

Metaleptea

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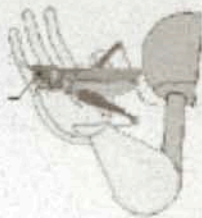
Membership

***We welcome these new members
to the Society.***

Sweet dreams of an Orthop addict

Jeff Lockwood's book (see page 7) and Michael Samways' grabber (see page 9) have inspired some dreams of my own regarding the perfect capture "net" or should I say, given its versatility, the perfect capture " device".

1. Mechanical hands undaunted by piercing mandibles, gently enfold and capture the specimen of interest. In deluxe models, hands are capable of marking the specimen without damaging it.



2. The unit is outfitted with computerized sensors that can visually scan the terrain, locating individuals belonging to the species of interest, even in thick vegetation. The deluxe model will locate individuals it has marked.

3. Unit is capable of recording exact capture sites on maps it has digitized. Photographs are taken of specimen. The unit is also capable of taking vital statistics such as sex, weight and various length measurements. The deluxe

Contacts

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model records any acoustical and chemical signals being transmitted by the specimen.

4. The units are affordable. Obviously now I should realize I am dreaming!

Do remember to send any article (no matter how brief) describing any methodology you have found useful in the past so I can publish it in Metaleptea. If you have borrowed a useful technique from a colleague be sure to acknowledge your source. The goal is to accumulate enough insights to assemble a small booklet of helpful techniques that can be distributed at our next meeting. Please do contribute to this worthwhile effort.

M. Niedzlek-Feaver

Jeffrey Lockwood offers the following poem with this introduction.

"I have had the great good fortune of communicating with a writer in Colorado (Miriam Barton) who is on the faculty (teaching writing) at Ft. Lewis College. She read one of my essays in Orion magazine, and she was kind enough to send me a poem she had written a year ago about an encounter with grasshoppers. I was quite taken by the poem, and asked her if she would let us publish it in *Metaleptea*."

Thank you Jeff, for convincing Miriam to share her poem with us.

Elegy to a Grasshopper

by *Miriam Barton*

You there, on the hot, dry sandstone,
Mostly flattened, oozing life fluid from your
armored form,
You with your pale-yellow belly toward the
Sun, which you loved,
You with you right arm, foreleg rather,
Grasping slowly outward - in the air,
Toward the wish for a leaf's shelter,
Toward God,
Your arm is like my arm; it reaches like my
arm would,
Or like the arm of my newly dead mother (frail
shell of a thing),
In one of those last gestures toward light or
angels, as if to say,
"But wait," or "Help," or "Take me," or
"Hello," or "Goodbye."

I smashed you (like so many of your kind)
While you were eating, standing, mating.
I pursued you, plucked you from your leaf,
flung you to the ground to stun you,
Then smashed you with a quick thrust of my
foot.
Sometimes, with a hard spray from a garden
hose,

I forced you from flowers and shrubs to the
ground;
Then as you struggled wet-winged to escape, I
pressed you into water-sodden
oblivion.
Or, in a clever maneuver, as you rested
unsuspecting on your leaf porch, I
"popped" you
to death with a quick clapping together
of my hands from both sides of the leaf.
(a move that didn't damage the plant).
Eventually, I could just press you to death
between fingers.
In certain moods, however, I smashed you with
a rock so I didn't see you.

If only you and your hordes had been satisfied
with the grasses in the fields. . . .
There were acres for you. Wasn't this enough?
If only you could have left the roses, lilac,
vegetables for me. . . .
Was this too much?

But, you there on the sandstone, I know I am
like you.
I feel your drive to live. I feel your death.
And one day, at the end of some other season's
battle,
It will be I, grasping outward in one of those
last gestures, as if to say,
"But wait," or "Help," or "Take me," or "Hello,"
or "Goodbye."



Society News

JOR now available on web

Everyone wants his or her published papers widely available to the scientific community on an ongoing basis. So it's important news that those publishing in the society's journal can now count on having their work accessible on the web: each volume and issue of the Journal of Orthoptera Research, beginning with volume 10, will be posted at <<http://www.bioone.org>>; the web address of BioOne. There will also be a link to BioOne from the Society web page.

BioOne is an organization established to facilitate electronic access to published literature in bioscience journals. It's a non-profit organization, a consortium of (mostly) biological societies, and the Orthopterists' Society is now one of its participating internet publishers. Started in 2001, BioOne already includes more than 50 bioscience journals: the names of many will be familiar to society members. Most North American universities and museums are already subscribers and BioOne is rapidly expanding to the rest of the world. Libraries obtain BioOne via a relatively inexpensive site license. An associated database makes content completely searchable and it is possible for those accessing the service through subscribing institutions (e.g., libraries) to download copies of articles in both HTML and PDF formats. (Society members in organizations not now subscribing to BioOne should consider encouraging their institutions to do so.)

By way of further explanation, the following is taken from the BioOne site: "The BioOne aggregation of cross-linked related journals provides integrated, cost-effective access to a thoroughly hyperlinked information resource of interrelated journals focussed on biological, ecological and environmental sciences. Through BioOne, scientific dissemination and communication operate in a way that recognizes that journal aggregations are more functional and attractive to institutional subscribers than individual journals."

"Through BioOne, AIBS member societies and related non-commercial publishers have an opportunity to make the jump to the Web, a financial and technological commitment otherwise beyond the reach of many societies. Providing a web presence enables them to keep their publications viable and independent of commercial control while meeting the needs of both their members and the library market. With broad dissemination of information possible through the web, societies have an opportunity to expand their subscriber

market, readership and influence. Through BioOne's marketing and consortium sales around the world, societies can introduce their journals to heretofore untapped institutional markets as well as reintroduce their journals to institutional markets that have dropped the print subscription."

I hope you will visit the Journal of Orthoptera Research at BioOne soon.

*Editor JOR
Glenn Morris*

Science Citation Index

It is becoming increasingly important that JOR be covered by Science Citation Index. Such coverage is being used to determine if institutions will pay page charges, and to determine the rank of the publication. We were refused coverage a few years ago because of our low citation rate. As the current issue contains many citable papers, please make a special effort to cite these papers in your own publications and try to influence other authors publishing in journals already in Science Citation Index to cite papers in JOR where appropriate. I think that it is likely that taxonomic papers may not be cited even though the authors have used them for identification or for reference. You will be amused to know that when we checked the citations in SCI for an important paper by Daniel Otte in JOR, it was often cited as having been published in the Journal of ORTHOPAEDIC Research!

If you can think of any other ways of enhancing our chance of getting into SCI, please let us know immediately.

T. J. Cohn
tcohn@sunstroke.sdsu.edu

Last JOR

JOR 10 (2) was shipped from Ann Arbor on the 25th of November 2002. We are using a "unit packager" and an "consolidator" for these mailings which may be more efficient and less expensive than our former method (my lugging a quarter ton of journals to the post office and having them hand stamp every single one). In particular, the "consolidator" accumulates packages for single countries and airlifts them there at a cost we think is much less than normal airmail. Where such service is not available, they were shipped by airmail and considerable cost. We think that everyone should have received their copies within two weeks of shipment.

Please let us know if this is what has actually happened.

If subscribers have not received their copies by now they should immediately contact T. J. Cohn <tcohn@sunstroke.sdsu.edu> or at Insect Division, Museum of Zoology, University of Michigan, 1109 Geddes Ave., Ann Arbor, MI 48109-1079 USA

Would all subscribers please check their copy to make sure that the B*thoux and Nel paper, pp. 195-198, was included in your copy; we will send a replacement if it is missing. This paper was inexplicably omitted in a few of the trimmed set we use for reprints; the printer recalled the entire run and checked each copy, but it would be best for each subscriber to check his or her own copy.

T. J. Cohn
tcohn@sunstroke.sdsu.edu

Change of Address

Please send your change of address directly to Executive Director Jeffrey A. Lockwood, email below

Lockwood@uwyo.edu

OR you can make the change on the Dues and Subscription Statement. We are embarrassed to say that we do not have a link between website changes and the master membership list, although our Electronic Information Officer, Piotr Naskrecki, is working on the problem. If you have a solution, please let us know.

Color Plate Costs

It has always been the policy of JOR to recover costs from authors for any colored figures/plates. We have now thoroughly investigated the cost of printing colored pages (plates) here in Ann Arbor, Michigan, USA (from where we print and mail JOR). I am sorry to have to report that we have not found a way to print and insert single pages (plates) for less than around \$550. That price requires sending each plate to a small offset printing firm, which may not do quite as good a job as our regular commercial printer; this small firm charges about \$450 per plate. And then the resulting plates must be delivered to our regular printer to be inserted into each copy at an additional cost of about \$90-\$150 per

plate (depending on whether the plate falls within or between signatures).

It is less expensive to print an entire signature (the single huge sheet folded and trimmed to make 16 sequential pages of the journal). So if sufficient papers with colored figures are available, an issue of the journal can include a single signature devoted entirely to color; this reduces the cost to \$200 per page. HOWEVER, because plates in scientific journals must accompany their respective papers (unlike fancy art books where the plates are clustered in the middle of the book), that single color signature must also incorporate some adjoining pages of text. So though we pay less per page for the color, all 16 pages including text are processed as color. The overall cost per page (plate) within the signature depends on how many papers (with color figures) the editor can contrive to place within the signature. If by judicious sequencing of papers, including placing figures appropriately within a paper, the editor is only able to get 8 pages of a 16-page color signature actually employed for color figures, then the cost per page increases to around \$400 per plate.

We could also print an eight page signature (which would then be cut into individual plates) in color for about \$275 per plate. BUT there would be an additional charge of \$90-\$150 per plate for insertion. And, as above, if there were less than eight colored plates, the cost of printing per plate would go up because the cost of the signature remains the same no matter how few are the plates. Thus it would cost \$315 each for seven, \$366 each for six, \$440 each for five, etc., PLUS the insertion charge for each plate.

The cost of all plates also varies with the number of color separations at about \$50 per separation. There is a separate color separation for each figure on a plate.

It would appear then, that only if we get eight colored pages for a single issue can we keep costs below \$500 per page. If authors can afford these prices, we will be happy to publish their color plates.

If anyone knows of a less expensive method, please let us know. <tcohn@sunstroke.sdsu.edu>

We are following a practice of incorporating a color photo of an Orthopteran subject on our cover. Ideally the photo or photos chosen for this will come from one of the included papers. Authors who have color photographs of their study subjects and feel these might lend themselves to a cover photo should bring this to the attention of the editor during the review process.

T. J. Cohn

American Express and Discover Payment Arrangement to be Cancelled

It would appear that in all of 2001 and thus far in 2002 no member has used an American Express or Discover credit card to pay for dues, subscriptions, publications, or contributions. Because American Express charges us a monthly fee whether we submit credit card payments to them or not, I would like to cancel our arrangement with them. It is not clear to me what the charges for Discover are, but as no one is using that card, I would like to cancel that arrangement as well

T. J. Cohn
tcohn@sunstroke.sdsu.edu

Appreciation for Contributions

Many members have generously added a contribution to their dues and subscriptions for the research fund, sponsored memberships, or for general operations, and some have upgraded to Sustaining Membership. These contributions are greatly appreciated this year as we start publishing two issues of JOR per year. It means that we can continue our other operations at a high level, and postpone any increase in dues or subscriptions. Your contributions have been so numerous that I am running badly behind in acknowledgements; please excuse.

T. J. Cohn

Good News for Canadian Contributors to the Orthopterists' Society

As your Acting Treasurer, I checked with a large accounting firm in Toronto regarding the deductibility of contributions to the Orthopterists' Society. I was told that such contributions are deductible to the extent of 75% of a Canadian citizen's US income, including investment income. So please be generous in your contributions to your Society for the furtherance of our mutual goals, and you will be rewarded with an income tax deduction.

T. J. Cohn

Help your Society and achieve fame with your photographs

Some years ago, past-President David Rentz deposited a large set of slides with the Bruce Coleman company that has been marketing slides and other images for 40 years. Dave turned over the ownership of the slides to the Orthopterists' Society, and each year we receive income from this source. Many of our members must have superb slides, but they have never been seen, let alone used, by an appreciative public at large. This is what Bruce Coleman says of itself: "As a major photographic library, actively marketing to all media, we are constantly looking for new and talented photographers to compliment the file. In order to provide our photographers and our customers with the very best possible service, we concentrate our efforts in leasing original colour transparencies and digital files. We accept transparency material in formats from 35mm to 8x10" - digital files on any media." If you were to lease photographs to Bruce Coleman under similar arrangements as Dave has done, you will aid your Society and make your pictures famous. All slides are available for viewing on the Bruce Coleman Web Site.

Please contact T. J. Cohn at
(tcohn@sunstroke.sdsu.edu)
and I will make the arrangements with Bruce Coleman if you would like.

Next International Meeting planned for 2005

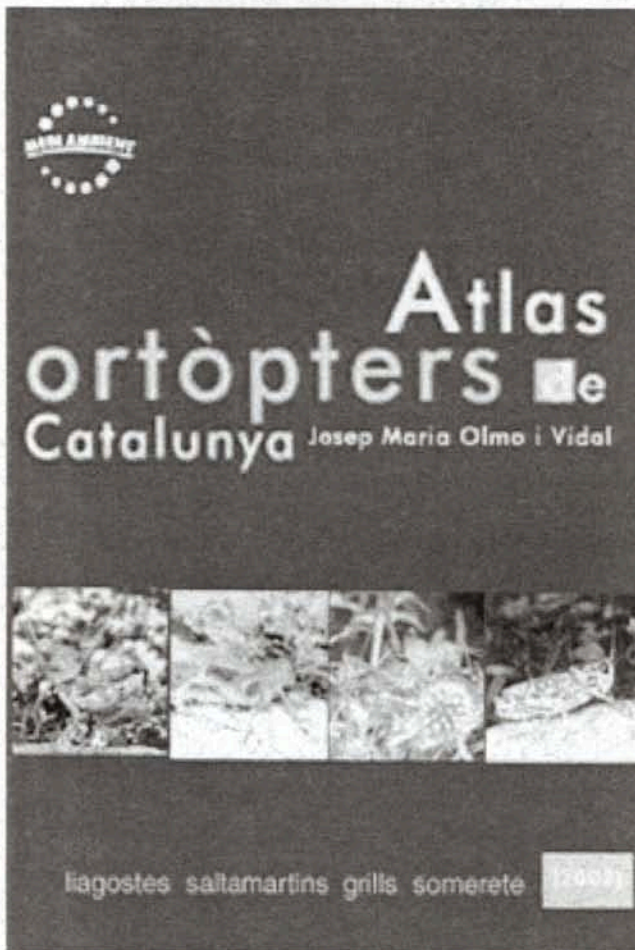
Because of various factors, including the ongoing political unrest and some unanticipated downsizing planned for our chosen meeting site, the board has decided to postpone the next international meeting until 2005. This should give the board and more importantly our next hosts, once chosen, time to make suitable plans to make this meeting one of our bests. We will continue to keep you informed of our plans via this newsletter and the Society's website. Your help will soon be solicited via these media regarding symposia and other foci that will be part of our next gathering. Hopefully we can attract as many participants to our next conference as we did to the Montpellier conference. Any ideas for increasing the number of student participants should be sent to T. J. Cohn or J. Lookwood.

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Lockwood@uwo.edu

Research Books

Available online: *Atlas of the Orthoptera of Catalonia (Spain)*

by *Josep Maria Olmo-Vidal*



Atlas of the Orthoptera of Catalonia (Spain) (Atlas dels Ortopters de Catalunya) by J.M. Olmo-Vidal, 2002 (208 pages, 161 maps and 11 figures, is the first book about Catalan fauna of Orthoptera) has been published and is available on line. The book comprises the following parts: Introduction; Methodology; Results (with a Biogeographical analysis and Species files) and Bibliography.

This e-book can be consulted free of charge in Catalan (and all text in Spanish and English version) at

<http://www.gencat.es/mediamb/fauna/ortopters.htm>

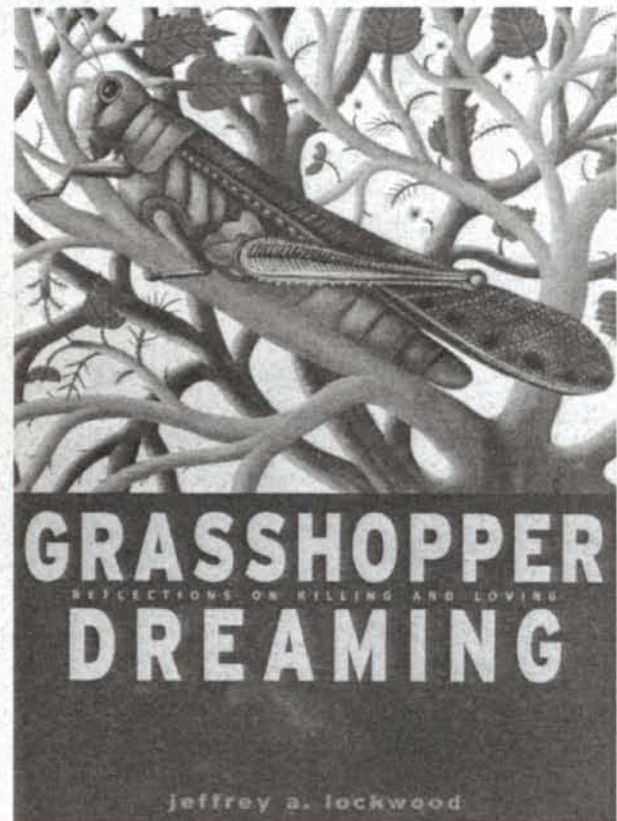
Ted Cohn

Grasshopper dreaming

by *Jeffrey Lockwood*

Jeff Lockwood has contributed more than his share of articles to *Metaleptea*. I have always found them to be highly informative and most engaging. It was, then, with pleasant anticipation that I looked forward to reading his new book, *Grasshopper Dreaming*. I was not disappointed. *Grasshopper Dreaming* is a personal reflection on Jeff's career choice. As such, it provides insight into the daily life of a grasshopper "assassin", as Jeff dubs himself. As expected, the book is much more than just a dry account of days spent in trying to control grasshopper population outbreaks. Jeff is well acquainted with his subjects and their surroundings and can literally paint perspectives that entertain as well as inform the reader.

His story is an honest account of the frustration as well as the satisfaction he draws from his work. Since it is a reflective account, Jeff also speaks of his life's philosophy, together with such past influences as his father's career that helped shape his perspectives. Whether the reader embraces much the same view of science's place in the grand scheme of things or not, they cannot help but follow Jeff's lead and, at least momentarily contemplate their own career choices, as well as the status of grasshoppers or man on this planet. So, well in advance of your next trip, be sure to



purchase a copy of this book. Allow yourself time, as you will want to read it from cover to cover. Then place it on a handy shelf where you can reach for it whenever life calls for a moment of meditation, be it just one too many students, lab problems or paper deadlines. Then reread your favorite story to adjust the mood. My favorite involves Jeff's daughter's query right after Jeff feels he has amply justified why he has to kill off part of the grasshopper population. "And next year," she continued, "will it be the cows turn to get killed?" The basic ecologist in me pondered, "And when will it be our turn?" Your reflections upon reading this book will ultimately bring you to Jeff's conclusion: we do what we do because we basically love these creatures. If love is too strong a word, then at least admit to being fascinated by Orthops. And while that won't solve the problems or take away student complaints or deadlines, it will help justify any associated "job costs". This often-overlooked benefit generates a type of personal satisfaction, intangible, granted, but also then incapable of being devalued.

Marianne Niedzlek-Feaver

**Guida al riconoscimento e allo studio de
Cavellette, Grilli, Mantidi e insetti affini del
Veneto**

by P. Fontana, F. M. Buzzetti, A. Cogo, B. Odi

A beautifully and lavishly illustrated guide to the orthopteroids of this region, with extensive chapters on methods of study, history, biology, etc. in 591 pages. Each species is described and illustrated with many splendid photographs, and a CD with songs is included. Summaries in English are given for each species.

Published by the Museo Naturalistico Archeologico di Vicenza, Contrà S. Corona, 4, 36100 Vicenza, Italy,

<museo.nat.archeo.vi@librero.it>

<http://www.regione.veneto.it/cultura/musei/inglese/>

Ted Cohn

Reports

Estimate of pathogenicity of entomophilous fungi to the eggs of Locusta migratoria L.

A. Nurjanov¹ and F. Gapparov²

¹Urgench University

²Uzbek Institute for Crop Protection

Due to the ecological disaster (drying out of Aral sea) the microclimate of this region has considerably changed. On account of drying out of more than 50 lakes the bank line has reduced by 120 kilometers. Consequently the threat of harmful locusts, particularly *Calliptamus italicus*, has significantly increased. Efforts to reduce the volume of chemical control used against harmful locusts through application of microbiological products have recently attracted the interest of various researchers.

Entomopathogenic microorganisms can have significant importance in the natural regulation of insect numbers. Damage of larval eggpods and imago by different species of disease agents has been mentioned by many authors. Thus, *Calliptamus italicus* eggs are known to be infected by the *Cymnoascus reeassii* fungus, as is *Schistocerca gregaria* and other species by *Fusarium acridiorum* (*F. solani*) and *Isaria farinosa* fungi, *Locusta migratoria* – by *Aspergillus flavus* fungus; and *Dociostaurus maroccanus* by *A. terreus* fungus.

We conducted laboratory investigations to study virulent properties of several fungi with respect to *Locusta migratoria L.* eggs. As a result of these studies we have learnt that the Asiatic locust was resistant to mycosis at the egg stage. So in our studies, Asiatic locusts' eggs laid in sand did not die, after exposure to fungi at the following inflection levels, *A. flavus* (1×10^8 spores/mL), *B. tenella* ($1 \times 10^4 - 1 \times 10^8$ spores/mL), *F. oxysporum* ($1 \times 10^3 - 1 \times 10^8$ spores/mL). Eggs of the insect developed normally after being cooled. Background infection levels didn't affect larval hatching at 28 – 30 °C. In natural conditions the damage of Asiatic locust eggs by the fungus *A. flavus* was recorded at increased temperatures of 30 – 35 °C. In our opinion, locust's eggs are damaged only if there is some disturbance of their typical development conditions, and normally the eggpod protects both eggs and larvae during the process of hatching from fungus infection.

Thus, damage of viable eggs by fungi was not observed at conditions which were favorable for embryonic growth. But egg mortality was induced by severe deviations in environmental conditions or conditions leading to damage of the eggpod walls.

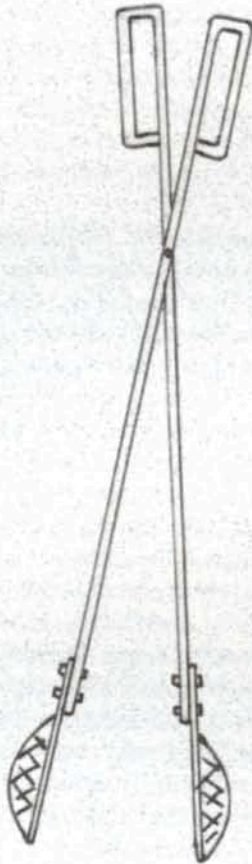
Grasshopper Grabber—the ultimate insect tongs

Michael Samways

Tired of that special grasshopper jumping away? Frustrated at not reaching that katydid in the center of the thorny bush? Try our grasshopper grabber!

Simply bolt two tea strainers to the ends of a pair of good, lightweight, scissor-action, barbecue tongs. Simple as that sturdy, effective, durable.

For some peculiar reason, when a grasshopper or other insect is confronted with two metal cups closing in on it from both sides, it generally freezes. Once caught, the closed cups are inserted into a transparent polythene bag, and opened, freeing the grasshopper into the bag.



One of the underlying reasons for success of these tongs is that the catcher's body (you) is distanced from the object (grasshopper), so not alerting it too much.

References:

Samways, M. J. 1973. A simple but effective device for capturing Tettigoniidae and other insects. *Entomologists' Monthly magazine* 109, 168-171.

Samways, M. J. 1986. Pincher action. *Antenna* 10, 170-171.

The Orthoptera Species File, a Status Report

David Eades

The Orthoptera Species File Online (version 2) reached a major milestone in July 2002 when all data from previous versions (book, CD, and Internet) were imported into the database. The results may be seen at <http://osf2.orthoptera.org>. Work has now shifted to entry of more recent data taken from reprints, the *Journal of Orthoptera Research*, and the *Zoological Record*. Reprints are given top priority. You may assist by sending reprints to David Eades, Illinois Natural History Survey, 607 East Peabody Drive, Champaign, IL 61820, U. S. A.

The Orthopterists' Society can take pride in the way the project has developed into a group effort larger than the efforts of any single person or institution. The project was started by Dan Otte and brought to the Internet by Piotr Naskrecki. My own work added checks for internal consistency within the database. A committee of Ted Cohn, Sigfrid Ingrisch, Piotr Naskrecki, Dan Otte and myself provides advice and administers grants from an endowment. Hannes Baur, Peggy Hill and Tom Walker have editing privileges and used the Internet to add new data and corrections. Hugh Rowell has agreed to do so when images can be added from remote locations, an enhancement now under development. Carlos Carbonell, Mario Elgueta, Sigfrid Ingrisch, Leo Shapiro, Lubomir Vidlicka and Jason Weintraub provided information that enabled errors and omissions to be corrected.

Some have expressed concern about how reliability could be maintained if many different persons are entering data. The task is too big for one person to accomplish without help. I believe anyone with enough interest to obtain editing access and enter changes is likely to take the task seriously. Nevertheless, I will implement a log that will allow review and, if necessary, correction of changes. A crucial policy is that editors should not alter any classification or nomenclature based on unpublished data. Another concern is

how to deal with proposed changes at higher taxonomic levels where rapid consensus is unlikely. Should there be a committee to decide when a change has become generally accepted?

I believe the Orthopterists' Society is creating not only a useful resource for orthopterists, but also an example that can inspire systematists working in other groups

***Orthopterology in the 21st Century:
A Rich, Even, and Diverse Record
of Scientific Inquiry***

***Jeffrey A. Lockwood
Entomology Section,
Department of Renewable Resources
University of Wyoming,
Laramie, WY 82071-3354***

If diversity is indicative of a robust, resilient, and stable biological community, perhaps it is appropriate to apply this standard to the endeavors of our scientific community. In this regard, one might expect a vital and healthy field of science to exhibit diversity (including both evenness and richness) in its published works. Based on qualitative data (*e.g.*, the vibrant International Conference of Orthopterists in 2001, the growing status of the *Journal of Orthoptera Research*, and the variety of nations and disciplines represented in The Orthopterists Society), I have maintained that orthopterology is a remarkably healthy scientific field. In 2001, I tabulated and summarized the previous year's scientific literature pertaining to studies of orthopterans (*Metaleptea* 21(1): 4-6). I have repeated this exercise for the published literature of the year 2001, with the intention of both comparing the patterns to the earlier results and adapting measures of diversity to evaluating the literature.

To generate comparable data sets, I used the same methods as described in my earlier analysis. In brief, through my subscription to an automated version of the Science Citation Index and the BIOSIS database, I tracked the world's scientific literature pertaining to the Orthoptera over the course of the year. My search terms included (asterisks refer to "wildcard" characters, allowing the search to include any combination of letters): orthop*, acridid*, gryllid* tettigoniid*, grasshopper*, locust*, cricket*, and katydid*. This approach was

strongly biased to the Orthoptera *sensu stricto* (Caelifera and Ensifera), so my summary and analysis does not include related orders (with due apologies to my colleagues who study mantids, cockroaches, walking sticks, rock crawlers – and whatever we're going to call the Mantophasmatodea). The search is also limited to publications that meet the requirements of the database services, so contributions to non-English, governmental, and limited circulation outlets may be underestimated.

I categorized each article with respect to the number of authors (1, 2, 3, 4, 5, or >5), country (based on the affiliation of the first author), taxon (grasshopper, locust, cricket, katydid, and other [*e.g.*, tetrigids, gryllacridids, and gryllotalpids]), and field of study (physiology, behavior, ecology, morphology [including histology and developmental biology], genetics, taxonomy, control, and evolution [including phylogeny]). The number of authors, country affiliation, and taxon were each assigned to a single category, but the field of study often included two or more disciplines (*e.g.*, investigations of behavioral ecology). Articles that were erroneously identified as being related to orthopterology (*e.g.*, studies of the grasshopper sparrow or the sport of cricket) were kept in a separate file and not included in the summary and analysis.

To quantify the biodiversity of the literature, I used richness, evenness, and diversity measures. Richness is reported in terms of raw counts (*e.g.*, the "geographic richness" of the literature is the number of nations represented by authors). Diversity was expressed in terms of Simpson's D, which is a rather straightforward measure ranging from 0 to 1. The value expresses the probability that two randomly chosen samples will be different "species" (*e.g.*, the "geographic diversity" of the literature is the chance that two randomly selected articles will be authored by people from different countries). Finally, evenness – a measure of how equitably "species" are distributed within a community – was expressed as a function of Simpson's D, wherein a perfectly even distribution would attain the value of 1 and a completely uneven distribution would approach a value of 0 (*e.g.*, the "geographic evenness" of the literature is a measure of how equitably distributed the published works are across the various nations having produced the scientific literature).

A total of 325 scientific papers was published in the year 2001 on studies pertaining to Orthoptera, which represents an increase of 45% over 2000 (224 papers). In the last year, 76% of the papers had three or fewer authors, with the mode being two; these values did not differ markedly from 2000 (Table 1). Diversity in the

number of authors increased from 0.747 in 2000 to 0.765 in 2001. There was a slight increase in the number of authors, with 24% of the papers having ≥ 4 authors in 2001, compared to 21% in 2000. Thus, while the vast majority of orthopteran research is collaborative (83% of the papers had at least two authors), orthopterology appears to be resisting the trend toward gratuitous authorship.

Table 1. Number of authors of scientific papers on Orthoptera.

Number of authors	Number of papers (%)	
	2001	2000
	1	57 (17)
2	122 (38)	89 (40)
3	69 (21)	52 (23)
4	36 (11)	20 (9)
5	16 (5)	14 (6)
>5	25 (8)	

The geographic richness of research on the Orthoptera was quite impressive in 2001, with first authors coming from 37 nations -- an increase of seven countries from 2000 (Table 2). Europe accounted for 40% (43% in 2000) of the literature, followed by North America 31% (27% in 2000), Asia 19% (16% in 2000), South America 3% (6% in 2000), Australia and New Zealand 4% (5% in 2000), and Africa 3% (2% in 2000). The geographic diversity (0.899) and evenness (0.924) declined somewhat in 2001, compared to 2000 (diversity = 0.911; evenness = 0.971). This difference was largely due to an increase in the percentage of papers originating in the United States, from 17% in 2000 to 23% in 2001. If the United States is removed from the analysis, then the diversity increased slightly from 2000 (0.913) to 2001 (0.918), as did the evenness (from 0.816 to 0.924). Thus, the geographic richness and evenness of research pertaining to the Orthoptera continue to suggest a balanced, global community of scientists.

In 2001, research on the Acridoidea accounted for half of the papers published on Orthoptera, with the preponderance shifting from grasshoppers to locusts (Table 3). Most notably, the proportion of papers devoted to Acridoidea was markedly reduced from 2000, during which time these insects accounted for two-thirds of the

Table 2. Geographic origins of first authors of scientific papers on Orthoptera

Number of papers (%)		Country or countries
2001	2000	
74 (23)	38 (17)	United States
45 (14)	29 (13)	Germany
31 (10)	29 (13)	England
27 (8)	17 (8)	Japan
26 (8)	23 (10)	Canada
11 (3)	0 (0)	Sweden
10 (3)	6 (3)	Australia
10 (3)	2 (1)	China
8 (2)	4 (2)	Spain
8 (2)	3 (1)	Switzerland
6 (2)	7 (3)	Argentina
6 (2)	18 (8)	France
5 (2)	3 (1)	Belgium
5 (2)	7 (3)	India
4 (1)	1 (<1)	Israel
4 (1)	4 (2)	New Zealand
4 (1)	3 (1)	Turkey
3 (1)	5 (2)	Brazil
3 (1)	1 (<1)	Denmark
3 (1)	1 (<1)	Italy
3 (1)	3 (1)	Netherlands
3 (1)	5 (2)	Russia
3 (1)	1 (<1)	South Africa
3 (1)	0 (0)	South Korea
2 (1)	3 (1)	Austria
2 (1)	0 (0)	Benin, Jordan, Nigeria, Taiwan
1 (1)	3 (1)	Scotland
1 (<1)	1 (<1)	Czech Republic
1 (<1)	0 (0)	Colombia, Hungary, Ireland, Phillippines, Poland, Slovakia
0 (0)	2 (1)	Chile, Nigeria, Pakistan, Slovenia, Sudan

papers. Such a change would have resulted in higher evenness (and hence, diversity – given that the richness was set at five taxa for both years), but the proportion of papers pertaining to crickets doubled from 19% to 38%. As a consequence, the diversity actually decreased slightly in 2001 (to 0.716, from 0.728 in 2000), reflecting the decline in evenness (to 0.892, from 0.909 in 2000). As in the previous year, investigations of katydids accounting for about a tenth of the papers. The proportion of papers on the “other” orthopteran taxa declined to just 3% (from 6% in 2000). Thus, the study of Orthoptera appears to be rather dynamic with respect to the taxa being investigated. The popularity of crickets as “model systems” and the number of international symposia on neurophysiology, behavior, and related topics in 2001 may account for the prevalence of these insects in the literature. Given the strong skew towards acridids in 2000, the shift towards the gryllids in 2001 would seem to be welcome evidence of a more balanced, long-term distribution of scientific study related to orthopterans.

Table 3. Taxonomic groups of Orthoptera *sensu stricto* investigated in scientific papers

Taxon	Number of papers (%)	
	2001	2000
Acridoidea (grasshoppers locusts)	56 (21) 78 (35)	77 (29) 73 (32)
Gryllidae (crickets)	101 (38)	42 (19)
Tettigoniidae (katydids, etc.)	22 (9)	18 (8)
Other orthopterans	7 (3)	13 (6)

As in 2000, physiology was the most frequent subject of study in orthopteran research in 2001, being a significant element in 39% of the published papers (Table 4). Studies of behavior and ecology each comprised 20 to 25% of the studies in both years. Genetics, taxonomy, and control each accounted for 10 to 15% of the studies. The greatest decrease was in morphology, which fell from 15% of the papers in 2000 to just 4% in 2001. With richness “fixed” by the classification of the disciplines, the diversity and evenness of the literature were virtually unchanged from 2000 (0.827 and 0.943, respectively) to 2001 (0.821 and 0.938, respectively). Although in 2001 the total of the percentages (129%) dropped slightly from 2000 (135%), these data continue to suggest that a

substantial proportion of the published studies involved more than a single field of investigation. Thus, a rather broad and reasonably equitable distribution of disciplines characterizes the scientific investigations of orthopterans.

In summary, the analysis of the literature in 2000 and 2001 continues to support the argument that the study of Orthoptera is vital, healthy, and robust in terms of its geographic, taxonomic, and disciplinary diversity, evenness, and richness. The “typical” paper published in 2001 could be described as an article on the behavioral physiology of crickets, co-authored by two European scientists.

Table 4. Disciplines of investigation reported in scientific studies of Orthoptera

Field of study	Number of papers (%)	
	2001	2000
Physiology	127 (39)	95 (42)
Behavior	81 (25)	48 (21)
Ecology	63 (19)	45 (20)
Morphology	14 (4)	34 (15)
Genetics	48 (15)	30 (13)
Taxonomy	33 (10)	23 (10)
Control	37 (11)	22 (10)
Evolution	20 (6)	10 (4)

In reviewing the literature published over the last year, I am again tempted to nominate a paper as the most interesting or intriguing. In 2000, my candidate for the most provocative title was, “Venereal worms: Sexually transmitted nematodes in the decorated cricket,” by Luong *et al.* in the *Journal of Parasitology* (86:471-477). This year my nomination goes to a study of an even more repulsive phenomenon, in which the authors coin a new scientific term (at least it’s new to me — I’d heard of coprophagy and necrophagy but not this one) for what must be the disgusting feeding behavior in the Orthopteroid insects. Admittedly, this paper breaks my rule of including only the Orthoptera *sensu stricto*, but it was simply too good (or bad) to pass over. So, if your lunch is well-settled, check out “Emetophagy: Fipronil-induced regurgitation of bait and its dissemination from German cockroach adults to nymphs” in *Pesticide Biochemistry and Physiology* 71: 147-155.

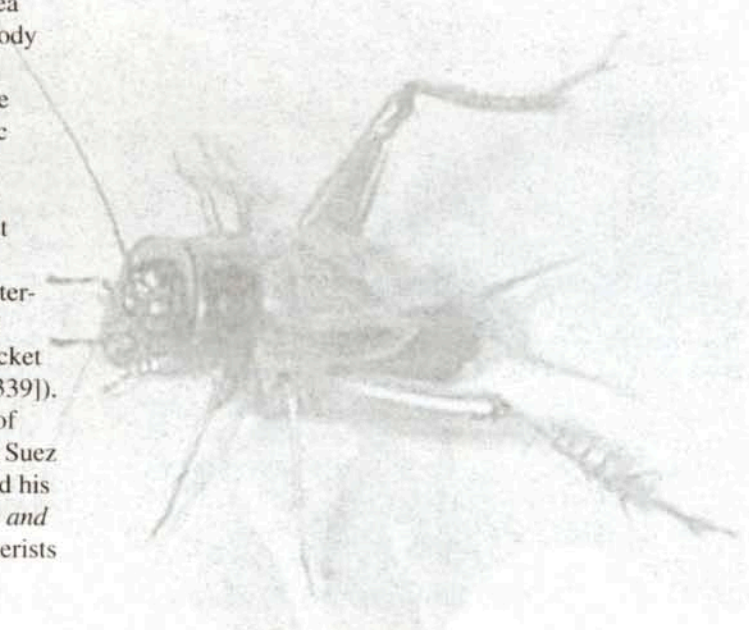
Any computerized literature search inevitably reveals studies that don't quite reflect the intentions of the investigator – in my case, studies of Orthoptera. As further evidence of the remarkable diversity, importance, and pervasiveness of orthopterans in human culture, I offer the following “errors”. Reflecting the presence of these insects in the arts, we have J. Keir's “The grasshopper and the ant in Blake's The ‘Fly’” (*English Language Notes* 38:56-58) and B. O'Hara's “While the locust slept: A memoir, by P. Razor” (*Library Journal* 126:88). Orthopterans also have been appropriated as adjectival names for various animals, including cricket frogs, grasshopper mice, and grasshopper sparrows which pop-up with some regularity in the course of the computer search.

Finally, no search of the published scientific literature pertaining to the Orthoptera would be complete without various references to the sport of cricket – a human activity that is surely even more difficult to explain in ecological or evolutionary terms than anything that the insects do. Indeed, my favorite database pastime is exploring the world of sport cricket for its incredible richness of sociological, historical, cultural, ethical and medical implications. While there seems to be little concern about the integrity of orthopterists, cricketers are obviously another matter, as evidenced by: “It's not cricket (bribery scandals in the sport of cricket)” (*History Today* 51:40-41; I suppose that gryllidologists could be bribed, but who would want to?), “Game location and officiating bias in English Club Cricket” (*Perceptual and Motor Skills* 93:359-362; I suppose that “bias” is an issue in some sampling regimes, but it is caught — not perpetuated — by our refereeing process), “Politics and cricket: The D'Oliveira affair of 1968” (*Journal of Southern African Studies* 27:667-684; I actually have no idea what the D'Oliveira affair was, but I'll bet somebody was cheating), and “It's not cricket - skulduggery, sharp practice and downright cheating in the noble game, by S. Rae” (*Times Literary Supplement* Dec 14:12; gryllid workers might fudge a bit, but they surely avoid “downright cheating”). I can't quite figure out what an “epidemiological injury” is, but these are apparently important to cricketers – an observation that might be relevant to those orthopterists studying biocontrol (“Incidence and nature of epidemiological injuries to elite South African cricket players” [*South African Medical Journal* 91:336-339]). Likewise, I know something about the important of locusts in Egypt, but the role of cricket during the Suez crisis is beyond my understanding of history (“And his name is Nasser”: cricket and the Suez crisis [*Race and Class* 43:59-69]). And if you thought that orthopterists

were duping their administrations when we claimed to be working while actually enjoying the fine weather on “collecting expeditions”, we have nothing on the engineers, who apparently manage to play cricket while collecting data (“On the reverse swing of a cricket ball - modeling and measurements” [*Journal of Mechanical Engineering Science* 215:45-55]). Finally, while I first thought that the weird and wonderful sounds emitted by crickets may be rivaled by yips elicited in the course of cricket (admittedly, this seemed odd as I've not seen such excitement in cricket as to provoke exclamation from players), I have since learned that “yips” is a psychoneuromuscular impediment (“Towards an understanding of the personal experience of the ‘yips’ in cricketers” [*Journal of Sports Sciences* 19:937-953]). So, if your hand wavers and quivers in the course of pinning a cricket specimen, you might consider publishing the companion manuscript, “Towards and understanding of the personal experience of the ‘yips’ in gryllidologists.”

Request for reprints

Jorge R. Montero-Moreno requests reprints that will enable him to identify Costa Rican Orthoptera. As many of us have duplicates in our own reprint collection, here is a way of reducing the ever increasing size of your library and helping an able and avid young orthopterist. Send reprints to him at: P. O. Box 1913-1000, San Jose, Costa Rica.



*In Memoriam**Eugenio Morales Agacino*

1914 - 2002



The sad news of the death of Eugenio Morales Agacino, one of the Society's distinguished honorary members, on March 11, 2002 has recently reached me from Madrid. I first met Eugenio in 1961 at the Instituto Español de Entomología in Madrid, and from the start we became very good friends. We met again a few times, but since 1961 we kept in touch by frequent correspondence, and I have here a thick folder with our letters. Very often I had to consult Eugenio on matters related to my work, and he never failed to answer promptly and accurately.

Eugenio was born in Barcelona on 15 March 1914. There in 1931 he got his bachelor degree. From 1936 to 1939 the Spanish civil war kept him from formal studies. He obtained his degree of Licenciado en Ciencias Naturales in 1948 from the University of Madrid. In 1997 the Universidad Autónoma de Madrid gave him the title of Doctor *honoris causa*.

He was a naturalist by vocation, interested from his infancy in the Natural Sciences, particularly in Zoology.

His father was a doctor of medicine and worked for the Navy, and this was the cause of the frequent change of address of the family, not only within Spain, but also in Morocco and the Canary Islands. His father wanted him to be a physician, but could not prevail over Eugenio's strong inclination for the Natural Sciences.

The professional activities of Eugenio started in 1931 and went on uninterruptedly for the rest of his life. He was constantly and intensely active in diverse areas of the Natural Sciences. He was the kind of eclectic naturalist that becomes rarer every day. He may have been the last of his kind, for all I know. In 1931 his parents returned to Madrid after a long stay in Barcelona. There Eugenio soon went to the Natural History Museum with a letter of introduction from one of his professors in Barcelona to Don Ignacio Bolívar Urrutia who was then Director of the institution. He was cordially received, and soon became an assiduous collaborator to the sections of mammals and insects, in the latter especially in Orthoptera where he worked directly under Bolívar. It was Bolívar who at one time convinced Eugenio's father that he should allow his son to study Natural Sciences instead of Medicine.

Eugenio was devoted to his work, and liked travelling and visiting different countries for his work and research. He lived for long periods in Iran, Greece, Turkey, in the Rif mountains and other parts of Spanish Morocco, and in the Spanish Sahara, where he made several trips from 1941 to 1970. In 1951 he began working for the Food and Agriculture Organization in 1951 and was sent to study the locust plague in Central America. For this task he made several extended trips there, mainly in Nicaragua, Honduras and Costa Rica from 1952 to 1954. He had to do much work on the bionomics of these locusts with very little money for equipment, but managed to improvise with discarded boxes, tin cans, earthenware pots and fly screening.

When I first met Eugenio in 1961, he was secretary of the Instituto Español de Entomología, whose director was then Gonzalo Ceballos, author of what is perhaps the best text of General Entomology ever written in Spanish. Ceballos relied heavily on Eugenio for the management of the Instituto and its publications, and he did the job remarkably well. When Ceballos died in 1967 everybody in Spain and abroad thought that Eugenio was his logical successor to the office. But another man was nominated, and Eugenio never again set his foot in the Institute, not even to look for his property, among it some of his pipes of which he had large number.

To refer in detail to Eugenio's life and activities would take a whole book. He was a member

of numerous learned societies in Spain and abroad, and was founder of some; it was in his laboratory that the idea was developed for the predecessor of our Society, the Pan-American Acridological Society. He worked in many State and International organizations related to zoology, protection of the environment, and other areas of the Natural Sciences. He was a very active participant in numerous congresses and international meetings, and the organizer of some of them, including the memorable one of the Orthopterists' Society in Valsain Spain. From 1932 to 1994 he authored 127 publications of which 39 were on mammals, 72 on insects (of which 60 were on Orthoptera), and the rest on a variety of subjects ranging from prehistoric rock paintings to taxidermy. In these publications he described two new species and six new subspecies of mammals, and 38 new taxa of insects ranging from genera to subspecies. He also described the unknown males or females of many insect species. In Rio de Oro in 1945, he found a cave on the seashore with a large colony of monk seals, a species then near extinction, on which he published a paper. And as a peculiarity of his many interests, he made for many years a large collection of toy railroad trains, that he pretended to buy «for his children».

But nothing that I could write on him may serve to describe Eugenio's lively and attractive personality and his spontaneous generosity. While with him in Madrid, it was materially impossible to pay for anything. «The richest man in the world is the Aga Khan, but the second is the Aga Cino,» he would say when forcibly keeping me from paying for anything in a bar or restaurant. In my visits to his home in 30 Sagasta Street, I remember him looking in his library for something to give me before I went away. From my last visit I have the two beautifully leather-bound volumes of Felipe Poey, *Memorias sobre la Historia Natural de la Isla de Cuba*, that rare and valuable book.

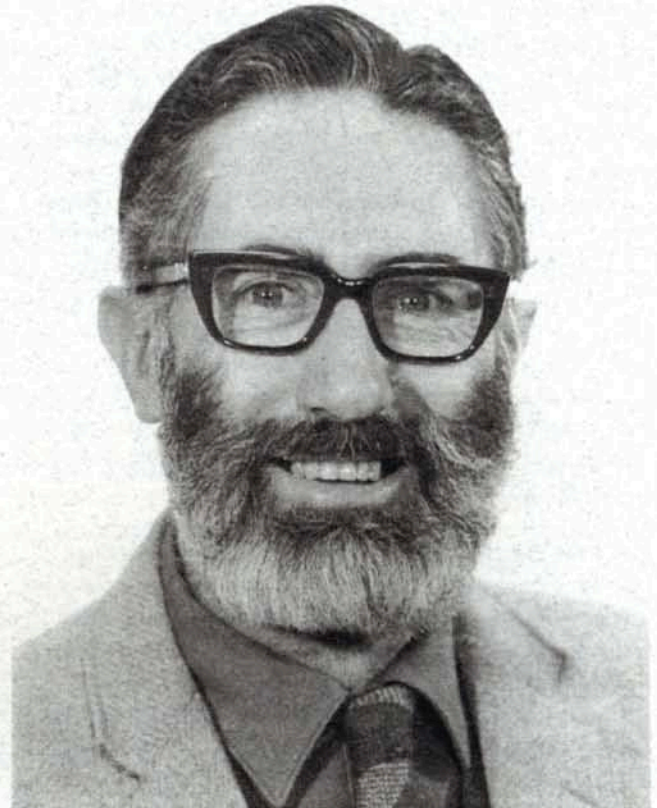
In 1948 he married Amalia de Oñate, who he called «Lala.» Between 1950 and 1956 they had four sons, of which the second one, Jaime, died in infancy. The last letter I received from Eugenio was a very sad one in which he told me of the death of Lala in 1998, shortly after the celebration of their golden wedding anniversary. He was then in good health, but I think that Lala's death started the decline that led to his own death this year.

Eugenio Morales may not have been, as he used to say in jest, the second richest man in the world, but in his qualities as a human being, he was one of the richest I have known.

Carlos S. Carbonell

Kenneth Hedley Lewis Key

28 August 1911 - 11 January 2002



Kenneth Hedley Lewis Key was always an extremely meticulous worker. He left copious notes and records covering every aspect of his studies. He left nothing to chance, he even wrote, and left for use on just such an occasion as this, a detailed biography. A version edited initially by the author and then with regret shortened by the editor, appears below. Hopefully enough has been saved to convey to the reader Ken Key's persona.

Ken Key was born in Cape Town on the 28th August 1911 but spent most of his early boyhood in Pretoria. By the age of seven he had assembled a collection of pinned specimens and was making notes on their habits. On returning to Cape Town in 1921 Ken's formal education began at the Rondebosch Boys' High School, from which he matriculated in 1927 at the age of 16. During these years his interest in insects continued and he also became interested in the rich flora of the Cape Peninsula.

In his matriculation examination Ken did best in mathematics and lowest in science. However, "science" at that time did not include biology, so when he enrolled at the University of Cape Town in 1928, it was for a B.Sc. course, with zoology and botany as majors - entomology not being available. After a preparatory

year of Physics, Chemistry, Latin, and Economics, Ken plunged into the zoology and botany courses. In zoology he found himself under an *enfant terrible* in the newly appointed Professor Lancelot T. Hogben, then in his late twenties and not yet world famous. Conservative Cape Town society could not adjust to Hogben - not even University society - and he soon returned to England. One noteworthy event of this was when he took a "coloured" woman to a ball. Hogben believed in shock tactics, and these were not without their effect on our teenage student from a prim - indeed puritanical - home environment. In the botany department Ken came under a very different kind of man, a shy Englishman, R.S. Adamson. While Hogben had turned upside down all conventional ideas of a zoology course, Adamson, although himself an ecologist, ran a conventional botanical course. Ken adjusted to these different approaches and emerged with his B.Sc. and the class medals for both subjects in both years. His entomological interests had not helped him in zoology.

In 1931 the zoology department at Cape Town came under the marine biologist T.A. Stephenson. Stephenson redressed the imbalance of the Hogben era by instituting traditional courses in comparative anatomy - vertebrates and invertebrates in alternating years for the M.Sc. degrees. As luck would have it, Ken was again cheated out of any formal training in entomology by landing in the vertebrate year, but took his degree with first class honours at the end of the year. The only concession made to his interests was permission to choose as his research subject the topic "Acrididae of the Cape Peninsular". His thesis on this subject embodying observations on the distribution, behaviour, and life-cycle of some 30 or 40 local grasshopper species, won him the Purcell Memorial Prize awarded by the University, and probably assisted him towards the George Grey Memorial Scholarship. These awards enabled him to proceed in the following year to the Imperial College of Science and Technology (London University) to do a Ph.D. in (at last) the Department of Entomology.

Ken's interest in grasshoppers had arisen quite fortuitously. B.P. Uvarov, the Russian authority on locusts and grasshoppers, was seeking someone in South Africa who would collect the local grasshoppers for him and Ken was put in touch with him. This contact was renewed when Ken moved to London in 1932, and led to his choice of *Locusta migratoria* as the subject of a study of that locust, which gained him his Ph.D. in 1936. It also led to taxonomic work on grasshoppers, in which Uvarov was his mentor, at the British Museum of Natural History. Ken's doctoral project yielded four published papers two of which were on the African genera of grasshoppers. However, they were not Ken's first; this had been published in 1930, in the South African Journal

of Science while he was still an undergraduate.

While at the British Museum in 1935, Ken was visited by A.L. Tonnoir, who had been appointed to the then CSIR Division of Economic Entomology by R.J. Tillyard, its first Chief. Tonnoir was looking for a young man to fill a vacancy for an Assistant Research Officer to carry out investigations on the "grasshopper" problem in Australia. Ken was encouraged to apply and in due course he was offered the job and arrived in Perth in May 1936.

In 1946 Ken was awarded a D.Sc. degree by the University of London and, later, by the University of Cape Town in 1962. After the war Ken turned to the writing up of his considerable data on the taxonomy of *Chortoicetes* and *Austroicetes*. This work, which is still the basic reference in its field, was published as a small book in 1954. However, Ken first undertook a close examination of Uvarov's "Phase Theory", which had to be clarified for his book and in 1950 he published a "Critique" of the theory which was subsequently widely misquoted by close adherents of the theory. About this time Ken was made strenuous efforts to organise a trial of a strategy of control that would follow the first of the control options mentioned above. Unfortunately there was no outbreak for a couple of years and the momentum was lost. Not for the first time Ken was to reflect how much easier it was to work with insects than with humans.

During the second half of the fifties, Ken began to lose interest in *Chortoicetes*. He devoted time to various sideline projects: principally two papers (with M.F. Day) on a unique temperature-controlled physiological colour-change response in the alpine grasshopper, *Kosciuscola tristis*, and one that recognised and studied for the first time Uvarovian phases (for which Ken coined the adjective "kentromorphic") in the stick insects. At this time also, Ken began an association with the cytogeneticist M.J.D. White seeking the solution of taxonomic and speciation problems in grasshoppers with the aid of features of the chromosomes. The potential of this was spectacularly illustrated when White's examination of the Karyotypes of the genus *Austroicetes*, monographed by Ken in 1954, showed that one of his "races" of *A. pusilla* was in fact a completely different species, although the siblings can still not always be separated on any feature of their gross morphology. This led to a joint paper published in 1957, the fore-runner of a number of joint or parallel studies that continued beyond the retirement of both workers.

Taxonomy in the Division of Entomology had grown in a haphazard fashion to meet the demands by workers on other projects. Collections of great importance had been assembled and these had become well known to overseas taxonomists who began to express concern at the lack of

acknowledged institutional responsibility for them. This pressure was reinforced by recommendations of a Committee of Review appointed to survey the work of the Division prior to the retirement of Nicholson as Chief. These were to the effect that a Curator should be appointed with authority to organise a unified system of curation, including policies on curation, loans, and other matters. Nicholson accepted the recommendations and Ken was appointed Curator. Later, in January 1968, he was designated Chief Curator.

Ken took his new role seriously. By means of extended discussions with his independent-minded taxonomic colleagues he had to secure acceptance of restraints and standardised procedures that were not always welcomed by people who had long been a law unto themselves. Moreover, this was done in the face, initially, of only luke-warm support from many quarters. In due course all this changed, and by December 1970, when Ken finally relinquished the Chief Curatorship in order to concentrate on his research, the Taxonomy Group was a happy and united section of the Division that had not only gained the respect and understanding of the CSIRO administration but was recognised as one of the world's major taxonomic institutions. In 1962 these insect collections gained further recognition when the Commonwealth Government officially gazetted the Australian National Insect Collection as "a national heritage, which it is the responsibility of the Commonwealth to preserve for future study".

From 1959 onwards, Ken published some 40 papers on the taxonomy of the Australian orthopteroid insects (two under joint authorship with M.J.D. White), and several others on theoretical and methodological issues. He contributed chapters to five books, including both editions of the "Insects of Australia". He also built up in Canberra a collection of Australian Orthoptera far superior to that in the British Museum and indeed at least equal to all other collections of Australian Orthoptera put together.

Ken was elected a Fellow of the Australian Academy of Science in 1959 and served on the Sectional Committee for Biological Sciences; and in 1975 membership of the Council. He was not by nature a committee man, but served on committees in both CSIRO and the Academy. He was a member of the Academy's Fauna Committee, and he did a stint on the Advisory Committee for the Australian Journal of Zoology and the Editorial Board of "Pacific Insects". He was foundation President of the Ecological Society of Australia and a Foundation member of the Australian Entomological Society. In the fifties and sixties he was an active member of the International Commission on Zoological Nomenclature. He played a leading part in the discussions prior to the

1961 revision of the International Code of Nomenclature and was a member of the Editorial Committee formed to produce a further revision. He was appointed to the Interim Council of the Australian Biological Resources Study set up in 1973, and served for the three years of its existence. Ken was also a member of both the Linnean Society of New South Wales and the Royal Entomological Society of London.

In August 1976, on his 65th birthday, Ken retired from CSIRO and became an Honorary Research Fellow, continuing his taxonomic studies on grasshoppers. He was still publishing taxonomic revisions and papers on theoretical taxonomy, taxonomic nomenclature, and grasshopper biology in December 1994 when the onset of ill health forced his second retirement from the Division. Ken was married three times and is survived by a son and four daughters.

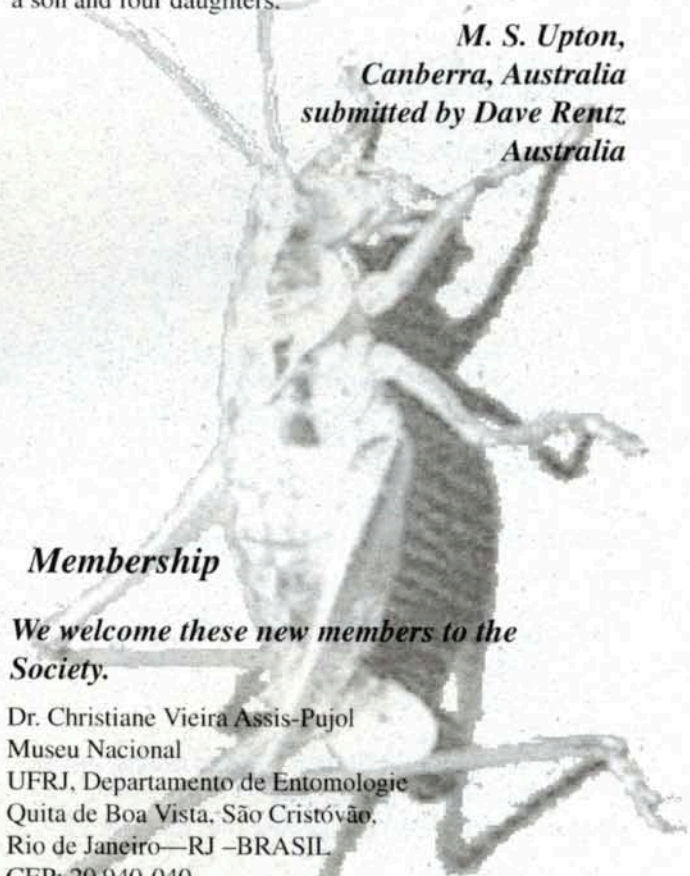
*M. S. Upton,
Canberra, Australia
submitted by Dave Rentz
Australia*

Membership

We welcome these new members to the Society.

Dr. Christiane Vieira Assis-Pujol
Museu Nacional
UFRJ, Departamento de Entomologie
Quita de Boa Vista, São Cristóvão,
Rio de Janeiro—RJ —BRASIL
CEP: 20.940-040
*Systematics, Morphology, Biology and
Comportament of Neotropical Acridoidea*

Ing Mohamed Abdallahi Ould Babah
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*Desert locusts, grasshoppers of the Sahel (campaign
management, ecology and biogeography)*



Dr. Richard Baily
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Dr. John Barone,
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Mississippi State University,
Mississippi State, MS39762 USA
Grasshopper diversity and plant-herbivore interactions

Dr. Rohini Balakrishnan,
Centre for Ecological Sciences
Indian Institute of Science
Bangalore 560012 INDIA
Song pattern recognition, mate choice and mate sampling; Systematics and phylogenetics; grasshopper ecology, esp. effect of fire on grasshopper communities, montane grassland communities.

Olivier Bethoux,
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UMR Botanique et Bioinformatique
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Systematics, paleontology, paleobiodiversity, wing morphology

Dr. Filippo Buzzetti
Via G. Verdi, 44
I-3072 Chiampo (vi)
ITALY
Orthoptera of Italy, with special look to Bradyporidae (gen. Ephippiger) and bioacoustics of Ecuador Orthoptera (specially Otonga Res. and Yasuni N. P)

Dr. John Clayton
U. S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura CA 93003 USA
Response of Orthopterans and other insects to fire, timber harvesting, and other disturbances.

Andrew Deans
Department of Entomology
320 Morrill Hall, University of Illinois
505 S. Godwin Ave. Urbana, IL 61801
USA
Evolution and ecology of Blatteria (Blattodea) the cockroaches.

Dr. Bernard Defaut
Aynat
F-09400 Bédailhac-et-Aynat
*Orthopteric communities in Palearctic region: taxonomy ("syntaxonomy"), ecology (synecology"), Chorology ("synchorology"), applications for land management and environmental protection
Orthopteric fauna of France*

Dr. Michael Engel
Division of Entomology
Snow Hall, 1460 Jayhawk Blvd.
University of Kansas
Lawrence, Kansas 66045-7523
USA
Paleontology of Orthopteroid orders; phylogeny and classification; Recent Phasmatodea, Dermaptera, Grylloblattodea, Orthoptera (particularly Ensifera).

Dennis Fielding
USDA/ARS
P. O. Box 757200
University of Alaska
Fairbanks AK. 99775 USA
Phenology modeling, diapause characterization; habitat/species relations; simulation modeling; crop protection.

Dr. Paolo Fontana
Via Marconi, 51
36033 Isola Vicentina (Vicenza) Italy
Dipartimento di Agronomia Ambientale e Produzioni Vegetali
Entomologia, Università di Padova.
Faunistics, Systematics, Biology and Bioacoustics of European and Mediterranean Orthopteroidea (Blattaria, Mantodea, Isoptera, Orthoptera, Phasmatodea, Dermaptera, Embiidina).

Tim Gardiner
Writtle College,
Loardship Road Writtle
Chelmsford, Essex, CM13RR, UK
*Enhancing orthopteran abundance on agricultural land in lowland England,
I am the Essex recorder for Orthoptera.*

Grant Gardner
 Zoology, North Carolina State U.
 8212 Autumn Hill Terrace, Apt. L1
 Raleigh, NC 27617
 USA

Looking at histology of Disosteira carolina and Schistocerca americana. Also interested in ethology and behavioral ecology of Orthoptera.

Susan Gershman
 Dept. of Biology, UCR
 University of California at Riverside
 Riverside, CA 92521
 USA

I am interested in why female crickets mate multiply.

Dr. William Hayes, Delta State University (Mississippi),
 PO Box 235
 Rosedale, MS 38769
 USA

Orthoptera of Mississippi and New Mexico & Orthoptera as indicators of rangeland health

Julien Hering

Ecole Normale Supérieure, Lab. neurologie
 12 Rue Lakanal
 75015 Paris
 FRANCE

I am a student in neurosciences but very interested on different fields of studies of Orthoptera: faunistic, systematic, behavior, physiology and ecology. I will soon finish a study on faunistic and ecology of Orthoptera in a natural reserve for the Organisme National des Forêts (National Organism for forests). The second part of my interests concerns Orthoptera songs. I am doing some field records and I am trying to perform some computer analysis of the data I collected.

Dr. Peggy Hill, The University of Tulsa (Oklahoma),
 The University of Tulsa
 600 S College
 Tulsa, OK 74104
 USA

Mating systems, acoustical communication, phylogenetics (specifically in the Gryllotalpidae)

Ralph Hobbs,
 English Nature
 Phoenix House
 32 North St.
 Lewes, East Sussex BN7 2PH
 GREAT BRITAIN

Ecology, distribution, identification/taxonomy of European Orthoptera, also habitat management and conservation

Akihiko Ichikawa
 Kanko-Kagakn Co.
 2-21-7 Nakasakurazuka,
 Toyonaka 561-0881 JAPAN

Michele Lemonnier,
 GEEM (Mougins, France),
 La Louisiane, Apt 29A
 70 avenue Juyette
 06250 Mougins
 FRANCE

Mediterranean fauna, fire and pasturage impact studies on Orthoptera populations

Dr. Bruno Massa
 Agriculture Faculty, Prof. Of Zoology
 Dipartimento Senfimiza (Entomologia, Acarologia,
 Zoologia)
 V.le delle Scienze, 13-90128 Palermo (Italy)
 Systematic and biogeography of Orthoptera of
 Mediterranean area.

Gordon Marsh,
 Museum of Systematic Biology at Irvine, California
 12062 Hatch Hill Road
 Meadville, PA 16335
 Systematics, ecology and behavior of local fauna
 (Northwestern Pennsylvania and adjacent Ohio)

Jacques Mestre
 29 rue Orphee
 34070 Montpellier
 FRANCE
 African Acridomorpha (systematics, faunistics, and biology)

Annie Mondard,
 Food & Agriculture Organization of the United
 Nations,
 Rm B746b
 Viale delie Terme di Caracalla
 00100 ROME
 ITALY
 Locust management

Dr. Timothy Mosseau,
 Dept of Biological Sciences
 University of South Carolina,
 Columbia, SC 29208
 USA
 Life history evolution, behavior, quantitative genetics, material effects, and latitudinal variation

Dr. Takashi Murai
Osaka Aquarium Kaiyukan
2-14-11-203 Mino
Kawanishi, Hyogo 666-0105
JAPAN
Fauna in Japan, Photography

Dr. Jong-Cheol Paik
Dept of Applied Biology
College of Agriculture
Suncheon National Univ
Suncheon 540-742
REPUBLIC OF KOREA
Orthoptera of the Korean peninsula

Dr. Daniel Petit,
University of Limoges (France),
Faculte des Sciences
Bidogie animale
123, au A. Thomas
F-87060 Lingages Cedex
FRANCE
Phylogeny and ecology of Acrididae

Dr. Ralf Peveling
University of Basel, Institute of Environmental
Sciences
(NLU)-Biogeography
Tränkweg 7
636gg Uefenrd.
GERMANY
*Locust and grasshopper control, environmental
impact of locust and grasshopper control*

Serge Papail
Societe Entomologique de France
Gretia (Armorican Arthropods Study Group)
Member
Le Rocher Poirier 35-140
St. Oven-des Alleux FRANCE
Decticinae/Oedipodinae

Prof. Stephen Simpson
Department of Zoology
University of Oxford
South Parks Road
Oxford OX13PS, UK
*Phase change in locusts, nutritional physiology and
ecology, feeding behaviour*

David Small,
Massachusetts Department of Conservation
89 Laake Ellis Rd
Athol, MA 01331 USA
*Land management and Orthoptera as conservation
indicators*

Trevor Smith,
University of Florida,
4830 NW 43rd St #87
Gainesville, FL 32606 USA
*Feeding behavior and microhabitat preferences of
Acrididae*

Dr. Jean-Francois Voisin,
National Museum of Natural History (Bretigny,
France)
13 Rue Lamertine
F-991220 Bretigny
FRANCE
Ecology, European fauna

Dr. Robert T. Weiland
Crompton Corporation
199 Benson Road
Middlebury, CT 06749 USA
Controlling hopper/locust infestations

Jason. D. Weintraub
Dept. of Entomology
Academy of Natural Sciences
1900 Benjamin Franklin Pkwy.
Philadelphia, PA 19103-1195 USA
*Taxonomy; nomenclature; systematics of Acridoidea;
bioinformatics esp. databases incorporating digital
images (e. g. Orthoptera Species File)*

Gebremedhin Woldewahid,
Dept of Entomology
Wageningen Agricultural Univesity
PO Box 8031
6700 EH Wageningen
THE NETHERLANDS
*Spatial distribution and habitat dynamics in the desert
locust, locust density in relation to habitat factors on
the Red Sea coast*