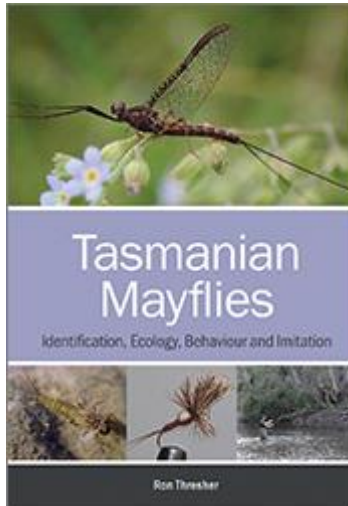


## BOOK REVIEW

### **Tasmanian Mayflies: Identification, Ecology, Behaviour and Imitation**

Ron Thresher. 2023, CSIRO Publishing, pp 228. \$59.99



This book has two audiences: freshwater biologists and fly-fishers. The author can justifiably claim to be both, but more than anything he is clearly a mayfly enthusiast. The book is based on more than 30 years of catching and observing mayflies throughout Tasmania. It is an account of a fauna consisting of at least 55 species, most endemic to Tasmania. A good number of these species are yet to be formally described. For example, the author identifies 23 undescribed morphospecies in the genus *Nousia* (family Leptophlebiidae), which is known for its taxonomic complexities on mainland Australia as well. Despite such puzzles, the author has tackled an important group of freshwater insects in a manner that will interest freshwater biologists and fly-fishers alike.

The first chapter introduces the plan of the book, while the second and third chapters deal with the general biology of mayflies and how to go about identifying them. The second chapter summarises a large amount of information about the stages in a mayfly's life cycle and gives a brief introduction to aspects of the ecology of mayfly nymphs. Chapter three explains how to distinguish a mayfly nymph from other freshwater insects and provides useful advice about how to use the keys in the book, when a microscope might be necessary and the limits to what can be achieved e.g. females within a genus can be hard to distinguish even for an expert. Photographs of an adult and a nymph show the body parts commonly used for identification purposes and close ups of the front and hind wings have the major veins labelled. The photos are clear with good contrast (especially for the labels), but I feel larger images of the adult and nymph would help the beginner.

Chapter four provides keys to both nymphs and adults of the mayfly families in south-east Australia. Two families in that key (and two others that only occur in northern Australia) are not found in Tasmania. The next five chapters deal with the genera and species of each of the five families found in Tasmania with keys to the genera and species of both the nymphs and adults. These and the detailed descriptions of the nymphs and adults are the heart of the book. The author also discusses related species found in Victoria and New South Wales, making the book useful beyond the boundaries of Tasmania.

These chapters are profusely illustrated with photos of adults and nymphs but also include information about the emergence times of adults and maps showing the distribution of species or genera in Tasmania. In addition, behavioural and ecological observations for many taxa are provided as are records of variation in abundance between years, likely voltinism and changes in adult size during emergence seasons. It is here the author's many years of experience have paid off and have enabled him to provide an abundance of natural history observations, which are not generally

available for mayflies elsewhere in Australia. Mayflies are never easy to study in the field because the nymphs are cryptic and need careful sampling before any investigation can begin, while the adults live only a matter of days. By returning regularly to certain sites to examine both nymphs and adults the author has developed an intimate knowledge which shines through these chapters.

Towards the end of the book a chapter is devoted to the status of mayflies in Tasmania. A number of species have declined during the 30 or so years of the author's experience in Tasmania. Sedimentation, pollution from mines, removal of riparian vegetation, use of pesticides, hydrological modifications of catchments have all taken a toll, as they have elsewhere. The author has also included in this discussion the effects of introduced species particularly brown trout, which is well known to cause substantial declines in mayfly (and other aquatic insect) abundance. As he is a dedicated fly-fisher this might seem ironic. However, fly-fishers have contributed regularly to knowledge about aquatic insects and this book is an excellent example. What impresses me most about this chapter is that his conclusions about the status of populations are based on many years of observation. Such evidence is invaluable. Only a long-term view can provide meaningful knowledge about population change.

This book provides a comprehensive introduction to Tasmanian mayflies. Novice and experienced freshwater biologists will learn much from it. I feel sure fly-fishers will also appreciate its depth of detail and its inspiring account of Tasmanian freshwaters.

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