



Acarology Bulletin



Newsletter of the **SYSTEMATIC & APPLIED ACAROLGY SOCIETY**

President's message



Dear colleagues:

I am sure that you are as pleased as I am to see the completion of volume 2 of *Acarology Bulletin*. We should thank Dr. Hu for his time and efforts in editing this volume and wish him great success in editing the next volume.

I am pleased to announce that Dr. Hu and Dr. Tingkui Qin kindly agreed to accept the editorships of SAA from volume 3 in 1998. This will significantly reduce my work load. Submission procedure is changed for members in mainland China (see page 38 for details). I advise members to submit their manuscripts as early as possible, as SAA volume 3 (1998) will be published ahead of schedule to allow it reaching the members before the first SAAS symposium in October 1998.

I am also pleased to announce that SAAS will issue a new series, *Systematic and Applied Acarology Special Publications* later this year (for details, see page 43).

□ □ Zhi-Qiang Zhang



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Acarology and member news

The XXI International Congress of Entomology will be held in Brazil, Aug. 20-26, 2000. The ICE organizing committee has made final decision on the scientific sessions. The congress will be composed of 23 simultaneous sessions, as a result of one year discussion with the entomological community via Internet and the following is the list:

1. Acarology
2. Agricultural Entomology
3. Biogeography and Biodiversity
4. Chemical and Physiological Ecology
5. Computer Science Applied to Entomology
6. Ecology and Population Dynamics
7. Ecology of Pesticides, Resistance and Toxicology
8. Entomophagous Insects and Biological Control
9. Ethology
10. Forest Entomology
11. General and Applied Insect Pathology
12. Genetics and Evolutionary Entomology
13. Insect Physiology, Neurosciences, Immunity and Cell Biology
14. Integrated Pest Management
15. Medical and Veterinary Entomology
16. Morphology and Ultrastructure
17. Plant Disease Vectors
18. Reproduction and Development
19. Social Insects and Sericulture
20. Special Environments Entomology
21. Systematics and Phylogeny
22. Trends and Research Targets of Applied Pest Control for Sustainable Crop Production
23. Urban and Stored Products

For updated information, please visit the XXI ICE web page at: <http://www.embrapa.br/ice>.

1997 Annual Meeting of the Entomological Society of America will be held in Nashville, Tennessee, during December 14-18. The theme of the meeting is "Modern Insects: Relevant, Instructive, Inescapable".

All scientific sessions and social events are to be held in Opryland Hotel. For detailed information, please visit the ESA home page at <http://www.entsoc.org>. SAAS will be participating by displaying issues of the journal, *Systematic and Applied Acarology* and the newsletter, *Acarology Bulletin* in a booth organized by the International Affairs Committee of ESA. Some members of SAAS are also ESA members and this will be an opportunity to meet. We may schedule an informal event. If you plan to attend the meeting, please contact Dr. Renjie Hu (Fax: 912-681-0559, e-mail renjieh@gasou.edu).

Systematic & Applied Acarology: New editors and submission guidelines

Two new editors have joined SAA from the third volume: Dr. **Renjie Hu** (medical acarology) and Dr. **Ting-kui Qin** (agricultural acarology). From now on, all manuscripts from mainland China should be first submitted to Prof. Lairong Liang (Dept. of Biology, Fudan University, Shanghai 200433) if it is in the area of agricultural acarology and to Prof. Tinghuan Wen (Laboratory of Medical Acarology, Shanghai Medical University, Shanghai 200032) if it is in the area of medical acarology. Prof. Liang and Wen will decide whether a manuscript is suitable for SAA and whether it should be sent to Dr. Hu or Dr. Qin for further review(s). Prof. Liang and Wen will not accept any manuscripts which do not follow the guidelines of SAA. Manuscripts from outside of mainland China should be submitted directly to Dr. Hu (Institute of Arthropodology and Parasitology, Georgia Southern University, P. O. Box 8056, Statesboro, GA 30460, USA), Dr. Qin (Landcare Research, Private Bag 92 170, Auckland, New Zealand) or Dr. Zhi-Qiang Zhang (Department of Entomology, The Natural History Museum, London SW7 5BD, UK). SAA volume 3 is expected to be printed in May 1998. Members are welcome to submit manuscripts as early as possible.

SAAS Symposium: Several SAAS members met at Fudan University, Shanghai on September 11 to discuss how to prepare the first SAAS meeting. Professors **Lairong Liang**, **Qianhong Wu** and **Huiqin Dong** from Fudan University, Professor **Tinghuan Wen** from Shanghai Medical University and Dr. **Xiaoyue Hong** from Nanjing Agricultural University attended the meeting. The place, date and program of the SAAS meeting are among the discussed issues. The proposed places are Guiyang City in Guizhou Province and Wuxi City in Jiangsu Province, and the date is suggested to be October 12-14, 1998.

Dr. **Zhi-Qiang Zhang** visited Fujian from 14 September to 30 September to participate in a collaborative research on mites of bamboo with Yanxuan Zhang and Jianzhen Lin of the Fujian Academy of Agricultural Sciences. On 15 July, he gave a lecture on recent developments in mite biological control at Fujian Academy of Agricultural Sciences. He visited Dr. Qin Hai Fan at Fujian Agric. University on the same day. On 16 July, he visited the Forest Protection Laboratory of Fujian Forest Bureau and gave another talk on mite biology and control. He then joined Yanxuan and Jianzhen (and Qinghai joining in later) in a field survey. Yongan County is the first stop in their field survey. They were shown bamboo forests in two villages on 17 July. In the afternoon of 17 July, an informal discussion was held with forest protection staff from various forest stations. Several bamboo forests in Nanping County, Jianou County and Wuyi Mountain were surveyed during 19-23 July. Spider mites (Tetranychidae: *Schizotetranychus* and *Aponychus*) and/or rust mites (Eriophyidae) were the major pests of bamboo in these forests. After the field survey, Yanxuan, Jianzhen and Zhi-Qiang analysed the data for a few days at Fujian Academy of Agricultural Sciences. Jianzhen and Zhi-Qiang also initiated a joint project on an illustrated catalogue of Chinese Tarsonemidae. Future research plans were also discussed. It is proposed that Zhi-Qiang should return in 1998 to complete the project.

Dr. **Zhi-Qiang Zhang** visited the USDA Systematic Entomology Lab at Beltsville during 9-23 September on a Smithsonian Short-term Visitor fellowship. He was hosted by Dr. Robert Smiley. He studied mites of the Trombidina and Erythraeina in the US National Mite Collection.

Dr. **Xiaoyue Hong** visited Pakistan from July 6 to July 27 with Jiangsu Science and Technology Delegation. He visited Ayub Agricultural Research Institute, the largest agricultural research institution in Pakistan and University of Agriculture, Faisalabad, one of the oldest and largest agricultural universities in South Asia. He also met with Dr. Ghulam Mustafa Aheer, an acarologist with Ayub Agricultural Research. He introduced SAAS, SAA and acarological research in China to Dr. Mustafa. In the mean time, Dr. Mustafa told Dr. Hong that there are about 50 acarologists in whole Pakistan and mites on cotton and fruit trees are among the most damaging pests. Both expressed cooperative desires in the future.

Dr. **Xiaoyue Hong** accompanied two Taiwanese colleagues to collect eriophyoid mites at Tianmu Mountain in Zhejiang Province and Huangshan (Yellow) Mountain in Anhui Province in September. Dr. Kunwei Huang from National Museum of Natural Science and Dr. Jinfa Wang from National Zhongxing University expressed great interest in mainland China. They exchanged the acarological research situations in both mainland China and Taiwan. They hope to have more chance to meet and cooperate with each other in the future.

Dr. **Daochao Jin** of Guizhou Agricultural College, China proposed a new hypothesis, "eighteen-segment theory" of the origin of the water mite descending from worm-like ancestor with 18 segments (I-XVIII) and a precheliceral lobe. After a careful study of

the glandularia, Dr. Jin found that the gland structure of hydrachnelles' glandularia shows no similarity to other glandular structures or organs found in all acarine groups. This means that the 18 pairs of glandularia were independently derived from 18 intersegmental folds between primary segments of the worm-like ancestor in the course of evolution of soma with reducing body axis. The "eighteen-segment theory" presumes that the transferring of ancestor's segments, to reduce body axis, is directed by two stable points, "das 1" between IV and V and "das 2" at area of genital pore. Other theories such as "sixteen-segment theory" by Grandjean in 1969 and Coineau in 1972 and "twelve-segment theory" by Bader in 1982 were also evaluated. (Acta Entomologica Sinica, 1997, 40(3): 231-246).

Allothrombium ovatum Zhang & Xin is an ectoparasitic natural enemy of the cotton aphid *Aphis gossypii* in North China. Through laboratory rearing and field observations, Mr. **Huijie Zhang**, Mr. **Jianshe Li** and Mr. **Shuanshi Xian** of Shanxi Academy of Agricultural Sciences found that the mite has one generation a year in Shanxi Province and overwinters in egg stage in soil. The developmental durations of egg, prelarve, larva, nymphochrysalis, nymph, preadult and adult were found to be 220.3, 19.5, 22.0, 12.0, 13.0, 13.0 and 59.0 days respectively at the mean annual temperature 13.7 °C. (Acta Entomologica Sinica, 1997, 40(3): 288-296).

A new genus, *Wuella*, in the family Trombiculidae was established by Professor **Dunqing Wang** (Fujian Medical College), **Fenggang Pan** and **Ye Ge** (Institute of Microbiology and Epidemiology, Academy of Military Medical Sciences). The type species is *Wuella quadriseta*. (Acta Entomologica Sinica, 1997, 40(3): 314-316).

A new mite *Tuckerella xinglongensis* Lin & Fu in the family Tuckerellidae was found on both *Polyscias fruticosa* var. *plumata* and

Camellia sinensis in Hainan Province. (Acta Entomologica Sinica, 1997, 40(3): 311-313).

On *Ribes* sp., Ms. **Manping Liu** and Professor **Haiyuang Kuang** of Nanjing Agricultural University found a new eriophyid *Eriophyes harbinensis*. So far, two eriophyid species, *Cecidophyopsis ribis* and *Eriophyes harbinensis*, have been reported from *Ribes* in China. (Acta Entomologica Sinica, 1997, 40(3): 317-319)

Dr. **Renjie Hu** recently accepted a research position at the Institute of Arthropodology and Parasitology, Georgia Southern University to work with Dr. James H Oliver, Callaway Professor of Biology and director of the institute. He will be mainly involved in research projects on epizootiology of Lyme disease in the southeastern U.S. (including vector ticks and vertebrate reservoir hosts) and characterization of *Borrelia* spp. Effective as of August 1, 1997, his new address is Institute of Arthropodology and Parasitology, Georgia Southern University, P. O. Box 8056, Statesboro, GA 30460, USA (Tel.: 912 681-5564, Fax: 912 681-0559, E-mail: renjeh@gasou.edu).

Insect Fauna of Fujian, Fasc. 6, Acari

The book will be published in 1998 and includes 13 parts. The diagnoses, distinguishing characters, hosts, distribution, and illustrations of most species are provided.

Gamasoidea (by Wang Dunqing et al.): 4 families, 22 genera and 47 species of important medical acarid were recorded. 11 species are endemic to Fujian.

Phytoseiidae (by Wu Wei-nan et al.): 68 species belonging to 7 genera were reported.

Ixodoidea (by Deng Kuo-fan): 23 species of ticks were recorded. Most of them are common species as found in South China.

Bdelloidea (by Lin Jianzhen et al.): 19 species representing 9 genera in 2 families of Bdellidae and Cunaxidae were recorded. 3 of them were new record species from China.

Pygmephoroida (by Lin Jian-zhen et al.): 12 species were recorded.

Tarsonemidae (by Lin Jianzhen et al.): 30 species of tarsonemid mites belonging to 10 genera and 3 subfamilies have been described, including 1 new species and 1 new combination.

Eriophyoidea (by Kuang Hai-yuan et al.): 3 families, 6 subfamilies, 24 genera and 36 species were recorded.

Cheyletidae (by Lin Jianzhen et al.): 11 genera, 20 species, including 2 new species and 6 new records were reported.

Tetranychoida (by Wang Hui-fu et al.): 33 species belonging to 12 genera in 3 families were described.

Raphignathoidea (by Fan Qing-Hai et al.): Keys to families, genera and species were provided. 28 species were described, including 1 new species and 2 new records.

Trombiculidae (by Wang Dun-qin et al.): 22 endemic species of Fujian were recorded.

Acaridae (by Lin Xuan et al.): 18 species belonging to 11 genera, 2 families living on stored product were described.

Oribatida (by Wang Hui-fu et al.): 61 species of oribatid mites belonging to 51 genera and 35 families have been determined, 18 species recorded for the first time from China.

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Acari Primary Type Specimens in the New Zealand Arthropod Collection (NZAC) Version 1 - June 1997, compiled by Ting-Kui Qin, Rosa C. Henderson and Trevor K. Crosby.

This is a list of 176 primary type-specimens of Acari housed in the NZAC held at the Mt Albert Research Centre, Mt Albert, Auckland, New Zealand. Details of the list can be accessed by visiting the website at: <http://www.marc.landcare.cri.nz/nzacdocs>. Information on primary type specimens of other groups of arthropods can also be obtained from this website.

New Books

Acarology IX: Volume 1, Proceedings Edited by Roger Mitchell, David J. Horn, Glen R. Needham, W. C. Welbourn. (1996) Columbus, Ohio, The Ohio Biological Survey. 718 pp. ISBN 0 86727 123 x

Acari: Phytoseiidae. Economic Insect Fauna of China. Fasc. 53. By Weinan Wu, Lairong Liang and Wenming Lan (1997) Science Press, Beijing, China. 38 RMB Yuan. viii+ 223 pp+ 3 plates. (In Chinese with index of species names).

An Illustrated Guide to Mites of Agricultural Importance. By Zhi-Qiang Zhang and Lairong Liang (1997) Tongji University Press, Shanghai, China. 55 RMB Yuan. vi + 228 pp. In Chinese and English.

Chorobu Przenoszone Przez Kleszcze (Tick-transmitted Diseases). Danuta Prokopowicz, (1995) Warszawa, Wydawnictwa Fundacji Buchnera. 231 pages + 7 colour plates. Hardcover. ISBN 83 85632-298

Book Reviews



Nymphs of the Genus *Ixodes* (Acari: Ixodidae) of the United States: Taxonomy, Identification Key, Distribution, Hosts, and Medical/Veterinary Importance. By L. A. Durden & J. E. Keirans, 1996. Monographs, Thomas Say Publication in Entomology, Entomological Society of America, Lanham, Maryland, USA. iv + 95 pp. ISBN 0-938522-57-4. \$13.20 each for ESA members (\$22.00 for nonmembers).

This monograph is one of the Thomas Say Publications in Entomology issued in 1996 by the Entomological Society of America (ESA). Currently. The series publishes manuscripts covering all aspects of entomology includes three kinds of publications: (1) monographs on high-quality taxonomic works, (2) memoirs on any nonsystematic topics in entomology, and (3)

proceedings on collection of materials delivered at symposia sponsored by ESA or other scientific societies.

The authors of this monograph are currently the assistant curator (L.A.D.) and the curator (J.E.K.) of U.S. National Tick Collection at the Institute of Arthropodology and Parasitology, Georgia Southern University, U.S.A.

The genus *Ixodes* is known to include 234 recognized species worldwide and 34 of them are currently considered to be residents in U.S. Historically, there were only a few publications on identification of larval stage of some of these *Ixodes* spp. (Clifford et al. 1961, Webb et al. 1990, and Robbins and Keirans, 1992) and one comprehensive guide for adults (Keirans and Clifford, 1978). However, there had been no comprehensive key for nymphs until this monograph became available.

This monograph includes all 34 *Ixodes* spp. known to exist in U.S. After a brief introduction, the authors presented a comprehensive dichotomous key to the nymphs of the genus *Ixodes* of the United States followed by the major portion of the monograph: species accounts. Ticks included in the monograph are listed alphabetically. Each of the 34 species is presented in the following format: full species name, a chronological listing of synonymies and references from major publications, the known geographical distribution by state, vertebrate host records, the literature citation for the original description of the nymph, and a synopsis of the known medical and veterinary importance of the species. In most cases, four scanning electron micrographs which depicted the dorsal capitulum, ventral capitulum, scutum, and leg coxae, respectively, are provided. The monograph also includes an up-to-date list (until 1996) of references.

The production of this monograph certainly ended the lack of a comprehensive guide for identification of nymphal *Ixodes* spp. in the U.S. The micrographs presented in the

monograph are excellent. I found the monograph very informative and the key easy to use. I think, just as hoped by the authors, that this monograph will be very useful to public health officials and veterinary practitioners as well as to individuals who are studying or may be just generally interested in ectoparasites of vertebrates.

References

Clifford, C. M., Anastos, G. & Elbl, A. 1961. The larval ixodid ticks of the eastern United States. *Miscellaneous Publications of the Entomological Society of America* 2: 213-237.

Keirans, K. E. & Clifford, C. M. 1978. The genus *Ixodes* in the United States: a scanning electron microscope study and key to the adults. *Journal of Medical Entomology* (Supplement 2): 1-149.

Robbins R. G. & Keirans, J. E. 1992. Systematics and ecology of the subgenus *Ixodiopsis* (Acari: Ixodidae: Ixodes). Thomas Say Foundation, Monograph 14: 1-59.

Webb, J. P. Jr., Bennett, S. G. & Challet, G. L. 1990. The larval ticks of the genus *Ixodes* Latreille (Acari: Ixodidae) of California. *Bulletin of the Society of Vector Ecology* 15: 73-124.

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**Plant Mites of Japan in Colors.** S. Ehara (ed) 1993. Tokyo, Zenkoku Noson Kyoiku Kyokai. 298 pp. Hardcover. ISBN 4 88137 051 0 C3654 (in Japanese).

This book is a joint effort of 23 Japanese acarologists. It consists of two major parts: (1) the descriptions and illustrations of major mite species and their natural enemies (pp. 1-187) and (2) general introductions to plant acarology (pp 189-280).

Part one includes 88 species of mites and eight species of their natural enemies. Treatment of each species includes (1) a diagnosis with line drawings of prepared specimens and photographs of living mites,

(2) geographical distribution and (3) brief notes on biology, economic importance and control. The photographs not only help readers to recognise mites in the field but indicate the behaviour and damage of mites on plants.

Part two of the book includes 14 sections. In section I, S. Ehara gave a brief introduction to plant mites with a key to plant mite families. Sections II-IIIIV each provide an introduction to Tenuipalpidae & Tetranychidae (Ehara), Eriophyidae (F. Kadono), Tarsonemidae (Y. Ito), Acaridae (K. Kurosa), Phytoseiidae (Ehara), Stigmaeidae (Ehara) and Oribatida (J. Aoki), with a checklist of and key to Japanese plant mites in most cases. Sections X-XIV are short reviews on plants mites: X) microorganism natural enemies (H. Nemoto), XI) tetranychid ecology (N. Shinkaji), XII) phytoseiid ecology (H. Mori), XIII) pesticide resistance in Tetranychidae (K. Inoue) and XIV) control of Tetranychidae (K. Furuhashi). Part two is thus similar to "Principles of Plant Acarology" (Ehara & Shinkaji 1996; see review in the last issue of *Acarol. Bull.*) but not as extensive and useful.

The books ends with an index to scientific names and an index to Japanese names.

This is an excellent pictorial guide to plant mites in Japan. It was beautifully printed and presented. Over ninety plates of colour photos of mites are among the best that I have seen in acarological publications. Although this book is about Japanese plant mites, it should also be a useful reference for acarologists in other countries, especially China and Korea.

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#### Acknowledgements

We thank the following member for making a contribution of \$10 or more to SAAS

Shifu ZHAO (USA)

## NEW SAAS PUBLICATIONS

SAAS will issue a new series, *Systematic and Applied Acarology Special Publications (SAASP)*, as a sister journal to *Systematic and Applied Acarology (SAA)*. SAASP will be published irregularly from late 1997; its frequency will depend on the number of suitable manuscripts and funding. Normally, the authors will be asked to pay for the printing of their manuscripts in SAASP. SAASP will be jointly edited by Dr. Anne Baker and Dr. Zhi-Qiang Zhang. All papers will be peer-reviewed before publication.

SAASP is designed for papers that can not be normally placed in SAA. These papers include (1) monographical works which are too long for SAA and (2) papers that need faster publication. The main purpose of SAASP is for publishing monographs (at least 64 printed pages). Papers (< 64 pages) should generally be published in SAA. Because SAA is published annually, it may not be suitable for publishing papers that needs faster publication when one volume was just issued (e.g. manuscripts submitted in July). SAASP is especially for taxonomic papers that make names of new species available for applied projects. In these cases, faster publication of these taxonomic papers can avoid *nomina nuda* or avoid forthcoming applied papers using names such as *Acarus* sp. for species that have been determined but not yet published.

Guide lines for manuscript preparation for SAASP are the same as those for SAA. Potential authors should contact the editors about the suitability of their manuscripts before submission.

Dr. Anne Baker or Dr. Zhi-Qiang Zhang  
Editors, Syst. & Appl. Acarol. Spec. Publ.  
Department of Entomology  
The Natural History Museum  
London SW 7 5BD, UK

## Current contents of acarological journals

### International Journal of Acarology

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