rences, has been learned only in the past 30 to 40 years. *Field Guide* is also, within the strict limitations of the genre, a good read in the spirit of Peterson, and it is refreshingly free of the abbreviations that impede understanding in some other identification guides.

Each species is also discussed in the companion volume, but without illustrations or distribution maps. For some species, there are more details—all extremely welcome—on distribution and relative abundance. However, in numerous accounts, *Status, Distribution, and Taxonomy* basically restates the distributional data presented in *Field Guide*. And inconveniently, the more detailed descriptions of distribution there are not accompanied by maps. (This handicap may be an insoluble problem, because *Field Guide* clearly requires maps, but one regrets having to crack open both books to follow a discussion of an interesting distribution pattern.) In addition, some of the fresh information (such as the seasonality of abundance for the migratory *Pandion haliaetus* and a distinctive subadult plumage in *Accipiter poliogaster*) might be more useful for field identification. Nonetheless, *Status, Distribution, and Taxonomy* offers students of avian biogeography a wealth of welcome details. For polytypic species, the authors list all subspecies recorded from Ecuador, note their in-country distribution, and often include brief descriptions of their diagnostic features. Such essential information is difficult to compile directly from the primary literature.

The taxonomic discussions in the first volume sometimes fall short of their potential. The species concept, endlessly debated, is undergoing a recurrent shift, one that assigns more importance to geographic isolates. Plumage patterns and morphometrics were the focus of an earlier generation of researchers, one more strongly tied to the museum and less experienced in the field. The emergence of fresh evidence on geographic variation in voice and habitat preferences has led to a widespread suspicion that the "standard" taxonomy is wrong on many counts. Ridgely and Greenfield frequently use this volume to "set things straight," although almost invariably in a cursory fashion. Unfortunately, only rarely is their approach in this regard fully convincing, even when I am inclined to agree with them. I was left wishing that they had either taken the opportunity to justify their revisions with more substantive discussions of geographic variation or had the patience to simply point out anomalous situations that surely would bear investigation.

Despite the two-volume format, *Field Guide* itself remains bulky. And even with the extra space provided by the companion volume, the set has few accounts of nest structure or seasonality of breeding. Although these topics are not directly related to field identification, the curious naturalist is bound to wonder about such things.

Status, Distribution, and Taxonomy does incorporate a great deal of information, much of it previously unpublished, but it is not all it could be. Its format could have been improved had the authors broken free of the rigid parallelism to the other volume and included only necessary and additional details. The shortcomings, however, are more than compensated for by *Field Guide*, which will be indispensable to all field biologists and birdwatchers visiting Ecuador and northwestern South America.

CREDIT: SIDNEY W. DUNKLE

BOOKS: ENTOMOLOGY

Old Insects, New Treatment

Dennis R. Paulson

Dragonflies have been around for over 250 million years, and it's about time they got the recognition they deserve. Like birds and butterflies, they are large and colorful, diurnal and diverse. They reign supreme as aerial predators of the insect world, and they are of great biological interest. But only for a few regions have there been field guides that allow those intrigued by them to take the first step in dragonfly watching, the identification of species. Now that shortcoming has been rectified for the 307 North American species in *Dragonflies Through Binoculars*, a compact book full of information. Sidney W. Dunkle, a biologist at Collin County Community College in Texas, is an active researcher who has long been interested in making these insects more accessible to the general naturalist. He has succeeded admirably with this volume, which is sure to delight the ever-increasing ranks of dragonfly enthusiasts.

Although in much of the world "dragonfly" refers to any member of the order Odonata, in North America the term is applied to those odonates that hold their wings out to the side when perched and, usually, have huge eyes that come into contact across the top of the head. Damselflies are smaller and more slender, have separated eyes, and usually hold their wings folded together over the back.

The author is at the Slater Museum of Natural History, University of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

Except for those fortunate enough to live in the few areas covered by local field guides, enthusiasts have previously had to key out specimens. The usual approach has been to start with wing venation and work through family and generic keys to arrive at an identification. The process is rather discouraging for most field naturalists, who usually lack experience with odonates. Now with Dunkle's guidance, anywhere north of the U.S.-Mexican border, one can see a dragonfly in the field, look at it through a pair of close-focusing binoculars, and have a chance to put the correct name on it.

Dragonflies Through Binoculars
A Field Guide to Dragonflies of North America
by Sidney W. Dunkle
Oxford University Press, New York, 2000. 274 pp. Paper, $29.95, £18.99. ISBN 0-19-511268-7.

The core of the book consists of a collection of color photos, which illustrate males of virtually all species and females of about one-third of them. These are accompanied by range maps and brief descriptions. Readers will find an aesthetic delight in paging through these plates and encountering the many shapes and colors and patterns of these beautiful insects. The book immediately prompts one to wonder why there are so many variations on the dragonfly theme. What is the significance of those fancy wing markings? Why are so many species colored red or blue? Why are there so many clubtails?

A quintessential dragonfly. Members of the genus *Libellula*, such as this widow skimmer (*L. luctosa*), are strong fliers and the dominant odonates at most ponds across North America.

The range maps alone are worth the price of the book, as there have been no such maps available for North America. Although small, they are easy to read and as accurate as possible, given our sketchy knowledge of dragonfly distribution in some

regions. Eastern North America is known to be a hotspot for freshwater animals, but it is with great interest that one finds the Northeast supports an odonate fauna just as diverse as that of the Southeast. And the maps suggest additional questions, such as why are darners and emeralds the preeminent dragonflies of the far north?

The introduction provides a good summary of what most beginners would want to know about dragonflies. Although oriented toward identification, the species accounts provide much more. Organized by genera within families and containing information about habitats, flight season, and behavior, they offer a good thumbnail biology of many dragonflies. The comments included in the "Similar Species" sections are especially helpful for identification.

As a student of both live and dead dragonflies, my only criticism of the book is that it lacks information that I consider essential to any book on insect identification—some description of how to capture and at least temporarily hold animals for close study. The book jacket states "how best to achieve identification without capture," but many species will not be identifiable unless captured. Indeed, the "Body Features" sections include information on characteristics that are only visible in the hand. Users of the book should have been informed that capture and release is an acceptable way to identify odonates. I suspect that the author was not able to include such information because of the feelings of the series editor that insects not be collected at all, and I think this omission represents the book's most serious flaw. However, it only slightly detracts from the great usefulness of our first continent-wide field guide to dragonflies. Buy this book and spend a sunny summer afternoon along the shore of a stream, pond, or lake; your life will be transformed.

BOOKS: ENTOMOLOGY

Twitching Butterflies

Paul R. Ehrlich

I've been captivated by butterflies for almost 60 years, since I was first introduced to them in the nature program of a summer camp. The counselors armed me with a net, and soon I was deep into butterfly collecting. *Butterflies Through Binoculars: The West* and its gorgeous photographs, almost all of live individuals, awakened many pleasant memories. I hope the book, with its emphasis on observing butterflies, will divert people from starting collections and instead help enthusiasts to enjoy butterflies as living, behaving organisms. I find I can sublimate my collector's instinct by keeping a life list of birds. Summer camps could substitute binoculars and this book for nets and specimen cases, and many more kids would become butterfly "twitchers" rather than collectors. That development would fit right in with the conservation ethic needed for the new millennium.

Butterflies Through Binoculars The West
A Field Guide to the Butterflies of Western North America
by Jeffrey Glassberg
Oxford University Press, New York, 2001. 384 pp. Paper, $19.95. ISBN 0-19-510669-5.

The book is the fourth in a series that Jeffrey Glassberg, president of the North American Butterfly Association, has written. (Earlier titles covered the Boston–New York–Washington region, Florida, and the eastern United States and southeastern Canada.) Books like these could open the world of butterflies to much more of the general public. Organizations of butterfly enthusiasts might eventually start making standardized transect counts of butterfly communities. There is no reason why such censuses, if properly organized, could not be as useful detecting trends in distribution and abundance as were the data gathered by amateur enthusiasts in Christmas censuses of birds that Terry Root [*Ecology* **69**, 330 (1988)] so brilliantly analyzed to document changing patterns in the winter distributions of birds. The results of such efforts could be a major contribution to monitoring changes in biodiversity in the United States.

Easy to misidentify. Most western species of *Speyeria* are exceptionally variable and many individuals cannot be identified in the field. Great Basin fritillaries (*S. egleis*), which usually favor forest openings at fairly high elevation, can closely resemble members of five other species.

Guides that include photographs of live butterflies have an advantage over conventional ones, because patterns are shown as they evolved, rather than as positioned in specimens on which forewings are unnaturally pulled forward. For instance, the plates of the boldly patterned tiger swallowtails (the *Papilio glaucus* group) nicely display the "matching up" of the stripes on the fore and hindwings. In general, the distributions, life history information, latinized names, and other information in *Butterflies Through Binoculars* seem accurate. Overall, I like this guide's arrangement better than that of Bob Pyle's pioneering *National Audubon Society Field Guide to Butterflies* (Knopf, New York, 1981), which covers all of North America. *Binoculars* supplies descriptions and, most important, scientific names and range maps on pages that face the photographs, which saves a lot of page turning. Although the more restricted geographic coverage means two books are needed to cover the United States, it allows more photographs per species—a distinct advantage to someone trying to identify an individual that is often moving around and seen only briefly from various angles. The arrangement also avoids a major annoyance of the *Audubon Guide*, with which one sometimes can't tell what butterfly is depicted because the photographs are accompanied only by a "common name." Many of these names, such as "Chiricahua White," "Gray Cracker," and "Whirlabout," are relatively recent inventions for field guides rather than genuine popular names like "Monarch." In *Binoculars*, latinized names come with the pictures, so the confusion for scientists and serious amateurs is restricted to the introductory material, where only common names occur. But even Linnean binomials are losing their original purpose of unambiguous international communication, as taxonomists engage in a frenzy of name-changing. The recent call to rename all species [see *Science* **291**, 2304 (2001)] is the culmination of this trend. It is a shame that, as global ecotourism grows, the chaos of bird common names is being ex-

The author is in the Department of Biological Sciences, Stanford University, Stanford, CA 94305–5020, USA. E-mail: pre@leland.stanford.edu