Introduction

This book is a field guide to all the species of Odonata (dragonflies and damselflies) in the eastern United States and Canada, east of the western boundaries of Ontario, Minnesota, Iowa, Missouri, Arkansas, and Louisiana. I chose state and provincial boundaries rather than the exact middle of the continent because naturalists' interests and odonate record keeping are typically at this level. Because odonate diversity is higher in the East, the continent has been divided in this way to allocate similar numbers of species to the already published western guide and this eastern guide. The western book treated 348 species, and the present book contains 336 species. There is much overlap in species covered, as the total North American fauna at present is 462 species. Thus, about one-fourth of the species in each half of the continent do not occur in the other region and are covered in only one book. Species added to the fauna after each book was finished are briefly mentioned at the end.

Numerous species included in this book barely enter its geographic coverage from the west or south, but the great majority of the species covered are resident in the region. A few species recorded, mostly from southern Florida, may not have resident populations, or local resident populations may originate and then disappear. Because so few species are likely in these categories, all species have been treated equally.

I should make a few definitions clear at the outset. To geographers and biogeographers, North America includes Mexico, Central America, and the West Indies, but for convenience in this book I am restricting "North America" to Canada and the United States. A volume on all of North America would include hundreds more species, and we still do not know enough, nor have sufficient photographs, for a book on Mexican and Central American odonates. Numerous additional species that occur in northern Mexico or the West Indies might wander north in especially wet years or as a consequence of increasing global temperatures, some perhaps carried by prevailing winds or storms, and such additions to our fauna have been occurring at the rate of one or more species each year.

Although all Odonata are called dragonflies in other English-speaking countries, in North America many restrict the term "dragonfly" to the suborder Anisoptera and use "damselfly" for the suborder Zygoptera. I follow that practice in this book and use the term "odonate" when referring to both suborders. In the introductory sections, however, I may use "dragonfly" to refer to the entire order and "damselfly" when speaking only of that group. The word "ode" is used as a synonym by many odonate enthusiasts, with etymologically compromised modifications of it such as "odophile" (odonate lover).

Odonate species are grouped together by their fundamental similarities into ever-larger groups. Wing venation is an important character used to categorize families and genera, but it is de-emphasized here because it is not easily seen in the field. Nevertheless, there are good technical keys to odonates, and an understanding of their venation, as well as the details of the rest of their anatomy, is of value to the odonate enthusiast. Technical anatomical terms are kept at a minimum, but they are necessary from time to time, and they can be learned from the illustrations here.

Because we do not know the exact phylogeny (relationships and order of appearance over evolutionary time) of odonates, much less of most other groups of animals and plants, many authors have chosen to list species in alphabetical order by their scientific or common names rather than trying to associate them to show their relationships. This is commonplace in odonate books, but alphabetical order always places some closely related genera or species some distance apart in a list. Other books place species by their similarity in appearance (as in many flower books), which is helpful in a field guide but does not show relationships and often separates closely related species, so the reader is unaware of the relationship.

Thus, in these books, I have decided to attempt to place genera and species in a semblance of phylogenetic (taxonomic) order to emphasize their relationships. This is also appropriate because close relatives are often the species to be distinguished in a field guide. There

Sweetflag Spreadwing and Ruby Meadowhawk males—Walker Co., GA, August 2007, Marion M. Dobbs

is sufficient literature that in only relatively few cases have I had to use my own judgment. I hope the reader will become familiar with the order of the species, just as birders do in bird books (although it will probably be different in other books!).

Since the western guide was written, more information on phylogeny of the Libelluloidea (cruisers, emeralds, and skimmers) has become available that would shift the order of some of the genera in these books, but I am sticking with the order expressed in the western guide to avoid confusion. Similarly, it is now widely accepted that the spreadwings (Lestidae) are probably the most primitive damselflies.

See the Appendix for general references to odonates. An extensive list of references for the individual species was compiled but proved too voluminous to include in the published books. This Odonata Reference List can be downloaded at http://press.princeton.edu/titles/9538.html.