

(Kusnezov 1957; Jeanne 1979; Gadagkar et al. 1990; Chapter 8).

The recent classifications of the Formicidae into subfamilies (Baroni Urbani et al. 1992; Grimaldi et al. 1997) provide a fresh framework for the much-anticipated reappraisal of several taxa in different subfamilies. In the past, species and genera were added to the subfamilies with little concern for the overall effects on other genera. At the tribe rank, classification is chaotic, having recently been challenged in the Dolichoderinae and Formicinae. In the Dolichoderinae, even the recognition of the traditional tribes has not proven useful in classifying these ants (Shattuck 1994). The tribal organization of the Myrmicinae is in complete disarray and awaits a complete overhaul. This situation can be extended to other taxonomic levels, as several taxonomic changes in the past resulted in the formation of paraphyletic genera, the formation of several unsatisfactory monotypic genera, and the instability of generic and subgeneric concepts. Thus the generic definition within subfamilies is frequently obscure (Bolton 1995b), and the same name may represent entirely different concepts to different authors.

The number of generic revisions, monographs, and faunistic studies has increased steadily during the 1980s. Yet, as Hölldobler and Wilson (1990:21) state, "like a mosaic lacking just enough pieces so that the pattern remains obscure, the classification of the world fauna still lacks satisfying coherence and practical utility."

Regional surveys of local ant faunas often include keys for the identification of species within the country or territory in question. Bolton (1995b:2) does not recommend the use of faunal surveys antedating 1950, as they are "clogged with unavailable names and infraspecific taxa and are of limited use by modern standards."

Ward et al. (1996) published a comprehensive bibliography of ant systematics, including references that treat the taxonomy, evolution,

and comparative biology of ants and also those dealing with morphology, genetics, physiology, biochemistry, social behavior, identification, phylogeny, biogeography, ecology, and faunistics, from Linnaeus (1758) to 1995. They list 8185 entries, of which 8109 are literature records and the remainder cross references. Where there is a discrepancy between the publication dates in Bolton (1995b) and Ward et al. (1996), the latter date may be considered definitive.

## Published Resources

Bolton's (1994) identification guide includes a glossary of external morphological terms (including those specific for use in ant taxonomy), full diagnoses of workers of the 16 recognized extant subfamilies, an illustrated guide and updated keys for the identification of ant subfamilies and genera, and relevant literature for most genera. This guide presents scanning electron micrographs of both a full-face view and a body profile for the worker caste of nearly every described genus, being the first visual atlas of the Formicidae. The work will make it possible to separate and name ant genera without too much trouble for years to come, provided the reader is aware of several problems in the generic classification outlined by the author. In particular, the ground-dwelling ant fauna may reveal new taxa, and the use of existing keys, designed for described taxa, may not help to disclose the new ones. In addition, an existing genus may not have been well defined, or it may be necessary to restudy its limits.

Having assembled this information, Bolton (1994) discusses the need for a detailed taxonomic study of fossil forms embedded in amber and rock. He also comments on problems of classification, even at the level of subfamily. A good proportion of genera are now represented by monophyletic units, although there are still some unrecognized synonymies, genera that may be para- or polyphyletic, or genera that are