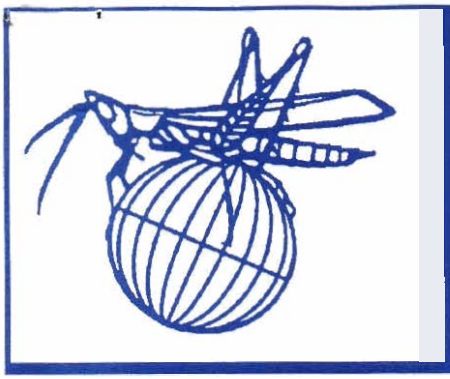

Metaleptea

The ORTHOPTERISTS' NEWSLETTER

Vol. 14, No. 1 | THE ORTHOPTERISTS' SOCIETY | July 1992

In this Issue. . .

A MESSAGE FROM THE EDITOR

There is a lot of information in this issue. Society business is foremost on the list: finances and membership data, going to press with our first issue of the *Journal of Orthoptera Research*, the progress of Dan Otte's Orthoptera Species File (which promises to be both an up-to-date Orthoptera catalog and interactive database for orthopterists), and information provided to the members regarding Society dues and novel approaches for payment by student members and members from other countries.

§

Perhaps the most important aspect of this newsletter is the information provided on the upcoming 6th International Meeting of the Orthopterists' Society. Just about everything you ever wanted to know about the logistics of the Meeting is provided in this volume. I suggest you make a copy (or two) of pages 16 to 20 so that you can retain the information for when the time comes that you will need it. Remember, for example, the important **Member ID Number 5290A**, which you will need to make airline reservations at the best rates available. Also in this issue of *Metaleptea* is the Advanced Registration Form for the Meeting. Fill it out at your earliest convenience, but do not send money yet. Note also that you should send an abstract for each paper you plan to present at the Meeting, along with the Registration Form, to S. K. Gangwere.

§

In the next two issues (there will only be two issues before the 6th Meeting), I will provide you with additional information about the Meeting, about presentations, and most importantly, about prodecures for submission of papers that will be published in the Proceedings of the 6th International Meeting of the Orthopterists' Society. With the computer technology now available to us, we should be able to get the Proceedings published in record time. All papers submitted will go through a peer review process and will be subject to conditional acceptance or rejection, depending on the decisions of the reviewers. Papers that are rejected will still be published – but in abstract form.

§

Several new books, and books in the planning stage, have been announced in this issue. Orthoptera research is coming to fruition once again, and it seems to be undergoing a rebirth. My own research is beginning to feel this rejuvenation, for I too have several books in progress. The one nearest completion is *The Termites of North America* (co-authored with Margaret S. Collins), but books on nearctic and neotropical katydids are in the works. We welcome advertisements for new books, but we wish to remind the publishers of our cost policy, which we feel is extremely reasonable.

§

The next issue of *Metaleptea* will contain the most recent directory of our membership. This is long overdue (the last one was published more than 5 years ago!). Please notify S. K. Gangwere of any discrepancy involving your name and address, so that when published in the directory, they will be correct and up-to-date.

David A. Nickle
Editor, Orthopterists' Society

COMMENTS

THE EXECUTIVE DIRECTOR'S COMMENTS

S. K. Gangwere

Membership Dues . . . . . .

The 1992 spring-summer dues statement was mailed recently to the approximately 300 Orthopterists' Society members belonging to some 42 countries. I am pleased to report that the status of most is paid in full through 1992, for which we are grateful because, as a low-budget organization, we need these revenues to continue working on your behalf. Our dues are kept minimal so as not to outprice student and third world members. Active Membership costs only $15 (US currency), Student Membership $7 (US currency), and Honorary and Emeritus Membership is gratis ($0). All enjoy full benefits of membership and receive the attractive, informative newsletter, *Metaleptea*. Our meager dues revenues are supplemented by a $15 (US currency) publication charge entitling a member to receive the *Journal of Orthoptera Research* and any *Proceedings* published during the year. The first number of the *Journal of Orthoptera Research* is going to press this fall (1992) and two numbers are expected in succeeding years. The *Proceedings of the 6th (Hilo) International Meeting* is to go to press by 1994. It is assumed that members want all publications and will pay the $15 supplemental charge unless the Directorate is so informed on the returned billing sheet. Those members who choose to receive only *Metaleptea* are asked to delete the supplemental charge from their dues form.

§

New Billing Statements . . .

Only a few members were sufficiently in arrears during the recent billing that the Directorate was forced to send them the final notice mandated by the Society's Constitution and By-Laws. We always take this action slowly and with regret because we recognize that many members in arrears want to continue membership but lack the financial resources to do so. Those in this difficult situation are often students on a tight budget or regular members living in countries where US dollars are not readily obtained, the rate of exchange is unfavorable, or the economy is restricted, money export being banned or limited. It is for this reason that we have instituted Sponsored Memberships, to which we direct the attention of members in the above financial situation. Sponsored members have all the rights and priveleges of regular members despite their inability to pay dues. They are sponsored by more affluent members, and, in return, may provide their sponsor with reprints, specimens, data, etc. We currently have more individuals requiring sponsorship than we have sponsors, so we urge members who can to consider becoming a sponsor. Merely check the appropriate box on the dues sheet and enclose the additional amount with your payment.

Sponsored Members . . . . . .

§

Past Publications are still available . . . . .

There is available at the Directorate a small supply of virtually all volumes and numbers of past Pan American Acridological Society and Orthopterists' Society publications including *Metaleptea*, the *Proceedings*, and the *Occasional Papers*. New members and those wanting additional copies of past publications may purchase them at the following prices (US currency): *Metaleptea* @ $1.50 per number or $3.00 per volume, the *Proceedings* @ $15 per volume, the *Occasional Paper #1* @ $2.00. Please advise of the needed volumes and numbers and send the remittance to S. K. Gangwere, Orthopterists' Society, c/o Department of Biological Sciences, Wayne State University, Detroit, MI 48202, USA. A list of recent publications is available upon request.

§

Call for papers . . . . . .

The Orthopterists' Society continues to solicit high-quality research papers for publication in the *Journal of Orthoptera Research*, the first number of which is going to press this fall. Kindly send your manuscript in appropriate format to Society President Dan Otte, Department of Entomology, Academy of Natural Sciences, 19th and the Parkway, Philadelphia, PA 19103, USA. Dan, *Journal of Orthoptera Research* Editor Nick Jago, and reviewers will be glad to consider your report for early publication, with the stipulation that, if your paper is accepted, you agree to pay a $20 (US currency) per page charge which cannot be waived.

COMMENTS

§

The dates August 1 – 5, 1993, have been set aside for the 6th International Meeting of the Orthopterists' Society, to be held at the Conference Center of the College of Continuing Education and Community Service, University of Hawaii, Hilo, Hawaii, USA. Please mark these dates on your calendar. A preliminary announcement is enclosed in this number of *Metaleptea*.

.....6th Meeting of the OS

§

As the Hilo Meeting approaches, it is time to announce the 1993 D. C. F. Rentz Competition. The four Rentz awards are for outstanding research papers submitted in the following areas: control, systematics, ecology, and behavior. A Rentz Award will be given in each. You may nominate yourself if you recently completed research that you regard as exceptional, or others familiar with your research may nominate you. Application is easy. Submit a letter of request to Dr. Daniel Otte (see above address), together with the completed manuscript. Each awardee will receive a scroll at the Hilo Meeting in recognition of the accorded Rentz Award, and the awardee who submits the paper judged to be the best of the four will also receive a Recognition Award consisting of a grant of money toward partial travel to Hilo. The amount of the grant is to be determined by fund availability.

.....Rentz Award

§

Treasurer Roger Bland reports that our checking account balance as of 29 May, 1992, is $8,569.37 and our savings account balance is $4,058.65, for a total of $12,628.02 (all totals in U.S. currency). Financial commitments loom for the first number of the *Journal of Orthoptera Research*, along with Hilo meeting and other expenses. If your dues are not already paid, please help by promptly sending a personal check, an international money order, a U.S. Postal Money Order, or cash to Roger. Some members pay 3-5 years in advance to eliminate the need of the smaller yearly payments. You may wish to follow their example.

.....More Finances

§

Kindly note that (1) personal checks from non-U.S. banks must be drawn on a bank that has a cooperating U.S. bank whose name also appears on the check, and (2) non-U.S. checks must have a routing code (a series of computer-read numbers) along the bottom margin. Unfortunately, checks not drawn on a U.S. bank and without the routing code cannot be cashed without a processing fee that is often more expensive than the total dues. We have no recourse but to return such payments to the sender with a request that a properly drawn check or draft be issued. We apologize for the inconvenience.

....Banking Problems

A Message from Philadelphia

Daniel Otte, Resident, OS

OSF (Orthoptera Species File)

Development of an electronic catalog to the world's Orthoptera is progressing well. Complete first drafts of the grasshoppers (Acridoidea and Tetrigidae) and crickets (Grylloidea) are nearing completion, and those working on the project report that a first draft of the cockroaches will be completed by early 1993. The Tettigoniidae are being entered at a rate of a few hundred records per week, and a first draft is expected by early summer 1993. The goal is to produce a complete draft of all orthopteran groups by the middle of 1993.

.....OSF

JOR (Journal of Orthoptera Research)

The first issue of the JOR will be published, finally, in the fall of 1992. The reason for the delay is due to the slow pace at which papers were received by our Journal editor, Nick Jago. We hope that once the first issue is published and the high quality of the journal is established that many of you will consider placing your papers in the JOR. The first issue contains papers on a variety of topics: cultivar resistance to feeding, sexual selection, spacing patterns, evolution of signal systems, biogeography, and taxonomy. But, you need not wait for the first issue–send your manuscripts to the editor now. Once we get going, we guarantee quick publication. We extend our apologies to several authors in the No. 1 issue for having to wait so long; but we need more than two small manuscripts before going to press.

.....JOR

FINANCES AND MORE

THE ORTHOPTERISTS' SOCIETY

1991 Financial Statement
(In Dollars, US Currency)

Checking account balance Jan. 1	$2,831.67
Receipts	
Dues	4,050.50
Publication receipts	1,269.00
Gifts and contributions	2,027.00
Interest on account (checking)	163.22
Miscellaneous	0.00
Other (specify)	0.00
Total receipts	$7,509.72
Disbursements	
Stationery and clerical supplies	0.00
Stamps, mailing, and telephone	1,226.00
Publication and printing	1,570.23
Bank transfers to savings account	500.00
Miscellaneous	0.00
Other (specify)	0.00
Total disbursements	$3,296.23
Receipts less disbursements	4,213.49
Jan. 1 balance (=surplus)	7,045.16
Checking account balance Dec. 31	$7,045.16

****

Savings account balance Jan. 1	$3,342.50
Deposits	
Cash transfer	500.00
Interest on account (savings)	156.82
New deposits	0.00
Total deposits	$656.82
Withdrawals	
Total withdrawals	0.00
Deposits less withdrawals (=surplus)	656.82
Jan. 1 balance plus surplus	3,999.32
Savings account balance Dec. 31	$3,999.32

****

Society financial status surplus (+checking + savings totals) as of Dec. 31 ..... $11,044.48

[The following is an ABSTRACT of a Ph.D. research thesis submitted by one of our members]

Cockroaches from the tropical rainforest of French Guiana: Community structure and Behavioral ecology of Zetoborinae
Les Blattes de la forêt tropicale de Guyane Française: Structure du peuplement et étude éco-éthologique des Zetoborinae

Philippe Grandcolas
Thesis, Université de Rennes, 1991. 300 pp.

The community structure of the cockroaches of the Guianese tropical rainforest was described, and the reasons for ecological diversification and the appearance of gregariousness were investigated for a single lineage (Zetoborinae).

177 species belonging to 12 subfamilies were observed; among them more than one hundred were new. Eleven guilds were defined by clustering of species in multivariate analysis of their microhabitat use. All guilds were composed of species belonging to several subfamilies, signifying that the ecological diversity in the community is represented by phyletic diversification in all subfamilies.

Five species of Zetoborinae were studied to assess the ecological and behavioral diversity in this subfamily. The phylogeny of Zetoborinae and of their close relatives was constructed, and all the ecological and behavioral patterns were studied in reference to this phylogeny, revealing their evolutionary history. This diversification led to the use of more resilient habitats in an unstable environment, instead of resulting from interspecific competition or predation pressures. Predation pressure conversely appeared to enhance the development of social behavior.

FEATURES

GRASSHOPPER EGG PARASITES (*Scelio* spp.) FROM AUSTRALIA AS CANDIDATES FOR BIOCONTROL INTRODUCTION

Richard J. Dysart
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Sidney, Montana 59270, USA

ABSTRACT: Species of the genus *Scelio* (Hymenoptera: Scelionidae) occur worldwide and are all parasitic in the eggs of acridid grasshoppers. After locating an egg-pod, the female *Scelio* wasp chews through the froth plug and lays a single egg inside several grasshopper eggs near the top of the pod. The most common native species in the Northern Plains is *Scelio opacus* (Prov.), which is frequently reared from eggs of *Melanoplus bivittatus* (Say), *M. sanguinipes* (F.), and *Camnula pellucida* (Scudder). Like these grasshoppers, the parasite is univoltine; diapause in the parasite is controlled by the diapause condition of the host egg. During a four-year (1988-1991) study in northeastern Montana and northwestern North Dakota, I made late-winter field collections of egg-pods, reared-out all live forms, and then dissected all eggs to determine contents and cause of death. Overall, *S. opacus* was found in 10.7% of the egg-pods (355/3316) of its five main hosts, but it killed only 2.9% (3924/135323) of the eggs. Earlier studies in Canada also report low levels of parasitism by this same parasitic wasp. From results in the North American literature and from my own work, it appears that the total egg mortality caused by natural enemies is insufficient and only occasionally contributes to population collapse.

One way to increase egg mortality is via classical biological control–in this case, through the deliberate introduction and permanent establishment of one or more exotic *Scelio* species. In September 1990, I collected several species of parasitized grasshopper eggs in Australia, imported them via the Bozeman Quarantine Lab, and tested the Australian *Scelio* spp. against egg-pods of several North American grasshopper species. Australia was selected as a promising search area, because there are 45 species of *Scelio* known there, versus 19 for all of North America. However, the acridid fauna of Australia and North America have no species in common. From 9 species of Australian grasshopper eggs, we obtained 491 live parasites of 3-4 *Scelio* species but were able to successfully rear only one, *Scelio* sp. undet., in eggs of *Melanoplus sanguinipes*. To date, in no-choice tests, I have obtained complete development and emergence of the Australian *Scelio* sp. from nine grasshopper species in three families. Attempts continue to expand the known host-range.

In laboratory tests using non-diapause *M. sanguinipes* as hosts, I find that the Australian *Scelio* sp. is clearly superior to our native *Scelio opacus*, locating twice as many egg-pods, and killing about four times more grasshopper eggs in their lifetimes. No field releases of the Australian *Scelio* spp. have been made to date, but I hope to obtain the necessary permits during 1992.

[The above was submitted as part of a talk presented at the Orthoptera Conference at the Annual Meeting Entomol. Soc. America, Reno, Nevada, Dec. 8, 1991]

ORTHOPTERA AS PREY OF ROBBER FLIES (DIPTERA: ASILIDAE) – NEW RECORDS

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Plant, Soil and Insect Sciences Department
University of Wyoming
Laramie, WY 82071

As part of an effort to provide to the Orthopterists' Society a database which lists published records in the world literature of Orthoptera preyed upon by members of the family Asilidae (Diptera), the following unpublished records have been gleaned from a few collections. Essentially, the attempt is being made, by creating the database, to update those portions of the works by Greathead (1963) and by Rees (1973) which delineate the role robber flies play in reducing grasshopper numbers. In this context, note also should be taken of the recent report by O'Neill and Bartell (1989) and papers by Joern and Rudd (1982) and Rees and Onsager (1982, 1985).

Sex of the predator is presented in parentheses after date, where multiple records are listed for same locality and date; stage or sex of grasshopper, where known, is listed at beginning of the note. The following is unpublished data. Grasshopper identifications were made by Dr. R.E. Pfadt (retired), Plant, Soil and Insect Dept., University of Wyoming, Laramie, 82071, or by the author.

Acrididae

Aeropedellus clavatus (Thomas)
prey of *Scleropogon neglectus* (Bromley). WYOMING. Albany Co. T15N R73W. 7500´. VII-26-77. R. Lavigne (coll.)

Ageneotettix deorum (Scudder)
prey of female *Efferia* sp. WYOMING. Platte Co. Glendo, 7 mi S. VII-15-60. R.J. Lavigne (coll.)
3rd/4th instar nymph as prey of *Stenopogon obscuriventris* Loew. WYOMING. Fremont Co. Riverton, 0.6 mi NW. VI-20-73. D.S. Dennis (coll.)
male as prey of male *Scleropogon picticornis* (Loew). WYOMING. Platte Co. Wheatland, 10 mi NW. VIII-2-72. D.S. Dennis (coll.)

Amphitornus coloradus (Thomas)
male as prey of female *Efferia helenae* (Bromley) WYOMING Platte Co.: Guernsey, "Oregon Trail Ruts"; VIII-20-91; R.J. Lavigne (coll.)

Cordillacris crenulata (Bruner)
male as prey of *Efferia helenae* (Bromley) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-29-81 (female); E. Schreiber (coll.)
male as prey of *Scleropogon picticornis* (Loew) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-17-81 (female); E. Schreiber (coll.)

Cordillacris occipitalis (Thomas)
male as prey of female *Efferia helenae* (Bromley) WYOMING Platte Co.: Wheatland, 10 mi NW; VIII-21-72; R. Lavigne (coll.)
prey of *Promachus minisculus* Hine NEW MEXICO Santa Fe Co.: Galisteo, 1 mi N, VI-21-68
male as prey of male *Scleropogon coyote* (Bromley) WYOMING Fremont Co.: Shoshoni, 7 mi SW; VI-19-73; D.S. Dennis (coll.)
prey of *Scleropogon neglectus* (Bromley) WYOMING Albany Co.: Laramie, east edge; VIII-29-79; R. Lavigne (coll.)

Corthioppus longicornis (Latreille)
male as prey of female *Scleropogon neglectus* Bromley WYOMING Albany Co.: LARAMIE, ca 35 mi NW, Wheatland Canyon; VIII-15-63; R.J. Lavigne (coll.)

Eretettix simplex (Scudder)
2nd instar nymph as prey of female *Efferia helenae* (Bromley) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-19-81; E. Schreiber (coll.)

Hesperotettix viridis (Scudder)
prey of female *Scleropogon picticornis* Loew WYOMING Platte Co.: Hartville; VIII-11-64; R.E. Pfadt (Coll.)

Melanoplus gladstoni Scudder
nymph as prey of *Scleropogon picticornis*

FEATURES

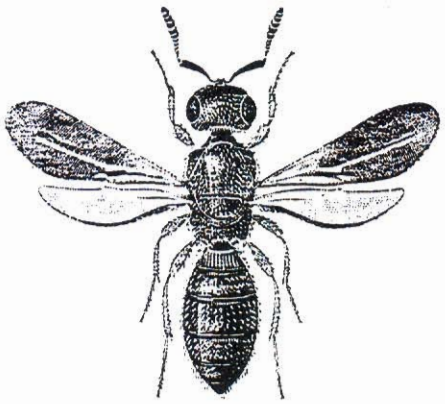
Loew COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-17-81 (male); E. Schreiber (coll.)

5th instar nymph as prey of female *Efferia helenae* (Bromley) WYOMING Platte Co.: Wheatland, 10 mi NW; VIII-21-72; R. Lavigne (coll.)

Melanoplus infantilis Scudder

prey of female *Scleropogon neglectus* Bromley WYOMING Park Co.: Powell, 5 mi SE; VIII-14-81; R.J. Lavigne

5th instar nymph as prey of female *Scleropogon neglectus* Bromley WYOMING Platte Co.: Wheatland, 2 mi N. Laramie R.; VI-12-79; R.J. Lavigne (coll.)



Scelio fulgidus Crawford (Hymenoptera: Scelionidae

[after Noble, N.S. 1935. An egg parasite of the plague grasshopper. *Agric. Gaz. N.S.W.* 46: 513-518].

Melanoplus sp.

3rd instar nymphs as prey of female *Efferia benedicti* (Bromley) IDAHO Owyhee Co.: Bruneau, 3.2 mi NW (2 records); R.J. Lavigne (coll.)

3rd/4th instar nymph as prey of *Stenopogon obscuriventris* Loew WYOMING Fremont Co.: Riverton, 0.6 mi NW; VI-20-73 (2 records); D.S. Dennis (coll.)

Opeia obscura (Thomas)

prey of *Efferia helenae* (Bromley) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-20-81 (female), VIII-28-81 (male), IX-1-81 (male); E. Schreiber (coll.); male as prey, WYOMING Platte Co.: Guernsey, 7 mi W, Frederick Ranch; IX-9-60; R.J. Lavigne (coll.)

female as prey of female *Efferia helenae* (Bromley) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-29-81; E, Schreiber (Coll.)

male as prey of female *Efferia helenae* (Bromley) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-31-81; E. Schreiber (Coll.)

male and three females as prey of *Scleropogon picticornis* (Loew) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-14-81 (female), VIII-16-81 (male and two females); E, Schreiber (coll.)

Phlibostroma quadrimaculatum (Thomas)

male as prey of female *Efferia frewingi* Wilcox WYOMING Fremont Co.: Shoshoni, 10 mi S; VIII-21-74; D.S. Dennis (coll.)

prey of male *Efferia helenae* (Bromley) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; IX-1-81; E. Schreiber (coll.)

Psoloessa delicatula Scudder

female as prey of male *Stenopogon inquinatus* Loew COLORADO Teller Co.: Florissant Fossil Beds, T13S R71W Sec 24, Maytag Rd., Grape Creek, 8400'; VII-13-74; F.M. Brown (Coll.)

2nd instar nymph as prey of *Efferia frewingi* Wilcox WYOMING Fremont Co.: Shoshoni, 10 mi S; VIII-31-74 (2 males, 1 female); D.S. Dennis (Coll.)

1st instar nymph as prey of male *Efferia helenae* (Bromley) COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VIII-21-81 (?), VIII-23-81 (male), IX-2-81 (female); E. Schreiber (coll.)

Trachyrachys kiowa (Thomas)

prey of *Scleropogon picticornis* Loew MONTANA Petroleum Co.: Winnett, 1.5 mi S, 5 mi W; VII-14-71; N. Rees (coll.)

Trimerotropis pistrinaria Saussure

male as prey of female *Efferia helenae* (Bromley) WYOMING Big Horn Co.: Greybull; IX-07-65; R.J. Lavigne (coll.)

Unidentified

prey of *Efferia luna* Wilcox, nymphs TEXAS Marathon, 33 mi S, Brewster Co.; VIII-29-69; (1 male, 2 females) (Univ. Idaho coll.)

Mantidae

Litaneutria minor (Scudder)

nymph as prey of male *Scleropogon picticornis* COLORADO Weld Co.: Pawnee Nat'l Grasslands, IBP site; VII-15-77; R.J. Lavigne (Coll.)

Additional Orthopteran prey records (n=53) are being published in Lavigne, Schreiber and Nelson (In press).

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Joern, A. and N.T. Rudd. 1982. Impact of predation by the robber fly *Proctacanthus milbertii* (Diptera: Asilidae) on grasshopper (Orthoptera: Acrididae) populations. Oecologia 55(1): 42-46.

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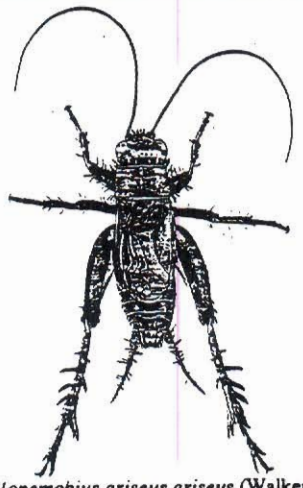
Rees, N.E. 1973. Arthropod and nematode parasites, parasitoids and predators of Acrididae in America north of Mexico.. USDA ARS Tech. Bull. No. 1460, 288 pp. (Asilidae, p. 215-241)

Rees, N. and J.A. Onsager. 1985. Parasitism and survival among rangeland grasshoppers in response to suppression of robber fly (Diptera: Asilidae) predators. Environ. Entomol. 14: 20-23.



Allonemobius griseus griseus (Walker) (Orthoptera;Gryllidae; Nemobiinae)

[after Vickery ,V.R. and D. K. McE. Kevan,The grasshoppers, crickets, and related Insects of Canada and adjacent areas. The Insects and Arachnids of Canada, Part 14. Publ. 1777. 1985. 918 pp.]

PREDACIOUS GRASSHOPPERS IN ARIZONA

Reg Chapman

Division of Neurobiology
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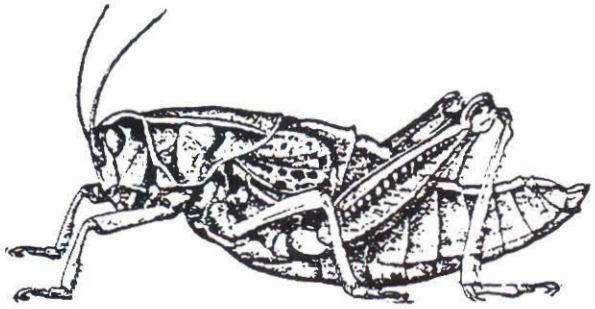
The Wild West is not dead! Has any of you ever seen an acridid in hot pursuit of another insect? And not only pursuing, but jumping on, and capturing the prey, then steadily chewing away until nothing was left – not even the mandibles. Well, come to sunny Arizona and see for yourselves!

In the course of extensive field observations this fall, Kerry Bright, who is working in Liz Bernays' lab, was astonished to see *Brachystola magna* (Girard) doing just what I have described. This proved to be a common occurrence and nearly every one of a dozen or so individuals studied was seen capturing, or attempting to capture insect prey. The insects were mainly other acridids, melanoplines and oedipodines, but included a cricket and an attempt on a weevil which failed, apparently because the weevil's cuticle was too hard. We have subsequently filmed the behavior in an outdoor arena and have seen female *Brachystola* chasing and jumping on other females of the same species. In these cases the prey was always able to escape.

I assume this is an extension of the tendency that many grasshoppers show of feeding on insect carcasses or molting insects which one often sees in cages or along roads when populations are high and the highway is littered with corpses. I have always assumed that this was related to water shortage, and this could have been the case with *Brachystola*. This year was extremely dry in southern Arizona, and the grasslands where Kerry made her observations were almost completely dried out. The grasshoppers were concentrated along roadsides where run-off from what little rain there was made the vegetation greener. It was common to find dead grasshoppers, including *Brachystola* on the ground, apparently having died from desiccation.

We examined fecal pellets from about 20 insects and most of them contained insect remains as well as vegetation. Of course, these insects might have been eaten after they were dead, but I suspect that was not always so.

Given the frequency with which cannibalism is seen, the habit of feeding on other insects is not so unusual, but the behavior of pursuit and capture is something quite new to me. Has anyone else seen this kind of behavior in any acridid? We should be really interested to know if you have.



Brachystola magna (Girard) (Orthoptera; Romaleidae)
[after Vickery ,V.R. and D. K. McE. Kevan, *op. cit.* 1985]

NOTES ON FIELD COLLECTING OF ORTHOPTERA WITHIN FOREIGN LANDS

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During the forthcoming field seasons, Dr. Roger Bland and I are undertaking a faunistic survey of the Canary Islands, Spain, and will be accompanied by graduate students without prior foreign field experience. With this fact in mind, I recently jotted down a list of apparel, supplies, and equipment that they might need. It occurs to me that this list may be of interest to others planning a collecting trip most anywhere in the world, hence, this note.

The suggested tips are those of a non-systematist who nevertheless works extensively in the field; they presuppose airline travel, with the weight and space constraints that imposes; they pertain to a non-camping trip of several weeks duration in a developed country somewhere within the subtropical zone; they assume access to at least modest hotel and restaurant accommodations and to a rental vehicle and suitable roads; and, although more widely applicable, they are presented from the North American point-of-view.

Field clothing should be durable, comfortable, quick-drying lightweight synthetic/cotton blends that are unobtrusive in appearance (no bold stripes or patterns). Shorts are not included for field wear, because they afford little protection against insect bites, sunburn, irritation from prickly vegetation, etc. A light jacket and a folding raincoat are needed for occasional inclement weather. Insect repellent, carried on one's person, is required for many localities. I find a comfortable pair of jogging, walking, or tennis shoes to be ideal footwear. They have good traction, dry readily, can be worn either in dry or in wet collecting localities, and are inexpensive, hence, can be discarded at the end of the trip, lightening travel weight to accommodate the growing number of accumulated specimen boxes. Rubber boots fitting over them may be worn in especially wet or snake-infested places. A protective hat with visor, a good pair of sunglasses, and a sun screen or tanning lotion, preferably with PABA, are used to counter the often-intense sun.

There are various aerial insect nets on the market, some of them collapsible and highly satisfactory. However, for foreign trips, I prefer a cheap, commercially available student-type net whose handle is sawed off to fit within the suitcase or bag, obviating need for it to be carried separately. If necessary, an extension may be fashioned for attachment to the handle by a metal ferrule. A half dozen replacement bags, of marquisette or a similar fabric, may be included along with one or two additional nets, particularly when working in desert or scrub areas with the likelihood of fabric and other net damage. A beating net is a desirable item of equipment that is probably obtainable on arrival at the host institution. If not, weight and space limitations may force its deletion from the equipment inventory, with accompanying inconvenience.

Since most Orthoptera are nocturnally active, few specimens other than grasshoppers are caught during normal daytime collecting. Night work is indispensable. It is best done by battery-operated headlamp, leaving the hands free to manipulate net and killing jar and eliminating the hand-eye parallax inevitable with a flashlight. Night collecting of Ensifera may be aided by an ultrasonic call indicator such as is coming into increased use today in entomology.

As an insect ecologist-behaviorist, I do live collecting of Orthoptera within individual paper cylinders. These enclosures, described within my 1991 guide "Food habits and feeding behavior of locusts and grasshoppers," ch. B4E, 56 pp., *Orthopterists' Society Field Guides*, V. R.

ARTICLES

Vickery (*ed.*), are stacked parallel to one another within a screened box. Each individual enclosure is made of a small rectangular piece of newspaper, rolled and glued into a cylinder by Duco® cement, with the bottom flap glued shut. A live insect is introduced headfirst into the open mouth of the cylinder and the top flap twisted shut, trapping the animal within. A field catalog number is written on the outside of the container using a finely pointed permanent ink marker. Grasshoppers, thus imprisoned, each within an individual chamber, may live for days, defecating often. Feculae harvested from the cylinders may be made into permanent preparations for microscopic analysis using an appropriate mounting medium. The insects themselves may be pinned, labeled, and used like any other specimen. For any necessary field pinning, one can get by using only two sizes of insect pin, #2 for smaller Orthoptera, #4 for larger ones. A cheap wooden pinning block is helpful.

The most effective killing jar uses cyanide although safer poisons such as ethyl acetate and carbon tetrachloride find limited use. The jar, whatever the chemical, should be wide mouthed and cork stoppered so that, using one hand, it can be opened and its mouth inverted over the ensnared insect within the bag, leaving the other hand free to manipulate insect and net. It should contain loosely wadded, soft toilet tissue to lessen breakage of the specimens' appendages.

For collecting large series, I layer the insects in wooden cigar-type boxes with a ventilatory screen floor and lid, a precaution necessary to prevent specimen molding and discoloration. Naphthalene or paradichlorobenzene crystals may be added to further preservation. Especially large, soft-bodied grasshoppers, katydids, and crickets should be eviscerated. Specimens from a particular station are placed on a base layer of loose cellucotton or other soft-textured, highly porous batting (never loose cotton, in whose fibers the specimens' appendages become entangled), along with a collection label, often just a field catalog number. The first layer of specimens is covered by a second layer of cellucotton and its specimens and labels, by a third layer, etc., each placed atop the preceding. Whether or not all layers include specimens, the box is loosely filled by layered batting, protecting the fragile insects from damage and their labels from mix-up. Upon return to the hotel after a given day's or night's collecting, I suspend the collecting box over a 25-watt or other low-powered lamp which dries the specimens through the screening and porous cellucotton.

My self-explanatory list of needed documents, apparel, supplies, and equipment appears below. It is essentially a checklist of things of which one should be aware in planning a research trip. It should not be construed as a series of firm recommendations because so-called necessities vary with the individual. It includes items that, being readily obtained on arrival in any developed country, need not be carried overseas. All items are transported either on one's person or within two bags, an over-the-shoulder suit bag and a hand-carried collecting bag which sometimes can be carried onto the aircraft personally without being checked as baggage. Ideally, the bags are of inexpensive, durable fabric and so are readily replaced if lost or damaged. Basic toilet articles should not be checked as baggage, which is subject to loss and misdirection, but kept on or near one's person. A collapsible airline travel cart may be included with the-inventory to facilitate transport.

The "group" items for several collectors are divided among the travelers. These items are necessary to any collector and, hence, must be carried personally by the lone traveler or obtained on his/her arrival.

A number of past researchers have written of their field collecting methods. I shall restrict mention to two articles, both dealing specifically with Orthoptera: Morgan Hebard's 1929 report "Entomological collecting equipment for the western United States, with special reference to Orthoptera," *Entomological News* 40: 110-116, and I. J. Cantrall's 1941 article, "Notes on collecting and preserving Orthoptera," *Compendium of Entomological Methods*, Ward's Nat. Sci. Establ., Inc., Rochester, New York. The Hebard paper, included largely for historical reasons, is an outdated account of camping and collecting tips and procedures. The Cantrall paper, with an appendix by orthopterists J. J. Friauf, B. B. Fulton, H. F. Strohecker, and H. S. Walker, is a detailed, still highly useful discussion of collecting and other techniques. By this brief note, I invite comment by other orthopterists in hopes that the discussion will further the efforts of young collectors going into foreign lands.

Checklist of Suggested Documents, Apparel, Supplies, and Equipment for a Foreign Trip of Several Weeks' Duration

Documentation
- Valid passport, visas, & collecting permits
- Immunization & vaccination record (tetanus booster recommended)
- University, corporation, and/or granting foundation documents
- American Express, Visa, or other major credit card/s acceptable worldwide
- American Express, Cook's, or other travelers' checks
- Small amount of U. S. pocket cash (foreign currency obtained on arrival)
- International Driver's License (obtained through Automobile Club)
- Telephone credit card (optional)
- Personal calling cards to facilitate university, museum, governmental, etc., contacts & arrangements
- Health & travel insurance, valid overseas

Apparel
- Semiformal clothes, 1 outfit, for travel, use in restaurants, etc.
- Summer field outfit, several changes (fast-drying synthetic/cotton blends recommended)
- Socks & undergarments, several changes (fast-drying fabrics also)
- Hat, with visor
- Sweater, sweatshirt, or light jacket
- Folding raincoat, light weight
- Jogging, walking, or tennis shoes for field work
- Rubber boots, knee height, large enough to be worn over tennis shoes, as necessary

Medicines & Medical Needs
- Prescription drugs, ample supply, as necessary
- Aspirin/Tylenol®/Advil® or other over-counter pain medicine
- Allergy pills, nasal sprays, & eye drops, as necessary
- Peptobismol®, sodium bicarbonate, or other alkalizer/digestive aid
- Immodium or other antidiarrheal medicine
- Laxative
- Mercurachrome, iodine, Neosporin®, or similar disinfectant for cuts
- Bandaids®, various sizes
- Medical bracelet, as necessary
- Other medical supplies obtained on arrival

Personal Items
- Sunglasses of appropriate density
- Sun screen or tanning lotion, with PABA, approximately 15 sunblock
- Insect repellent
- Standard toilet articles
- Extra pair of prescription eyeglasses, as necessary

Individual Supplies & Equipment
- Clothes line, elastic, for laundering; laundry soap purchased on arrival
- Electrical voltage converter (110 - 220 volt), pocket size, for electric razor, recharger, &/or low-powered portable hair dryer (note: most dryers are too powerful for foreign hotel circuits)
- Extension cord, 12 ft (= about 3.7 m) long, with European-type attachments, obtained on arrival for use in drying specimens, reading, etc.
- Headlamp, with rechargeable batteries; other batteries purchased as necessary
- Battery recharger
- Pocket calculator, light activated
- Pocket foreign language dictionary
- Camera, film, & equipment, as necessary
- Sweeping net, short-handled, perhaps with detachable extension

Replacement net bags, 1/2 doz
Beating net (optional, obtained on arrival at host institution)
Killing jars, with cork top, preferably obtained on arrival because of difficulty of international transport
Pocket field note book, obtained on arrival
Ballpoint pens, 1/2 doz, permanent ink, obtained on arrival
Pencil, automatic, with extra lead & erasers
Marking pencils/highlighters, 3-6, colored (optional) Pocket stapler, with extra staples
Pocket knife, small
Plastic knife, fork, & spoon, 1 ea (optional)
Hand lens, at least lOX magnification
Backpack, collecting bag, or fisherman-type collecting jacket

Group Supplies & Equipment

Naphthalene or paradichlorobenzene crystals, 1 small jar, to be spread over layered, collected specimens
Cellucotton or coarse porous batting for layering specimens, obtained on arrival
Forceps, fine point, 1 pr
Dissecting scissors, fine point, 1 pr
Dissecting needles, fine point, 2 needles
Ruler, plastic, 6 - inch (= about 15.2 cm) long
Pinning block, 1
Pinning forceps, 1 pr
Scalpel & blades, fine tipped, for specimen evisceration
Cotton for eviscerated, soft-bodied specimens (optional, obtained on arrival)
Ultrasonic call indicator ("bat detector")
Tape measure, cloth
Pocket bottle opener
Pocket can opener
Insect pins, #'s 2 & 4, as necessary
Triangles or specimen envelopes for individual insect specimens, as necessary
Scotch tape, obtained on arrival
Wire window screening, preferably aluminum, 1 roll 6 yards (= about 6.6 m) long, for constructing cages, collecting boxes, etc.; obtained on arrival
Collecting boxes, screened, 1 doz, obtained & modified on arrival
Boxes, screened, 1 or 2, for collecting live animals & feculae
Beating cloth & light sheet, as necessary
Duco or equivalent cement, 1 or 2 tubes
Rubber bands, various sizes
Adhesive-backed labels, various sizes
Zip-lock bags, small & medium; small bags for collecting & other purposes; medium bags, perforated, made into temporary live cages
Oatmeal, for trapping, purchased on arrival
Vials, homeopathic type, various sizes, as necessary 70% alcohol or other preservative/s, obtained on arrival at host institution, as necessary
Light bulb/s, 100 watt, purchased on arrival for night work in dimly lit hotel rooms
Available hotel lighting (usually 25 watt), for drying of specimens within suspended screen collecting boxes
Pliers, small, 1 pr
Screw driver - hammer combination tool
Pocket scissors, folding type
Needles & thread, 1 packet
Snakebite kit, as necessary
Literature and notes for field identification of specimens

IUCN/SCC ORTHOPTEROID SPECIALIST GROUP Newsletter No. 3

Michael Samways
Chairman
Orthopteroid Specialist Group

Willing and active members have now been approached, and almost all have received formal invitations from the IUCN/SCC (World Conservation Union Species Survival Commission). We have shortened the name from 'Orthopteroidea' to 'Orthopteroid' for ease on the tongue and in keeping with some other Specialist Groups.

The next task is to assess the status of the world fauna, in terms of state of taxonomy, species threats, and in a positive light towards what can be done to conserve the orthopteroid fauna that we have.

As we know, probably several thousands of insect species are becoming extinct each year, mainly due to habitat loss. Some 55% of the worlds' species occur in only 7% of the land surface, the tropical rainforest. Of all these species, one wonders how many are orthopteroids, and what other geographical areas are under particular threat.

We hope to put a book together which at least will be a start on assessing the level of threat in general to orthopteroids.

In the meantime, please let me know of any publications in the field of orthopteroid conservation biology that may be included in these news items and of interest to other orthopterists. We hope to overcome the taxonomic impediment, the threats from land fragmentation and global impacts to conserve as many species as possible-precious genetic material that is irreplaceable once gone.

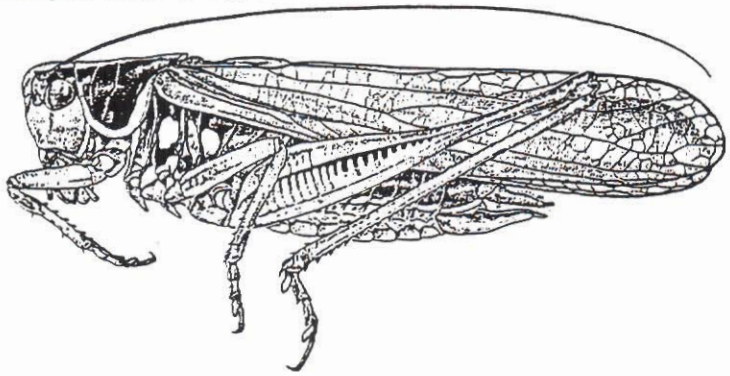
CONSERVATION PUBLICATIONS

CHERRILL, A.J. and V.K. BROWN. 1990a. The life cycle and distribution of the wart-biter *Decticus verrucivorus* (L.) (Orthoptera: Tettigoniidae) in a chalk grassland in southern England. *Biological Conservation*, 53: 125-143.

CHERRILL, A.J. and V.K. BROWN. 1990b. The habitat requirements of adults of the wart-biter *Decticus verrucivorus* (L.) (Orthoptera: Tettigoniidae) in southern England. *Biological Conservation* 53: 145-157.

SAMWAYS, M.J. (1990) Landforms and winter habitat refugia in the conservation of montane grasshoppers in southern Africa. *Conservation Biology* 4: 375-382.

SAMWAYS, M.J. and S.D. MOORE. 1991. Influence of exotic conifer patches on grasshopper (Orthoptera) assemblages in a grassland matrix at a recreational resort, Natal, South Africa. *Biological Conservation* 57: 205-219.



Metrioptera roeselii (Hagenbach) (Orthoptera; Tettigoniidae)
[after Vickery ,V.R. and D. K. McE. Kevan, *op. cit.*, 1985]

BOOK REVIEW

BOOK REVIEW

THE STICK INSECTS OF NEW ZEALAND. by J.T. Salmon. Reed Books. Auckland. 1991. 124 pp. ISBN 0 7900 0211 6. Hardback. Price – New Zealand $39.95. (Address of publisher – Octopus Publishing Group (NZ) Ltd., part of Reed International Books, 39 Rawene Rd., Private Bag, Birkenhead, Auckland 10, New Zealand.)

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Slough SL2 1SR ENGLAND

Attractively presented with a pink dust jacket incorporating a photograph on the front and a watercolour of a specimen on the back, this book is a must for anyone with even the slightest interest in stick insects. These individuals may just want to book a flight to New Zealand! In addition, the book is written in an easily understood format and will appeal to those interested in natural history generally.

The author, Professor John Salmon, is well known as a writer on scientific subjects. He has published books on trees and plants of New Zealand, and his scientific papers on the Orthoptera, including stick insects, are highly regarded. Salmon has spent many years studying the stick insects of New Zealand, and his attention to detail means the coverage is probably the most outstanding work this century on stick insects, apart from the monograph by Brunner v. Wattenwyl and Redtenbacher (1906-1908).

The book is divided into two sections, as follows, the first covering the natural history of stick insects, and the second detailing identification of all the species from New Zealand. The first section includes the following chapters:

1. HISTORICAL – Concise notes on publications of interest on New Zealand stick insects.
2. MORPHOLOGY – Excellent treatment, well illustrated.
3. HABITS – Various observations, including notes on foodplant preferences. The introduction is also a valuable source of information, including observations on the decline in stick insect populations due to the use of chemicals.
4. LIFE HISTORIES – Includes comments on parthenogenesis and sexual reproduction, particularly relevant in the New Zealand fauna. The black and white photographic sequence on a stick insect moult on pages 28-30 is outstanding.
5. THE EGGS OF STICK INSECTS AND THEIR IMPORTANCE IN TAXONOMY – Descriptions of stick insect eggs and their significance, in some cases leading to changes in taxonomic opinion in this book. Study of the form of eggs is too often neglected in studies on stick insects, and yet eggs can be crucial in distinguishing closely related species.
6. KEY TO NEW ZEALAND GENERA OF STICK INSECTS.
7. KEY TO NEW ZEALAND SPECIES OF STICK INSECTS USING THEIR EGGS.
8. KEY TO THE FEMALE STICK INSECTS OF NEW ZEALAND – Reassigns all current *Acanthoxyla* species to subspecies of *Acanthoxyla prasina*.
9. KEY TO THE MALE STICK INSECTS OF NEW ZEALAND – All keys are concise and straightforward to follow. When combined with the photographs and paintings in the next section, these keys should enable the beginner to distinguish even closely related species with relative ease.

The section which follows – THE NEW ZEALAND GENERA AND SPECIES – is the main section of the book (pages 47-117), and here one can find the author's outstanding life-size watercolour paintings of 21 species and subspecies. Adults of both sexes are figured (where males are known) and some nymphs. Colour photographs of eggs (all x16) are also included, making this book invaluable for anyone studying or breeding New Zealand species. I particularly like the paintings showing different colour forms of species, sadly neglected in most work on stick insects. Black and white photographs are included to highlight distinguishing features of adults, along with some line drawings. The text gives concise descriptions of adults and eggs and details of distribution range. Most species are endemic. The genera are dealt with in turn, including some taxonomic changes and descriptions of three new species. The book also contains a selected bibliography and index to scientific and New Zealand common names of species. The "Horrid Stick Insect" is a very apt name for the large, spiny species *Argilosarchus horridus* White!

Throughout the book, the printing is of very high quality, and it is no surprise to see that it was printed in Singapore.

I am reluctant to criticise this book negatively, but merely point out, from a practical point of view, that inclusion of maps would have been useful, particularly for the subspecies of *Acanthoxyla prasina*. Likewise, photographs or drawings of typical habitats and foodplants would have enhanced the book even more. The introduction (page 7) implies that Westwood's 1859 volume is the only monographic work on stick insects, but any serious student on stick insects will need to consult Brunner v. Wattenwyl and Redtenbacher (1906-1908); that work is, however, mentioned in the Bibliography.

The coverage of the genus *Acanthoxyla* is of particular interest to entomologists in Britain, as it includes what we regard as two species found mainly in Southwestern England. The 7 species of the genus breed entirely par-

continued on page 11

MEMBERS' NEWS

Harvey E. Ballard: Current research that I am involved with: Distributional status and ecology updates for rare Orthoptera in Michigan; monitoring of Orthoptera in fire-managed natural areas of Missouri (grant pending); *Arphia conspersa* Scudder overlooked in Michigan; Four-color polymorphism in *Trimerotropis huroniana* Walker.

Ludivina Barrientos Lozano: From August, 1989 to December, 1990 I was working for FAO/UN in Central America. I conducted three control projects on the Central American Locust (*Schistocerca piceifrons piceifrons* (Walker)). This is a major pest of agriculture from Southeastern Mexico to Costa Rica. The most recent outbreak of *S. piceifrons piceifrons* began in Costa Rica in 1987 but extended to Nicaragua, El Salvador, and Honduras by 1989. Although political, economic, and social problems in these countries do not allow a constant and permanent locust control campaign, the plague was suppressed by the end of 1990. From November, 1991 to February, 1992, I'll be conducting an FAO locust control project in Brazil.

Elizabeth Braker: I have a new position (Asst. Professor) at Occidental College, Los Angeles, CA . I plan to continue my research activities on host plant relationships of neotropical and temperate (Southwestern U.S.) acridids.

Hendrik Devriese (Koninklyk Belgisch Instituut voor Natuurwetenschappen, Vautterstraat 29, 1040-Brussel, Belgium): I am doing systematic research on Tetrigidae (mainly Palaearctic and Afrotropical faunas), a group in need of revision. Since the removal of the Family from the Acridoidea by Dirsh, it has not received much attention, even from collectors. I plan to publish a revision of the Afrotropical fauna in a series of articles and would

continued on page 12

NEW MEMBERS

BOOK REVIEW, continued from page 12

thenogenetically, males being unknown. Salmon has relegated 6 species to subspecies level, even though they breed relatively true, and the differences between each subspecies are usually quite distinctive. The eggs are also usually distinct, although broadly similar to one another, which has influenced Salmon's thinking. The two British species, *Acanthoxyla geisovii* (Kaup) and *Acanthoxyla inermis*, are very distinct from each other and *Acanthoxyla prasina*. Salmon does not refer to the study by Mantovani and Scali (1987) dealing with eggs of these three species. However, he does point out that extensive genetic studies are desirable to establish the relationship among *Acanthoxyla* and the closely related *Clitarchus* Stal and new genus *Pseudoclitarchus* Salmon. Strictly speaking, allocation of separate species status to similar parthenogenetic populations is controversial, but extensive genetic studies on the European and Mediterranean genus *Bacillus* Latreille, mainly by Italian workers, have revealed complex species structure and origins (see Brock 1991). The whole taxonomic structure within the Phasmatodea is very confused and Salmon's early efforts to identify stick insects met with problems in an examination of Hutton's collection, where males of various species had been put aside and left unidentified!

To summarize, this is an invaluable book for anyone with an interest in stick insects and it will surely inspire further studies on the New Zealand fauna. A must for many entomologists' bookshelves at a very reasonable price (sterling equivalent 12.50 pounds at current exchange rates, excluding postage and bank draft charges). Also suitable for those who appreciate good Natural History books.

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Mantovani, B. and V. Scali (1987). The eggs of three *Acanthoxyla* species. *In*: Mazzini, M., Scali, V. (eds.). Proc. 1st Int. Symp. "Stick Insects": Phylogeny and Reproduction", Siena 30th September-2nd October 1986, 141-147.

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COMING SOON
(IN THE NEXT ISSUE OF METALEPTEA):

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MEMBER'S NEWS

MEMBER'S NEWS, continued from page 10

appreciate any assistance in the form of loans of specimens.

J. E. Henry: Although officially retired from USDA/ARS in 1987, I continue as a collaborator for the USDA and as Adjunct Professor at Montana State University. I am involved in projects in Africa on biocontrol of grasshoppers and locusts and in the U.S. on microbial control of Mormon crickets.

Josefa Isern-Vallverdu: I am working on the ecology of Orthoptera living in mountain pasturelands (Pyrenees, Spain). I deal with density and biomass dynamics at population and community levels, altitudinal distribution of species, and trophic relationships. Recently, I participated in the "Fourth European Congress of Entomology – XIII Internationale Symposium fur die Entomofaunistik Mitteleuropas", that took place in Godollo, Hungary, from 1 to 6 September 1991.

V. Llorente: Recently published papers are:

Llorente, V. 1990. Estudio del comportimiento y desarrollo postembrionario de *Acinipe hesperica hesperica* Rambur, 1838 (Orthoptera, Pamphagidae) en cautividad. Proc. 5th Triennial Meeting, Orthopterists' Society, Valsain, Segovia. Bol. San. Veg. No. 20:189-207.

Llorente, V. y Ma C. Pinedo. 1990. Los Tettigoniidae de la Peninsula Iberica, Islas Baleares y norte de Africa. Genero *Odontura* Rambur, 1838. (Orthoptera). Bol. Assoc. esp. Entom. 14:153-174.

R.M.J.C. Kleukers: As coordinator of the Orthoptera mapping scheme I am concerned with investigating the Dutch Orthopteran fauna and writing the text for the distribution atlas. This four-year project started in 1950 and is financed by the Ministry of Agriculture, Nature Management and Fishery.

Reinhard Ehrmann: All those who work with the Order Mantodea know how much work is involved in obtaining information on the systematics and faunistics of the species worldwide. Although compared with other orders (*e.g.*, Lepidoptera, Coleoptera), the order Mantodea has relatively few species, there are only a few scientists who work on the systematics of this order. One reason for this is the lack of updated references. There are currently only two resources, the outdated work of Giglio-Tos (1927) and the little known Genera Insectorum Series (1911-1937) with chapters by Beier, Giglio-Tos, and Rehn. Another problem is the difficulty of obtaining smaller papers in obscure journals.

I have set myself the task of putting all the known 432 genera and the 2208 species into one book. This book, entitled Systematik Mantodea, will be published by Walter de Gruyter, Berlin, in the series Das Tierreich. Because of difficulties in getting material for study, the date of publication is yet to be determined.

In addition to systematics and faunistics, there will be a chapter concerning physiology. I am requesting papers on the physiology of mantids from the physiologists among you.

There will be photographs and drawings as well. By sending me your publications, you can contribute positively to the success of the Systematik Mantodea.

Plurivoltine Life Cycles

Dr. E.G. White,
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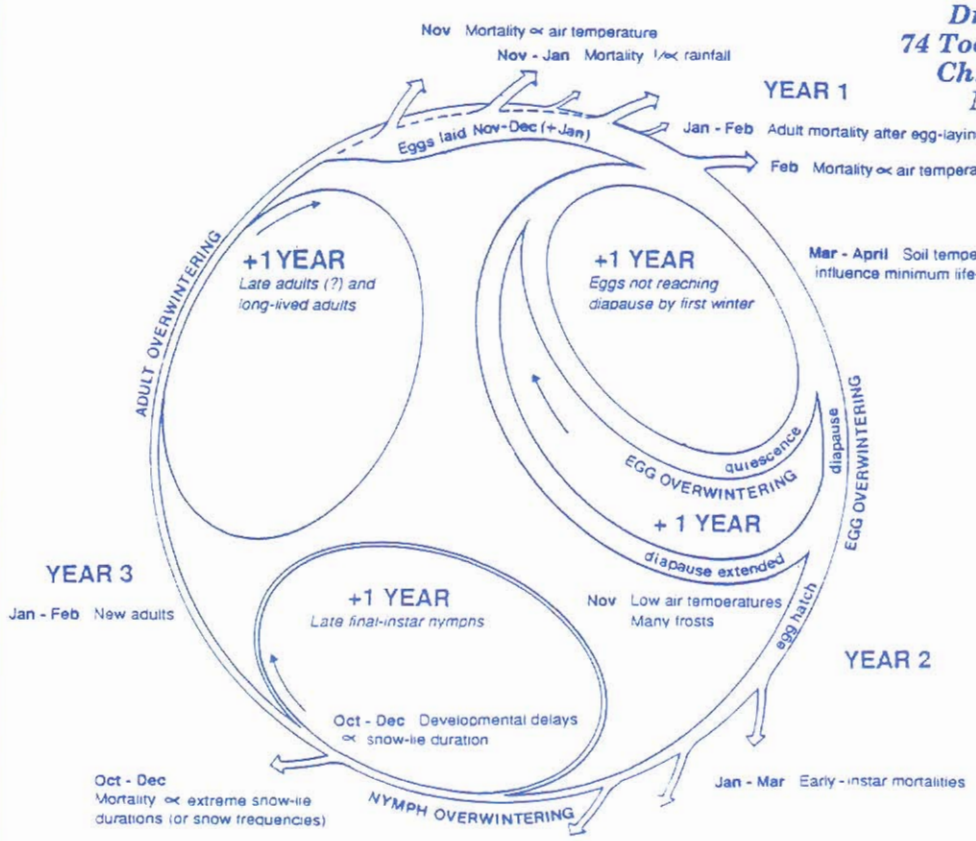
Christchurch 4,
New Zealand



Attention is drawn to a recently published plurivoltine life cycle that could have wide relevance to the variable nature of some long-lived acridid and tettigoniid species. The figure reproduced here has been constructed from a 20-year capture-recapture study of an alpine acridid in New Zealand (*Paprides nitidus*) Hutton, using field records of uniquely coded individuals and correlations of annual abundances against a range of environmental variables. Note that the months in the figure apply to southern hemisphere seasons. The highly flexible cycle emphasizes a high level of variation in egg phenology, whereby alternative overwintering pathways (quiescence, diapause, extended diapause) lead to variable life cycle durations.

Reference

White, E.G. and J.R. Sedcole, 1991. A 20-year record of alpine grasshopper abundance, with interpretations for climate change. *New Zealand Journal of Ecology* 15: 139-152.

ANNOUNCEMENT OF COMING EVENTS

September 27-30, 1992.
The Joint Meeting of the Entomological Society of Canada and Saskatchewan, at the Delta Bessborough Hotel, Saskatoon, Saskatchewan, CANADA

SYMPOSIUM

The Role of Entomology in Sustainable Agriculture

WORKSHOPS:
- Aquatic Insects - What Makes a Good Environmental Impact Study?
- *Brassica* IPM
- IPM in Livestock Entomology
- Economic Thresholds

ROUNDTABLE:
- Regulations and Guidelines in Biocontrol of Insect Pests

FORUM:
- Biological Control of Insect Pests, Plant Diseases and Weeds

For further information contact:
Dr. P.G. Mason
Agriculture Canada
107 Science Place
Saskatoon, Sask. S7N 0X2
CANADA

A MONOGRAPH OF THE TETTIGONIIDAE OF AUSTRALIA

D. C. F. Rentz
with contributions by D. H. Colless & N. Ueshima

This series aims at complete coverage of the systematics, biology and ecology of this important family for Australia. It is the monographic treatment for this group in Australia and adjacent islands.

Only approximately 100 taxa have been hitherto described in the Tettigoniidae, but museum collections indicate that this is only about 10 per cent of the total. The Tettigoniidae will be covered in a series of hardcover books to appear every two to five years, each treating one or more subfamilies. The books will be richly illustrated, each containing coloured plates. Where possible, eggs of species will be illustrated and described. This is a unique addition to the descriptive processes of the family. Keys, tables, descriptions and maps will allow the reader to identify specimens with relative ease. Complete locality data will permit ecologists, behaviourists, evolutionary biologists and systematists to return to precise localities to seek specimens for their purposes. Oscillograms of the calling songs of most species will be presented. In addition, a cassette tape will be available, usually for eaeh volume, providing the calling songs for most species, very often of the holotype itself. This will be of considerable use as a means of verification of species idcntification.

Australian tettigoniids (katydids) have been very important study animals in the fields of behaviour, physiology and evolutionary biology. A number of species are important to agriculture through their depredations of orchard stock and at least one species is known to swarm and move in large numbers. But the vast numher are quite beneficial – some are considered important pollinators of heath plants, others are useful scavengers in the breakdown of flora and fruits in the rainforests and still others prey on a variety of destructive insects.

VOLUME 1 THE TETTIGONIINAE FULLY REVISED
by D. C. F. Rentz, appendix by D. H. Colless.

This volume treated the shield-backed katydids, a zoogeographically important group, because it was shown that their closest relatives are from Chile. This volume covered seventy-two species in seventeen genera – prior to this work, the Tettigoniinae were known in the literature from seven names. Keys, habitats, photographs, descriptions, maps, oscillograms of songs and colour plates provide a secure basis for identification. A number of species described in this work are thought to be threatened with extinction because of the clearing of mallee areas for agriculture.

In addition to describing some of the smallest katydids known, and some of the largest known for the subfamily, this volume is fully revised to include descriptions of new genera and species, and updated distributional data for those previously described. A large number of colour plates are added to aid with identification. The volume further presents host data indicating that a number of genera in the Northern Territory feed on sorghum grasses and could be potential agricultural pests.

D. H. Colless presents a phenetic analysis of the seventeen genera based on seventy characters.

Pages: 384; Illustrations: 627; Colour plates: I; Hardcover; Size: 250 x 176 mm

VOLUME 2 THE SAGINAE, ZAPROCHILINAE, AND PHASMODINAE
by D. C. F. Rentz, cytology by N. Ueshima, phenetic analysis by D. H. Colless

This treats three subfamilies of considerable importance to Australia. The Saginae are a small group but with some species that are very common in the heath areas of the southem portion of the continent. They are related to, but very distinct from, the other members of the subfamily which occur in southern Africa and Asia Minor. Where those species are predacious, the Australian ones are herbivorous, feeding on flowers, seeds and fruits. One of the species, *Hemisaga denticulata* (White) rates as one of the earliest-described Australian tettigoniids, the holotype of which was collected by Captain George Grey in the early part of the last century on a voyage to southwestern Australia.

Continued on page 14

NEW BOOK ANNOUNCEMENTS

BOOKS ON KATYDIDS, continued from page 13

The Zaprochilinae are an endemic group represented in the literature by two genera and two species. This study reveals that four genera exist, one with more than twelve species. All feed on the pollen and nectar of a wide range of plants so are probably important pollinators. They have no known close relatives. They have been the subject of extensive work by a wide range of Australian and overseas evolutionary biologists studying the role of parental investment in offspring. One of the undescribed genera and species was on the cover of a July 1990 edition of *Nature*.

The Phasmodinae are an endemic Australian group consisting of a single genus with one described species. This study adds three additional species to the list and expands on the distribution of the genus which is wholly confined to the heath region of coastal southwestern Australia. This is one of the world's most peculiar katydids. Both sexes are wingless, males are silent and produce no sound; the katydid' s ears are reduced or absent. The body form takes the shape of a stick insect, with which they are often confused. They feed solely on flowers and the feeding habits of the species present in Kings Park, Perth, mean it is considered an economic "pest" because of the damage it does to flowering Kangaroo Paws.

Chromosome analysis will accompany most descriptions with illustrations of the karyotype, and phenetic analysis will be used to determine relationships. A cassette will provide the calling songs of most species in Volumes 1 and 2.

Scheduled for publication: 1991

VOLUME 3 THE LISTROSCELIDINAE, TYMPANOPHORINAE AND PSEUDOPHYLLINAE

by D.C.F. Rentz, cytology by N. Ueshima, phenetic analysis by D. H. Colless.

This volume will treat three subfamilies, two of which are rather closely related to one another, the other only distantly so. In the latter example, it was felt timely to present a detailed treatment of the Australian Pseudophyllinae because they are mostly dwellers of rainforests and are of importance in the argument over the protection of those habitats. Very little has been attempted on the taxonomy of this group, even though these katydids are very large insects, and nothing has been recorded of their food habits, host preferences, ecology or behaviour. Preliminary studies indicate that the species are highly localised and that even small patches of rainforest may harbour distinct species.

The Tympanophorinae are confined to Australia and Malaysia. In Australia they are found in heath habitats in the southwest and on Eyre Peninsula. They are peculiar in that males are fully winged except in one micropterous species; females are wingless. Males are very active and are constantly on the move after dark. This is a reverse in the normal behaviour pattern of tettigoniids where males are often sedentary and females seek the males by following the calling song.

The Pseudophyllinae are a relatively small group in Australia. All known species are leaf-gleaners in rainforests. Some of Australia's most spectacular katydids are members of this subfamily. Recent studies indicate that these katydids may be more long-lived than other katydids. It appears that there is a high degree of endemicity in this group and once the species become known in the literature they will be of use in the debates on the unique fauna of various northern rainforests.

The Listroscelidinae are a moderate-sized group of mostly predacious katydids ranging in size from around 10 mm to 120 mm. One of the most common genera of Australian tettigoniids is in this group and is still undescribed. It is a major predator of insects associated with eucalypts and acacias.

Chromosome analysis will accompany description, and phenetic analysis of genera will be used to help determine relationships. A cassette will be available covering the calling songs of most species described in the volume.

Scheduled for publication: 1995

VOLUME 4 THE MECOPODINAE, MECONEMATINAE, MICROTETTIGONIINAE, PHYLLOPHORINAE AND CONOCEPHALINAE (PART 1: THE AGRAECIINI)

by D. C. F. Rentz, cytology by N. Ueshima, phenetic analysis by D. H. Colless.

The Mecopodinae are represented in the present literature by only three names. This does not indicate the importance of this group of generally large and spectacular insects. They are represented by species that occur across the top of Australia in rainforest as well as tropical grassland habitats. All known species are vegetarians, feeding on floral parts including flowers and fruits. Nothing is known of the habits of grassland species. The Meconematinae are hitherto unrecorded from Australia. A number of genera inhabit shrubs and trees in tropical and subtropical regions, and one has been introduced from overseas into the Perth region. The Microtettigoniinae are the smallest known species of katydids with one genus and two species from the southern coastline of the continent represented in the literature. Several additional species have been discovered, one implicated in the pollination of a terrestrial orchid. The Phyllophorinae contain the largest known katydids, and the group is not well represented in Australia. They have rarely been collected, because they are tree-top dwellers in the tropical rainforests.

The Conocephalinae are a large group consisting of four tribes in Australia. The Agraeciini are the dominant katydid group in tropical rainforests, but a variety of genera occur in other habitats, some in the more arid parts of the continent. They are colourful

NEW BOOK ANNOUNCEMENTS

and illustrate a full range of feeding types. Once known in the literature, these katydids will be important representatives as examples of insects endemic to certain forest types.

Chromosome analysis will be provided for most species, and a phenetic analysis will determine generic relationships. A cassette will be available providing the calling songs of most specics.

Scheduled for publication: 1999

VOLUME 5 THE CONOCEPHALINAE: TRIBES CONOCEPHALINI, COPIPHORINI, AND CONIUNGOPTERINI

by D. C. F. Rentz, cytology by N. Ueshima, phenetic analysis by D. H. Colless

The Conocephalinae are a very large and important group in Australia. Katydids of the cosmopolitan tribe Conocephalini may be found in nearly all parts of the continent in meadow or grassy situations. In the Northern Territory there are a large number of common species that are associated with native sorghums. Because of the ability of certain species to fly, these katydids have colonised adjacent islands and atolls. The early nymphal stages may be important predators of small insects in pasture lands. More than fifty species are represented in the Australian fauna, the majority of which are presently undescribed.

The Copiphorini, or cone-headed katydids, are well represented in Australia, especially in coastal and grassland habitats. A number of species have the loudest calls of any Australian Tettigoniidae. Some species have been the subjects of intensive studies involving speciation and acoustic behaviour as well as the associated physiology. Some cone-headed katydids are renowned fliers, and they are common on offshore islands.

The Coniungopterini are a small group of beautifully marked and coloured katydids with two genera in Australia and their closest relative associated with beech trees in Chile. The Australian representatives are known to be predacious, while the Chilean species feeds on the leaves of beech.

Chromosome analysis will accompany most species descriptions, and a phenetic analysis of the Conocephalus species will help to define relationships. A cassette tape will accompany the volume.

Scheduled for publication: 2003

VOLUME 6 THE PHANEROPTERINAE

by D C. F. Rentz, cytology by N. Ueshima, phenetic analysis by D. H. Colless

The Phaneropterinae (or bush katydids) are the largest group of Australian Tettigoniidae, with between 300 and 400 species presently known. All species are known to be herbivorous, some causing considerable damage to citrus. They are important food sources for birds and reptiles. Species occur in most habitats; oftcn a single tree can harbour a number of species in a variety of unrelated genera. The Phaneropterinae possess the most complex repertoires of songs known in the family, and an accompanying cassette will provide detailed rccords of as many songs as possible. Because these katydids are the most colourful of the Australian Tettigoniidae, the volume will be richly illustrated with colour plates. Distinction of species on the basis of morphological structures is difficult and many line drawings and scanning electron micrographs will accompany the book.

Scheduled for publication: 2007

VOLUME 7 COMPLETION VOLUME AND UPDATE

by D. C. F. Rentz

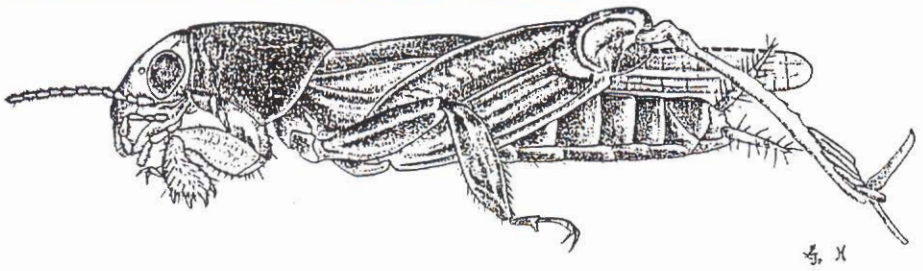
The concluding volume in the series will describe additional species that have come to light since the appearance of the first volume and attempt to place the Australian Tettigoniidae in a world setting regarding classifcation. An attempt will be made to present a classification of the family (containing more than 5,000 species) for the world.

The catalogue contains entries for 116 valid generic names, 29 generic synonyms, 539 valid specific names and 155 specific synonyms.

WANTED

As part of my monographic studies of the Australian Tettigoniidae, I need to hear recordings of species of the listroscelidine *Hexacentrus*.. This is a large genus found throughout Southeast Asia. I am requesting anyone with such recordings to contact me for further information.

D.C.F. Rentz
Division of Entomology
CSIRO
GPO Box 1700
Canberra ACT 2601
AUSTRALIA



Neotridactylus apicalis (Say)
(Orthoptera; Tridactylidae)

[after Vickery ,V.R. and D. K. McE. Kevan, *op. cit.*, 1985]

MEETING INFORMATION

Preliminary Announcement of

6TH INTERNATIONAL MEETING OF THE ORTHOPTERISTS' SOCIETY HILO, HAWAII, USA, 1993

S. K. Gangwere, Organizer

Where and When

The Organizational Committee for the 6th International Meeting of the Orthopterists' Society is pleased to announce the Society's next international conference, scheduled to convene at the College of Continuing Education and Community Service, University of Hawaii, Hilo, Hawaii 96720-4091 (at the Hilo Conference Center), August 1-5, 1993.

§

Sponsorship

The 6th Meeting is co-sponsored by the Orthopterists' Society, the University of Hawaii/Hilo Conference Center, the Department of Entomology of the Bishop Museum of Honolulu, Oahu, and the Department of Entomology of the University of Hawaii/Manoa.

§

Sections

Meeting sections, each consisting of a symposium followed by contributed papers, are being organized in the following disciplines, along with poster sessions:

Section 1: Bionomics and Control
Section 2: Genetics and Development
Section 3: Physiology and Behavior
Section 4: Ecology and Evolution
Section 5: Functional Morphology
Section 6: Systematics

§

Tentative Program

Sunday, July 31. Arrival.

Monday, August 1.
Morning: Board meeting; attendee registration; opening session.
Afternoon: Symposium.
Evening: Reception and mixer.

Tuesday, August 2.
Morning: Symposium.
Afternoon: Contributed papers.
Evening: Business meeting.

Wednesday, August 3.
Morning: Symposium.

Wednesday, August 3.
Morning: Symposium
Afternoon: Field trip.

Thursday, August 4.
Morning: Symposium
Afternoon: Contributed papers.
Evening: Symposium

Friday, August 5.
Morning: Symposium.
Afternoon: Contributed papers.
Evening: Conference dinner; award and closing ceremony.

Saturday, August, 6.

Organizational Committee

Local Arrangements Chairperson: Dr. Fred Stone, Department of Biology, University of Hawaii, Hilo, HI 96720-4091, USA

Committee Members: Gordon Nishida, Department of Entomology, Bishop Museum, P.O. Box 19000-A, Honolulu, HI 96817, USA; John Strazanac, Department of Entomology, University of Hawaii / Manoa, 3050 Maile Way, Honolulu, HI 96822; others to be appointed

Conference Administration: Judith Fox-Goldstein, University of Hawaii/Hilo Conference Center.

Meeting Organizer: S.K. Gangwere, Executive Director, Orthopterists' Society, Department of Biology, Wayne State University, Detroit, MI 48202

President: Daniel Otte, Department of Entomology, Academy of Natural Sciences, 19th & the Parkway, Philadelphia, PA 19103

§

Registration

All participants including symposium speakers and other invited lecturers are expected to register formally. Costs are inexpensive for an international meeting. Registrations, confirmations, and refunds will be generated by the University of Hawaii/Hilo Conference Center, College of Continuing Education & Community Service, Hilo, HI 96720-4091, FAX (808) 933-3684; tel. (808) 933-3555. Conference check-in and packet pickup will be at the Campus Center Lanai. The registration fee, except for students, is $125 per person; student registration is $75 per person. A $25 late fee will be assessed each registrant whose registration form is post-marked after July 1, 1993. All costs are in dollars (U.S. currency). Accompanying dependents register only for meals and lodging.

§

Official Invitations

An official personal letter of invitation to attend the 6th International Meeting of the Orthopterists' Society will be sent to participants on written request to the Directorate. It does not obligate the Society in any way to pay recipient travel, subsistence, or other expenses.

§

Tentative Meeting Rooms

Meeting Rooms 301 and 306, Campus Center and Room WWI, Wentworth Hall, each with overhead- and 35 mm projection equipment; Room 30, Campus Center for Poster Session; Room 313 or 316, Campus Center for board meeting; Room 306, Campus Center for business meeting; covered courtyard of Theatre Lanai and adjoining grounds for registration and opening reception; New Conference Cafeteria for banquet and closing ceremony. University of Hawaii/ Hilo Center reserves the right to relocate any of the above to an alternate, appropriate facility.

§

Tentative Room and Board Costs

The Organizing Committee recommends that participants use university accommodations, for which they should make an early reservation. These accommodations are less expensive than local hotels and more convenient to the meeting space. The 1993 University of Hawaii/Hilo Center per person per day costs of room and board are tentatively set at $55 per day. This charge covers costs for 3 meals per day and lodging in apartment-style units, based on 2 separate bedrooms (single beds) for 4-person occupancy, with separate bathroom accommodations. Less expensive room and board at about $40 per day will be in a dormitory housing 2

persons per room, with shared bath. These totals do not include the opening reception and the closing banquet. Meals will be at the Hale Kehau Cafeteria or at the Campus Center Cafeteria, both located conveniently to the meeting space. Special lunch-only and lunch-and-dinner only rates are being negotiated at a reduced price for those who elect not to room at the university. All meals are being served "buffet-style" on an "all you can eat basis," with seconds available. Vegetarian and other special diets will be available.

§

Tentative Receptions

The opening and closing receptions are listed as optional on the registration form. The opening reception and mixer, with alcoholic and non-alcoholic refreshments, will cost $20 per person. The banquet and closing reception, with music and alcoholic and non-alcoholic refreshments, will cost $25 per person (all costs in dollars, U.S. currency).

§

Presentations

Speakers are to use standard 35 mm slides or overhead projectors for all presentations. Those who require special equipment must make their needs known upon submission of abstracts. Poster contributions are encouraged. These should not exceed standard dimensions (110 x 110 cm). They should include poster title, author name(s), institution, city, and country. The text should be succinct, understandable without accompanying oral explanation, and readable within a distance of 2 m. Presentations may also be read in title if the author(s) are unable to or do not wish to deliver them personally.

§

Publication of manuscripts in the 6th Proceedings

All invited and contributed papers written in one of the three official languages (English, French, Spanish) will be peer reviewed and considered for publication in their entirety in the *6th Proceedings*, and selected manuscripts will be published in the *Journal of Orthoptera Research*. They will qualify for publication at the expense of the author(s) (1) if received at the Directorate within the July 1, 1993 deadline, (2) if accompanied by an abstract/resume in an official language, (3) if in compliance with Orthopterists' Society format, and (4) if they pass editorial review. Papers read in title may also be published in full upon satisfaction of all criteria. Those papers which do not satisfy the criteria are to be published in abstract form. All full-length publications will be subject to a $20/page charge due with reprint order; 1-page abstracts will be charged the minimal $20 page charge.

§

Travel Information

Conference Site

The 6th International Meeting will be held at the University of Hawaii at Hilo (UHH) campus on the island of Hawaii, the "Big Island". The Big Island has 318 miles of coastline and 4,038 square miles of varied topography and climate. It includes desert, bog, rainforest, montane (over 13,000 feet), and coastal ecosystems. The city of Hilo is located on the windward side in easy reach of rainforest and volcano field trip sites. It is a quiet place with a population of about 35,000 inhabitants. It features a mixture of Eastern, Western, and native Hawaiian cultures. A list of selected Big Island hotels is available upon request to the UHH Conference Center, should you wish to extend your trip for vacation purposes.

§

Airline Reservations

United Airlines has been chosen by the Orthopterists' Society to serve as official carrier for the Meeting. At its Meeting Reservation Center, United has dedicated reservationists on duty 7 days a week from 7:00 am to 1:00 am EST. Your travel agent or you should call United at telephone 1 (800) 521-4041 and provide the reservationist the Meeting ID Number 5290A which assures the

Society of receiving the most favorable possible rates and service. Make sure that your final destination is Hilo Airport rather than Keahole (Kona) Airport, located 2 hours from Hilo by car. Hilo and Kona are accessible by interisland air carriers. No mainland carriers fly directly to Hilo, but United Airlines provides interisland service to Kona plus direct flights from the mainland.

§

Baggage Handling

Route your luggage from the point of departure to Hilo unless you are staying overnight in Honolulu. Otherwise, you will be obliged to retrieve your luggage at the main terminal in Honolulu, carry it on the shuttle bus to your interisland terminal, and re-check it with the interisland carrier. Airport baggage tags should list the final destination as Ito (Hilo). Travelers from outside the United States must receive their bags in Honolulu for a customs check prior to flying to Hilo.

§

Airport Transfer

Allow at least 1 hour between flights to change terminals in Honolulu if you are flying through that city to Hilo. Exit the main Honolulu terminal and wait at one of the Wiki-Wiki shuttle stops. This free bus leaves at 15 minute intervals to the interisland terminals.

§

Rental Cars

Public transport is limited. You may wish to rent a car while on the Big Island, giving you the additional mobility needed to see other parts. However, a rental car is a necessity only if you elect to live or eat off campus. Owing to other conferences underway at the same time as the 6th Meeting, rental cars may be difficult to obtain; make your reservation as early as possible. The several companies listed below may be contacted, but the United Airlines Meeting Reservations Center is able to provide a special Hertz rate for participants making reservations through Meeting ID Number 5290A.

Rental Agency	Hilo phone #	Kona phone #	US or Worldwide phone #
Alamo	(808) 861-3343	(808) 329-8896	1-800-327-9633
Avis	(808) 935-1290	(808) 329-1745	1-800-831-8000
Budget	(808) 935-6878	(808) 329-8511	1-800-527-7000
Dollar	(808) 961-6058	(808) 329-2744	1-800-342-7398
Hertz	(808) 935-2895	(808) 329-3566	1-800-654-3131
National	(808) 935-0891	(808) 329-1674	1-800-277-7368
Sunshine	(808) 935-1108	(808) 329-2926	
Phillips	(808) 935-1936	(808) 329-1730	
Tropical	(808) 935-3385	(808) 329-2437	1-800-678-6000

§

Packing

The Big Island embraces over 20 different climatic zones ranging from from tropical rainforests to alpine slopes and from deserts to bogs. The two main volcanoes reach nearly 14,000 feet. Pack clothing accordingly, if you plan to explore the island. The average high temperature in Hilo is in the low 80's and the average low is 70°F. Regular 10-15 mph trade winds and cool overnight temperatures make air conditioning optional. Most homes, restaurants, and the campus residence halls are not air conditioned. Hilo, with an average rainfall of 150 inches per year, enjoys the distinction of being the rainiest city in the United States. Fortunately, most of this precipitation occurs at night, but visitors should include umbrellas.

Recreational Opportunities

Tours are readily available to explore the Big Island's black, white, and green beaches, sea cliffs, volcanoes, and even snow

MEETING INFORMATION

Tours are readily available to explore the Big Island's black, white, and green beaches, sea cliffs, volcanoes, and even snow fields. Deep sea fishing is fantastic. Numerous historical sites, relics, and old plantation towns can be seen. The local economy includes macadamia nut, orchid, anthurium, tropical fruit, sugar cane, and coffee production, and cattle ranching, all of which can be visited.

§

Campus Food Service

There are no off-campus restaurants within walking distance of campus, so plan to buy a campus meal package if you do not rent a car.

§

Methods of Payment

You may pay by check, cashier check, money order, traveler check, or purchase order, but credit card payments are not accepted. Make checks payable to: Research Corporation of the University of Hawaii. Mail them to: 6th International Meeting of the Orthopterists' Society, UHH-CCECS, Hilo, HI 96720-4091, USA.

NEW BOOK

AN ANNOTATED CATALOGUE OF THE TETRIGIDAE (INSECTA; ORTHOPTERA) OF SOUTHEAST ASIA

- WITH TRANSLATED PARTIAL KEYS AND BIBLIOGRAPHY

Robert E. Blackith
Zoology Department,Trinity College,
University of Dublin,
Dublin 2, Ireland

This catalogue lists all serious references to the individual species occurring in southeast Asia, intentionally loosely defined so that species which occur on the periphery of the region are considered in case they may eventually prove to occur within it. Publications which illustrate species are specially noted because such figures are valuable adjuncts to inadequate early descriptions based too often on unreliable colour pattems.

As far as is practicable the location of holotypes, or of syntypic series, is recorded, as are lectotype designations. Type species for genera are given. Type localities are also listed, either when originally designated or where a reasonable inference as to locality can be drawn from the original publications.

Although the Catalogue does not purport to constitute a revision of the group, an attempt has been made to list synonyms and the literature from which these synonymies are derived, since only by tracing such literature can the grounds for or against disputed synonymies be ascertained. Illogicalities, where a form has been synonymised with two apparently distinct species, are indicated.

New names are proposed for two genera whose current names are preoccupied, and other taxonomic changes are listed. Where available in the literature the pronotal length, hind femoral length, and optical index are given as an aid to identification.

K. G. M. Bond assisted in the translation of the keys, and R. M. Blackith assisted in preparing the index to genera and species.

This edition is available in hardcover (cloth binding with gold lettering), printed by offset lithography on heavy grade cartridge paper. The book is A4 size, is made to open flat for convenience in use, has 300 pages of text and 10 blank pages for notes.

CONTENTS is as follows: Introduction *v*; Translations of keys *xi*; New generic names proposed *li*; New generic synonymy proposed *li*; New combinations proposed *liii*; Note on nomenclature *liv*; Catalogue 201 pp.; Bibliography 202; Index to genera and species 222.

The catalogue contains entries for 116 valid generic names, 29 generic synonyms, 539 valid specific names and 155 specific synonyms.

595.7 ISBN 0-9514437-9-8

PUBLISHED BY

JAPAGA
Ashford County Wicklow, Ireland
Tel. 0404 40464

THE ORTHOPTERISTS' SOCIETY

6TH INTERNATIONAL MEETING OF THE ORTHOPTERISTS' SOCIETY AT THE UNIVERSITY OF HAWAII AT HILO, HILO, HAWAII, AUGUST 1-5, 1993

Advance Registration Form

Name: _____ _____ _____
Surname/name (PRINT) Given name Initial

Sex: _____ _____ Telephone(s) _____
Male Female

FAX: _____

Institution (if applicable) _____

Mailing address: _____

_____

_____

_____

Accompanying family or guests: _____ _____

_____ _____

_____ _____

Name Relationship

Section(s) of interest:
___ Bionomics & Control
___ Physiology & Behavior
___ Functional Morphology
___ Genetics & Development
___ Ecology & Evolution
___ Systematics

Do you wish to read a paper/s? ____ ____ In which language? ___ English ___ Español ___ Français
Yes No

If yes, list title/s and provide an abstract/resume (in one of the above languages) typed neatly on a separate sheet.

Do you wish paper publication in abstract form only or in entirety? ___ Abstract only ___ Full text

Do you (and family/guests) expect to participate in the following?

#___ Opening reception & mixer
#___ Family tours
#___ Campus housing
#___ Conference banquet, award and closing ceremony
#___ Post-conference field trip (3-4 days)
#___ Campus meal plan

Complete the above form and return it to S. K. Gangwere, Executive Secretary, Orthopterists' Society, c/o Department of Biological Sciences, Wayne State University, Detroit, MI 48202, USA. ***Please send no money now. Billing will be later.***

BOOKS AND NOTICES

THE ORTHOPTERISTS' SOCIETY

The Orthopterists' Society (formerly *Pan American Acridological Society*) is an international scientific organization devoted to facilitating communication among those interested in Orthoptera and their allies. Research and publication are fostered in all aspects of the biology of these insects from ecology and taxonomy to physiology, endocrinology, cytogenetics, and control measures.

The Society was founded in 1978 by some 50 orthopterists meeting at San Martin de los Andes, Argentina. Its constitution and by-laws were adopted in 1979, and it was accorded tax-exempt status by the United States government shortly thereafter. The meetings held since San Martin have been at Bozeman (United States), Maracay (Venezuela), Saskatoon (Canada), and Valsain, Segovia (Spain). The next meeting will be August 1-5, 1993 at Hilo, Hawaii (USA).

Symposia, round table discussions, and research papers presented at the Society meetings are published in the *Proceedings of the Orthopterists' Society*, and a newsletter, *Metaleptea*, is issued semi-annually. Information regarding these publications can be obtained from the editor, Dr. D. A. Nickle, USDA, c/o National Museum of Natural History, NHB-168, Smithsonian Institution, Washington, D.C. 20560, USA.

The 1990-1994 Governing Board comprises President Daniel Otte (United States), President-elect R. F. Chapman (United Kingdom), Past President V. R. Vickery (Canada), Treasurer Roger Bland (United States), Regional Representatives Aiola Richards (Australia), Al B. Ewen (Canada), and B. Bacetti (Italy), Executive Secretary S. K. Gangwere (United States), Editor, D. A. Nickle (United States), and Editor of the new *Journal of Orthoptera Research*, N. D. Jago (United Kingdom).

Society business and finances are handled by the Executive Secretary, Prof. S. K. Gangwere, Department of Biological Sciences, Wayne State University, Detroit, MI 48202, USA.

All correspondance relating to *Metaleptea* or the *Proceedings of the Orthopterists' Society* should be addressed to the Editor, Dr. David A. Nickle, USDA, Systematic Entomology Laboratory, c/o U.S. National Museum of Natural History, Smithsonian Institution NHB-168, Washington, D.C. 20560 USA.

Correspondance and information regarding the new journal series, *Journal of Orthoptera Research*, should be addressed to Dr. N. D. Jago, Overseas Development Administration, Tropical Development and Research Instituion, College House, Wrights Lane, London W8 5JS, United Kingdom.

MEETINGS: Meetings of the Orthopterists' Society are held on a triennial basis, in the United States, Latin America, Canada, or other location, worldwide, in rotation. Symposia, research papers, and business conducted at the Meetings are published in the *Proceedings of the Orthopterists' Society*.

MEMBERSHIP: Membership is open to anyone expressing an interest in Orthoptera and related orders. Annual dues for members are US $15 for Active Members, US $7 for students and US $25 for institutions. Members receive all publications of the Society.

PUBLICATIONS: The Society's publications include a newsletter, *Metaleptea*, which is published as news becomes available, but on at least a biannual basis, the *Proceedings of the Orthopterists' Society*, which is published triennially in conjunction with the Meetings, *Occasional Papers*, an irregularly published journal for medium- to large-sized papers dealing with research on any aspect of Orthopteroid orders, and a new journal series, the *Journal of Orthoptera Research*, a referried journal devoted to research articles of a small to medium size. For information regarding any of these publications, contact the Editor, Dr. David A. Nickle, USDA, Systematic Entomology Laboratory, c/o U.S. National Museum of Natural History, Smithsonian Institution NHB-168, Washington, D.C. 20560 USA.

NOTICE

Members needing copies of past PAN AMERICAN ACRIDOLOGICAL SOCIETY or ORTHOPTERISTS' SOCIETY publications are reminded that a small number of virtually all volumes and numbers is on hand at the Directorate. Prices (in US currency) are as follows: *Metaleptea* @ $1.50 per number or $3.00 per volume of 2 (two) numbers, *Proceedings* @ $10.00 per volume, and *Occasional Papers* No. 1 @ $4.40. Please advise of the volumes and numbers desired and send remittance to: S.K. Gangwere, Executive Director, Orthopterists' Society, c/o Department of Biological Sciences, Wayne State University, Detroit, MI 48202, USA. Orders may also be filled by invoice; simply ask to be billed.