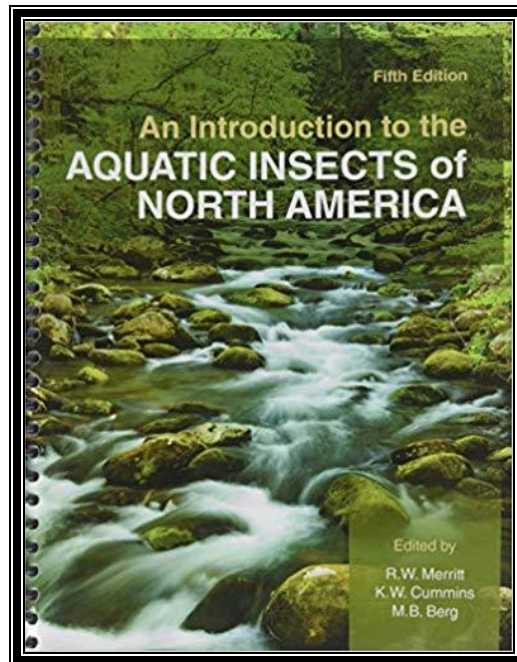


A collaboration with the David Lodge laboratory at Cornell University has provided the opportunity to DNA barcode (COI barcode fragment) additional EPT species that are known to occur in the Great Lakes region. Because compiled databases of specimen level data are largely unavailable, we used published checklists and taxonomic papers with specimen data to build a comprehensive list of all EPT known to occur in states and provinces that border the North American Great Lakes. Published works suggest that >1200 species exist. Examination of the BOLD Systems (<http://www.boldsystems.org/>) demonstrated that many species were not represented in BOLD (which also pulls in GenBank records), many others were represented by only one or two sequences, while others were well represented but consisted of a large number of Barcode Index Numbers (BINs), which to me suggests that many specimens were misidentified. Still, others were represented by specimens from areas far removed from the Great Lakes region--who knows what they really are? To date, my laboratory has submitted over 400 stonefly specimens and another 800 mayfly and caddisfly specimens. This effort greatly improves barcode library coverage for stoneflies, mayflies, and caddisflies in the Great Lakes region.

**NEW AVAILABLE PUBLICATION**



*An Introduction to the Aquatic Insects of North America* 5<sup>th</sup> edition, 2019. Edited by by **R. W. Merritt, K. W. Cummins, and M. Berg**. Kendall Hunt Publishing Company, Dubuque, Iowa. This edition serves as a standard guide on the immature and adult stages of aquatic and semiaquatic insects of North America. It offers information on the

distribution, tolerance values, trophic relationships, and functional adaptations of aquatic insects that allows an additional tool for categorizing them.

- Over 7000 references
- A chapter on *A Photographic Overview of Aquatic Insects of North America*
- A revision and expansion of keys, as well as new figures added to the taxonomic chapters
- Added figures to the *General Classification and Key to Orders* chapter
- All chapters have been updated with significant changes to chapters on Ephemeroptera, Plecoptera, Trichoptera, Coleoptera, Diptera and Tipuloidea
- Single chapters covering each order of all stages of aquatic insects

Chapter 16 Plecoptera was updated by R. E. DeWalt and B. C. Kondratieff from the original contributions by the P. P. Harper, P. P. Harper and K. W. Stewart, and K. W. Stewart and B. P. Stark.

**RECENT PLECOPTERA LITERATURE (CALENDAR YEAR 2019 AND EARLIER).** Papers made available after 1 February 2020 will be included in the next issue. **If papers were missed, please bring these to the attention of the Managing Editor.** Drs. Bill P. Stark, J. M. Tierno de Figueroa, and Peter Zwick are thanked for reviewing and providing additions to this present list.

Agboola, O. A., C. T. Downs and G. O'Brien. 2019. Macroinvertebrates as indicators of ecological conditions in the rivers of KwaZulu-Natal, South Africa. *Ecological Indicators*: 106. <https://doi.org/10.1016/j.ecolind.2019.105465>

Akamagwuna, F. C., P. K. Mensah, C. F. Nnadozie and O. N. Odume. 2019. Evaluating the responses of taxa in the orders Ephemeroptera, Plecoptera and Trichoptera (EPT) to sediment stress in the Tsitsa River and its tributaries, Eastern Cape, South Africa. *Environmental Monitoring and Assessment* 191(11), 664. <https://doi.org/10.1007/s10661-019-7846-9>

Alford, B. J. and H. S. Gotwald. 2019. Associations between fish and benthic macroinvertebrate biotic integrity and non-point source pollution estimates in the Nolichucky River Watershed. *Journal of the Tennessee Academy of Science* 94: (1-2): 56-70.

Almeida, L. H., R. Cardoso-Leite, M. F. B. Deodato and P. C. Bispo. 2019. *Anacroneuria iporanga* (Plecoptera: Perlidae): description of the nymph and biological notes. *Zootaxa* 4550: 141-145.

Anderson, H. E., L. K. Albertson and D. M. Walters. 2019. Thermal variability drives synchronicity of an aquatic insect resource pulse. *Ecosphere* 10 (8): DOI: [10.1002/ecs2.2852](https://doi.org/10.1002/ecs2.2852)

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

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