

# Metaleptea

The ORTHOPTERISTS' NEWSLETTER

Vol. 12, No. 1

THE ORTHOPTERISTS' SOCIETY

September 1990

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## AN UPDATE OF NEWSLETTER EVENTS

### A MESSAGE FROM THE EDITOR

Many things have happened since the last issue of *Metaleptea*. My time has been divided among several projects involving the Society. The first and most extensive project has been the publication of the *Proceedings of the Fifth International Congress of the Orthopterists' Society*, the publication derived from the Meeting in Segovia, Spain. It has been a difficult venture, and although I am sure the results will be very satisfying, I don't think I'd like to do it the same way, ever again! It was necessary first to optically scan twenty articles into our computer system in order to provide the Spanish publishers with manuscripts on computer diskettes. For me this was at the time a horrendous task, involving many man-hours of hand-feeding the scanner with page after page of manuscript, then returning it to my computer to edit the scanned documents, and send them on to Spain. The entire process involved countless interactions with my coeditor, Dr. Jaime Gosalvez, across the Atlantic Ocean, through different time zones, using Telex, FAX, international telephone messages, delayed postal deliveries, overnight express packages, crossings in the mail involving communication among more than fifty contributors. Deadlines imposed by the editors in Spain, because of problems with the international mail systems, could not be met by more than a small percentage of the contributors. The type setters, who were Spanish, had difficulty understanding hyphenation guidelines of manuscripts written in English, and the system created new mistakes everytime old mistakes were fixed by the typesetters. The styles were as numerous as the number of articles submitted. It was necessary to try to create a single uniform style for all of these manuscripts. I admit to at least two errors in judgement involving unpublished manuscripts, which I hope to correct through the upcoming *Orthopterists' Journal* series. Nevertheless, in spite of all the difficulties, and even without having seen the finished product yet myself, I believe the next *Proceedings* will be a welcomed addition.

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Most of the summer was spent on administrative duties and a six-week field trip to Peru to study ecology, behavior, and systematics of katydids and grasshoppers of the northern Amazonian rainforest. It was time well spent on my own research, but it left me physically and mentally exhausted upon my return. When I returned, I was placed in charge of developing a new research laboratory at the Smithsonian Museum Support Center to study cuticular hydrocarbons of insects. Again, it was a big investment of my time.

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Finally, I obtained enough money at the end of our fiscal year to purchase my own Macintosh IICX computer. This newsletter is the result of that purchase. It has freed me of my dependency on Dan Otte to create final copy of newsletters. That is the positive side of this new acquisition. The negative side has been that it has required an enormous amount of my time to purchase, install, transfer documents from WANG to Macintosh, learn and train on this computer. Fortunately, Macintosh makes learning more enjoyable than I have experienced on other systems, but in terms of my own personal time, well, I just don't have any for the moment.

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In the near future, I will be in touch with Nick Jago, and I think we should expect the generation of the first volume of the new *Orthopterists' Journal*. This was discussed as a real possibility at the Segovia Meeting, and it appears to be coming to fruition. Let us wish Nick well in this this new endeavor.

## U. S. Pest Grasshoppers: Getting them Under Control is the Goal of GHIPM

The Annual Meeting of the Technical Working Group, Grasshopper Integrated Pest Management Project (GHIPM) met in February, 1990, in Mesa, Arizona. Attending were more than 50 grasshopper specialists, representing four countries.

The meeting was very successfully coordinated and hosted by Dr. Jerry L. Fowler and colleagues from the GHIPM Headquarters. The three-day program, followed by a business meeting, was presented in a conference room of a luxury motel in Mesa, Arizona, the Dobbs Ranch Inn, and included papers ranging from grasshopper ecology, to biological and chemical control strategies, to economic considerations facing rangeland cattle farm-

ers. The presentations were formally compiled into an impressive 266-page Annual Report.

It is impossible in this newsletter to summarize the presentations of the many notable researchers at the meeting. The Keynote speaker included our President, Dr. Daniel Otte, who spoke on the possibilities of global warming as a consideration for future grasshopper dynamics, and Dr. George B. Popov, who described mapping techniques involved in studies on the Desert Locust habitats in North Africa. Their talks were followed by those of more than 40 internationally recognized grasshopper specialists. The first sections of the *Grasshopper Field Guide*, prepared by Dr. Robert E. Pfadt, were shown for the first time, and made quite an impression f

The Grasshopper Integrated Pest Management Project (GHIPM) was developed in 1987 as a 5-year experimental demonstration project to evaluate the effectiveness of sustained usage of integrated pest management strategies against rangeland grasshopper populations. The Project originated out of a need to respond to the 1985 grasshopper epidemic that seriously affected 16 Western states and at least three Canadian provinces. At that time an estimated 55 million acres in the U.S. alone were significantly damaged by out-of-control grasshopper populations.

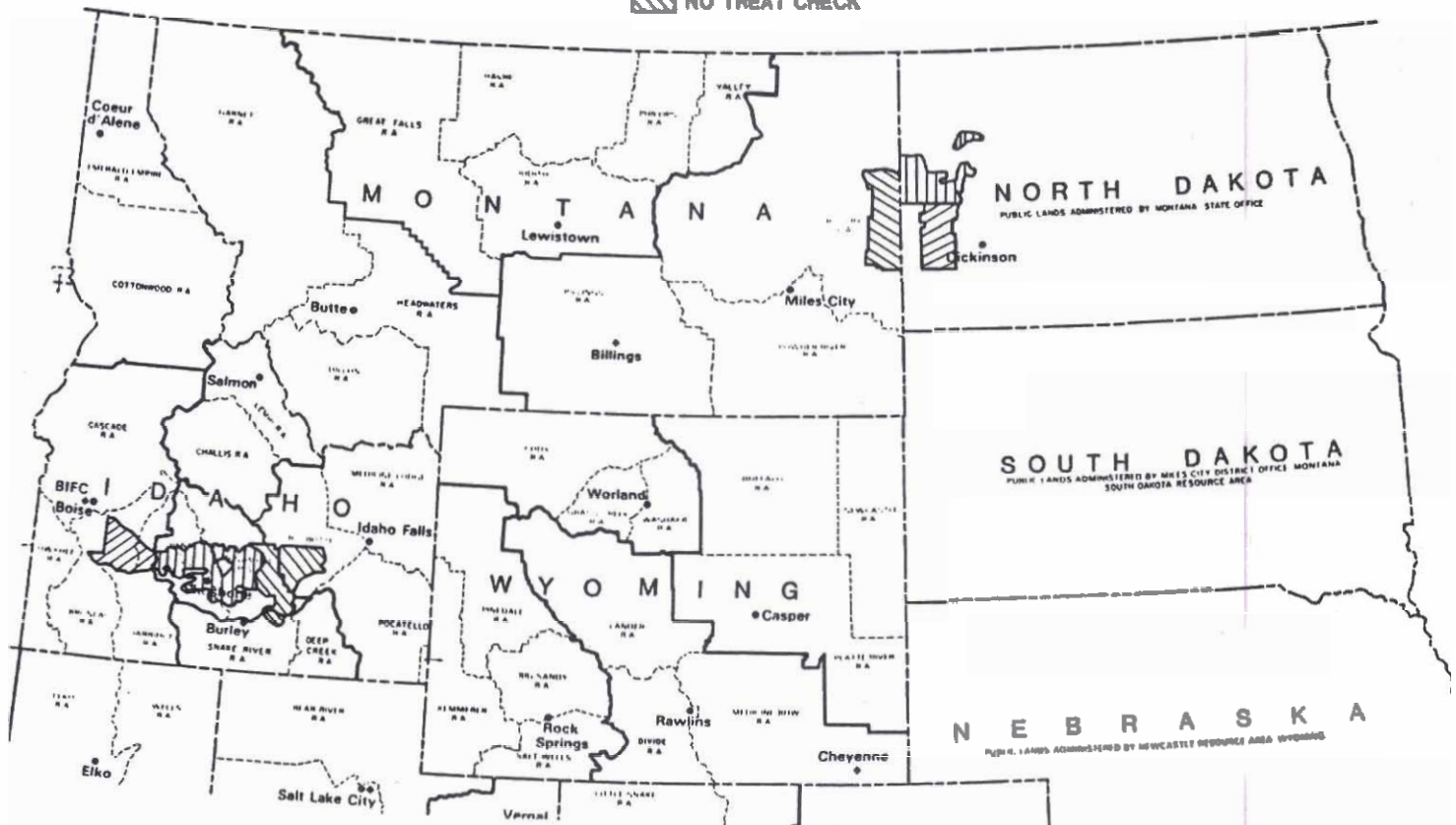
Since its inception by the USDA/APHIS/PPQ, GHIPM has become a cooperative effort that includes four branches of the U.S. Department of Agriculture (Agricultural Research Service, Economic Research Service, Forest Service, and Extension Service), three branches of the U.S. Department of Interior (Bureau of Land Management, Fish and Wildlife Service, and National Park Service), the Environmental Protection Agency (EPA), and nine Western universities (including major input from Montana State University, University of Wyoming, University of Idaho, Colorado State University, University of Nebraska, and Universities of North and South Dakota).

Headquarters for the GHIPM Project are located at the Bureau of Land Management State Office in Boise, Idaho. The demonstration sites are located in two areas: in McKenzie County, North Dakota, and the Shoshone BLM District, in Idaho [see Map]. These rangelands were selected to include the major ecosystems within which grasshopper outbreaks usually occur in the Western part of the United States.

Each demonstration area includes about 1 million acres, on each of which up to 100,000 acres per year may be treated on as many as 10 different treatment blocks. Format of treatments depends on the occurrence of infestations and climatic factors.

## GRASSHOPPER INTEGRATED PEST MANAGEMENT PROJECT

-  STANDARD IPM DEMONSTRATION
-  NO TREAT CHECK



Following is a list of papers presented at the meetings. Some of the findings have since been published. Others represent research in various stages of progress. For more information regarding the findings, we suggest interested individuals contact the authors of the projects.

- Pierson, F.B., J.R. Wight, and C.L. Hanson (ARS, Boise, Idaho). Simulation of soil water content and temperature within the surface layer associated with grasshopper hatches and survival.
- Brusven, M.A. and D.J. Fielding (Dept. of Plant, Soil, and Entomol. Sci., University of Idaho, Moscow, ID). Grasshopper ecology on BLM land in south central Idaho: rangeland.
- Onsager, J.A. and W.P. Kemp (USDA/ARS, Rangeland Insect Laboratory, Bozeman, MT). Grasshopper population dynamics.
- Pfadt, R.E. (Wyoming Agricultural Experiment Sta., University of Wyoming, Laramie, WY). Field Guide to common western grasshoppers, Annual report.
- Lockwood, J.A. and D.R. Lockwood (Department of Plant, Soil, and Insect Sci., University of Wyoming, Laramie, WY; International Business Machines, 1299 Orleans Dr., Sunnyvale, CA). Predictive modelling of grasshopper population dynamics using catastrophic theory.
- Belovsky, G.E. (School of Natural Resources and Dept. Biology, Univ. of Michigan, Ann Arbor, MI). Grasshopper competition.
- Joem, A. (Dept. Entomology, Univ. Nebraska, Lincoln, NE). Host plant quality: demographic responses of range grasshoppers to stressed host plants.
- Reuter, K.C. (USDA, APHIS, Boise, ID), R.N. Foster, D.R. Walgenbach, and S. Erickson. Immediate and second-year impact of *Nosema locustae* bran bait on populations of grasshoppers on rangeland near Winnett, Montana, 1988.
- Cushing, W.J., R.N. Foster, T. Battaglia, S. Battaglia, and M. Smith (USDA/APHIS/GHIPM, Boise, ID). Evaluation of a malathion treatment as a corrective tool for control of grasshoppers on rangeland in the "Blue Buttes" treatment block within the North Dakota IPM demonstration areas: a first year evaluation.
- Cushing, W.J., R.N. Foster, T. Battaglia, S. Battaglia, and M. Smith (USDA/APHIS/GHIPM, Boise, ID). Year two follow-up evaluation of the Grasshopper IPM 2% carbaryl wheat bran bait at 1.5 lb/acre at the North River Crighton control block, McKenzie County, ND, 1989.
- McEwen, L.C. et al. (Fishery & Wildlife Biology Dept., Colorado State University, Fort Collins, CO). Environmental monitoring and evaluation GHIPM.
- Thomas-Wiley, R. and M.D. Skold. (Colorado State University, Fort Collins, CO). Economic analysis: environmental effects of grasshopper population controls.
- Davis, R.M. and M.D. Skold (Colorado State University, Ft. Collins, CO). Economic Analysis: impacts of grasshopper populations and controls on ranchers.
- Thompson, D.C., L.A. Torell, and E.W. Huddleston (New Mexico State University, Las Cruces, NM). Economic Injury Level: warm season grasses.
- Wang, T. and D.D. Walgenbach (Plant Sci. Dept., South Dakota State Univ., Brookings, SD). Economic thresholds of grasshoppers on cool season grasses.
- Trepedino, V.J. and T.L. Griswold (USDA, ARS, Utah State Univ., Logan, UT). Pollination biology of threatened and endangered plants.
- Onsager, J.A. and W.P. Kemp (USDA/ARS, Rangeland Insect Laboratory, Bozeman, MT). A decision support system for management of grasshoppers on rangeland.
- Bjogstad, A.J. (USDA/FS, Rapid City, SD). Range yield according to degree days on the northern Great Plains.
- Reuter, K.S. et al. (USDA/APHIS/GHIPM, Boise, ID). Evaluation of reduced rates of carbaryl spray for control of grasshoppers on rangeland near Edgemont, SD.
- Walgenbach, D.D., R.A. Bohls, and B.W. Fuller. (Plant Sci. Dept., South Dakota State Univ., Brookings, SD). Optimal grasshopper baits.
- Onsager, J.A. and D.A. Streett (Rangeland Insect Laboratory, Bozeman, MT). Grasshopper pathogen field evaluation.
- Onsager, J.A., D.A. Streett, and S.A. Woods. Grasshopper field evaluation: virus.
- Carruthers, R.L., R.A. Humber, and M. E. Ramos (USDA/ARS, Cornell Univ., Ithaca, NY). Development of *Entomophaga grylli* as a biological control agent of grasshoppers.
- Henry, J.E. and J.A. Onsager (Rangeland Insect Laboratory, Bozeman, MT). Efficacy of *Nosema locustae* and *Vairimorpha* sp. against young nymphs of the Mormon cricket, *Anabrus simplex*.
- Hostetter, D.L. et al. (USDA/ARS, Grasshopper IPM Project, Kimberly ID). The impact of insect parasites and predators on grasshopper populations.
- Dysart, R.J. (USDA/ARS, Rangeland Insect Laboratory,

Sidney, MT) and J.A. Onsager. The impact of insect parasites and predators on grasshopper populations.



Excerpt from the  
*Desert Locust Bulletin*  
No. 138:  
General situation during  
February 1990 and Forecast  
until mid April 1990

The recession continues with very few desert locusts reported during February. Only a few scattered adults were present along the Red Sea coast of Saudi Arabia. Although no other locusts were reported, it is likely that small numbers of adults are present in Makran and Baluchistan of Pakistan and in eastern Arabia. Meteosat imagery indicated that there has been widespread rain in the interior of the southern Arabian Peninsula. There are unlikely to be many adults in the area to take advantage of this rain but the situation needs to be closely monitored. In East Africa, scattered adults may have moved westwards along the northern coast of Somalia. Elsewhere, very small numbers of adults are likely to be present in Northwest and West Africa.

Although only a few scattered adults were observed on the southern Tihama of Saudi Arabia, it is likely that small numbers of adults are present in other parts of the coastal plains on both sides of the central and southern Red Sea. During the forecast period, numbers will decline as adults start to move from the coastal plains into the interior.

Elsewhere, there are two areas of interest. First, it is likely that significant numbers of scattered adults migrated to Makran and the interior of Baluchistan in Pakistan last autumn. These may have laid following recent rainfall and it is possible a few small groups may form by the end of the forecast period. Second, scattered adults have probably drifted westwards along the northern coastal plain of Somalia and these may have started to breed on a small scale since moderate rain has fallen in the area.

In Northwest and West Africa, very small numbers of adults are likely to be present in southern Algeria, southwestern Morocco, northern Mauritania, the Adrar des Iforas of Mali, Tamesna, northern Air of Niger, and possibly in Tibesti of southern Libya and northern Chad.

### Weather and Ecological Conditions

During February, the ITCZ was located south of 9 degrees North over West Africa. Meteosat imagery indicated substantial cloud masses over the extreme southwest of Morocco on 3 and 22 February, over Mauritania between Tidjikja and Ouadane on the 3rd, 15th, and 23rd, and Inchiri on the 22nd, and over the extreme northwest of Mali on the 24th. These clouds may have produced some rain since some green patches of vegetation were reported in inter-dune areas in Adrar of Mauritania. Temperatures generally remained too cold to allow for night flight in north-west Africa.

On the Red Sea coast of Sudan, Tokar received 24 mm of rain on 21 January. However, vegetation was starting to dry out in many areas by mid February. Heavy rain was reported on the Tihama of Saudi Arabia on the 4th in Jizan and light rain fell near Qunfidah on the 4-6th. Rain was also reported on the Tihama of Yemen Ar on 5-6th.

Meteosat imagery suggested that rain may have fallen in Djibouti and the northwestern coast of Somalia during the last week of February.

Light rains fell on the coast west of Aden on 19 January and northeast of Aden on the 31st. However, vegetation and soil conditions are still very dry. Meteosat imagery suggested that heavy rain may have fallen in the Wadi Hadhramaut area in early February. Of February, Saiyun reported 57 mm, Ketbeh 37 mm, and Shiram 12 mm during a four hour period. Standing water was present in Wadi Hadhramaut and soil conditions were moist and favourable for laying over a large area from Wadi Hainan to Wadi Khon. Vegetation is expected to improve by the end of the month.

Meteosat imagery indicated substantial cloud masses during the first half of February over the empty quarter of Saudi Arabia, UAE, and the coast of Oman. Freezing rain was reported in Muscat during the second week of February. Other confirmed reports of rainfall were not available.

Heavy floods were reported in southeast Iran near Chah Bahar in early to mid February. Widespread rains were reported in Baluchistan during the second week of February.

### Area Treated in February, 1990

During February, there were no reports of control operations.

### Desert Locust Situation WEST AFRICA

Mauritania - Surveys during the second half of January in Tagand and Adrar regions confirmed that the situation remained calm. No further details available. Surveys during early February from Tidjikia (18°32'N

11°23'W) to 40 km west of Tichit (18°28'N 9°30'W) did not find any locusts.

No locust information had been received from other countries in the region up to 28 February.

#### NORTHWEST AFRICA

Morocco, Algeria, Tunisia, Libya - No locust activity was reported up to 10 February.

#### EASTERN AFRICA

Sudan - No locusts were found by surveys on the Red Sea coast from Suakin to Port Sudan and in the Karora area during the first half of February.

Ethiopia, Djibouti, Somalia, Kenya, and Tanzania - The locust situation was reported calm up to 31 January.

#### NEAR EAST

Kingdom of Saudi Arabia - A few scattered newly fledged adults were observed on the Tihama south of Qunfidah along the foothills near Khamis Garib (19°10'N 41°30'E) on 4-5 February.

Yemen PDR - ground surveys during the second week of February along the coast west of Aden, on the eastern coast from Mukalla to Dis (14°53'N 49°54'E), and in Wadi Hadhramaut from Wadi Dour to Wadi Khon did not find any locusts.

Iraq, Kuwait, Bahrain, and UAE - No locust activity was reported up to 28 January. No locust information had been received from other countries in the region up to 28 February.

#### SOUTHWEST ASIA

Pakistan, India - No locusts were reported during January and the first half of February. No locust information had been received from other countries in the region up to 28 February.

#### New Assistance Requested

No requests for assistance against desert locusts had been received up to 28 February. Cameroon has requested 30,000 litres of pesticide for control operations against *Locusta* in the northern region.

#### Forecast until mid April 1990

##### WEST AFRICA

Mauritania - Small numbers of locusts are likely only to be present in areas that may have received rainfall such as Dakhlet-Nouadhibou, Inchira, between Ouadane and Tidjikja in Adrar-Tagant, and near Zouerate. Small scale breeding may occur in areas of green vegetation. Surveys in late March are recommended in these areas.

Mali - Small numbers of locusts are likely only to be present in areas that may have received rainfall such as in the Adrar des Iforas, where small scale breeding may occur.

Niger - Small numbers of locusts are likely only to be present in areas that may have

received rainfall such as the northern Air where small scale breeding may occur.

Chad - Small numbers of locusts are likely only to be present in areas that may have received rainfall such as Kanem and Tibesti, where small scale breeding may occur.

Burkina Faso, Cameroon, Gambia, Guinea Bissau, Guinea Conakry, and Senegal - No significant developments are likely and no invasions are expected.

#### NORTHWEST AFRICA

Morocco - Small numbers of locusts are likely only to be present in areas that may have received recent rainfall primarily in the extreme southwest. Small scale breeding may occur in areas of green vegetation.

Algeria - Small numbers of locusts are likely only to be present in areas that may have received recent rainfall primarily in the central and southern Sahara. Small scale breeding may occur in areas of green vegetation.

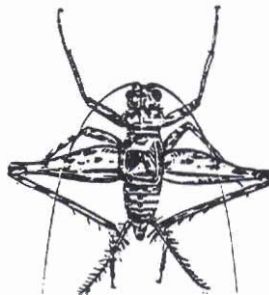
Tunisia and Libya - No significant developments are likely and no invasions are expected.

#### EASTERN AFRICA

Sudan - A few scattered locusts may be present on the Red Sea coast. However, numbers will decline as locusts begin to move near the end of the forecast period toward summer breeding areas in the interior of the country.

Ethiopia - A few scattered locusts may be present on the northern Red Sea coast. However, numbers will decline as locusts begin to move to summer breeding areas.

Somalia - Small numbers of locusts are likely to be present on the northern coast, primarily in areas that may have received recent rainfall such as the north-western coastal plains from Berbera to the Djibouti border. Small scale breeding may occur in areas of green vegetation.



## Malaysian Cricket Diversity

by

Dan Otte and Dick Alexander

Two separate collecting expeditions to peninsular Malaysia have revealed an extraordinary diversity of crickets in the Genting

Highlands. Within an hour's drive from Kuala Lumpur, along the old road to Kuantan and on the western side of the Pass near Batu Ferringi, collections and tape recordings in February 1989 and March 1990 reveal the highest diversity of crickets yet recorded. We tape recorded approximately 88 cricket species along a transect a few km in length. The prior record was held by the Moordea region of Mali, where, within a few square miles, approximately 33 species had been recorded. Other hot spots are a locality in southern Ohio (USA) with approximately 28 species; the Queensland rainforest (Australia) in the vicinity of Tully, with approximately 26 species along a transect about 2 km in length; Hunters Camp, Kenya, with about 25 species within a few hundred meters of a spring. We were also surprised to find that of the 88 species only 15 were found both February and March. This means that there is a large turnover of species from one season to another. This seems surprising for a place that is within 3 degrees of the Equator. Life cycles must be finely tuned to the wet and dry cycles.

Malaysian forests are also filled with the sounds of pseudophylline katydids (Tettigoniidae). The songs vary from the very high frequency (barely audible) to the lowest frequencies known for insects (ca. 200 Hz). Several species sounded rather more like owls than insects. One gets the impression from talking to New World katydid specialists that the New World is a lot less noisy than southeast Asia. Somebody must have some good insights on this difference. Are bats really responsible?

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## THE EXECUTIVE DIRECTOR'S COMMENTS

These are times of change for the Orthopterists' Society. During the July 17 and 19, 1989, Board and Business Meetings at Val-sain, Spain, several initiatives were approved. Among them was one that announcements, ballots, dues notices, and invoices be mailed 1st class and separate from publications, making the Directorate and the Editorial Office responsible each for its own activities. This arrangement makes possible worldwide delivery of most materials via airmail, providing an improved liaison between individual members and the Society.

A second approved initiative concerns the Society's new *Orthopterists' Journal*, plans for which are proceeding rapidly. President Dan Otte has appointed Nick Jago journal Editor and empowered him to proceed with format design, instructions to authors, etc.

These moves indicate promise for the Society's continued development but will not be accomplished without cost. Our current budget cannot accommodate them. As you know, the Society's traditional approach has been to minimize dues in hopes that we not outprice the pocketbooks of our third-world members, most of whom have limited access to U. S. dollars. I propose to continue this approach but keep solvent by following the practice of those professional societies which supplement dues with a publication charge.

Accordingly, I have asked the Board of Governors for continuation of the current dues structure for members who wish to receive only *Metaleptea* (\$15 Active Members, \$7 Student Members) and for approval of a supplemental charge of \$15.00 for those who want the Society's publications, viz. the *Orthopterists' Journal*, the *Proceedings*, and any *Occasional Papers* that go to press. If the Board approves, the supplemental charge will be the subject of a special election, the ballot for which will accompany the next mailing. If approved by the Board and then by the voting membership, the proposed supplement will take effect in 1992.

Several members have inquired about the possibility of using their VISA account to pay Society dues. The Society is willing to take the required steps but must be assured that there is sufficient interest to make it worthwhile. A set-up fee plus a maintenance fee will be required to implement a VISA arrangement. Treasurer Roger Bland indicates that, based on our current membership size, a minimum of 20 members must agree to VISA use at a cost of \$3.75 per transaction. The dues of such individuals would, therefore, be set at \$18.75 (\$15.00 dues + \$3.75 maintenance fee) per annum. The dues of those Active Members paying by regular means would continue at \$15.00 per annum. Those who are interested in the VISA plan are asked to let me know.

Our current checking account balance is \$2,644.09 and our savings account balance \$3,240.69, for a total of \$5,884.78 (all figures in U. S. currency) as of today, April 6, 1990.

Our accounts have been depleted by the 5th Meeting, and other commitments remain to be paid. Any relief from the supplemental publication charge, if approved, is a year off. Therefore, your help is requested in the form of prompt payment of any monies that you may owe. Treasurer Roger Bland will be pleased to receive payments at his Mt. Pleasant address (Biology Department, Central Michigan University, Mt. Pleasant, MI 48859, USA).

The Society's 1989 financial report prepared by Treasurer Bland is attached [See adjoining page]. It has been cleared through the Society's Audit Committee and its Chairman, Mark Nelson.

--S. K. Gangwere  
Executive Director

### PROGRESS REPORT ON THE ORTHOPTERISTS' SOCIETY FIELD GUIDE PROJECT

Nearly all of the manuscripts received for the *Field Guide* project have been prepared for printing. Ten of them will be delivered to the printing firm within a few days. Most of them could have been printed by this time, but the printer offered a reduced rate if about eight to ten manuscripts could be submitted at the same time.

Six more manuscripts also are complete and await only the final approval of the authors. A completed edited copy of his or her paper is sent to the author, and that paper will not be printed until the author's approval has been received. Two more manuscripts are nearly complete, awaiting only translation of parts. Of the papers at hand, ten will be published in English, five in French, and three in Spanish. A number of papers are to be published in more than one language, as will be noted in the attached schedule.

The scope of the project is rather extensive. My tentative schedule is for completion by September 30, 1991. If the funds are exhausted before completion, there will be another delay until additional financial backing can be found. I am very grateful for the contract awarded to me by the Canadian International Development Agency (C.I.D.A.) that has made the project possible. The many authors do not receive remuneration for their time and effort--nor do I!

The procedure is now established and I will be able to deal with additional manuscripts quickly. I hope this note will stimulate those who have agreed to write parts to please send them to me as soon as is convenient. If there is to be a delay, please advise me so that I can set up a reasonable publication schedule.

--V.R. Vickery  
Coordinator and Editor  
*Field Guide* Project  
April 24, 1990

### The Orthopterists' Society Field Guide Series

The Orthopterists' Society *Field Guide* Series are to be issued as individual publications. Each one will be "pocket-size", 11.5x19 cm, with a heavily plasticized cover. The earlier proposal to have each one produced to fit a 3-ring binder has been abandoned. The series is arranged in four parts: Introduction; General Topics; Specific Pests; and Regional Pests. It is set up as open-ended series in each of these categories so that other *Field Guides* can be added in any of them, should this become desirable. Should some of the *Field Guides* on the original list be deleted, the assigned "letter-number-letter" designation for that publication will be left blank; no other *Field Guide* will be given that designation. The names of the authors of the individual *Field Guides* are not given in the following list; there has been and probably will be more changes before the project has been completed.

*Field Guides* will be published in English, French, or Spanish, or in any combination of these languages that is appropriate for the part of the world where they will be most useful. The proposed languages of publication for each are given by the letters E (for English), F (for French), and S (for Spanish) following the title.

- A. Introduction to the *Field Guide* Series.  
This includes diagrams of the structures of the insects, discussion of terms, and an explanation of terms used. (E,F,S)
- B. General Topics. (E,F,S)
  - B1. Population Monitoring and Dynamics.
  - B2. Periodism and Life Cycles.
  - B3. Biological Control: Infectious Diseases.
  - B4. Feeding Habits and Behavior.
  - B5. Chemical Control.
  - B6. Biometeorology and Migration.
- C. Single Specific Pests
  - C1. The Desert Locust, *Schistocerca gregaria* (E,F).
  - C2. The Migratory Locust, *Locusta migratoria*, in Africa and Malagasy (E,F).
  - C3. The Migratory Locust, *Locusta migratoria*, and its Subspecies in Asia (E).
  - C4. The Moroccan Locust, *Docostaurus maroccanus*. (E,F).
  - C5. The Red Locust, *Nomadacris septemfasciata* (E,F).
  - C6. The Brown Locust, *Locustana pardalina* (E).
  - C7. The Senegalese Grasshopper

**THE ORTHOPTERISTS' SOCIETY**  
**1989 FINANCIAL STATEMENT**  
(In dollars, US currency)

Checking account balance, January 1 .....	\$1,423.68
<b>Receipts</b>	
Dues .....	2,881.00
5th Meeting, Spain, receipts .....	6,414.00
Publication receipts .....	121.50
Gifts & contributions .....	1,824.89
Interest on checking account .....	122.17
Miscellaneous .....	0.00
Bank transfer from savings account .....	2,000.00
Total receipts .....	13,364.06
<b>Disbursements</b>	
Stationery & clerical supplies .....	54.30
Stamps, mailing, & telephone .....	2,349.32
Publication & printing .....	668.85
5th Meeting, Spain, disbursements .....	8,900.00
Bank transfers to savings account .....	0.00
Miscellaneous .....	17.30
Total disbursements .....	11,990.05
Receipts less disbursements (= surplus) .....	1,374.01
Jan. 1 balance + surplus .....	2,797.69
Checking account balance, December 31 .....	2,797.69
*****	
Savings account balance, January 1 .....	4,804.44
<b>Deposits</b>	
Cash transfer .....	0.00
Interest on savings account .....	198.90
Deposits .....	187.00
Total deposits .....	385.00
<b>Withdrawals</b>	
Transfer to checking account .....	2,000.00
Total withdrawals .....	2,000.00
Deposits less withdrawals (= deficit) .....	1,614.10
Jan. 1 balance less deficit .....	3,190.34
Savings account balance Dec. 31 .....	3,190.34
*****	
Society financial status (= checking + savings totals) as of Dec. 31 .....	\$5,988.03

*Oedaleus senegalensis* (E,F).

C8. The Variegated Grasshopper, *Zonocerus variegatus*, in West Africa (E,F).

C9. The American Locust, *Schistocerca americana*, in the United States of America and Mexico (E,S).

C10. The Central American Locust, *Schistocerca piceifrons piceifrons* (S).

C11. The Peruvian Locust, *Schistocerca piceifrons peruviana* (S).

C12. The South American Locust, *Schistocerca cancellata* (S).

C13. *Schistocerca pallens* (S).

C14. *Rhammatocerus pictus* in South America (S).

C15. *Pterophylla beltrani*, a forest pest in Mexico (S).

D. Regional Field Guides, covering the serious pests of a region. These will include species listed in C, in less detail.

D1. South America (S).

D2. Mexico and Central America (S).

D3. Europe, Mediterranean and Middle East (E,F).

D4. Sub-Saharan Africa (E,F).

D5. Western Asia (E).

D6. China (E).

D7. U.S.S.R. (E).

D8. Southeast Asia and Pacific (E).

D9. Australia (E).

D10. North America (E).

D11. The Caribbean Region (E, possibly F).

## NEWS NOTES FROM OUR MEMBERS

Zuberi S. K. Seguni (NCDP, P. O. Box 6226, Dar-el-Salaam, Tanzania). I co-authored a paper on *Entomopox* viruses of grasshoppers in Tanzania with the late Dr. Purrini which appeared in the *Journal of Invertebrate Pathology*. For my M.Sc. thesis at the University of London, I did some work on *Schistocerca gregaria* and *Locusta migratoria*, notably their susceptibility to a pyrethroid.

Parvaneh Azmayesh Fard (Entomology Dept., Faculty of Agriculture, Karaj - 31584 - Iran) is doing research on band-winged grasshoppers in Iran (Oedipodinae) and teaching both systematic entomology to graduate students and applied entomology to undergraduates. She presented a paper at the XVII International Congress of Entomology, Hamburg, West Germany, entitled "Investigation of the biology of the small red-winged grasshopper *Acrotylus insubricus* Scop. in Karaj vicinity and under laboratory conditions". She also participated in the XVIII International Congress of Entomology, Vancouver, Canada, on July 3-9, 1988. Her publications include: 1973. Identification and distribution of band-winged grasshoppers (Orth. Oedipodinae) of Karaj. *Entomologie et Phytopathologie Appliquées, Ministère de L'Agriculture et Ressources Naturelles, Bull. 36: 20-35.*

1975. An investigation about morphology

and biology of *Aiolopus thalassinus* Fr. under laboratory conditions. *Entomologie et Phytopathologie Appliquées, Ministère de L'Agriculture et Ressources Naturelles, Bull. 39: 30-38.*

Robert Blackith has retired on reaching the age limit, but intends to remain active in research on Tetrigidae, mainly of south Asia, and possibly also on Eurnastacidae (Old World only).

Dr. M. V. Venkatesh of Malur-Kolar, Karnataka, India, died on April 29, 1989.



### Orthopterists' Journal

The *Orthopterists' Journal* will come into being during the first part of 1990. Dr. N. D. Jago will be senior editor of the journal and will receive manuscripts following his return from Mali in October 1990. He will also, at that time, send out a list of instructions for the preparation of manuscripts. It is hoped for the sake of economics that most manuscripts will be submitted on paper as well as on computer diskettes. Because of possible translation

### IN MEMORIAM SYRIL A. BLONDHEIM (1926-1989)

It is with great sadness that we report the recent death of Cyril A. Blondheim on 9 October 1989. Cyril passed away following an illness of several months. She remained active in teaching and writing until the very end.

Sybil Blondheim was born on 21 July 1926 in New York City and grew up in New Jersey, where she attended high school and college. She graduated with a B.A. from Rutgers University in 1946 and was elected to Phi Beta Kappa. In 1949 she obtained the M.Sc. degree from the University of Michigan. She taught biological sciences at Rutgers University College of Pharmacy until 1951 when she emigrated to Israel with her husband, S. Hillel Blondheim, a physician who had accepted a post at the Hadassah Hospital in Jerusalem.

Sybil started research work in 1962 at the Hebrew University of Jerusalem. There, under the tutelage of Aharon Shulov and Meir Paul Pener, her orthopterological interests blossomed. She published 11 articles in scientific journals and conference proceedings on acoustic communication and reproductive isolation in Orthoptera. She received her Ph.D. in 1978 for an analysis of reproductive isolation between sibling species in the genus *Dociostaurus*. The bulk of this dissertation, which demonstrated the role of multiple factors in addition to song differences in promoting species isolation, will be published shortly in the *Transactions of the American Entomological Society*. From 1981 until her death she remained a Research Associate of the Department of Zoology of The Hebrew University.

Sybil Blondheim's interests were not restricted to orthopteroid communication. She worked for many years with Rachel Galun on the physiology of feeding in the Diptera. Moreover, she maintained a broad interest in the natural history of Arthropods in Israel and was an invaluable collaborator and field guide for many visitors with orthopterological and other interests. Her enthusiasm was, perhaps, best shown in her teaching. Since 1974 she was employed as a Lecturer in Biological Sciences at the Michlalah Teacher's College in Jerusalem, where she instructed future secondary school teachers in behavior, ecology, and evolution, as well as the local fauna.

Sybil Blondheim is survived by her husband, four children, and fourteen grandchildren (as of 1989).

---Michael D. Greenfield and M. P. Pener

**IN MEMORIAM**  
**John C. McKinney**  
 (1942-1989)

It is with sadness that I report the death, on 25 November 1989, of Society member, colleague, and friend John C. McKinney, of Detroit, Michigan, USA.

John was born on 7 July 1942, in Kalamazoo, Michigan. He attended St. Meinrad Seminary, St. Meinrad, Indiana, and St. Martin College, Olympia, Washington, receiving the baccalaureate from the latter. He later attended Wayne State University where he received the master's degree and completed all requirements for the doctorate except his dissertation research.

In the early 1970s, John joined the Peace Corps. Following a three-year Peace Corps teaching assignment in Sierra Leone, Africa, he returned to Michigan to become a mathematics and science teacher in the Detroit Public School System, most recently the Martin Luther King High School. Though his teaching expertise qualified him to go most anywhere in the country, he remained in Detroit the rest of his life, feeling he was needed in the inner city schools of that city.

John's work in Africa stimulated a life-long dedication to environmental affairs. Though he carried a heavy teaching load, he somehow found time to participate actively in the affairs of professional organizations including, among others, the Metropolitan Detroit Teachers Association, the Cousteau Society, and the Orthopterists' Society.

Owing to the pressures of his professional life, John's work toward the doctorate was largely restricted to summers and holidays. During the course of his summers, he attended the University of Michigan's Douglas Lake Biological Station, Wayne State University's Bermuda Biological Program, and he traveled to the Galapagos Islands and elsewhere in search of interesting insect specimens. He also regularly attended Wayne State University's Northwoods Biological Station. He stayed at Northwoods for the entire session when his commitments were lighter, but he often found himself overcommitted, forcing him to commute weekly the approximate 650 miles between the station and Detroit. It was at Northwoods, fairly late in John's life, that I introduced him to the study of Orthoptera. Almost overnight, he became an avid collector and student of the group, and his focus remained thus the rest of his life.

John was an Orthopterists' Society member of several years standing. Though his funds were limited, he thought enough of our program and its implications for the Third World Nations that he regularly sponsored an African member. He had several different research investigations underway, but, by the time of his death, none had reached the point of publication. Now that work will be finished by others.

John came into my laboratory to undertake doctoral research on the orthopteroids of La Palma and Lanzarote Islands, Canary Islands, Spain. He threw himself into the project with that special dedication that was his. For several years, he seized every opportunity to carry out his studies, making short trips to the Canaries during Christmas, Easter, and summer at the cost of great financial outlay and personal exhaustion. He literally commuted to the Canaries just as he had done to Northwoods! He had planned yet another trip for July-August, 1989, with a side excursion to Valsain, Spain, to attend the Orthopterists' Society's 5th Meeting. He completed his poster presentation only one day before I was to leave for Spain and two days before he was to leave. Unfortunately, his physicians advised against the trip. At the last minute, he was obliged to send a telegram informing us of his inability to attend. Four months later he was dead. And he had not even told me he was ill!

These are the facts, but they disclose little of the man behind them. John was a gentle person, always quiet and introspective, and exceptionally compassionate. He was devoted to the education of young people and to the welfare of those less fortunate than himself. His overriding passion was for the environment—the earth, the rainforests, the air we breathe, and, above all, his beloved Orthoptera. Though John was not well known among the members of the Orthopterological fraternity, he was surely among the most devoted practitioners of our discipline. He will be greatly missed by those who had the privilege of knowing him.

On behalf of the Society, I offer condolences to his mother, Kay McKinney, his sister, Joan McKinney Weaver, and his other relatives and numerous friends.

--Stanley K. Gangwere

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*Thanks . . .*

to those members who have sent references for the Orthoptera References File. A preliminary data file will be made available at the end of 1990. Its size will depend on the kind of cooperation we receive from the membership. We now have over 5000 references.

*FAO training program cancelled*  
 The FAO training program to be undertaken

by the Orthopterists' Society and several Canadian and US universities has been scrapped. The new leadership at FAO sees little value in the effort and will not support it financially. Too bad. A lot of effort, thought, and planning went into what promised to be a good pilot project.

### *Newsmakers*

Please send short or long announcement about your activities, meetings, field trips, projects, Orthoptera collected, papers or books published, dangers averted, etc. to the Editor. Make this a viable and interesting newsletter. Lift some of the items out of your letters to individuals and share them with the membership, if possible.

### *New Members*

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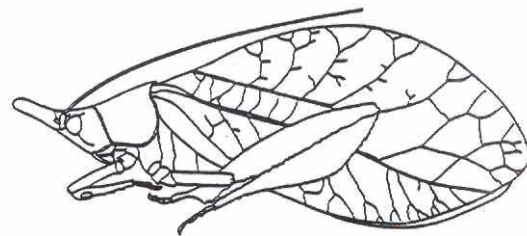
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### DRAWINGS WANTED

Figures, line drawings or graphics of your favorite grasshopper, cricket, katydids, or other orthopteroid insect. These will appear as fillers in future issues of *Metaleptea*. Send them to David A. Nickle, Editor.



*Buggy Books: A Guide to Juvenile and Popular Books on Insects and Their Relatives*, written by Gary A. Dunn, is now available. This unique reference provides information on 736 of the most significant "bug books" written for youth. This guide is invaluable to teachers, parents, naturalists, librarians and entomologists, and includes titles, authors, publishers, dates, number of pages and illustrations, ISBN, price, age-

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### *Nymphs of the Sahelian Grasshoppers: An Illustrated Guide*

published in 1989 by the Overseas Development Natural Resources Institute (ODNRI), U.K. This 11 x 18 cm, 150 page manual with a sturdy paperback binding, describes and illustrates -- in paintings and photographs -- 78 grasshopper nymphs (hoppers) judged to be the most important of the over 300 species in the Sahel. Useful synoptic information is provided for all species on: survival strategies, number of generations, habitat choice, hopper development, and practical recommendations on hopper identification.

Copies may be obtained (also available in French as *Les Larves de Criquets du Sahel*) from Walter I. Knausenberger, AID, Bureau for Africa, Office of Technical Resources, Washington, DC 20523-1515, or through David A. Nickle, U.S. National Museum of Natural History, Washington, DC 20560. Outside of North America, it is available through ODNRI, Publications Officer, Central Ave., Chatham Maritime, Chatham, Kent ME4 7B, United Kingdom; PRIFAS, Acridologie Operationelle, B.P. 5035, F-34032 Montpellier-Ceex 1 France; Department de Formation en Protection des Vegetetaux, B.P. 12625, Niamey, Niger; or CILSS-INSAH, UCTR/PV, B.P. 1530 Bamako, Mali.