

Lepiotaceae (subdivision Basidiomycotina, order Agaricales). It is now known that most Attini cultivate lepiotaceous fungi, although some species within the genus *Apterostigma* cultivate a distantly related fungus in the Agaricales, closely related to the genus *Gerronema* in the family Tricholomataceae (Chapela et al. 1994; Moncalvo et al. 2000).

In a striking parallel with the ant-coccid association of *Acropyga* and *Cladomyrma* species already described, virgin attine queens carry a pellet of the natal nest fungus garden within their infrabuccal pockets and use this to start their new gardens following colony founding. This clonal propagation leads to the expectation of fungal lineages that closely parallel the lineages of their ant hosts. However, at least in the lower attines, this expectation is not borne out. Instead, the fungal cultivars of many lower attine ants are more closely related to free-living species than they are to other attine fungi, indicating that some fungus-growing ants occasionally replace their resident fungal cultivars with free-living stocks. Furthermore, within a given geographic area distantly related ants—in some cases species in different genera—may cultivate the same fungal clones, indicating that some fungus-growing ants occasionally replace their resident cultivars with cultivars acquired from the gardens of other ant colonies (Mueller et al., 1998).

Introduced Ant Species

The most widespread ants have been called “tramp” species; their geographic spread is tied with human activity (Table 4.1; Passera 1994). The ants belong to a variety of functional groups (Chapter 3) and use a variety of strategies to fit into widely variable habitat types. They are most frequently encountered in urban environments, in disturbed areas, and on oceanic islands (Lieberburg et al. 1975; Clark et al. 1982; Brandão and Paiva 1994; Passera 1994).

Table 4.1 Major Exotic Tramp and Invasive Ant Species^a

Species	Tramp Species	Invasive Species
Subfamily Dolichoderinae		
<i>Linepithema humile</i> (Mayr)	Yes	Yes
<i>Tapinoma melanocephalum</i> (Fabricius)	Yes	
<i>Technomyrmex albipes</i> (Smith)	Yes	
Subfamily Formicinae		
<i>Anopolepis gracilipes</i> (F. Smith)	Yes	Yes
<i>Paratrechina fulva</i> (Mayr)		Yes
<i>P. longicornis</i> (Latreille)	Yes	Yes
<i>P. vaga</i> (Forel)	Yes	
Subfamily Myrmicinae		
<i>Cardiocondyla emeryi</i> Forel	Yes	
<i>C. nuda</i> (Mayr)	Yes	
<i>C. venustula</i> W. M. Wheeler	Yes	
<i>C. wroughtoni</i> Forel	Yes	
<i>Monomorium destructor</i> (Jerdon)	Yes	
<i>M. floricola</i> (Jerdon)	Yes	
<i>M. pharaonis</i> (Linnaeus)	Yes	
<i>Pheidole megacephala</i> (Fabricius)	Yes	Yes
<i>Quadristruma emmae</i> (Emery)	Yes	
<i>Solenopsis geminata</i> (Fabricius)		Yes
<i>S. richteri</i> Forel	Yes	
<i>S. wagneri</i> (<i>invicta</i>) Santschi		Yes
<i>Tetramorium bicarinatum</i> (Nylander)	Yes	
<i>T. caespitum</i> (Linnaeus)	Yes	
<i>T. lanuginosum</i> Mayr	Yes	
<i>T. pacificum</i> Mayr	Yes	
<i>T. simillimum</i> (Smith)	Yes	
<i>Trichoscapa membranifera</i> (Emery)	Yes	
<i>Wasmannia auropunctata</i> (Roger)	Yes	Yes
Subfamily Ponerinae		
<i>Hypoponera eduardi</i> (Forel)	Yes	
<i>H. opaciceps</i> (Mayr)	Yes	
<i>H. punctatissima</i> (Roger)	Yes	

^aTramp ants are closely associated with human activity and often nest in human structures. Invasive species move into natural habitats (either disturbed or undisturbed) and outcompete native ant species. From McGlynn (1999b).