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Book review

SNELLING, R.R., FISHER, B.L. & WARD, P.S. (Eds.) 2007: *Advances in ant systematics (Hymenoptera: Formicidae): homage to E. O. Wilson – 50 years of contributions*

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The modern evolutionary synthesis arrived to ant taxonomy with the 1955 publication of E.O. WILSON's doctoral dissertation, a monographic revision of the Holarctic genus *Lasius*. On the surface, Wilson's *Lasius* revision is similar to any number of monographs published over the past half-century, and casual users of the work – still the major reference for *Lasius* in North America – may struggle to see its importance. But this similarity is precisely its significance: Wilson's dissertation was the first of the modern revisions, the first genus-level monograph on ants that incorporated the ideas of Ernst Mayr and other architects of the evolutionary synthesis. It set an ambitious standard and formed a template for a new generation of myrmecology.

What Wilson did was apply population-level evolutionary concepts to species delineation. The injection of a coherent theoretical underpinning into taxonomy turned the tide (along with CREIGHTON's 1950 *Ants of North America*) against the proliferation of largely unintelligible subspecies, races, and varieties that marked the typological era of Forel, Emery, Santschi, and Wheeler. Variation within and among populations could be sensibly addressed, and taxonomic schemes could now represent hypotheses of underlying evolutionary patterns. Taxonomy had matured into a science, and a generation of myrmecologists enthusiastically followed Wilson's example.

An all-star cast of ant taxonomists has marked the 50th anniversary of Wilson's *Lasius* monograph with a Festschrift. Edited by the late Roy Snelling, along with Brian Fisher and Phil Ward, *Advances in ant systematics (Hymenoptera: Formicidae): homage to E. O. Wilson – 50 years of contributions* is a fitting tribute to Wilson's taxonomic career. The volume, publically accessible at www.antbase.org, contains 27 papers of remarkable breadth and depth.

Many of the contributions will undoubtedly serve as foundational taxonomic references for their respective taxa for some time to come. The emphasis is on the Neotropical, Nearctic, Malagasy, and Indo-Australian faunas, to the detriment of Africa and the Palearctic, but the bias is perhaps not inappropriate given the geography of Wilson's career. Comprehensive monographs include studies by Roy Snelling (*Axinidris*), Kazuo Ogata & Hirofumi Okido (*Perissomyrmex*), Rudy Kohout (*Polyrrhachis [Aulacomyrma]*), the late Stefan Schödl (*Meranoplus diversus* group, with

some stunning watercolor illustrations), Gary Alpert (Malagasy *Metapone*), Seiki Yamane (*Pachycondyla nigrita* complex), Gordon and Roy Snelling (United States *Neivamyrmex*), Fernando Fernandez (Neotropical *Monomorium*), Steve Shattuck & Natalie Barnett (*Mayriella*), André Francoeur (*Myrmica punctiventris* and *M. crassirugis* groups), James Trager & al. (*Formica pallidefulva* group), Masashi Yoshimura & Keiichi Onoyama (*Strumigenys lewisii* complex), and Jack Longino & Fernando Fernández (*Wasmannia*). The contributions of John Lattke & al. (New World *Gnamptogenys*), and Archie MacArthur (Australian *Camponotus*) provide much-needed illustrated keys for difficult genera. Ted Schultz's paper on the *Apterostigma* of the Dominican Amber is an obvious tribute to Wilson's amber studies of the 1980s (e.g., WILSON 1985). Two contributions are regional: a paper by Xavier Espadaler on the ants of Hierro Island (Canary Islands), and a discussion by Alan Andersen on the arid Australian fauna. Beto Brandão and Antonio Mayhé-Nunes provide the volume's only strictly phylogenetic study, a morphological analysis of *Trachymyrmex* that, while otherwise solid, inexplicably excludes the descendent lineages *Atta*, *Acromyrmex*, and *Sericomyrmex*. The Festschrift includes short pieces that describe single species (*Probolomyrmex tani* FISHER, 2007 and *Crematogaster pinicola* DEYRUP & COVER, 2007), as well as essays by Phil Ward on Wilson's career, Barry Bolton on taxonomic methods, and Bob Taylor on the evolution of ant social behavior.

The generally excellent quality of the research in the Festschrift compensates for the project's difficult birth. Those who followed the production know that the Festschrift proved a frustrating endeavor for editors and authors alike. Publication fell more than two years behind schedule, resulting in several awkward situations. For instance, Phil Ward's description of the *Leptanilloides* male was preceded in publication by subsequent Ecuadorian discoveries (DONOSO & al. 2006), and parts of Bob Taylor's provocative essay on ant evolution read as though rescued from a time capsule. This is no fault of Taylor's; he wrote it prior to the landmark phylogenies of MOREAU & al. (2006) and BRADY & al. (2006). Finally, the new myrmicine genus *Dolopomyrmex* – the first new Nearctic ant genus in nearly a century – inadvertently appeared in FISHER & COVER's (2007) *Ants of North America*, ahead of Stefan Cover and Mark Deyrup's beautifully illustrated description in the delayed Festschrift.

In some respects, the modernization of ant taxonomy precipitated by Wilson's dissertation remains incomplete. Although the bulk of taxonomic works – and the Festschrift is representative – consider population-level variation as a guiding principle, taxonomists still normally estimate spe-

cies limits using the indirect proxies of morphology and geography. Yet the technology to measure gene flow and species boundaries directly has existed for more than a decade.

The problem is twofold. First, the people who are trained to use powerful molecular tools are either disinclined to practice formal taxonomy or lack the training to do so. Likewise, taxonomists have been slow to adopt the new tools for their own work. Detailed population genetic work in *Solenopsis*, *Tetramorium*, *Formica*, *Pogonomyrmex*, and other groups indicates the feasibility of applying population genetics to ants, but researchers rarely carry their results through to the implied taxonomic conclusions. Perhaps in another 50 years' time we will see a Festschrift for the myrmecologist who completes Wilson's revolution with a truly integrative taxonomy.

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