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BOOK REVIEW

JONGJEAN F. & KAUFMAN W.R. (Eds): TICKS AND TICK-BORNE PATHOGENS. Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003, 309 pp., hardbound spin-off cover, ISBN 1-4020-1450-3.

This special issue contains the Proceedings of the 4th International Conference on Tick and Tick-Borne Pathogens (TTP-4), held at The Banff Centre, Alberta, Canada, from the 21st to 26th July, 2002. The conference was dedicated to Jack Gregson (born 1910), the leading Canadian authority on ticks and tick-borne pathogens. Alltogether 170 participants from 27 countries attended the conference. From a total of 166 oral and poster presentations, 30 papers were selected for publication in this special issue. A paper giving a world list of valid tick names is included as well. To make these proceedings more widely available, all the papers in this volume were simultaneously published in a special issue of the journal *Experimental and Applied Acarology* (Vol. 28, Numbers 1–4, 2002). In the preface, the editors divide the papers into sections on biosystematics, genomics and proteomics (8 papers), tick-pathogen interface (3 papers), tick-host interface (3 papers), tick-host-pathogen interface (8 papers), remote sensing and mapping of tick-borne pathogens (3 papers) and tick control (6 papers).

The paper by I.G. Horak, J.-L. Camicas and J.E. Keirans, "The Argasidae, Ixodidae and Nuttalliellidae (Acari: Ixodida): a world list of valid tick names", was added to the section on Biosystematics, Genomics and Proteomics of Ticks. A total of 866 specific names of ticks (Ixodida) are considered valid. Of the world argasid tick fauna there are 183 species in four genera, namely *Argas*, *Carios*, *Ornithodoros* and *Otobius.* The ixodid fauna consists of 241 species in the subfamily Ixodinae (the genus *Ixodes*) and 442 species in Amblyomminae (genera *Amblyomma*, *Anomalohimalaya*, *Bothriocroton*, *Cosmiomma*, *Dermacentor*, *Haemaphysalis*, *Hyalomma*, *Margaropus*, *Nosomma*, *Rhipicentor* and *Rhipicephalus*). The family Nuttalliellidae is represented by the monospecific genus *Nuttalliella.* This systematic survey is supported by the paper of Barker and Murrell in this book and one by Klompen at al. (in press) erecting the new subfamily Bothriocrotoninae for a single genus *Bothriocroton*, which includes some Australian reptile ticks listed previously among *Aponomma*, and degrades the genus *Boophilus* to a subgenus of the genus *Rhipicephalus.* The paper of Fang, Keirans and Mixson draws attention to RNA polymerase II, the nuclear protein gene used in tick molecular systematics. Other papers in this section deal with a proteomics approach to characterising tick saliva secretions and the use of RNA interference in tick research. The molecular studies on *Ixodes scapularis* are sufficiently advanced to permit the preparation of a preliminary linkage map for this species of tick (Ullmann, Piesman, Dolan and Black IV).

A study of the inhibitor of the thrombin-stimulated blood platelet aggregation in the saliva of *Amblyomma variegatum* is included in the section including papers on biochemistry and immunology. Also included are papers on the expression of defensin-like peptides in the hemolymph and midgut of *Dermacentor variabilis* in response to challenge by *Borrelia burgdorferi*, *Escherichia coli* and *Bacillus subtilis* (Sonenshine et al.), and the involvement of antibacterial peptide defensin in the midgut defence of *Ornithodoros moubata* (Nakajima et al.).

Among the more ecological papers are preliminary observations presented on adaptations of exophilic ixodid ticks to forest and open country habitats, and a study of the photoperiodic control of developmental diapause in nymphs of some prostriate ixodid ticks. A study on the specificity of host-produced kairomones for ixodid ticks of the genera *Amblyomma*, *Dermacentor* and *Ixodes* is the only paper on chemical ecology. There is an interesting paper by Prof. A. Estrada-Peña on the relationships between landscape connectivity and abundance of *Ixodes ricinus* ticks, using the correlation length as an overall measure of habitat connectivity to a landscape and compiling a digital map of tick abundance. Randolph and Rogers have a paper on remotely sensed correlates of phylogeny in tick-borne flaviviruses.

A special group of papers is on ticks as vectors of pathogenic agents, e.g. of livestock in South Africa (Mbati et al.), with special attention to *Anaplasma phagocytophilum* (formerly *Ehrlichia phagocythophila*), *A. marginale*, *Ehrlichia ruminantium*, and the rickettsia causing spotted fever. Adaptations of *A. marginale* for surviving in ticks and cattle and the transmission, facilitation of propagation by sodium valproate and reduction of host weight gain during infection with *A. phagocytophilum* is also included in these studies. There are also papers on immunogenicity and the kinetics of the experimental infection of sheep with *E. ruminantium*. Prof. Korenberg and coauthors present results of long-term observations on the interaction of tick-host-*Borrelia* populations in Eastern Europe.

The last section is on the control of ticks of livestock and dogs, especially *Boophilus microplus* [now *Rhipicephalus* (*Boophilus*) *microplus*], *Amblyomma variegatum*, *A. americanum* and *Ixodes scapularis.* Molecular and biochemical diagnosis of esterase-mediated pyrethroid resistance and in vitro acaricide resistance in *B. microplus* is reported. The use of the "4-poster" treatment device for control of ticks on deer and the susceptibility of different species and stages of ticks to entomopathogenic fungi is also reported. R.G. Pegram and C. Eddy report the progress in eradicating Tropical Bont Tick, *Amblyomma variegatum*, from the Caribbean. The program, using Bayticol pour-on treatment, started in 1995. Six islands of the Lesser Antilles are "provisionally free from Tropical Bont Tick". However, the elimination of this tick from the remaining islands requires additional financial support.

A List of Participants and photographs of the main events of the International Conference on Ticks and Tick-Borne Pathogens are included. Although these papers were also published in the journal *Experimental and Applied Acarology* this hardbound book is a useful comprehensive collection of the contributions of the conference for those who find the journal difficult to obtain. The quality of the papers in this book is excellent, reflecting the careful selection of the best presentations and excellent work of the editors.

F. Dusbábek