of both climate (which controls ambient temperature) and habitat structure (which determines the degree of insolation of the foraging surface and therefore microclimate). Low-temperature stress is high in cool and shaded habitats, moderate in cool and open or warm and shaded habitats, and low in warm and open habitats (Andersen 1995).

2. *Nest site availability.* The availability of nest sites (the range of types and their abundance) exerts an important influence on ant productivity and community structure. The range of types of nest sites varies with the structural complexity of the habitat, and this range constrains the types of ants that can occur there. Structurally complex habitats, such as lowland tropical rainforests, offer nest sites (e.g., leaf litter, rotting logs, epiphytes, myrmecophytes) that are often not available in other habitats, and therefore they support functional types of ants (e.g., cryptic, myrmecophytic, and other arboreal species) that are often uncommon or absent elsewhere (Wilson 1987; Benson and Harada 1988; Byrne 1994). Herbers (1989) considered the abundance of nest sites such as preformed plant cavities in acorns and twigs to be a key limiting factor in temperate forests of the United States. In structurally simple habitats, where most ant species nest in soil, soil type has a major influence on ant productivity and community structure. Throughout Australia, for example, the highest degree of ant richness and abundance is often found on sandy soils, and the lowest on heavily textured soils (Greenslade 1979; Andersen and Spain 1996), reflecting differences between the substrates as nest sites.
3. *Food supply.* Food availability is obviously a critical determinant of the distributions of species with specialized diets, such as seed harvesters and specialist predators. However, most ant species are scavengers, generalist predators, collectors of honeydew, or a combination of these, and the extent to which overall ant productivity is limited by food supply is not clear (Kaspari 1996b). There is no clear global relationship between primary productivity on the one hand and the productivity (reflected in either abundance or species richness) of ants on the other. Food resources often do not appear to be limiting in local ant communities (Byrne 1994), and it appears that factors such as temperature (e.g., insolation of foraging surfaces) and nest site availability (e.g., soil type) are more important (Kaspari 1996b), except in the most unproductive habitats, such as true deserts (Marsh 1986).
4. *Microhabitat structure and resource capture.* The structural complexity of the foraging surface exerts a major influence on the ability of ant species to capture food resources. For example, leaf litter on the ground reduces the efficiency with which resources can be located, retrieved, and defended by epigaeic ants. This factor has a major effect on ant community structure and possibly also influences overall ant productivity.

Given that disturbance is defined as the removal of biomass, for most animals it is synonymous with mortality. Ants, however, are modular organisms, and many "modules" (individual ants) can be lost without necessarily threatening the reproductive unit (the colony), in a manner analogous to the effects of herbivory on plants (Andersen 1991a). Therefore, combined with the protection provided by nests, especially those in the soil, habitat disturbance is often not much of a disturbance to ants at all, unless it is so severe that it causes widespread destruction of colonies. The major effects of