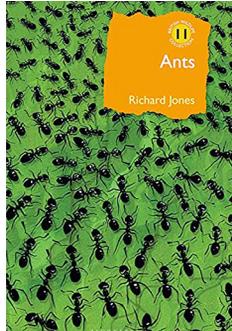


ENTOMOLOGY

Ants: the Ultimate Social Insects. British Wildlife Collection (Book 11)

By Richard Jones. 2022. Bloomsbury Wildlife. 368 pages, 330 colour photos and black and white illustrations, 61.00 CAD, Hardcover. Also available as an E-book.

Late in his book, Richard Jones reveals that he has been studying ants for 45 years, almost three-quarters of his time on earth. Over the years, his knowledge has grown and his enthusiasm—and sense of humour—remains undiminished. *Ants* is part of Bloomsbury's British Wildlife Collection, and although its focus is on the ants of Britain and Ireland, the book's 10 chapters contain information and observations from around the world, providing value for ant-lovers everywhere. Jones covers a good deal of territory, and the book is an amalgam of many parts. The first nine chapters fall into three sets, as discussed below. All are enhanced through the excellent use of illustrations, including many colour photographs of ants and other arthropods; reproductions from historical, scientific, artistic, and cultural sources; and line drawings of physical characters. Occasional text boxes and tables highlight additional information and data complementing the main text.



The first two chapters in the introductory set of chapters each begin with a question. Chapter 1, What's so Special about Ants?, explores why these tiny insects deserve our interest and attention. Jones begins his response with the unpromising observation that "ants are the epitome of insignificance" (p. 11). But it's size he's noting here—ants "are so very, very small" (p. 11)—and physical size matters less than "sheer numbers and sophisticated coordinated behaviour", which form their "real superpower" (p. 11). Their size, adaptability, capacity for variable social organization, and presence world-wide make ants unique among insects in the number of opportunities they provide for studies of evolution, ecology, and interrelationships with humans and other animals. Chapter 2, What is an Ant?, covers the obligatory discussion of ant morphology and taxonomy. It sounds rather dry, but Jones maintains the reader's interest through vivid description and anecdotes. The chapter concludes with What is not an Ant?, a fascinating section on ant mimics that includes other hymenopterans, as well as several hemipteran (true bug) nymphs, ant-flies, beetles, spiders, and a rather surprising caterpillar. Chapter 3 lists and describes 73 species (I

counted) of ants living in Britain and Ireland, organized by family, some 50 of which are native. Jones manages to avoid being overly technical, often including historical references and cultural anecdotes in his descriptions.

The next set of three chapters explores ant evolution, an ant's daily behaviours, and the development of colonies. These topics are the heart of the book. Ant fossils are hard to come by and difficult to relate to other hymenopterans, which as a group are difficult to relate to other insect orders. As a result, much of the scientific discussion on ant evolution is speculative, focussing on the many challenges rather than the scant, hard-to-come-by conclusions. Indeed, Jones notes, "the origins of the Hymenoptera are a source of constant bafflement" (p. 119). A good deal more is known about ant behaviour and colony systems. Jones gets into the sophisticated chemistry through which ants sense their world, communicate about it, and organize themselves for defence, both individually and through collective warfare. When he discusses life in the colony, he goes well beyond the physical aspects of colony formation to explore the organization of ants in their highly variable nests. Ant societies include queen(s), nurses, workers, pirates and 'slave-makers' (a process known as dulosis), guards, and warriors. This high degree of social organization presents problems for evolutionary theory, however. The thorniest issue is the apparent altruism of the non-reproductive worker ants. The colliding theories, based in biology and mathematics, that attempt to explain this anomaly are as technical as things get in the book. Yet Jones manages to steer a clear path while lightening his review of each theory with humour and interesting examples from field research.

The final set of three chapters examines interactions between ants and humans, ants and other arthropods, and the enormous impact of ants on the physical landscape. Jones's wide-ranging approach to the first of these chapters includes a discussion of historical and cultural perceptions of ants, from ancient times to the present-day, culled from parables, the *Bible*, and the arts, including literature and movies. In the next chapter, the interactions among ants and "[p]arasites, squatters, thieves and other interlopers" (p. 254) are fascinating, myriad, and complex. Jones follows a system that organizes these interactions into five categories—Synecchtran (hostile persecuted lodger), Synoekete (indifferently tolerated lodger), Symphile

(true guest), Parasite, and Trophobiont—that were established in the late 19th century and are “still useful today” (p. 256). The final topic of how ants have changed the landscape shows that while some colonies are small with limited local impact, others may reach staggering sizes. These giant colonies shift immense amounts of soil that, in some cases, results in patterns on the land observable from space (p. 278). The discussion here graphically illustrates the book’s major theme that very small and very numerous is a formula for “massive effect” (p. 277). Not only is the landscape affected—ecological impacts are important, too, and a wrap-up note looks at the potential effects of climate change on ants. Understanding these effects, Jones says, little known as yet, can assist in a broader understanding of climate change’s impacts on all life in our interconnected world.

Chapter 10, How to Study Ants, provides excellent and detailed information for citizen scientists on finding, observing, photographing, collecting/preserving, and communicating their data and observations to the myrmecological community. Modern entomology increasingly involves specialized work in the laboratory, leaving a gap in live observations

from the field. At about 12 500 species worldwide, ants are the least speciose group in the Hymenoptera, yet their secretive lives and great numbers make them challenging to study. Jones is generous in his valuation and encouragement of citizen scientists at every level—he eschews the term ‘amateur’ (p. 301)—to share their stories and accounts of the ants they see.

An Appendix contains a key, tied to Chapter 3, to the worker caste of British ants; most couplets contain a drawing of the character involved. A welcome Glossary and extensive Bibliography round out the book. The illustrations and photography come from a wide range of historical and modern-day sources, the writing is lively and accessible—the sole exceptions being occasional British slang terms (I had to look up ‘twee’!)—and the inevitable technical aspects (haplodiploidy, for example) are lucidly presented. The book is a fine addition to the libraries of myrmecophiles at any level, and especially those engaged in field observations and citizen science.

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