1994). Oliver et al. (1998) concluded that "the evaluation of sites for conservation based on the species richness of a few better known taxonomic groups does not adequately represent the biodiversity of other groups." Similarly, using changes in the species richness of one or a limited number of indicator taxa to predict changes in the richness of other groups does not provide an accurate picture of overall change (Lawton et al. 1998).

A better approach is the combined use of a number of diverse indicator taxa, including taxa with diverse ecological requirements, such as plants, vertebrates, and invertebrates (Noss 1990; Kremen et al. 1992; Lawton et al. 1998). This multispecies approach theoretically provides a better assessment of the overall diversity of an area, more accurately reflects changes in diversity caused by habitat modification, and provides more complete information for proper management of habitats for diversity (Lambeck 1997).

More studies comparing the relationships between the species richness and diversity of a range of taxa, both invertebrate and vertebrate, in a variety of habitat types are needed. Furthermore, more basic information on the ecology and habitat requirements of potential indicator groups should be collected so that the patterns of species richness or diversity for selected groups can be properly interpreted.

Ants have great potential for use as an indicator taxon. Their high abundance, ease of sampling, relatively good resources for taxonomic identification, and ecological importance make them ideal candidates. Ground-living ant species, in particular, make useful indicators, since standardized, quantitative methods for