

AMERICAN ARACHNOLOGY

The Newsletter of the American Arachnological Society

Number 47

April 1993

1993 A A S MEETING

SEATTLE, WASHINGTON

YOU ARE CORDIALLY INVITED TO THE
1993 AAS MEETING University of
Washington, Seattle, Wash. June 20-25, 1993

Tentative Schedule:

Sunday, June 20. 2:00 PM. Registration begins. UW Haggett Hall (NE dorm) main lounge 5:00-10:00 PM. Opening reception.

Monday, June 21-Thursday, June 24 10:00 AM-5:00 PM. Paper sessions. (may be shortened or lengthened depending on response)

Wednesday, June 23 6:00-10:00 PM. Banquet..

Friday, June 25. 8:00 AM-6:00 PM. Field trip. Lake 22 Research Natural Area (Old growth forest and subalpine lake, 1.5 hour drive from Seattle.)

If enough interest is shown, there may be an informal field trip on Saturday, June 26, to the Columbia Basin of eastern Washington (sagebrush country).

On-campus accommodations are available in Haggett Hall dormitory; the university is offering us a surprisingly inexpensive package deal, in which a 5-night stay with 2 meals/day costs \$157.22 (double occupancy) or \$202.50 (single occupancy). Unfortunately, the package

cannot be broken up, but even if you only stay 2 nights it will beat the cost of a hotel. The dorm rooms are comfortable, with easy access to commodious bath facilities, token-operated washers and driers, and kitchenettes. The meeting room is a pleasant 15-minute walk across campus; snacks and beverages will be catered there.

Seattle's climate in June is about as pleasant as it gets. A tremendous variety of natural environments is within a 3 hour drive, including many forest types from the lush, mossy Olympic rain forests to oak savanna to mountain old-growth with 800-year old trees; sea beaches and inland shore habitats of all kinds; almost any type of wetland including swamps, marshes, and sphagnum bogs; lowland grassy prairies; mountain meadows, a complex patchwork of subalpine habitats, and

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AMERICAN ARACHNOLOGY is the official newsletter of the American Arachnological Society and is distributed twice a year to members of the society. Items for the newsletter should be sent to the editor, Brent D. Opell, Department of Biology, Virginia Tech, Blacksburg, Virginia 24061, U.S.A. (Bitnet address: Uloborid@VTVM1. Deadline for receipt of material for the fall issue is 10 September and for the spring issue 10 March. All correspondence concerning changes of address and information on membership in the American Arachnological Society should be addressed to the Society's membership secretary, Norman I. Platnick, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, U.S.A. Members of the Society also receive the JOURNAL OF ARACHNOLOGY, which is published three times each year.

mountaintops above treeline; the volcanic moonscape of Mt. St. Helens; and the shrub-steppe and grassland habitats of eastern Washington. Currently recorded from the state are 830 spider species, about 30-50 each of harvestmen and pseudoscorpions, 7 or 8 solpugids, and 2 scorpions.

Not only will the meeting allow members to see a part of the country that will be new to most; we also hope to have an outstanding program --- but that depends on you! Please plan to attend and submit your titles and abstracts now. As added attractions, there will be space in the meeting room for poster presentations and the distribution of reprints and informal handouts. Curators among us are encouraged to bring and exchange handouts describing their museum procedures; members who teach, to bring any handouts prepared for their classes that they'd like to share. We also hope to include a seminar for taxonomists on nomenclature and naming. Believe me, this can be fascinating if properly approached!

TO REGISTER FOR THE MEETING, COMPLETE THE MEETING REGISTRATION FORM ON PAGE 9 AND RETURN WITH PREPAYMENT TO: ROD CRAWFORD BURKE MUSEUM (DB-10) UNIVERSITY OF WASHINGTON SEATTLE, WA 98195, USA.

TO RESERVE DORM ACCOMMODATIONS, COMPLETE THE SEPARATE CONFERENCE HOUSING RESERVATION FORM ON PAGE 11 AND RETURN WITH FULL ADVANCE PAYMENT TO THE ADDRESS SHOWN ON THE BACK. HOUSING FORMS RETURNED TO ME BY MISTAKE WILL BE FORWARDED TO CONFERENCE HOUSING, BUT IF YOU'RE PUSHING THE DEADLINE, ACCEPTANCE IS NOT GUARANTEED. MAKE COPIES OF EITHER FORM AT WILL. BE SURE TO READ THE INSTRUCTIONS ON THE BACK OF THE HOUSING FORM!

REGISTRATION AND RESERVATIONS MUST BE RECEIVED BY: MAY 28, 1993. NO EXCEPTIONS ON HOUSING! LATE REGISTRANTS WILL BE CHARGED A HIGHER FEE.

1993 AAS ELECTION

A nominating committee consisting of Pat Miller (Chair), Maggie Hodge, and Victor Fet has selected the following candidates for this year's elections. Please vote for one person for each office using the ballot provided on page .. of this newsletter.

PRESIDENT-ELECT:

Matthew H. Greenstone. Ph.D. 1976, Univ. of California, Berkeley. Research Entomologist, U.S.D.A. Agricultural Research Service, Biological Control of Insects Research Lab, Columbia, MO. Research interests: arthropod predation, aerial dispersal of spiders and other arthropod enemies. Society service: editorial board, board of directors. Recent Publications: * Greenstone, M.H. & J.H. Hunt. 1993. Determination of prey antigen half-life in *Pulute metricus* using a monoclonal antibody-based immunodot assay. Entom. Exp. Appl. in press. *Greenstone, M.H., Eaton, R. & Morgan, C.E. 1991. Active sampling of aerially dispersing arthropods: an aircraft and automobile-borne system. J. Econ. Entomol., 84:1717-1725.

Craig S. Hieber. Ph.D., 1984, Univ. of Florida. Associate Professor, Saint Anselm College. Research interests: behavior and physiological ecology. Society service: host of 1992 AAS meeting. Recent publications: * Hieber, C.S. & Uetz, G.W. 1990. Colony size and parasitoid load in two species of colonial *Metepeira* spiders from Mexico (Araneae, Araneidae). Oecologia, 82:145-151. Hieber, C.S. 1992. Spider cocoons and their suspension systems as barriers to generalist and specialist predators. Oecologia 91:530-535.

Petra Seirwald. Ph.D. 1985, Univ. of Hamburg. Research Associate, Field Museum of Natjral History; Lecturer, University of Chicago. Research interests: systematics and morphology. Society service: board of directors, chair committee to evaluate criteria for student paper awards, judge, student paper awards. Recent publications: * Seirwald, P. 1989. Morphology and ontogeny of female copulatory organs in American *Pisauridae*, with special reference to homologous features. Smithsonian Cont. Zool., 484:1-24. *Seirwald, P. 19.. Revision of the spider genus *Paradosenus*, with notes on the family Trechaleidae and the subfamily Rhoicininae (Araneae: Lycosoidea). Revue

SECRETARY:

Alan B. Cady. Ph.D. 1984, Univ. of Tennessee. Assistant Professor, Miami Univ. — Middletown, OH. Research interests: behavioral ecology. Society service: election committee, editorial board, chair, student awards committee, e-mail editor for American Arachnology. Recent publications: * Landes, D.A. Obin, M.S., Cady, A.D. & Humt, J.H. 1987. Seasonal and latitudinal variation in spider prey of the mud dauber *Chalybion californicum* (Hymenoptera, Sphecidae). J. Arachnol, 15:249-256. * Cady, A.B., Leech, R., Sorkin A., Stratton, G. & Caldwell, M. Acrocerid (Insecta: Diptera) life histories, behaviors, host spiders (Arachnida: Araneida), and distribution records. Can. Entom. (in revision).

James E. Carrel. Ph.D. 1971, Cornell Univ. Associate Professor and Honors Director, Univ. of Missouri - Columbia. Research interests: physiology and behavior. Society service: nominating committee, editorial board, chaired meeting sessions. Recent publications: * Carrel, J.E. 1990. Water and hemolymph content in the wolf spider *Lycosa ceratiola* (Araneae, Lycosidae). J. Arachnol., 18:35-40. * Carrel, J.E. et al. 1993. Cantharidin production in a blister beetle. *Experientia*, 49:171-174.

BOARD OF DIRECTORS MEMBER:

G.B. Edwards. Ph.D. Univ. of Florida. Curator of Arachnids and Myriapods, Florida State Collection of Arthropods. Research interests: salticid taxonomy and ecology. Society service: board of directors. Recent Publications: * Edwards, G.B. & Jackson, R.R. 1992. Use of prey-specific predatory behaviour by North American jumping spiders (Araneae: Salticidae) of the genus *Phidippus*. J. Zool. (in press). * Edwards, G.B. & Jackson, R.R. (submitted). The predatory behaviour of naive *Phidippus regius* spiderlings (Araneae: Salticidae): instinct-learned or both? N.Z. J. of Zool.

Ann L. Rypstra. Ph.D. 1982, Pennsylvania State Univ. Associate Professor, Miami Univ. — Hamilton, OH. Research interests: foraging behavior, social behavior, and community structure. Society service: editorial board, foreign language committee for J. Arachnology, election committee, nomination committee,

student awards committee. Recent publications: * Binford, G.J. & Rypstra, A.L. 1992. Foraging behavior of the communal spider *Philoponella republicana* (Araneae: Uloboridae). J. Insect Behav., 5:321-335. * Rypstra, A.L. (in press) Prey size, social competition and the development of reproductive division of labor in social spider groups. *Amer. Nat.*

David H. Wise. Ph.D. 1974, Univ. of Michigan. Professor of Entomology, Univ. of Kentucky. Research interests: ecology, evolution, and population biology. Society service: chaired meeting sessions. Recent publications: * Wise, D.H. 1993 *Spiders in Ecological Webs*. Cambridge Univ. Press, 328 pp. * Wise, D.H. & Wagner, D. 1992. Evidence of exploitation competition among young states of the wolf spider, *Schizocosa ocreata*. *Oecologia*, 91:7-13.

NOTICES AND COMMENTARY

NEW BOOK ON SPIDER ECOLOGY

Wise, D. H. 1993. *Spiders In Ecological Webs*. Cambridge Univ. Press, New York. 321 + pp. ISBN 0 521 32547 1 hardback.

After a brief introduction of spider biology, the author considers the following topics in depth: food limitation; competitionist views of spider communities; the competitionist paradigm; interspecific and intraspecific competition; effects of abiotic factors and natural enemies on population density; the impact of spiders on insect populations; the effect of the physical structure of the habitat on spider populations; and experimental evidence for indirect effects in the ecological webs of spiders.

NEW SPIDER JOURNAL

Pirata is a new semiannual journal devoted to spiders. It is the official vehicle of the recently formed Association des arachnologues du Quebec. The format is 8 1/2 by 11 inch paper and the text runs two columns on each page.

The first issue (134 pages) comprises mainly a detailed annotated list of 548 species of spiders of Quebec, belonging to 95 genera and 25 families. 172 species are recorded for the first time in the province. For each species, the list

includes counties, localities, habitats and microhabitats, months of captures and determinators of all specimens recorded. References selected for their illustration of genitalia and a glossary of habitats and microhabitats are also included. Four articles on spider distribution and natural history of species complement the list in the first issue of *Pirata*.

Gilbert Belanger and Raymond Hutchinson are the editors of the journal. Send all correspondence concerning subscriptions and contributions of articles and papers to the following address: Gilbert Belanger, A. A. Q., P.O. Box 1463, Maria (Quebec) Canada, G0C 1J0. Subscription cost (for 2 issues) in Canadian currency for 1992: Canada; \$30 (individuals), \$35 (institutions), \$17 (for 1 issue). United States; \$40 (individuals), \$50 (institutions), \$22 (for one issue).

COMMENT ON "A LIVING DEEP-SEA ARACHNID"*

By: Otto Kraus Zoologisches Institut und Museum Universität Hamburg
Martin-Luther-King-Platz 3
2000 Hamburg 13 Germany

The whole interpretation of the so-called "deep-sea arachnid" supposed to be a representative of the "Pedipalpi" (Amblypygi) is wrong. The animal photographed at 4150m should not be regarded any longer as "the most important and exciting arachnological discovery of the century"*. It seems to be almost certain now that H. Thiel and G. Schriever (1989) published photographs of an isopod (Crustacea): *Paropsurus giganteus* Wolf, 1962 (see *Galathea Report* 6:177-181). This identity was proposed by B. H. Mezhov (Dept. of Invertebrates, Zool. Mus., Moscow State Univ.) in a letter to H. Thiel (dated 16 April 1990).

* Shultz, J. W. 1992. A living deep-sea arachnid. *American Arachnology*, 46:3-4.

COLLECTING ORB-WEBS

By: Steve R. Kutcher
1737 N. Sinaloa Ave.
Pasadena, CA 91104

Because spider orb-webs lie in a single plane, they have for some time been preserved on

panes of glass or on paper. Another method involves collecting webs in rectangular wooden frames (Levi, Levi & Zim. 1987. *Spiders and Their Kin*). I have found a wooden embroidery hoop to be the most efficient method for collecting, transporting, and preserving spider orb-webs. The spider was collected from the center of a web by gently prodding it into a collecting vial and cutting its trailing dragline. Eight-, ten-, and twelve-inch embroidery hoops were the most useful sizes for collecting *Araneus* and *Neoscona* webs. Each hoop consists of an outer hoop that is held by a metal clamp around an inner hoop. After pressing the inner hoop against one face of an orb-web, the outer hoop was nested over it and secured with the clamp. If the web is clamped uniformly, there is no apparent distortion of the captured web region when the threads connecting it to the rest of the web are broken. To assure a precise fit between the two parts of a hoop unit, it is useful to use white paint to mark the alignment of best fit. Web samples captured in this way can be stored horizontally in a box. Several hoops can be stacked atop one another if they are separated by three or four 3 mm spacers. After being collected, webs may be dusted with corn starch, photographed, or studied in other ways. I thank Dr. Graeme Lowe for his suggestions in developing this technique.

ARACHNID DNA: 1993 UPDATE

Victor Fet
Department of Biological Sciences
Loyola University
6363 St. Charles Ave.,
New Orleans, Louisiana 70118.
ph. (504) 865-2288

Last spring (*Amer. Arachnology*, 45) I tried to put together a list of scientists and activities in arachnid DNA research. As of March 1993, there is some new information, and some additional references added.

A wonderful presentation at last AAS meeting (Manchester, NH) was given by Cheryl Hayashi (American Museum of Natural History) on their lab's preliminary results of sequencing 18S rRNA nuclear genes for number of arachnid orders. These conserved genes seem to give a very high-level resolution.

Useful for high-resolution taxonomy but also

containing variable regions is a gene coding for mitochondrial ribosomal RNA (12S) which are usually sequenced from PCR amplification products. Croom et al. (1991) used it to characterize Hawaiian species of *Tetragnatha* and number of other spider species. A recent publication by Ballard et al. (1992) on onychophores and their controversial position within the arthropods was based on 12S sequences and includes, among others, a comparison to a scorpion, *Liocheles waigiensis* (Gervias) (Ischnuridae). Philip D. Sudman (LSU, Baton Rouge) and me are currently obtaining 12S sequences for *Centruroides exilicauda* (Wood) (Scorpiones: Buthidae); preliminary data show high variation between populations from Arizona and Baja California (which also differ in venom toxicity).

Another group which now employs 12S rRNA genes (as well as other mitochondrial genes such as 16S rRNA and cytochrome b) with spiders *Cupiennius* ssp (Ctenidae) and related families includes Robert J. Felber and Kathrin Huber at Institute of Microbiology and Genetics, University of Vienna, Dr. Bohr-gasse 9, A-1030 Wien, ph. (222) 79515-4508, BITNET A8731G8K @ AWIVNI11, FAX (222) 7988224.

Also, since 1990, number of papers was published on cDNA sequences obtained from scorpion and spider gene libraries (these references were not included in my previous review). In spiders, it includes hemocyanin gene for *Eurypelma tarantula* (Voit and Feldmaier-Fuchs 1990a, b; Voll and Voit 1990), and in scorpions - toxin genes from buthid genera *Tityus*, *Leiurus*, and *Hottentotta* (= *Buthotus*) (Gurevitz et al. 1991; Martin-Eauclaire et al. 1992; Zilberberg et al. 1991a, b), in addition to some already known cDNAs for *Androctonus*.

The earlier attempts (Carbonell et al. 1988) to engineer a scorpion (*Androctonus*) insectotoxin to incorporate it into plans to provide pest-resistance have been continued (Stewart et al. 1991; Pang et al. 1992). This seems a fantastic goal but there is nothing technically impossible - so we may have our cereal full of scorpion venom one day?

Finally, another fantastic if not unbelievable note - not yet at DNA but at protein level. Werner et al. (1991) and Garry et al. (1991) published a first evidence that two of HIV proteins exhibit functional and structural similarities to scorpion

toxins (of buthids *Androctonus australis* and *Buthus occitanus*) in their interaction with monovalent cation channels. It sounds like an April 1st joke but it is true, and the way people found about it is funny - they screened a database of ALL KNOWN PROTEIN SEQUENCES in search of HIV similarities, and came across a scorpion toxin. What (evolutionary?!) implications it has remains to be seen. I thank Dr. Robert F. Garry (Tulane School of Medicine, New Orleans) for attracting my attention to this remarkable coincidence (?).

References

- Ballard, J. W. O., G. J. Olsen, D. P. Faith, W. A. Odgers, D. M. Rowell, and P. W. Atkinson. 1992. Evidence from 12S ribosomal RNA sequences that onychophorans are modified arthropods. *Science* 258: 1345-1348.
- Carbonell, L. F., M. R. Hodge, M. D. Tomalski, and L. K. Miller. 1988. Synthesis of a gene coding for an insect-specific scorpion neurotoxin and attempts to express it using baculovirus vectors. *Gene*, 73: 409-418.
- Croom, H. B., R. G. Gillespie, and S. R. Palumbi. 1991. Mitochondrial DNA sequences corresponding to a portion of the RNA of the small ribosomal subunits of *Tetragnatha mandibulata* and *T. hawaiiensis* (Areaneae, Tetragnathidae). *J. Arachnol.* 19: 210-214.
- Garry, R. F., J. J. Kort, F. Koch-Nolte, and G. Koch. 1991. Similarities of viral proteins to toxins that interact with monovalent cation channels. *AIDS*, 5: 1381-1384.
- Gurevitz, M., D. Urbach, E. Zlotkin, and N. Zilberberg. 1991. Nucleotide sequence and structure analysis of a cDNA encoding of alpha insect toxin from the scorpion *Leiurus quinquestriatus hebraeus*. *Toxicon*, 29(10): 1270-1272.
- Martin-Eauclaire, M. F., B. Ceard, A. M. Ribeiro, C. R. Diniz, H. RoCHAT, and P. E. Bougis. 1992. Molecular cloning and nucleotide sequence analysis of a cDNA encoding the main b-neurotoxin from the venom of the South American scorpion *Tityus serrulatus*. *FEBS Letters* 302(3): 220-222.
- Pang, S.-Z. et al. 1992. Expression of a gene encoding a scorpion insectotoxin peptide in yeast,

bacteria and plants. *Gene*, 116(2): 165-172.

Stewart, L. M. D., M. Hirst, M. L. Ferber, A. T. Merryweather, P. J. Cayley, and R. D. Possee. 1991. Construction of an improved baculovirus insecticide containing an insect-specific toxin gene. *Nature* 352: 85-88.

Voit, R., and G. Feldmaier-Fuchs. 1990a. Arthropod hemocyanins. Molecular cloning and sequencing of cDNAs encoding the tarantula hemocyanin subunits a and e. *J. Biol. Chem.* 265(32): 19447-19452.

Voit, R., and G. Feldmaier-Fuchs. 1990b. cDNA cloning and sequencing of tarantula hemocyanin subunits. *Biol. Met.*, 3(2): 87-89.

Voll, W., and R. Voit, R. 1990. Characterization of the gene encoding the hemocyanin subunit e from the tarantula *Eurypelma californicum*. *Proc. Natl. Acad. Sci. USA* 87(14): 5312-5316.

Werner, T., S. Ferroni, T. Sarmark, et al. 1991. HIV-1 Nef protein exhibits structural functional similarity to scorpion peptides interacting with K⁺ channels. *AIDS*, 5: 1300-1307.

Zilberberg, N., E. Zlotkin, and M. Gurevitz. 1991a. Molecular analysis of cDNA and the transcript encoding the depressant insect selective neurotoxin of the scorpion, *Leiurus quinquestriatus hebraeus*. *Insect Biochemistry and Molecular Biology*, 22(2): 1990-203.
Zilberberg, N., E. Zlotkin, and M. Gurevitz. 1991b. The cDNA sequence of a depressant insect selective neurotoxin from the scorpion, *Buthotus judaicus*. *Toxicon*, 29(9): 1155-1158.

THE SCORPIONS OF PUERTO RICO AND HISPANIOLA

Jorge A. Santiago-Blay
218 Wellman Hall
Dept. of Entomological Sci.
University of California
Berkeley, CA 94720-0001

Studies of the scorpion fauna of the greater Puerto Rico region (Puerto Rico and its adjacent islands Mona, Monito, and Desecheo, plus the American and British Virgin Islands) and of Hispaniola (including Navassa and Saona Islands) found a total of 46 species belonging to

nine genera (Santiago-Blay, 1984, 1990). Of these, 13 species were new. Seventeen species were found in the greater Puerto Rico region and 32 in Hispaniola. Only three species were common to both regions.

In one Puerto Rican semi-evergreen forest, four species were found in an area 875m². The most commonly collected species had an estimated density of 0.6 individuals/m²/week over the course 2.5 years, and a statistically random spatial and temporal distribution ($p > 0.50$) (Santiago-Blay, 1984).

The distribution of native scorpions on Hispaniola supports the hypothesis that the island is composed of two distinct geographical areas: the southwestern peninsula and the remainder of the island (Santiago-Blay, 1990). Further geologic processes produced vicariant events responsible for the development of considerable endemism. These events were probably responsible for the very high (> 84%) endemism on Hispaniolan "islands", such as the areas surrounded by the Cordilleras Central and Septentrional, as well as the islands of Navassa and Saona.

Checklist of Species

<i>Cazierius politus</i> (Pocock, 1898)	H
<i>Caziereus</i> new species	H, PR
<i>Centruroides bani</i> Armas & Fondeur, 1987	H
<i>Centruroides beynai</i> Schawaller, 1979	H
<i>Centruroides gracilis</i> (Latreille, 1804)	H
<i>Centruroides griseus</i> (Koch, 1845)	PR
<i>Centruroides hasethi</i> Pocock, 1902	PR
<i>Centruroides marcanoi</i> Armas, 1981	H
<i>Centruroides margaritatus</i> Gervais, 1841	H
<i>Centruroides nitidus</i> Thorell, 1876	H
<i>Centruroides nitidus</i> (Thorell, 1877)	PR
<i>Centruroides taino</i> Armas & Fondeur, 1987	H
<i>Centruroides tennis</i> (Thorell, 1876)	H

<i>Centruroides</i> new species	H, PR	<i>Tityus</i> new species #1	H
<i>Heteronebo cicero</i> Arm. & Fond., 1987	H	<i>Tityus</i> new species #2	H
<i>Heteronebo dominicus</i> Armas, 1981	H	<i>Tityus</i> new species #3	PR
<i>Heteronebo portoricensis</i> Francke, 1978	PR	<i>Tityus</i> new species #4	PR
<i>Heteronebo pumilus</i> Armas, 1981	H	<i>Tityus</i> new species #5	PR
<i>Heteronebo vachoni</i> Francke, 1978	PR		
<i>Heteronebo yntemai</i> Fran. & Siss., 1980	PR		
<i>Heteronebo</i> new species #1	H		
<i>Heteronebo</i> new species #2	H		
<i>Isometrus maculatus</i> (DeGeer, 1778)	H, PR		
<i>Microtityus consuelo</i> Arm. & Fond., 1987	H		
<i>Microtityus dominicanensis</i> San.-Blay, 1985	H		
<i>Microtityus waeringi</i> Fran. & Siss., 1980	PR		
<i>Microtityus</i> new species	H		
<i>Opisthacanthus lepturus</i> (de Beau., 1805)	H		
<i>Rhopalurus abudi</i> Arm. & Fond., 1987	H		
<i>Rhopalurus junceus</i> (Herbst, 1800)	H		
<i>Rhopalurus princeps</i> (Karsch, 1879)	H		
<i>Rhopalurus</i> new species #1	H		
<i>Rhopalurus</i> new species #2	H		
<i>Rhopalurus</i> new species #3	PR		
<i>Tityus ambarensis</i> (Schawaller, 1982)	H		
<i>Tityus crassimanus</i> (Thorell, 1877)	H		
<i>Tityus dasyurus dasyurus</i> Pocock, 1897	PR		
<i>Tityus geratus</i> San.-Blay & Poinar, 1988	H		
<i>Tityus michelii</i> Armas, 1982	PR		
<i>Tityus obtusus</i> (karsch, 1879)	PR		
<i>Tityus quisqueyanus</i> Armas, 1982	H		

References:

Santiago-Blay, J. A. 1984. Systematics and some aspects of the biology of the scorpions (Arachnida: Scorpiones) from the greater Puerto Rico Region. M.S. Thesis, Univ. Puerto Rico, Rio Piedras.

Santiago-Blay, J. A. 1990. Systematics and some aspects of the Scorpions (Arachnida: Scorpiones) of Hispaniola (Dominican Republic and Haiti), West Indies. Ph.D. Dissertation. Univ. of California, Berkeley.

BACK ISSUES OF NEWSLETTER

Back issues of *American Arachnology* normally sell for \$2.00 per copy. Only No's 19 and forward are currently available. A few complete sets of issues 19 (May 1979) through 39 (April 1989) are available at a cost of \$1.00 per issue when purchased in the following sets: SET 1: No's 19 (May 1979) - 29 (May 1984) (smaller format issues) and SET 2: No's 30 (Nov. 1984) - 39 (April 1989) (larger format issues). The \$10 cost of each set includes postage. Orders must be accompanied by a check made payable to the American Arachnological Society and sent to: Brent D. Opell, Department of Biology, Virginia Tech, Blacksburg, VA 24061.

The American Arachnological Society
Gail E. Stratton, Treasurer

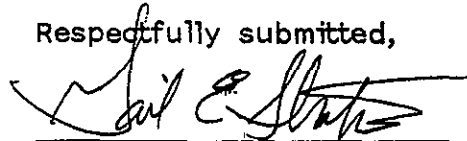
FOURTH QUARTER AND FINAL REPORT 1992
 DEC. 31, 1992

Activity of 4th Quarter		
Balance from 1992 3rd Quarterly Statement, checking acct.		\$49,658.18
DEPOSITS		
Page charges		\$1,350.00
Interest (checking acct. and C.D.)		320.03
	Subtotal:	\$1670.00
EXPENSES		
Postage, mailing genera		14.64
Allen Press JOA 20(2)		5203.77
NY Ent Soc, printing, mailing dues notices		318.70
	Subtotal:	\$5,537.01
Total in Checking accounts, end of 4th quarter		\$45,791.17

SUMMARY OF 1992

Balance in checking acct, end of 1991		\$47,839.29
DEPOSITS		
Page charges		\$6,120.00
Interest		2,189.31
Membership dues		1,173.00
Donation		1,000.00
Sales (back issues, Spider Genera)		1,700.00
	Subtotal:	\$22,793.31
EXPENSES		
Journal of Arachnology	19(3)	\$4628.72
JOA	20(1)	4580.00
JOA	20(2)	5203.77
Printing newsletter		253.98
Printing and mailing dues notices		318.70
Filing fees		80.00
Co-collected dues (CIDA, BAS, ASJ, RA)		8335.00
Student paper awards		150.00
bank fees		35.96
Honorarium for Associate editor		1000.00
Postage and mailings(treasurer, Spider Genera)		95.30
Returned checks		160.00
	Subtotal	\$24,841.43
Amount in checking accts:		\$45,791.17
C.D.		\$10,000.00
Total Assets		\$55,791.17

Respectfully submitted,



Gail E. Stratton, Treasurer AAS

REGISTRATION FORM

**American Arachnological Society
17th Annual Meeting: June 20-25, 1993
University of Washington, Seattle, Wash.**

Please complete and mail to:

Rod Crawford
Burke Museum (DB-10)
University of Washington
Seattle, WA 98195

**PLEASE NOTE
SEPARATE FORMS
FOR PAPERS AND
ACCOMMODATIONS**

Full registration fees must accompany this form by **May 28th, 1993**, or there is a late fee. Banquet and field trip fees can accompany registration or be paid on arrival. Please pay in U.S. dollars; checks can be made payable to "Rod Crawford / American Arachnological Society". **Each registrant should fill out a separate form; please photocopy forms at will.**

Please print or type

Name (for your badge) _____

Affiliation (for your badge) _____

Address _____

Telephone (day) _____ (evening) _____ FAX: _____

E-mail (Internet accessible) if available: _____

Registration Fee: Registration for the annual meeting is separate from dormitory registration.

- Regular - Before May 28th; \$45.00, After May 28th, \$60.00
- Students - Before May 28th; \$35.00, After May 28th, \$45.00

Activities: Banquet, evening of Weds. June 23 (\$25.00)
 Field Trip (June 25; \$12.00; includes a box lunch)

T-shirts: Please indicate the size(s) and quantities you are likely to want. (approx. \$7.50)
 small _____, large _____, medium _____, x-large _____

_____ Total \$ enclosed for registration.

_____ Total \$ enclosed for activities, I will pay for my activities when I arrive.

_____ Total \$ enclosed for T-shirts, I will pay for my T-shirts when I arrive.

CALL FOR PAPERS

American Arachnological Society 17th Annual Meeting: June 20-25, 1993 University of Washington, Seattle, Wash.

Please complete and mail or FAX to: Rod Crawford
Burke Museum (DB-10)
University of Washington
Seattle, WA 98195

**PLEASE NOTE
SEPARATE FORMS
FOR REGISTRATION,
ACCOMMODATIONS**

FAX (206) 685-3039; phone (206) 543-9853; Internet <puffinus@carson.u.washington.edu>

Each presenter should fill out a separate form; please photocopy forms at will.

Please print or type

Name _____

Affiliation/address _____

Telephone (day) _____ (evening) _____ FAX: _____

E-mail (Internet accessible) if available: _____

Please check options below and attach abstract(s) as needed.

(feel free to submit abstracts by FAX, 3.5" diskette [text/only format] or e-mail).

- I will present a lecture paper (20 minute time limit; please submit abstract, indicate date constraints)
- I will present a second lecture paper if time permits
(please indicate on abstracts which has priority, in case one must be cut for time)
- I will present a poster paper (poster presenters will receive additional instructions)
- I will need special audio-visual equipment (other than carousel projector and VHS video)
Specify: _____
- I am a student and wish to be considered for the award for best student paper
- I plan to bring reprints and/or handouts for free distribution
- I am interested in the Seminar on Nomenclature and Naming for Taxonomists
and would like to: attend present information

ABSTRACT FORMAT

Title of paper.

Arachnologist, I.M.A.*, John Doe, and Mary Roe.

*Full institutional address of first author only [if necessary, state affiliation of other authors in brackets or parentheses after their names].

The body of the abstract should comprise 300 words or less, in full sentences. Too-long abstracts may have to be edited for length. Abstracts should summarize the actual contents of the paper, rather than merely list the topics to be covered.

SUMMER

**UNIVERSITY OF WASHINGTON
CONFERENCE HOUSING RESERVATIONS
HOUSING AND FOOD SERVICES**

Conference Title AMERICAN ARACHNOLOGICAL SOCIETY	Reservation Deadline May 28, 1993
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PACKAGE PLAN CANNOT BE ALTERED

Scheduled Check In: Sunday, June 20, 1993	Scheduled Check Out: Friday, June 25, 1993	Housing and Food Services Double Occupancy (Each Person)	Package Tax	\$152.50 4.72
Length of Stay: Five (5) Nights		TOTAL \$157.22		
Number of Meals in Package: <input checked="" type="checkbox"/> Breakfast 5 <input type="checkbox"/> Lunch -- <input checked="" type="checkbox"/> Dinner 3 <input type="checkbox"/> Brunch --		Housing and Food Services Single Occupancy (Each Person)		
Effective Dates: First Meal Breakfast, June 21, 1993 Last Meal Breakfast, June 25, 1993		Package Tax		
		TOTAL \$202.50 4.72		
		TOTAL \$207.22		
Options / Exceptions Early arrival (June 19) or late departure (June 25, 26) accommodations are available for an additional cost.		Child's Package, Food Only (Each Person, under 9 years)		
		Package Tax		
		TOTAL N/A		
		TOTAL N/A		
		EARLY ARRIVALS / LATE DEPARTURES: Room Only		
		Package Tax		
		\$19.00		
		TOTAL --		
		\$19.00		
		Single Occupancy (Each Person, Each Additional Night)		
		Package Tax		
		\$29.00		
		TOTAL --		
		\$29.00		
USE SEPARATE FORM FOR EACH ROOM REQUESTED (PLEASE PRINT OR TYPE)				
Name (Last) (First) (Middle)		<input type="checkbox"/> Male <input type="checkbox"/> Female		Arrival Date:
Address (Street) (City) (State) (Zip)		Contact Phone ()		Departure Date:
Parking Request <input type="checkbox"/> Physical Disability	Room Request <input type="checkbox"/> Single <input type="checkbox"/> Double	Roommate Qualification <input type="checkbox"/> Smoking <input type="checkbox"/> Non-Smoking	Room Qualification <input type="checkbox"/> Wheelchair Accessible	
ROOMMATE REQUEST (Only mutual roommate requests are honored)				
Name (Last) (First) (Middle)				

The package rates quoted above include the nonrefundable reservation fee of \$ 6.49, including tax. Reservations will not be honored unless accompanied by full advance payment by May 28, 1993. Please return this form and your payment by the deadline date. Checks must be in U.S. Dollars payable to the University of Washington. For payment by purchase order, please advise us of any action required by our office. Visa and Mastercard are the only credit cards accepted. No credit is given for a shorter stay or missed meals.

PAYMENT ENCLOSED FOR NO. OF PERSONS	AMOUNT PER PERSON	TOTAL
DOUBLE OCCUPANCY PACKAGE	\$157.22	
SINGLE OCCUPANCY PACKAGE	\$207.22	
FOOD PACKAGE / CHILD (Under 9 years old)	N/A	N/A

EARLY ARRIVAL / LATE DEPARTURE: ACCOMMODATIONS ARE ONLY AVAILABLE ONE DAY ON EITHER SIDE OF YOUR SCHEDULED DATES. MEALS ARE NOT INCLUDED.

NUMBER OF DAYS EARLY ARRIVAL (EA)	_____ DAYS X \$ _____ = \$ _____ x _____ PERSONS = \$ _____
(DOUBLE \$19.00 SINGLE \$29.00)	
NUMBER OF DAYS LATE DEPARTURE (LD)	_____ DAYS X \$ _____ = \$ _____ x _____ PERSONS = \$ _____
(DOUBLE \$19.00 SINGLE \$29.00)	

PAYMENT TYPE: <input type="checkbox"/> Check, payable to the University of Washington <input type="checkbox"/> Visa <input type="checkbox"/> Mastercard Account Number _____ Expiration Date _____ Signature _____	<input type="checkbox"/> Purchase Order (Copy Attached)	
TOTAL AMOUNT DUE		\$
TOTAL ENCLOSED		\$
BALANCE DUE ON ARRIVAL		\$

APR 0122393	EXP DATE 6-25-93	OFFICE USE ONLY	CONFIRMATION	COVER TABLE SK
Conference No. SU93 616	Payment Tax Total	Date Received (Mo., Dy., Yr.)	Date Processed (Mo., Dy., Yr.)	Log Number Initials

CONFERENCE HOUSING POLICY GUIDELINES

Our housing and meal service is offered as a package plan for fixed dates, with an additional daily charge for early arrival and late departure. No credit is given for a shorter stay or missed meals.

Housing and Food Services Payment

Delegates living in the residence halls are required to send full payment with their reservation form at least 21 days in advance of their check-in date to the Conference Housing and Special Services Office.

DELEGATES WHO CANCEL PRIOR TO THREE WEEKS (TWENTY-ONE NIGHTS) IN ADVANCE OF THE SCHEDULED CHECK-IN DATE WILL RECEIVE A FULL REFUND, LESS THE RESERVATION FEE.

Cancellations and Refunds

If an individual cancels twenty nights or less prior to the scheduled check-in date, 25% of the package rate for room and board will be retained as a service fee, and the balance will be refunded to the delegate.

No-Shows/Non-Cancellations

Delegates who do not cancel in advance of the scheduled check-in date, and do not appear for the housing reserved, will forfeit 50% of the package rate for room and board.

The Reservation Fee plus state sales tax will not be refunded for any cancellations or no-shows.

Method of Payment

Advance payments may be made in U.S. Dollars by check, purchase order, Visa or Mastercard. Checks must be made payable to the University of Washington. If housing is still available for delegates without prior reservations, payment will be accepted at the Conference Desk in the exact amount owed. Arrangements may be made in advance to accept purchase orders upon arrival.

Accommodations

Residence hall accommodations are convenient to most meeting areas on campus. Many rooms offer lake or territorial views. All rooms have single beds with bedding, towels, soap, drinking cups, and community bath facilities. Most rooms are double occupancy, although some single rooms are available. Attractive guest lounges and meeting areas are found throughout the halls. Beds are made and fresh towels provided daily, and bed linen is changed once a week.

Token-operated washers and dryers are conveniently located in each residence hall. Pay telephones, television lounges, and kitchenettes are located throughout each building. Messages and mail notices will be posted on a message board. Mail for guests is held at the Conference Desk.

All meals are served in a dining hall reserved for conference delegates. Whatever your prearranged board plan may be, you will find a fine selection of carefully prepared items offered cafeteria or buffet style for breakfast, lunch and dinner each day. On Sundays we offer brunch and dinner. Choices of entrees, salads and desserts are designed to satisfy a variety of individual preferences, including ovo-lacto-vegetarian.

Our residence halls are designed for adult usage, and our facilities are not childproof. We welcome children who will be supervised at all times. Parents take full responsibility for the actions of their children. Children under nine years of age may bring a sleeping bag to sleep on the floor in their parents' room at no additional charge, and are charged only half the adult food service rate. Those nine years and older must occupy a bed and are charged the full room and board rate. Cots, cribs, or extra bedding are not available.

Limited overnight parking is available on campus and prices are subject to change. The current daily charge is \$4.50 Monday through Friday and \$2.25 on Saturday. There is no charge on holidays and Sundays. As you enter the University of Washington gates you will pay for the first day. Parking permits may be purchased for the balance of your stay at each conference desk. Please indicate disability parking needs on this reservation form. Priority is given to delegates requiring wheelchair accessibility.

Recreational campers or trailers are not permitted to park on campus or in University parking lots.

Upon receipt of this housing reservation form, the Conference Housing Office will forward a confirmation designating the housing check-in location. It will include directions on how to reach the residence halls. Delegates may check in beginning at 2:00 p.m. each day, unless the confirmation form states otherwise.

Check-out time is 11:00 a.m. unless otherwise arranged in advance by your conference.

UoW 1286 (9/92)
TO REQUEST DISABILITY ACCOMMODATIONS, CONTACT THE
OFFICE OF THE ADA COORDINATOR, AT LEAST THREE WEEKS IN
ADVANCE OF THE EVENT. 543-6450 (VOICE); 543-6452 (TDD);
685-3885 (FAX); ACCESS@U.WASHINGTON.EDU (E-MAIL).

Return this form to:

Conference Housing and Special Services
McCarty Hall, GR-10
University of Washington
Seattle, WA 98195
Hours: Monday-Friday, 8:00 a.m.-5:00 p.m.
Phone: (206)543-7636 Fax: (206)543-4094

E-MAIL ADDITIONS AND CHANGES

Additions and changes in e-mail addresses should be sent to Alan Cady at ACADY@MIAVX3 or (Internet) ACADY@MIAVX3.MID.MUOHIO.EDU

IN=Internet BT=BITNET CM=CompuServe * =Changed address

Charles Griswold	IN CASENT@sfsuvax1.sfsu.edu
Mark Judson	IN CRUSTACE%frmnhn11.bitnet@frmop11.cnusc.fr
Blaine Hebert	CM 71202.2707@compuserve.com
* Rich Bradley	IN rbradley@magnus.asc.ohio-state.edu
Joel Harp	IN harp@biovx1.bio.ornl.gov
Bill Tietjen	BT wjtiet01@ulkyvx
Linda Rayor	IN ubu@cornella.cit.cornell.edu
Larry Hribar	IN ljhr@gnv.ifass.ufl.edu BT ljhr@ifasgnv
* Jon Reiskind	BT jon@zoo.ufl.edu
Maggie Hodge	IN mhodge@acs.wooster.edu
Leticia Aviles	IN laviles@convx1.ccit.arizona.edu
Wayne Maddison	IN wmaddisn@ccit.arizona.edu
Cay Craig	IN craig%catal1@venus.ycc.yale.edu
Rod Crawford	IN puffinus@carson.u.washington.edu

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AMERICAN
ARACHNOLOGY
Department of Biology
Virginia Tech
Blacksburg, Virginia 24061
U. S. A.

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Cushing, P., Zoology
223 Bartram Hall
Univ. of Florida
Gainesville FL 32611