

strate the evolution of butterfly populations in the context of a changing environment. Those of us who work in areas where so little is known about butterflies may be daunted by such an effort. Nevertheless, it is clear we must strive toward its example.

Sturdily bound, filled with illustrations and information, and inexpensive, this book is uniquely outstanding in many ways. However, I especially appreciated one aspect of it; the subtle yet pervasive conservation underpinning based on the study of butterflies. If I read the message correctly it might be paraphrased in a more general way: appreciate and learn from nature before it vanishes into the increasingly greedy maw of the human dominated landscape. That is to say, the game is not just about collecting and writing epitaphs of colorful insects. It is about preventing the ecological holocausts that surround us, and surviving. As the song title suggests, now is the time.

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BUTTERFLIES THROUGH BINOCULARS: THE EAST. A FIELD GUIDE TO THE BUTTERFLIES OF EASTERN NORTH AMERICA, by J. Glassberg. 1999. Oxford University Press. \$18.95. ISBN 0-19-510668-7

HOW MUCH SCIENCE IS TOO LITTLE?

The practice of butterfly watching has rocketed in recent years, fueled primarily by increasingly accessible field guides equipped with easy shortcuts to identification, technological advances in photography, and numerous organizations, local and national, devoted to furthering public awareness of butterflies and their diversity. Butterfly watching, a healthy medium for natural history education, has realized considerable popularity not just among weekend naturalists and recovering bird-watchers, but also among educators and even professional lepidopterists that participate in local butterfly counts. Dr. Glassberg's *Butterflies through Binoculars: The East* (hereafter BTB) is likely to surpass previous guides' popularity among butterfly watching enthusiasts, and to that end it serves as a photographic guide for most eastern butterflies. Unfortunately, the general utility of this book is reduced sharply by several shortcomings, all of them related to the furtherance of lepidopteran science and science-based conservation.

It is difficult to decide in what spirit to review this book. It is clearly a volume intended for hobbyists

(which is fine), but at the same time the purview of its influence is intended to include matters of scientific import, and it includes promotional material linked to the North American Butterfly Association (NABA). The historical and organizational context from which the butterfly-watching movement has sprung is plain within the pages of BTB, and I therefore view it as impossible to review this book and some of the information presented therein independently of similar messages published by NABA. It is my hope that a contextual review of this kind will add more light than heat. Regardless, after tending to the book's technical aspects, I will proceed to its message.

First to the nitty gritty. The meat of BTB is of course its 283 species accounts and accompanying photographs. Again, through these, BTB is a fine introduction to observing butterflies of eastern North America. Species accounts include identification cues, geographic range maps (which accompany the plates), some life history information, including primary host plants and extensive flight season data in the form of "phenograms" which consist of rough relative abundance by month in four geographically separated states (WI, NY, NC, and LA) generated in consultation with various local experts (no use of collection data is referenced). The lack of detailed descriptions should not be viewed as a shortcoming, assuming the guide's primary target audience comprises hobbyists and prospective inventorists. The identification cues are by and large well crafted, with the exception of their reliance on comparative observation: Size measurements for species are not generally given, but evaluated with reference to other butterflies. Field diagnoses, when present, are emboldened, and brief descriptions accompanying plates make quick identification easy and reduce the need for page flipping. The photographic quality is generally quite good (with a few exceptions), and should help butterfly watchers get a feel for what various species look like in vivo, although field marks are not consistently delineated. The photographs are also carefully scaled against others on the plate. In any event, BTB should serve as a step towards identifying butterflies reliably in the field, and therefore meets its purpose.

The text comprising the book's introduction includes sections on butterfly photography, butterfly gardening, tips on finding butterflies, and butterfly biology. There is no discussion of proper vouchering, collecting, or rearing techniques or protocols, nor any broad discussion of butterfly taxonomy or systematics except for some remarks buried in the species accounts. With those exceptions, this material serves as an adequate introduction for the casual butterflyer.

Text following the species accounts includes a bibliography and a short glossary of terms.

I detect three principal shortcomings in the book's message, all associated with teaching science-based natural history and the relevance of that science to conservation of landscapes and species. First, Dr. Glassberg's dismissal of the nomenclatural process combined with the assertion that butterfly taxonomy, including both scientific and common names, is being "standardized" (p. 33) by NABA is a serious shortcoming. It also may render BTB impotent in serious bioinventories, butterfly counts, or identifying populations of cryptic species. Second, while no doubt well meaning, Dr. Glassberg makes a number of misleading comments about managing butterfly habitat, specifically fire management, that may oversimplify and exacerbate an already controversial conservation issue. Third, BTB's strident indictments of collecting utterly fail to mention the critical importance of collections not only to the study of butterflies, but also the furtherance of taxonomy, systematics, and the conservation and protection of threatened species.

There have always been nomenclatural controversies in the butterfly literature, for that is the nature of science: To modify existing taxonomy as new entities are discovered and described and as recent information is brought to bear on our imperfect understanding of nature. The proliferation of names is perhaps particularly acute in the most showy organisms, including birds, butterflies, and tiger beetles, because the attention they draw from hobbyists leads inevitably to the discovery of novel forms that are subsequently described and all too often given subspecific or infrasubspecific epithets. To be sure, keeping up with current nomenclature by tracking the most recent revisions and extracting valid names is a difficult task, one deemed necessary for scholars but annoying to those with a more casual interest. To be sure, the existence of privately published, non-peer-reviewed journals that never make their way to libraries but in which new species and subspecies are regularly described is a bane to taxonomy, and frustrating to anyone attempting to incorporate current nomenclature into field guides. It is thus not uncommon for authors to prefer, explicitly or otherwise, particular taxonomic arrangements on an ad hoc basis. The nomenclature in *BTB*, both scientific and vernacular, follows NABA's *Checklist and English Names of North American Butterflies*. And while there are some differences of opinion and treatment of taxonomic status are evident between *BTB* and other field guides, for example, the most pointed remarks in *BTB* are directed at the nomenclatural process itself. Obviously dissatisfied

with the state of flux in North American butterfly nomenclature, Dr. Glassberg writes (p. 33):

"Before the NABA checklist was published in 1995, each author of a book about butterflies used whatever set of names struck his or her fancy. The result has been a confusing plethora of names that has bewildered the uninitiated and made it more difficult for the public to become involved with butterflies. We are now on the road toward standardization, although this process will take years to be completed."

Later Dr. Glassberg writes (p. 53) in the context of the species account for the Mustard White *Pieris napi*:

"There is some recent evidence that the Mustard White complex may consist of a number of different species and a number of books have appeared that jump on this bandwagon. Changes in well established names should be made in works intended for the public only if the **published evidence is overwhelming** [emboldening as in *BTB*] that the change is correct."

Notwithstanding that fact that, like many other strong opinions expressed in *BTB*, these statements are unaccompanied by specific references, these assertions also belie either a fundamental misunderstanding or a disregard for the scientific process and its critical value to biological conservation. As most lepidopterists know, there are a number of competing endeavors to "standardize" butterfly taxonomy. Difficult as it may be for those with a superficial interest in butterflies to keep up with the technical literature, are we to believe that taxonomic stability, via the acceptance of one person's sanctioned list is more important than taxonomic progress via scholarly study? Dr. Glassberg seems to find taxonomy and systematics so trivial as to make them beholden to the hobbyist. In certain cases (e.g., p. 153), taxonomic progress is explicitly ignored and excused only in order to remain consistent with the NABA checklist.

Unfortunately, the problem goes further: NABA publishes the results of annual butterfly counts, but with little quality control. Thus it is easy for erroneous records to proliferate in print, and such apparent "data" could, if taken seriously, prove fatal to distributional revisions and local conservation efforts. For example, I recently encountered a local butterfly checklist, compiled by an avid (and talented) butterfly watcher, encouraged by a prominent international conservation organization, and copyrighted. The checklist consisted primarily of records previously published by lepidopterists (who were not credited) and a number of new records for the region in question for which no specimen vouchers exist. Some of these species were described as occurring commonly. It might be worth-

while to contemplate the impact of such information should these species ever fall in need of protection. Consider, for example, the unnecessary obstacle to securing protection of a species presented when indications that it is abundant are disseminated. Such scenarios are only worsened when taxonomic progress is ignored in favor of a popular "standard." Bottom line: The combination of inflexible and possibly questionable standardization with an unverifiable system of record keeping renders any inventories or butterfly counts meaningless without substantial follow up. "Standardization" won't change the valid names, and if butterfly watchers promote ignoring those, then their records will be even more meaningless.

Dr. Glassberg's own anti-collecting agenda, and that of his organization, NABA, is well known. But as with a number of issues on which Dr. Glassberg purports to speak authoritatively, intelligent discussion of this complicated and controversial issue is done a disservice by the author's treatment in BTB and elsewhere. As a lifelong conservationist and lepidopterist, I have been impressed by the unique ability of the lepidopterist community to integrate professional biologists with so-called "amateurs." I think this is recognized by most as one of the major strengths of lepidopteran research. True, controversies have arisen with respect to such issues as collecting regulations and the listing of endangered species, and irresponsible collectors do indeed exist. But in my experience those lepidopterists most effective at resolving such issues have done so by thinking clearly, speaking articulately, collecting hard data, writing with skill and scholarship, and all without resorting to divisive tirades. Alas, such cannot be said of BTB.

At times, Dr. Glassberg's stance on collecting (and nomenclatural standards) appears predicated on the notion that our understanding of the North American fauna is sufficient, if not complete. One could, perhaps, make such a case for birds, and butterflies' being the birds of the insect world; the temptation to think likewise for them is perhaps understandable—at least for a birdwatcher. But think for a moment on the real state of lepidopteran taxonomy. Do we really have a complete enough understanding of butterfly variation, even in the conterminous United States, to stop studying it? I know of numerous recently discovered or undescribed North American species. Lepidoptera are notorious for sudden range changes, both contractions and expansions, as well as for host plant shifts and rapid speciation events. Regulators and legislators do not frequently distinguish recreational from scientific collecting, and if scientific collecting were removed

from the equation, the endeavors of scholarly research would be hamstrung. The question is whether serious scientific research should take a back seat to the personal views, however noble, of those who don't understand the importance of collecting.

But the importance of collections is certainly not limited to the realm of systematics. Our understanding of conservation priorities would not exist without the information contained in zoology collections and herbaria. Importantly, our ability to protect populations and use the occurrences of rare organisms to prevent destructive development and land use practices often depends on voucher specimens' being deposited in scientific collections. I have known would-be developers to contest the occurrence of rare Lepidoptera on their properties, often during conservation commission hearings in mid-winter when vouchering is impossible, and were it not for voucher specimens in collections, important natural areas would have suffered.

It seems to me that Dr. Glassberg is too busy proselytizing to present a balanced discussion, or to bother mentioning the importance of scientific collections. Indeed, he appears to go to considerable lengths to downplay the potential role of amateurs in contributing to them. The recent *Dragonflies through Binoculars* field guide, published under the auspices of NABA, contains not an iota of information on how to properly prepare dragonfly and damselfly specimens. Here is a group of organisms about which we know significantly less distributional information than butterflies, presenting an outstanding opportunity for amateur naturalists to make valuable contributions to science and conservation. For someone so concerned about the public's access to information, Dr. Glassberg seems content to limit it selectively. I can't wait to see *Moths through Binoculars*.

Assuming trumping nomenclatural practices will amount to nothing, perhaps the most disturbing and disingenuous aspect of Dr. Glassberg's agenda is his stance on conservation. He describes (p. 27) conservation as the "raison d'être of this book" and to the extent that it will help instill an appreciation of the natural world and enhance access to its study, it may make a contribution. Unfortunately, both BTB's message and its intended furtherance of conservation are hampered by a series of misleading comments (as well as by the adherence to a rogue taxonomy). Among the more disingenuous are those directed at the use of prescribed burning in managing natural areas. In Dr. Glassberg's (p. 28) words, fire is an "often misguided conservation tool," and goes on to smear the conservation community (p. 29):

“Unfortunately, some of the conservation community and groups charged with the management of our natural areas have made a devil’s embrace of fire—“fire is good at keeping areas open, let’s burn like crazy.”

Dr. Glassberg only begrudgingly acknowledges the importance of responsible fire management, but his overall message is to alert naïve readers to what he characterizes as widespread irresponsibility in the application of prescribed burning by land managers. Granted, we are all aware of examples of poor fire management, much as we know of examples of irresponsible politics, business practices and, yes, collecting. But the fact remains that only a small percentage of North America’s fire dependent communities are currently being managed with fire at all.

Later, he writes (p. 30):

“[A] conservation professional, trained to look for “pure” examples of native habitats, may take one look at these weedy fields [containing important nectar sources] and turn up her/his nose.”

One is left to wonder whose training and credentials in entomology or conservation are worthy of Dr. Glassberg’s approbation.

It is interesting to observe that BTB’s crusade against science and science-based conservation has been extended in an indictment of how conservation agencies operate. Using NABA as a vehicle, Dr. Glassberg has recently called upon The Nature Conservancy and the Heritage Program network to release information on locations of threatened plant and animal occurrences, arguing that the public should have unlimited access to such information (Glassberg, 2001). In a recent editorial of *American Butterflies* Glassberg (2001:2), writes:

“The Nature Conservancy, other conservation organizations, and government agencies charged with protecting our flora and fauna, keep the locations of rare plants and animals a secret with the best of intentions: obsessive collectors are a threat—especially to certain populations of rare orchids, cactuses [sic], butterflies, and reptiles.”

This is an interesting, but inaccurate and incomplete characterization of why threatened species information is kept confidential. In fact, most of the reasons have nothing whatsoever to do with collectors, but rather with protecting the rights of landowners and protecting the most vulnerable sites from habitat destruction. As anyone with experience in serious bioinventories and conservation assessment knows, many private landowners would be loathe to cooperate with conservation endeavors if anyone could access rare

species information for their properties. In my experience, protecting landowner privacy has been critical to conserving some of North America’s most significant natural areas. Equally important is the issue of illegal habitat destruction. What is to prevent a would-be developer of a shopping center in a wetland, for example, of bulldozing the site at midnight upon finding out it contains a colony of some rare orchid. No rare butterfly or orchid, no hassles with Fish and Wildlife. It may sound trite, but it happens, and clearly tightening collecting regulations is not a solution. Serious scholarly study is.

Unfortunately, rather than contribute to disseminating useful information and understanding to the public, it appears that Dr. Glassberg prefers an alarmist route. In the same editorial Glassberg (2001:2) writes:

“*Butterflies through binoculars: The East* describes how collectors killed the last Mitchell’s Satyrs in New Jersey, invading private property despite the fact that the owner, in a valiant attempt to save the butterflies, encircled the land with chain link fences and posted guard dogs.”

But perhaps the most telling quote from the editorial is this:

“Last summer, NABA petitioned the U.S. Fish and Wildlife Service to list Miami Blues as federally endangered on an emergency basis. We decided to keep the location of the colony secret until listing could provide some protection. While I understand that the petition was favorable [sic] received, the Department of Interior subsequently issued a moratorium on all listings and it is unclear when, if ever, this species will be protected. So, I have decided to make the location of the colony public [my italics added]. I hope that Secretary of the Interior Norton acts to list this species and that Florida legislators enact laws that provide real protection, before it too late, but I am not optimistic. So, my advice to you is to see these butterflies, at the northern end of Bahia Honda State Park, along Silver Palms Nature Trail, while you still can. But please don’t tell anyone else.”

Now let us get this straight: Even given that the site occurs in a state park, presumably protected from development, Dr. Glassberg divulged specific site information in virtually the same breath as noting that the maximum fine is \$50 and that prospects for serious protection are unlikely. Even if illegal collecting were a threat (which for all I know it might be in this case), hasn’t Dr. Glassberg just declared open season on this butterfly?

To many it is unfortunate that Dr. Glassberg chooses to treat complex and controversial scientific issues that bear on the discovery and understanding of nature by resorting to misinformation and spurious appeals from the safety of his editorial fiefdom. But by allowing the propaganda to spill into BTB, he corrupts a potentially useful book with an agenda-driven crusade against science and scientific conservation. As such, much of BTB's utility is lost through the use of renegade nomenclature and idiosyncratic presentation of important issues.

In summary, BTB is valuable as an introduction to observing and photographing butterflies, but its failure to deal responsibly with serious conservation-related and scientific issues can, in my opinion, only result in further muddying waters in dire need of clearer solutions.

LITERATURE CITED

GLASSBERG, J. 2001. Listen, do you want to know a secret (Do you promise not to tell) [sic]. *American Butterflies* 9(3):2. [Editorial]

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CATALOGUE OF THE GENERA *OENEIS* AND *DAVIDINA*, by Vladimir Lukhtanov and Ulf Eitschberger. Part 11 and Supplement 4 of E. Bauer and T. Frankenbach, eds., *BUTTERFLIES OF THE WORLD*, Goecke and Evers, Keltern, Germany, 2000 (Part 11, Plates) and 2001 (Supplement 4, Text). Plates (28 plates + 12pp; ISBN 3-931374-81-5) and text (37pp.; ISBN 3-931374-52-1) available from Antiquariat Goecke & Evers, Ihn. Erich Bauer, Sportplatzweg 5, 75210 Keltern, Germany (www.insecta.de). Prices Euro 22.50 (plates) and 20.00 (text).

This work, Part 11 of the ongoing *Butterflies of the World* series edited by Bauer and Frankenbach, is a complete illustrated catalog of the genera *Oeneis* and *Davidina* (Lepidoptera: Nymphalidae, Satyrinae, Oeneini). The Plates volume comprises 28 excellent color pages that show, at life size, examples of each of the 199 taxa catalogued. In general, both sexes are illustrated with the upper- and under-sides of each specimen shown on facing plates. This volume includes complete data (cited verbatim from the specimen labels) and brief discussions of the distribution of each taxon. Thirty-five of the approximately 350 individual specimens illustrated are primary types. Incidentally,

the German-language edition of Part 11 (ISBN 1-931374-80-7) was published before the English version and includes the original descriptions of *Oeneis buddha greishuberi*, *O. b. frankenbachi*, and *O. tarpeja baueri*. These descriptions are not in the English version.

The Text, published as Supplement 4 to Part 11, includes a key to the 10 species-groups recognized by the authors and a discussion of each species and subspecies. Full citations to the original descriptions, complete synonymies, locations of type material, and excellent-quality distribution maps are provided. Male and female genitalia are shown for several taxa in each species-group. The English text includes description of one new subspecies (*Oeneis nanna taimyrica*), absent from the German edition. In addition, three neor lectotypes are designated and 3 new combinations are established, and 1 species and 2 subspecies names are reduced to synonymy. The tribe Davidini Cho Io 1998 is synonymized with Oeneini Wheeler 1903.

It is a lovely thing to have before one's eyes a complete holarctic genus, males and females, dorsal and ventral. This is especially true in the case of a genus whose speciation has been extensive in the mountains of central Asia and China, where the existence of such outstanding species as *mongolica*, *urda*, and *buddha* is unsuspected by perhaps most North American lepidopterists. Likewise, it is a revelation to see specimens of *jutta* ssp. from localities ranging from Colorado to the Altai mountains on the western border of Mongolia to Siberia. And the two strange, pierid-like Chinese species of *Davidina* (with genitalia very close to *Oeneis* but distinct venation) are like nothing else among the satyrs.

Oeneis is a difficult genus and the authors are careful to point out a number of areas where further research is needed. For instance, *lucilla* Barnes and McDonnough 1918 is retained as a *melissa* ssp., but full species rank is "not excluded". It is pointed out that adult morphology is insufficient to resolve difficulties in taxonomy of the *O. norna* group (*norna*, *rosovi*, *polixenes*, *philipi*, *actaeoides*) and that study of DNA and immature stages is needed. *O. ivallda* (Mead 1878) is retained but its conspecificity with *chryxus* "cannot be excluded".

This work was made possible largely through assemblage, in the Entomologische Museum Eitschberger, of a worldwide collection of 4400 specimens of *Oeneis*. Through study of this material (supplemented by research in the Zoologische Staatssammlung in Munich and the Zoological Institute in St. Petersburg, Russia, and study of material from the private collections of Grieshuber, Zhou, Strohle, Tremblay, Ferris, and others), Lukhtanov and Eitschberger have produced a work that combines solid scholarship and elegant pre-