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Applied Myrmecology

A World Perspective

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Preface

Ants have always fascinated the nature observer. Reports from ancient Egypt and Mesopotamia indicate that ants interested humans long ago. Myrmecology as a science had its beginning in the last century with great naturalists like Andre, Darwin, Emery, Escherich, Fabre, Fields, Forel, Janet, Karawaiew, McCook, Mayr, Smith, Wasmann and Wheeler. They studied ants as an interesting biological phenomenon, with little thought of the possible beneficial or detrimental effects ants could have on human activities (see Wheeler 1910 as an example).

When Europeans began colonizing the New World, serious ant problems occurred. The first reports of pest ants came from Spanish and Portuguese officials of the fifteenth and sixteenth centuries in Trinidad, The West Indies, Central America and South America. Leaf-cutting ants were blamed for making agricultural development almost impossible in many areas. These ants, *Atta* and *Acromyrmex* species, are undoubtedly the first ants identified as pests and may be considered to have initiated interest and research in applied myrmecology (Mariconi 1970).

Ant problems other than those associated with leaf-cutting ants have been reported mainly in this century. In fact, applied myrmecology owes its rapid growth in the past few decades mainly to the fire ant, *Solenopsis invicta*. This ant was accidentally introduced to the United States from Brazil or Argentina and has caused medical and agricultural problems to such an extent that the affected states and the U.S. Federal government have invested heavily in fire ant research programs.

No efficient measures against pest ants were available until recently. In the 1960s and 1970s large quantities of insecticide were used to control *Solenopsis invicta* in the United States. Environmental contamination ultimately led to the prohibition of Mirex and other chlorinated hydrocarbon pesticides in the United States and other countries. These prohibitions sparked research on alternative pest management strategies and opened new areas of applied myrmecology. Much of this early work was brought together in the book *Fire Ants and Leaf-Cutting Ants: Biology and Management* (Lofgren and Vander Meer 1986). Articles in this volume discussed various aspects of the biology, pest problems and control of leaf-cutting ants and fire ants.

On many occasions, the technological advances of European-originated society has created an arrogant attitude that blinds us to opportunities

presented to us by nature. Several societies have been more attentive to ants than has Western science. A comparison of two sympatric Amerindian societies inhabiting the Orinoco-Amazon basin illustrates how important the society is in understanding and using nature. The Yanomami--an isolated society of hunter-gatherers possessing only the rudiments of agricultural practice--recognize at least thirty-nine distinct ant species, but apparently have no use for any of them (Herzog 1979). The Yecuana, a culture also dedicated to hunting and gathering, but with more evolved agricultural practices as well as knowledge of river navigation, recognize thirty-six ant species and have at least eighteen different medicinal and mythical uses for them (Jaffe and Muller 1979). These examples demonstrate how cultural attitudes affect our perception of nature.

In this respect, the subject area of applied myrmecology is increasing its scope, recognizing that many ant species have an important role in their ecosystems. These roles may eventually make them harmful to humans, or alternatively make them attractive to pharmacology or even integrated pest management programs. Thus, they may be exploited by humans. The present book, *Applied Myrmecology: A World Perspective*, reflects this developing consciousness. We hope that our efforts and those of all the contributors will stimulate further research and demonstrate that applied myrmecology has matured into a distinct scientific discipline.

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