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The paper was accepted on 17 September 2012.

**Editum: 20 December 2012.**



## New Books – Neue Bücher

CRAIG, D. A.; CRAIG, R. E. G. & CROSBY, T. K. (2012): **Simuliidae (Insecta: Diptera)**. – Fauna of New Zealand **68**, 336 pp., colour photographs, line drawings, maps; Lincoln, N.Z.: Manaaki Whenua Press, Landcare Research; ISBN 978-0-478-34734-0. On pages 60–65, 205–208, 298–301 the book includes: CRAIG, D. A. & CYWINSKA, A.: **Molecular analysis of New Zealand *Austrosimulium* (Diptera: Simuliidae) species**. Price: \$NZ 95.00 (+ shipping); ca. € 60.00 (+ shipping).

The new volume of Fauna of New Zealand presents a comprehensive account of the blackflies of the country. Blackflies, sandflies, or Te Namu in Maori language, have a long-standing reputation as serious nuisance to man, with bite rates up to 1000/hour. When some thousand years ago humans colonized New Zealand they became an easily accessible supplementary food source to a blackfly fauna which before must have relied on only seals and birds. One species seems to do so today: it visits humans but does not bite. However, three others are serious biters of man.

The introductory general chapters cover in over 70 pages an almost encyclopedic wealth of aspects, such as history of studies in New Zealand, bionomics, geographic and altitudinal distribution, morphology, methods, and cladistic analysis based on morphology.

The latter agrees largely but not completely with the molecular analysis (CO1 mitochondrial bar-coding) by D. A. CRAIG & A. CYWINSKA. Differences are discussed and require future investigation, as is almost generally the case in comparable studies. The roles of New Zealand blackflies as hosts of commensals and parasites, and as vectors of *Leucocytozoon* to penguins are also addressed. Is anything missing? We noticed no data on giant chromosomes and cytology which other recent blackfly studies consider.

As a Gondwanian faunal element genus *Austrosimulium* is also present in Australia (where the additional subgenus *Novoaustrosimulium* also occurs) and has its closest relatives in South America. However, the extant New Zealand species are apparently fairly recent immigrants arriving from Australia about 5 million years ago. This concerns the inhabitants of cool waters at high altitude while a lowland radiation occurred only about 500,000 years ago. Both estimates are based on geological history as well as evolutionary rates inferred in molecular studies.

The taxonomic part recognizes 19 species of *Austrosimulium* (s. str.) in New Zealand. Two of them were raised from infraspecific rank, and four species are new to science. Two lectotypes and one neotype are designated. Hierarchically structured keys to all life stages, also pupal exuviae and cocoons, are provided. There is even an ecological key to species, because the distribution of taxa on the islands is apparently largely controlled by larval habitat requirements. As is often the case, pupae are the most readily identified life stage.

Treatments of individual taxa are detailed (up to almost 10 pages per species). They list previously published illustrations, include references to original descriptions and important secondary literature, and the diagnosis plus detailed morphological descriptions of all life stages. Then follows comprehensive information on types with precise label transcriptions and, where appropriate, comments, reference to additional material examined, and full accounts of distribution which is also documented on maps.

There are over 20 pages of references. The Appendices comprise three tables. The first is of the localities sampled by the CRAIGS, including sampling codes (important to access the habitat photographs which are supplementary material on a server of Landcare Research), decimal geographic coordinates, date and hour of sampling, selected hydrological parameters, air temperature at the time of collecting, and the taxa and life stages found. Another table additionally provides the degree-minute coordinates of all main localities cited in the text. The third table lists the barcode accession numbers of the studied material.

All sections of the text are comprehensively supported by over 100 pages of illustrations, dendrograms, maps, and a rich selection of habitat photographs. Many illustrations are excellent colour photos of morphological details (female cibaria, details of leg structure, cleared adult tergites, genital forks, pupal and larval habitus, cocoon shape and texture, head exuviae of male and female pupae, thorax granules and respiratory organs of pupae, and so on!) permitting direct comparison between the species. Of course, excellent line drawings of many structures, especially male and female genitalia, are also provided.

The texts are fascinating and pleasant reading because they are detailed, almost narrative, instead of the brevity and hurriedness of so many contemporary scientific papers. There are numerous cross-connections to other related lines of thought, and numerous small but significant details are presented which in conventional scientific papers are often passed over in silence. This also makes the present volume of Fauna of New Zealand generally attractive, far beyond the islands.

This outstanding book resulted from the fruitful combination of a solid taxonomic and ecological basis, mainly by the late L. J. DUMBLETON (the validity of whose work is expressly acknowledged) and T. K. CROSBY, and a thorough well documented three-year collecting and study effort by the CRAIGS. The popular summary and some of the photographs provide evidence of the intense personal involvement of the three authors who are to be congratulated!

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