



## **Dragonflies and Damselflies of South Africa.**

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## BOOK REVIEWS

SAMWAYS, M. J. 2008. Dragonflies and Damselflies of South Africa. Pensoft, Sofia, 297 pp. ISBN 978-954-642-330-6, hardback, 145 × 210 mm. Euros 39.00. From <http://www.Pensoft.net>

In 2007 I attended an international odonatological meeting in Namibia. Many delegates were identifying specimens using the new, colorful Dragonflies and Damselflies of Namibia (Suhling & Martens 2007). On the southern coast of South Africa, I used the excellent Tarboton guides (Tarboton & Tarboton 2002, 2005) but wondered how the forthcoming Samways' fieldguide would treat the country's wonderful dragonfly fauna. At Stellenbosch University, I visited Michael Samways' laboratory in the Department of Conservation Ecology and Entomology; everyone was looking forward to his new book, keen to try it in the field and laboratory. Samways has extensively studied the South African Odonata and its many threatened species.

The Tarboton guides, treating Anisoptera and Zygoptera separately, were designed for field identification of South African Odonata. Samways' book is more convenient as both suborders are in the same book. The Tarboton books are maybe more useful for quick identification in the field. To use the Samways book effectively, one needs more experience (knowledge of wing venation and other dragonfly morphology is a big asset) and must contend with much more information, densely presented. Some have said they prefer the Tarboton books in the field and the Samways' guide in the laboratory.

Dragonflies and Damselflies of South Africa begins with a well-illustrated introduction that defines the Odonata, describes life histories and behavior, and outlines the region's diverse aquatic habitats. South Africa is mostly dry, and aquatic habitats are often uncommon. Their diversity is intriguing, ranging from swamp forests in the northeast, where many tropical species reach their southern range limits, to small mountain streams that support many of the endemic species in the country; and from artificial ponds, common in an arid country, to streams lined with alien tree species, a condition that threatens many rare species by creating too much shade.

Other sections explain morphology, scientific and common names, distribution patterns and conservation issues. The taxonomy of African Odonata is not stable and the species lists of Samways and Tarboton differ. For example, 2 new, endemic and very rare species of *Syncordulia* recently have been described from the Western Cape (Dijkstra et al. 2007). In the libellulid genus *Diplacodes*, Samways uses *D. pumila* for the species that the Tarbotons call *D. deminuta*; he places the Barbet Percher in *Diplacodes* (*D. luminans*) but the Tarbotons place it in *Philonomon*.

These changes result from post-Tarboton systematic studies (Dijkstra 2006). In a multilingual nation, the use of common names can be confusing. The Tarboton books include Afrikaans names, but Samways uses English ones only. Several English names have been used for many South African species, but Samways chooses only one and mentions others (but not all) in the checklist at the back of the book. Many of the rejected names are those preferred by the Tarbotons.

"Interesting Dragonfly Areas" summarizes the concentrations of endemism in the country and the penetration of tropical species from the north. I would have liked more biogeographic information here because endemism is, perhaps, the most fascinating characteristic of South African biology. South Africa has a rich mixture of tropical and temperate odonates and many of the latter are endemic and localized, such as the Malachites (*Chlorolestes*) and Presbas (*Syncordulia*) in the Western Cape. Although about 20% of the South African fauna is endemic, nowhere in the book is there a listing of these species. The maps and distribution statements in the species account are equivocal; for example, *Ecchlorolestes peringueyi* is "very localized in Western Cape Province" does not define it as a South African endemic, but it is one, and for lack of other range information in the distribution statement, one can assume that the author intends it to be considered so. Still, it would be good if both the distribution statement and the checklist indicated that a species is endemic.

The section on conservation treats positive and negative human impacts on populations and the effects of destructive natural phenomena. The damming of a small stream, for example, is obviously detrimental to species requiring flowing water, which are often rare, but benefits those characteristic of ponds, which are frequently widespread and common. Pollution is relative—*Ischnura senegalensis* is naturally adapted to water holes and wallows rich in extracts from mammal dung, and is among the first colonizers of sewage ponds. Additional topics include construction of ponds and maintenance of streams to encourage dragonflies. Several pages of field techniques give practical advice on recognizing odonates in the field through size, silhouette, color pattern, behavior and habitat. The efficient use of binoculars and hand lenses is discussed and hints for successful photography are given. Beware of crocodiles and bilharzia when wading after your prize! The importance of retaining specimens for confirmation of identification and future scientific

study is stressed and techniques for collecting and specimen preservation and storage are discussed.

Each detailed species account is a compact, comprehensive unit, printed on a single page and divided into sections that are color-coded for consistency. Eleven families, 61 genera and 158 species are recognized. There is a summary of diagnostic features, a more detailed description for identification and 2 photographs, mostly of a male and female. These photographs of live or freshly killed specimens are usually excellent and have diagnostic characters indicated on them. They are small (1/8 page) and many are printed too darkly, resulting in loss of detail. Most are by the author himself and his effort in amassing this collection is a testament to his dedication and persistence. An additional, 10-page section of photographs shows many species in various forms and poses. All the pictures are printed horizontally, even if many should be oriented vertically to show the true perching pose of the insect. This is irritating to the purist, but it has the considerable benefit of allowing the standardized page format to be maintained throughout.

A Dragonfly Biotic Index, based on geographical distribution, conservation status and sensitivity to habitat change, is given—a widespread and abundant species tolerant of human disturbance scores 0; an endemic, sensitive species restricted to threatened habitats and having a small range scores 9. This index is a useful tool in conservation work. There is also a dot-map showing the species' distribution in South Africa based on museum specimens, a summary of South African distribution and of total range, a written and visual representation of adult flight period, concise descriptions of habitat and behavior, a comparison with similar species, and 1 or 2 two clear line drawings of male genitalia, wings, or other body parts required for identification. The account is completed by bars indicating body length and hindwing length accompanied by the numerical range of measurements.

A novel contribution of Samways' book is the 68-page pictorial species key. Designed for hand lens use and copiously illustrated with excellent line drawings, mostly of wings and male sexual structures, this key helps identify all South African species. Although mainly for male identification, many females also can be named, especially with reference to the species accounts. My South African colleagues praise the utility of this unique key. Also included is a simpler key that sorts males into groups based on color patterns. This helps reduce the number of species one must consider when identifying specimens flying or perched in the field.

Michael Samways has put his heart and soul into this book, and it shows. *Dragonflies and Damselflies of South Africa* is an indispensable text for those beginning to watch dragonflies in southern Africa and to those students and professional biologists studying aquatic insects, their systematics, ecology and conservation.

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