

Book Review

The Black Flies (Simuliidae) of North America By P. H. Adler, D. C. Currie & D. M. Wood, pp. 941. Comstock Publishing Associations a Division of Cornell University Press, and the Royal Ontario Museum, 2004. ISBN 0 8014 2498 4. £57.95 (US\$99.95).
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This very serious tome is not for flimsy shelves at a weight of 3.1 kg and consisting of over 900 pages. The three expert authors have calculated that between them they have marvelled at black flies and cursed them for a total of 100 years. The text is divided into five parts, covering the background to black fly studies in continental USA, Canada and Greenland. Parts two and three deal with the biology of *Simuliidae* and the economic aspects of their role as biting pests and in the transmission of micro-organisms. The fifth and largest part 5 deals with the systematics and taxonomy of the group and covers phylogeny and classification, provides a synoptic list, identification keys, taxonomic accounts and illustrations of the life-stages and distribution maps.

Apart from Section 5 the authors' aim was to raise the black fly fauna of North America into the realm of familiarity held by butterflies, dragonflies and other "popular" insects. An optimistic aim which I am not sure will ever be realized, however brilliant the text. They make it clear that there are identification problems in the group and they advocate the continuation of an integrated approach to this task which includes morphology, cytology, distribution and ecology alongside the newer molecular tools.

With their general approach to parts 1–4 the book is aimed, in addition to specialists, at a more general readership and is an informative source of information for medical and veterinary entomologists, aquatic biologists and, for example, environmental consultants. Thus techniques for collection, preparation and curation of specimens are covered alongside a comprehensive section on cytotoxic methods. There is also a wealth of information in chapter 6 on behaviour and ecology on topics as diverse as oviposition, larval feeding, mating behaviour and the difficulties of laboratory colonization. The social and economic impact of black flies makes particularly interesting reading covering a condition called black fly stiff neck in Eastern Canada and black fly fever of humans in the NE of the United States.

Furthermore the veterinary impact of the bites of the flies on domestic animals is described including suffocation due to large numbers in the respiratory tract and toxic shock and death from the toxic saliva of multiple bites. In California during 1994/5 whole golf courses were closed due to black fly bites on humans with economic losses exceeding \$34 000 per month. In terms of transmission, black flies have also been responsible for large economic losses in ostrich and emu farms due to *Leucocytozoan* infections in Trinity River area of Texas. Furthermore in a single year livestock farmers in two counties bordering Arkansas/Texas lost an estimated \$6 million in revenue.

In many areas of the US large sums of money were spent on control, for example, round the Susquehanna River area in Pennsylvania reaching budgets in excess of \$5 million per annum. In the past DDT was extensively applied, but was then replaced by Methoxychlor, Naled and most recently *Bacillus thuringiensis* (Bti).

The book is beautifully illustrated by Ralph Idema and Laurence Zettler and also contains an attractive front colour plate of *S.vittatum* and 21 plates showing larval structures.

Limited outbreaks of black flies in the UK has resulted in a southern UK beer being named after an area of black fly infestation in Blanford, Dorset. I was, however, unable to detect any similar eccentric linkages made to ales by our transatlantic colleagues. In addition the outcry over the outbreaks in the UK led to learned debates during 1989 in The House of Lords in which Lord Campbell of Croy asked "My Lords can my noble friend assure us that this fly, which sounds most pernicious, is neither threatened nor a protected species?" The Earl of Dundee reassured the noble Lord with "No, my Lords, the fewer the better." No doubt a sentiment that farmers and Lumberjacks in the USA and Canada would also heartily support.

This is a fine, scholarly book, which is also readily affordable, and a 'must buy' for all self-respecting black fly specialists.

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