

Myrmecological News	17	132	Vienna, August 2012
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## Book review

### POLIDORI, C. (Ed.) 2011: Predation in the Hymenoptera: an evolutionary perspective

Transworld Research Network, Kerala, India, 245 pp.; ISBN: 978-81-7895-530-8, Price: USD 110.00

*Terrence P. McGlynn, Department of Biology, California State University, Dominguez Hills, Carson, California, USA. E-mail: terry.mcglynn@gmail.com*

Myrmecol. News 17: 132 (online 10 July 2012)  
ISSN 1994-4136 (print), ISSN 1997-3500 (online)  
Received 21 June 2012; accepted 22 June 2012

Animals have to eat. Oftentimes, eating is a brutal affair, in which whole individuals are consumed. Predation is messy, and not just because of the dripping hemolymph.

Predation is a theoretical jumble, as this broad concept is prominent in many subfields, such as population regulation, niche dynamics, neurobiology, phylogenetic reconstruction, behavioral mechanisms, co-evolutionary processes. In an introductory biology textbook, predation could reasonably be featured in a majority of the chapters. Organized thought about the broad topic of predation is a challenge.

This messy matter has been synthesized by Carlo POLIDORI, with contributions emphasizing the evolutionary history of predation. He has assembled a top-notch, though limited, set of authors to discuss some of the central concepts involving predation in hymenopterans. There is a broad coverage of the order, and any myrmecologist will learn a great deal from the volume, especially about social and non-social wasps. The volume contains eight chapters, each dense with information set in clear theoretical contexts.

The editor and authors take a broad view of predation, including parasitoids and seed predation. When a seed is eaten, an entire plant (albeit in embryonic form) in fact is depredated. However, herbivorous hymenopterans (such as gall-inducers and leaf cutting ants) are not considered as predators, as they merely graze upon their hosts rather than wholly consuming them.

Half of the chapters are exclusively about wasps. Joe COELHO focuses on the evolution of foraging strategies; a particularly deeply researched chapter by Francesco ANDRIETTI accounts the history of research on solitary wasp stinging behavior. The editor and colleagues contributed a chapter on niche breadth and prey specialization in wasps, and POLIDORI is the sole author of a chapter on the evolution of sociality in *Cerceris* wasps. I do not discuss these chapters any further for the readership of the Myrmecological News.

The introductory chapter by Gabriel MELO & al. is a broad family-level phylogenetically-oriented review integrating all hymenopteran lineages. While this chapter has scant mention of ants, those interested in the taxonomic distribution of predation and parasitism among hymeno-

pterans will find this chapter to be useful, and not just as an outgroup for studies of the evolution of diet in ants.

Ant enthusiasts will be pleased to find two chapters exclusively on ants. The review of predation by ants, by Xim CERDÁ and Alain DEJEAN, is particularly impressive in its depth and breadth. This chapter contains a wealth of detail about the natural history of ants, and is an entertaining and enlightening read. I imagine that even experienced ant natural historians will learn about new predatory behaviors or patterns, as this review includes all major lineages and studies from all major world faunas. This chapter features 190 references, including older papers from several venues that are not commonly perused by myrmecologists. This is symptomatic of the careful research that fed into this chapter.

The second chapter about ants, by Francisco AZCÁRATE and Pablo MANZANO, is a review of ant-seed interactions. This chapter is a useful starting place for anybody who wishes to understand the history of research on seed dispersal by ants, and the categorization of the functional relationships between ants and seeds. This chapter introduces and synthesizes enough concepts and examples to merit a full book.

The final chapter, by Heike FELDHAAR, explains how hymenopterans are prey as well as predators. She emphasizes the distribution of predation and parasitism on hymenopterans, and the defensive characteristics of hymenopterans. Army ants are already well described as perhaps the most significant predators of hymenopterans; FELDHAAR summarizes this situation briefly and spends more effort to holistically overview the taxonomic and functional diversity of predators and parasites of hymenopterans. Discussing the focal taxon as prey is a fitting coda to a volume dedicated to understanding the group as predators.

As a minor frustration, the references exclude article titles; this saved the publisher several pages, but at the cost of the reader's time looking up the titles of interesting references.

This volume will be of interest to those investigating predation in ants and other hymenopterans. The chapters, though few, cohere enough to merit the creation of a separate volume, however the majority of papers read as if they would belong in a special issue in a specialized journal. It is hard to justify the expense of the book, as other review books with similar price tags have much more content, more careful editorial production, and are bound with superior craftsmanship. If your bookshelf is full of other expensive books about hymenopterans, then this will be a solid contribution to your collection.