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Book Review - Caddisflies (Trichoptera) of the Interior Highlands of North America

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volume, Scientific Volume No. 53, concerns caseless caddis larvae of the British Isles. This is an extensive revision of the 1st key to these fascinating insects produced by the same authors and printed by the FBA in 1981. Because caddis larvae occur in a wide variety of freshwater habitats and form an important part of the biological assessment and classification of rivers in the United Kingdom, the earlier work was in high demand and soon became unavailable. Thus, development of this revised key was strongly encouraged by one and all.

Families of caddis included in this work are the Polycentropodidae, Hydropsychidae, Philopotamidae, Ecnomidae, Psychomyiidae, and Rhyacophilidae. All species known from the British Isles save one (*Wormaldia mediana*) are included. This volume closely follows the format of the 1981 volume. A new section on recent taxonomic developments has been added to the Introduction. The Key section is accompanied by a detailed Taxonomic Notes section which covers recent developments from Europe. Updates and additions also occur in the Feeding Biology, Habitat Distribution, and Life Histories sections. The book ends with a References section and an Index to Species. The Reference section appears complete and the index includes page numbers referring to taxonomic and ecological aspects. The index also includes page numbers for changed specific names.

The number of pages has increased from 92 to 134, reflecting the additional information and added figures. Also, the margins are not as wide in this volume as in the first, again reflecting added content. The layout and design are very well done, and the figures are clear and well reproduced.

Whereas the average reader of *J-NABS* will not find the book of great value in identifying North American caseless caddis larvae to species due to faunal differences, it is tremendously valuable in several other ways. I believe it serves as an excellent model for presenting information about caddis larvae, both taxonomic and ecological, for any continent. The larger North American fauna, in most cases, would require individual volumes for each family. The completeness of this volume also reminds us of the large body of work still facing North American entomologists. Please note, however, that our British cousins are indeed fortunate in having only one species each of *Cheumatopsyche* and *Chimarra*.

ra. Finally, this book represents a masterly distillation of essential information about the caseless caddis larvae of the British Isles with clear connections to the literature for additional reading.

Our European readers will, of course, find this work of tremendous value for taxonomic purposes as well as the other benefits listed above. I was pleased to have and use the 1st edition in 1981, and I am even more pleased to have the current version. This work is recommended highly to all who are interested in aquatic insects in general, and caddis in particular.

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Caddisflies (Trichoptera) of the Interior Highlands of North America. S. R. Moulton, II, and K. W. Stewart. ISBN: 1-887988-00-9. Volume 56, *Memoirs of the American Entomological Institute*, 3005 SW 56th Avenue, Gainesville, Florida 32608-5047. 1996. 313 pp. \$40.00 (cloth).

The importance of caddisflies in the ecology of freshwater ecosystems is well-known to the readers of this journal, as is the importance of these insects in monitoring water quality and in modeling sport fishing lures. Caddisfly species that may now be threatened by human disturbance to these ecosystems also are becoming appreciated. Therefore, it is significant that a major new work on the identification, distribution, and habitat requirements of caddisflies in the North American Interior Highlands has recently appeared.

Patterning their work after a similar study of Plecoptera in the Ozark-Ouachita Mountain region (Poulton and Stewart 1991), the authors designed a sampling program specifically to assess the Trichoptera of the Arbuckle, Ouachita, Ozark, and Wichita Mountains in Arkansas, Illinois, Missouri, and Oklahoma. About 60,000 immature and adult specimens were identified from over 500 locations in 131 catchment basins in 17 natural physiographic regions, producing 4500 species records. Detrended Correspondence Analysis (DCA) was used to ordinate catchment basins along environmental gradi-

ents, if such gradients existed, according to their trichopteran fauna.

The authors documented distributions of 229 species of caddisflies in the study region, of which 27 (12% of the Interior Highlands caddisfly fauna) are endemic. Three families accounted for 65% of the species richness: Hydroptilidae (71 species), Leptoceridae (43 spp.), and Hydropsychidae (34 spp.). Species of 7 genera in these families included nearly half of the total number of species: *Hydroptila* (26 spp.), *Cheumatopsyche* (16 spp.), *Ochrotrichia* (14 spp.), *Triaxnodes* (13 spp.), *Ceraclea* (12 spp.), *Oxyethira* (11 spp.), and *Oecetis* (10 spp.). Fifteen species are reported from the region for the first time, including 1 species of *Cheumatopsyche* new to science.

The authors also tabulated the distribution of the 229 species with respect to physiographic subregions, stream order, stream width, flow permanence, substrate, and vegetation. Specific habitat characteristics also are noted in most discussions of individual species. An additional table indicates the months during which each species was captured as adults. One of the 2 most informative DCA ordines for the Interior Highlands catchments clustered Ouachita Mountains, Gulf Coast Plain, Mississippi River Basin, and Illinois Ozarks at the end of one axis and the remaining Ozark catchments at the other. The second informative ordinate aligned catchments according to latitude.

A section on historical biogeography related the distributional data to past geological events. The Interior Highland caddisfly fauna shares the most species with the southeastern and eastern portions of the continent. Disjunct populations represented elsewhere on the continent and the endemic species of the relatively young caddisfly fauna in the study region appear to have originated as isolated relict populations from Pleistocene displacements and from range expansions during wetter and cooler periods of geological history. Some examples of extra-regional sister species are cited to suggest the directions from which the Interior Highlands populations arrived, but no area cladograms with 3

or more areas are analyzed to discover relative area relationships.

Probably the most useful portion of the text will be the taxon discussions and the diagnostic keys and illustrations. Families are arranged alphabetically, with genera alphabetically within families and species alphabetically within genera. Diagnostic characteristics, taxonomy, and general biological features are provided for each family and genus. Each species is annotated with a brief synonymy, citation of type locality, regional distribution by watershed (and sometimes also by specific localities), Nearctic distribution by state or province with mention of localities outside North America, and a discussion providing observations on its diagnostic features and habitat peculiarities and other biological features noted either by the authors or published elsewhere. The male of each species is keyed and illustrated with original line drawings; females and larvae also are illustrated and keyed for the groups in which these are known to species.

The text is written in a very readable style with few typographical errors. The line drawings are crisp and readily diagnostic, without excess detail. This book is the first production of the recently re-organized American Entomological Institute editorial staff; the commendable quality of the volume speaks well for the AEI's publication ability.

As a review of biological information and as a comprehensive diagnostic tool, this work will be of immense value for benthologists in the central US. The compilation of distributional and habitat information will be of use to those developing biomonitoring and biodiversity databases and trout fishing references. No modern trichopterist should be without it.

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Literature Cited

- POULTON, B. C., AND K. W. STEWART, 1991. The stoneflies (Plecoptera) of the Ozark and Ouachita Mountains. *Memoirs of the American Entomological Society*, volume 38.