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# AMERICAN ARACHNOLOGY

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## What's Inside



### --Dates & Deadlines--

- A.A.S. Research Fund 30 Nov. and 30 May. (Pg. 11)
- Arachnology Course: Highlands NC, 13 - 24 July; 1998; (Pg. 14)
- 1998 C.I.D.A. & A.A.S., 27 June - 3 July, Chicago IL USA
- 1999 Univ. of West Indes, Trinidad ; 28 June - 3 July
- 2000 University of Kentucky, Lexington, KY USA
- 2001 Keene, New Hampshire USA
- 2002 Riverside, California USA

**AMERICAN ARACHNOLOGY**

is the official newsletter of the American Arachnological Society, and is distributed biannually to members of the Society. Items for the Newsletter should be sent to the Editor, Alan B. Cady, Dept. Zoology, Miami Univ.-Middletown, 4200 E. Univ. Blvd., Middletown, Ohio, 45042, USA, (513/727-3258, FAX: 513/727-3223; E-mail: CADYAB@MUOHIO.EDU). Deadline for receipt of material for the Spring issue (Vol. 57) is 1 March, 1998. All correspondence concerning changes of address and information on membership in the American Arachnological Society should be addressed to the Membership Secretary, Norman I. Platnick, American Museum of Natural History, Central Park West at 79th St., New York, N.Y., 10024 U.S.A. (FAX: 212/769-5277). Members of the Society also receive the JOURNAL OF ARACHNOLOGY, published triannually.

## Report On The 1997 A.A.S. Meeting

Dan Mott reports from the 1997 A.A.S. Meeting:

The 1997 meeting of the AAS was held July 19-23 at Dickinson State University in Dickinson, ND. The hosts, Dan and Linda Mott were ably assisted by Dr. Eric Hugo, Sandy Bates, and the student workers, Clay Comstock, Ben Gress, Jackie Solberg, Eleno Vallejo, and Annette Zimmerman. This year's T-shirt design was a solpugid indigenous to North Dakota, and was produced by Robert Holmberg and Sandy Bates.

The event kicked off Saturday night with a well attended social at the Hartfiel Inn, a charming Bed and Breakfast with gracious hosts. The weather was cooperative, and after a brief period of showers Saturday afternoon, remained glorious for the duration of the meeting. The temperatures hovered in the upper 70's, the humidity was "high" at approximately 30%, and there was just a gentle "mosquito disturbing" breeze.

In preparation for next year's International meeting, the executive committee met for many hard working hours on Saturday and Sunday evenings. Approximately 80 people registered for the meeting and we felt honored to once again host Dr. Kim and his group from Korea. In addition, a few of the other, oft heard from, but rarely seen members of our society, Robert Holmberg from Athabasca, AB (yes there is something way north of Dickinson, ND) and Hank Guarisco from Lawrence, KS were in attendance.

The paper presentations began promptly sometime after 8 a.m. on Sunday following our welcome to the campus by Dr. Richard Brauhn, now Vice-President of Academic Affairs at DSU. I think all would agree that the high standards of quality in the society were maintained by the 30 oral presenters and the 12 poster presenters.

Sunday evening culminated with a gathering at the Rattlesnake Bar and Grill. This new microbrewery provided the snacks and a delightfully eclectic jazz trio consisting of four members (I have forgotten the names of three of them, but the bass player was Caleb Mott). Monday the paper presentations concluded and were followed by a field trip to the Schell Ranch in Richardton, ND. This 2000 acre property is controlled by the Bureau of Land Management, who invited us to use it. The weather was glorious, and all took the opportunity to examine the short grass prairie (ex-cow) habitat, collect some spiders, engage in wonderful conversations and irritate a porcupine or two.

Tuesday morning, the meeting broke into groups with the majority taking the 45 minute ride north to the Killdeer Mountains. This historic group of hills offers some magnificent views (after a 45 minute climb), varied habitat, and decent spider collecting. Others visited the DSU Medora Research Area "Freeman's Frontier." This area has yielded many solpugids in the past even if Ann Rypstra couldn't find any this year. Tuesday afternoon was for poster presentations, again of high quality. The banquet was held Tuesday evening, and all in attendance were treated to good Midwestern fare and friendship. The meeting concluded Wednesday at noon after a morning business meeting.

# Abstracts of spoken papers

## ASSEMBLAGE OF DIFFERENT SPECIES OF SPIDERS AS POTENTIAL PREDATORS OF CITRUS LEAFMINER, *PHYLLOCNISTIS CITRELLA* STAINTON, IN NONSPRAYED AND SPRAYED LIME GROVES

D.M. Amalin* and J.E. Pena

A survey of predatory arthropods was conducted in lime groves during summer 1995 and 1996 at south Dade, Homestead, Florida. Six locations were included in the survey: 3 nonsprayed and 3 sprayed groves. The survey revealed that several species of spiders outnumbered the other insect predators. A total of 41 species of spiders were collected; whereas for insect predators only 6 species were found. Among the spiders, eleven species were found dominantly occurring in all the sampling locations. Of which 4 species of hunting spiders, *Chiracanthium inclusum*, *Hentzia palmarum*, *Hibana velox*, and *Trachelas volutus* were confirmed to feed on CLM larvae and in some cases even prepupae. With regards to insect predators, the green lacewing, *Chrysoperla rufilabris*, was found to attack CLM larvae. The survey also showed that the number of spiders was significantly more in nonsprayed groves than in sprayed groves. A similar situation was observed for other insect predators. This finding suggests the probable harmful non-target effect of chemicals on predators in general. *TREC-IFAS 18905 SW 280 St. Homestead, FL 33031

## LOOKING FOR PATTERNS IN SALTICID LEG SPINATION

Joseph A. Beatty*

I have recorded leg spine number and arrangement of 149 species in 87 genera of salticide distributed over 44 of Simon's 72 groups. Both sexes of 66 genera and 107 species were available. The spination of legs 1-2 differs from that of 3-4 in three ways. Metatarsal spine positions differ in the two leg sets. Ventral spine numbers decrease from front to back. Lateral spine numbers increase from front to back. Outer lateral spines are lost before inner ones. The species with fewest spines are very small, mimetic, or both. The largest species have above average spine counts, but the maximum is in smaller spiders of the Spartasinae and the Cocalodes group. Mean male spine number 140, range 0-272, female mean 130, range 2-302. Both sexes have the same spine number, or nearly so, in 68.5% of the species with males usually having the larger number when there is a difference. In a few genera there is a large sexual difference in spine number, 4/ 60 in *Diolenius*, *Maevia*, *Portia* and *Telamonia*, with males again having the larger number. Intrageneric variation was examined in 20 species of *Phidippus*, 12 of *Sobacina* and 10 of *Cytaea*. Intraspecific variation of *Thorelliola eneifera* was studied in 12 samples, each of 5 males and 5 females, from 10 different island groups in the Pacific. *Dept. of Zoology, SIU, Carbondale, Illinois 62901-6501 USA

## SPIDER SURVEY SAMPLING METHODS

Bradley, Richard A.*

A number of sampling methods have been applied in studies of spider faunas. The principal methods include visual search and capture, sweep-net method, beating-sheet method, litter-extraction, and pitfall trapping. Each technique captures a subset of the resident spider fauna. Approximately half of the species included in the Ohio Spider Survey database were captured by only one method, 30% were captured by two methods and only about 20% were captured by more than two methods. The intent of the current paper is to examine the effectiveness of these collecting methods at providing information about spider species richness. For some methods differences in technique introduce sampling biases; for others the experience and skill of the worker can have an important impact on the resulting sample. *Ohio State University, Marion, 1465 Mt. Vernon Ave, Marion, OH 43302-5695

## SAMPLING AND COMPARISONS OF SPIDER (ARANEAE) POPULATIONS IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK.

McKanna, B. M., Brady, A. R.*, and Diesche, M. A

Spider populations were sampled at two study sites in the Great Smoky Mountains National Park. One site was a Hemlock dominated forest while the other was a mixed Oak woodland. The sampling method consisted of a cycle of ground collecting, aerial collecting, and beating techniques proposed by Jonathan Coddington et al. (1991). Sampling was conducted at the two sites over a period of ten days. Adult and immature specimens were counted and identified to species or morphospecies when possible. Using these data to find complementary values between these two sites and two similar sites that Coyle et al. (1996) studied, it was found that the respective Oak and Hemlock sites had lower complimentarity when compared to each other than when compared to sites of similar flora. This suggests that the geography of the region may play a more important role than floral diversity in determining species makeup. Species accumulation curves plotted for each site showed only a mild increase in species accumulation between 20 and 30 unit hours of sampling. This implies that a large percentage of the total species at each site were collected during the sample periods. It was found that when abundant numbers of specimens were collected from one family, usually only one or two species were represented. This can be explained the fact that similar species will be in more direct competition with each other, and the species best fit for that environment will dominate their competitors. *Hope College, Holland, MI 49422-9000

## WANDERING SPIDERS IN SOYBEAN FIELDS AND ADJACENT HEDGEROWS AND THE INFLUENCE OF EDGE PERMEABILITY ON THEIR MOVEMENTS

Alan B. Cady*, Juraj Halaj, & Patrick M. Sugg

Hedgerows bordering tilled areas are probably the most prevalent and proximate refugia and sources for re-colonization of fields by arthropods after disturbance from conventional agricultural practices (tilling, harvesting). Furthermore, different configurations of the field, hedgerows, and other landscape features (grassy borders, roads) may alter the ability for some arthropods to pass between the hedgerow refugia and the working field. This differential "permeability" of ecotones in agroecosystems could impact movement of biological control agents across these edges. This study begins to assess the abundances and distributions of spiders relative to various landscape architectures and their respective permeabilities. We investigated spider abundance and distribution in two soybean fields. One had an abrupt, contiguous ecotone and another had an intervening 6m grassy strip between the hedgerow and soybean monoculture. Spiders were collected from each of these two separate sites by establishing a 40 x 40 m grid of 25 pitfall traps extending from 8m within the hedgerow, across the ecotone, and out into the soy field. Traps were open for three consecutive nights per week from before soy germination (May) through two weeks after harvest (November).

Most spiders occupied the hedgerows in early season, appeared to move out into the soy as it grew and matured, and again be most abundant in the hedgerow upon senescence of the soy and subsequent harvest. Certain spiders preferred the hedge while others preferred the field, but some of these relationships changed with the season. For example, lycosids occupied the field all season; the smaller *Pardosa* and *Pirata* early, and the larger *Hogna* later. Linyphiids and gnaphosids tended to occupy the edge and field; gnaphosids early, linyphiids later in the season. Striking differences were seen between the field with the contiguous ecotone and the one interrupted by a grassy strip. Spiders seemed to move through the contiguous ecotone and disperse into the soy field more easily than in the situation with the intervening grassy strip. Spiders appeared not to move through the mown area, so it could be an impediment to their dispersal from the hedgerow into the soy. Thus, this edge may be considered "harder" or less permeable to spiders than the other contiguous ecotone. These results indicate hedgerows probably serve as vital refugia for spiders from severe disturbances in agroecosystems, and that different edge configurations significantly influence spider movements to and from the hedgerow and crop. *Dept. of Zoology, Miami University; Oxford, OH 45056, USA

## WHERE THE WEST BEGINS: SPECIES REPLACEMENT IN *PELEGRINA* (SALTICIDAE, ARANEAE) ON RED CEDAR IN KANSAS

Bruce Cutler* and Hank Guarisco.

*Pelegrina* is a large genus of North American vegetation inhabiting jumping spiders. A growing literature has documented species segregation within the genus based on vegetation type. In Kansas there is one native species of tree sized conifer, *Juniperus virginiana*, eastern red cedar. East of the Flint Hills, *P. exigua* (Banks)-striped form, a member of the eastern, northern and western montane *P. flavipedes* group, is the dominant *Pelagrina* species on red cedar. At the eastern border of the Flint Hills, *P. pervaga*, (Peckham & Peckham), a member of the southern Great Plains and southwestern *P. pervaga* species group, occurs with *P. exigua*, often on the same tree. In the western Flint Hills, Low Plains and Red Hills *P. pervaga* is the dominant species on red cedar. Throughout the range of red cedar in Kansas, *P. galathea* (Walck.), a heliophilic, low vegetation inhabiting species occurs in low numbers on the tree, including localities in north central and north west Kansas where neither of the other two species occur. A speculative historical explanation for this distribution is presented. *Microscopy Laboratory and Department of Entomology, University of Kansas, Lawrence KS 66045-2106

## SPIDERS ON *JUNIPERUS MONOSPERMA*, GHOST RANCH, NEW MEXICO

Robert L. Edwards*

*Juniperus monosperma* (Engelm.) dominates the landscape, especially the drier, grazed areas of north-central New Mexico. It is occasionally found in company with the Pinyon Pine, and mixed in with a variety of hardwoods and shrubs along intermittent streams. Four structurally different habitats of *Juniperus* were quadrat sampled, each quadrat obtained by beating 1.0 $m^2$ of foliage as follows: (1) very small, widely separated junipers (± 1m tall) in an ungrazed area, (2) moderately sized junipers (± 3m tall), separated on average about 25m, in grazed area, (3) larger trees (± 4m tall), often intermingled with one another in a grazed area, and (4) scattered junipers of various sizes intermingled with several species of hardwoods and shrubs along an intermittent stream bed, in a grazed area. Data collected include number of species, relative abundance of each species, number of unique species collected, and maturity of species. Comparative data for *Juniperus virginiana* L. on Cape Cod is provided, an area with a wide variety of vegetational habitats sharing more than 500 spider species. *Box 505, Woods Hole, MA 02543

## EVIDENCE FOR STABILIZING SELECTION ON MALE GENITALIA IN SPIDERS.

F.J. Fee* and H. Proctor.

Some traits are so important over the life history of an organism that any variation from the population mean, the optima, results in a decrease in fitness. Such traits are said to be under stabilizing selection. Stabilizing selection on size has been demonstrated in several plant species in which floral structures are decoupled from vegetative structures. R.L. Berg proposed that the floral structures were under stabilizing selection in order to increase efficiency of pollen (gamete) transfer.

Stabilizing selection may act in the same manner on reproductive structures of spiders. The genitalia of spiders, both male and female, are highly sclerotized and therefore have little flexibility. As well the 'fit' between a male and female is very complex. Stabilizing selection may therefore have decoupled the size of reproductive traits from non-reproductive to decrease variation due to environmental factors, thereby increasing the probability of fit between males and females.

I am studying the relationship between variation in the pedipalps of males and variation in non-reproductive structures in four species of spiders; *Tetragnatha versicolor, Salticus scenicus, Misumena vatia*, and *Nephila plumipes*. Results to date do not demonstrate any decoupling between the two trait groups. * Department of Biology, Bioscience Complex, Queen's University, Kingston, Ontario, K7L 3N6

## ELECTROPHYSIOLOGICAL EVIDENCE OF SYNAPTIC INTERACTIONS BETWEEN SENSORY NEURONS IN PEG SENSILLA OF THE SCORPION, *Centruroides vittatus*.

Douglas D. Gaffin*

Pectines are unique, substrate-directed appendages that are important in mating and food finding behaviors in scorpions. Recently, we provided electrophysiological evidence that chemosensory responses of peg sensilla on the pectines of *Paruroctonus mesaensis* (Vaejovidae) are shaped by synaptic interactions within individual pegs. In this paper we extend our study of synaptic interactions to *Centruroides vittatus* , a representative of the more primitive buthid family of scorpions. Thirty minutes of spontaneous electrical activity, from six different peg sensilla, were recorded for each of ten adult animals for a total of sixty pegs and thirty hours of recording time. Distinct spiking events were digitally sorted and subjected to cross-correlation analysis to detect interactions between sensillar neurons. Most records contained three or four spontaneously active spikes of distinctive waveform. Both excitatory and inhibitory interactions were observed between specific units; some units showed no mutual interactions. In contrast to *P. mesensis*, in which most interactions were inhibitory, most interactions in *C.vittatus* were excitatory. Taken together with previous studies, it appears that peripheral synaptic interactions are a common and perhaps ubiquitous feature of scorpion peg sensilla. *Department of Zoology, University of Oklahoma, Norman, OK 73019-0235

## FUNCTIONS OF PRINCIPAL AND SECONDARY EYES DURING FORAGING IN JUMPING SPIDERS (*PHIDIPPUS AUDAX*)

Douglas Griffith* and Marianne W. Robertson

Previous research with jumping spiders, which are visual predators, indicates that the secondary eyes function in motion detection and orientation of spiders to a stimulus. The principal eyes then function in perceiving the form of the stimulus. Our research examines predatory behavior of the salticid, *Phidippus audax*. We have three experimental groups: one with the principal eyes blocked, one with the secondary eyes blocked, and another with all eyes blocked. For each experimental group and the control group, no blinding, we have a sample size of 20 different individuals. We are quantifying the predatory behavior of each spider when a fruit fly is introduced into its arena (9 cm diameter). We hypothesize that spiders without use of the principal eyes will have little success in prey capture. Additionally, salticids deprived of all visual cues should have lower prey capture success than control spiders. *Millikin University, Biology Department, Decatur, Illinois 62522

## WINTER SURVIVORSHIP OF *ANELOSIMUS STUDIOSUS* (THERIDIIDAE) IN SOUTHEASTERN KANSAS

Hank Guarisco*

The recent discovery of the presocial theridiid, *Anelosimus studiosus* (Hentz), in several localities in southeastern Kansas led to inquiries concerning overwintering behavior and survivorship. While this species is active throughout the year in Florida, Kansas populations overwinter in the webs as juveniles. The winter webs consist of a layer of dead leaves tightly bound with silk. Over 85% of webs (N=104) which contained live spiders in November 1996, still had live individuals the following Spring. *P.O. Box 3171, Lawrence, KS 66046

## WEBS, BRANCHES AND FLIES: AN EXPERIMENTAL TEST OF PRIORITIZATION OF CUES USED IN WEB SITE SELECTION BY *ACHAEARANEA TEPIDARIORUM* (ARANEAE: THERIDIIDAE).

Andrew B. Tamarkin and Margaret A. Hodge*

This study investigated web-site selection by the common house spider *Achaearanea tepidariorum* (Araneae: Theridiidae). We designed the study to reflect three different features potentially encountered during web-site selection: the social context, represented by the webs of other spiders; habitat structure, represented by a tree branch as substrate for web attachment; and prey availability, as represented by a vial of live house flies. Spiders were presented with each of these cues in a large experimental chamber, and were scored as responding positively to the cue if they built their web in a quadrat containing it. We found that spiders preferentially built their webs attached to or settled within the vacant webs. To determine whether the attraction to webs had a chemical basis (e.g., pheromones) we offered spiders a choice of settling in webs washed with acetone versus distilled water, and found no significant preference. There was a significant tendency to build webs upon tree branches, but no tendency to build on or near the vial of flies. When given a choice between a vacant web or a tree branch spiders showed significant preference for the vacant webs. The ecological and evolutionary significance of these web-site choices are discussed. *Department of Biology, The College of Wooster, Wooster, OH 44691

## LEG LOSS IN *HOLOCNEMUS PLUCHEI*: WHAT ARE THE COSTS?

Scott A. Johnson* and Elizabeth M.Jakob

The effects of autotomy were investigated in the introduced pholcid spider, *Holocnemus pluchei*. Surveys of natural populations at the University of California at Davis revealed that leg loss occurred in 7.82% of 1,982 spiders in survey one and in 7.21% of 1,151 spiders in survey two. In both surveys, more spiders were missing multiple legs than expected, suggesting that leg loss events were not independent: spiders either lost multiple legs at one time or were more likely to lose additional legs after the loss of one. Among spiders missing two legs, in the first survey equal numbers of spiders were missing legs on the same and on opposite sides of the body, but in the second survey most were missing legs on opposite sides of the body. Studies of the effect of leg loss on growth rate were also performed. Spiderlings had one front leg removed 2-3 or 6-7 days after the start of the 3rd instar or as a control no leg was removed. Controls had a significantly shorter 3rd instar in days than either of the leg removal treatments. In the 4th instar, there was no significant difference among the treatments. Additionally, no spider showed any signs of regeneration through adulthood. Finally, the effects of leg loss on the abilities of males to enter webs containing residents, to fight intact males over prey, and to compete with multiple conspecifics over a low prey level were tested. However, leg loss had no significant effect on spider performance in any of these studies. * Biological Sciences, Bowling Green State University, Bowling Green, Ohio 43043

## SEXUAL AGGRESSION IN THE COMMON HOUSE SPIDER, *ACHAEARANEA TEPIDARIORUM*

Insyiah Kakajiwalla*

Few experimental studies have explicitly investigated the issue of mating and inter-sexual conflict in the common house spider, *Achaearanea tepidariorum*. This study aimed to investigate the factors that induced sexual aggression in the mating behavior of *A. tepidariorum*. As a first step in this study, the captive females were subjected to three experiments investigating respectively the influence on male body size, female hunger levels, presence of and preoccupation with a prey item, on female aggression. The occurrence and relative intensities of sexual aggression was highly variable between the three experiments. The results of this study indicated that the level of aggression exhibited towards the large and small males was the same. The starved females were significantly more aggressive towards the males than were the well-fed females. The females that were feeding on a prey item were less likely to attack the courting male. The results also revealed that the larger males copulated for a longer duration as compared to small males, thus suggesting that the female *A. tepidariorum* have sexual preference for larger males. *College of Wooster, Box 1970, Wooster, OH 44691

## ONE NEW SPECIES OF THE GENUS *PIRATA* FROM CHINA (ARANEAE: LYCOSIDAE)

Yin, Chang-Min and Kim, Joo-Pil*

The present paper reports one new species, *Pirata longjiangensis* sp. nov., from China. Type specimens are deposited at Department of Biology, Hunan Normal University. Measurements are in millimeters. Department of Biology, Hunan Normal University, Changsha, China 410081; *The Arachnological Institute of Korea, #42 Tosun dong, Sungdong-gu, Seoul, Korea

## HOST PREFERENCE AND TEMPORAL CHANGE IN HOST AVAILABILITY OF TWO WEB INVADING SPIDERS, *ARGYRODES TRIGONUM* AND *A. CANCELLATUS*

Edgar L. Leighton* and Gary L. Miller

In May 1997 we examined webs of six different host spider species for the presence of two web invading spiders, *Argyrodes trigonum* and *A. cancellatus*. We predicted that *A. trigonum* and *A. cancellatus* would show no host preference and, thus, would be distributed according to host availability. Our examination of 502 host webs revealed a significant difference between the observed invasion rate and the predicated invasion rate. Both *A. trigonum* and *A. cancellatus* showed a clear preference for black widow webs. Of the 159 black widow webs encountered, 22 contained *A. trigonum*, 20 had *A. cancellatus*, and 4 had both. Funnel web spiders made up nearly half of all host webs (236) but just one-fifth of all *Argyrodes* were found in those webs (11 with *A. trigonum*, 6 with *A. cancellatus*). Fifty filmy-dome webs were observed, 11 with *A. trigonum*, 2 with *A. cancellatus*. The temporal availability of the host species was examined and is discussed in relation to the host preference. *Department of Biology, University of Mississippi, University, Mississippi,

## THE ROLE OF PREY VARIANCE IN THE DEVELOPMENT OF A PHOLCID SPIDER.

Heather Mathews*, Katrina Johnson, and Elizabeth Jakob

Variance in food availability plays a role in influencing the foraging decisions of many animals. In this study, the pholcid spider *Holocnemus pluchei* was examined to determine the effects of variance in prey intake on growth rate and body size. Spiders were divided into four different feeding groups that had the same mean prey availability but differed in variance: spiders were fed either one fly daily, two flies every other day, four flies every fourth day, or a random number of flies from zero to four, averaging four flies every four days. Spiders fed on the most variable diet, four flies every fourth day, had significantly decreased growth rates and decreased body size. A second experiment was conducted in order to determine if the feeding groups differed in the proportion of flies that were fed upon and the amount of material extracted from each fly. Individual spiders were allowed to feed on one, two or four flies until feeding was complete, approximately 8 h. Flies were examined for puncture wounds under a microscope, and were dried and weighed, as were control flies that were not fed upon. Nearly all flies were punctured, regardless of feeding group. There was a significant difference across the three feeding groups and the control group in dry weight: flies presented singly to the spiders were significantly lighter than those presented in groups of two or four. Controls were significantly heavier than all the flies that were fed upon. This suggests that differences in development time and body size are attributable, at least in part, to differences in prey extraction. *Biological Sciences, Bowling Green State University, Bowling Green OH 43403

## DEVELOPMENT AND REPRODUCTIVE BEHAVIOR IN *AGELENOPSIS PENNSYLVANICA* (ARANEAE: AGELENIDAE)

Jason Minton* and Marianne W. Robertson

We are studying the development, courtship, and mating behav-

ior of the agelenid, *Agelenopsis pennsylvanica*. Both males and females require six to seven molts to reach maturity after emergence from the egg sac. Females mate multiply and copulate for an average of six hours with their first mate and four hours with their second mate. First males have an average of 33 palpal insertions/mating bout, and second males have an average of 25 palpal insertions /mating bout. We ended a mating bout when the male and female first broke physical contact with each other. Females are receptive to palpless males, and palpless males do court females. Females will oviposit after undergoing courtship with palpless males. *Millikin University, Biology Department, Decatur, Illinois 62522

## CHOICE OF FORAGING SUBSTRATE BY NAIVE SPIDERLINGS

Douglass H. Morse*

Initial responses of naive individuals to environmental stimuli provide important information about the innate contribution to behavior, and subsequent responses to the same stimuli help to evaluate the role of experience in mediating initial responses. In particular, choice of hunting site is a vital decision for sit-and-wait predators. I used just-emerged, naive, second-instar crab spiders *Misumena vatia* to test initial patch-choice and giving-up responses on several potential hunting sites they normally encountered soon after leaving their nests. I then measured the effects of these experiences on subsequent patch-choice decisions. Spiderlings initially strongly preferred flowering to budded goldenrods, and all goldenrod to milkweed leaves, their nest substrate. They retained these preferences through five daily runs. Individuals on buds changed sites more often than those on flowers, and usually moved to flowers, which attracted many more prey than buds. These differences were not affected by age, energetic condition, or loss of information during the experiment. *Ecology & Evolutionary Biology, Brown University, Providence, RI 02912 USA

## SPIDER COLLECTORS AND COLLECTIONS IN NORTH DAKOTA

Daniel J. Mott*

The primary collections in North Dakota consist of the Joe Davis collection from Divide County in the 1930s, the Karl Stone collection from around Ward County in the 1970s, the North Dakota State University collections which includes the Richard Sauer collection (state wide) in the late 1960s, the collections of Post and others in the southeastern part of the state in the 1950s and 1960s and the Dickinson State University collections of the 1990s. The Davis collection has been cited several times in AMNH publications, but has integrated into the general collection and is not available. The Stone collection is housed in the Florida State Collection of Arthropods. Stone collected mainly with small pit-fall traps and therefore his collection is limited to ground wandering spiders. It consists of 1047 specimens with 50 species in 21 genera and 5 families. Sauer collected with small pit-fall traps and also used a D-Vac. His collection consists of 2829 specimens with 174 species in 83 genera and 14 families. The DSU Collection consists of more than 13000 specimens, primarily ground dwelling species from the southwest corner of the state. Approximately 85% of the specimens are lycosids, gnaphosids or thomisids, but twelve additional families are represented. *Department of Natural Sciences, Dickinson State University, Dickinson, ND 58601

## LEARNING BEHAVIOR IN A MYGALOMORPH SPIDER, *AVICULARIA URTICANS* (ARANEAE: THERAPHOSIDAE).

Christopher Mulvaney* & Marianne W. Robertson

We investigated the Peruvian tree spider, *Avicularia urticans*, to determine whether this tarantula has the capacity to learn. We used a water-filled arena and noted the time it took, through a series of repetitious trials, for spiders to find and swim to a rock which served as their only means of escape. We randomly divided spiderlings of the same age from three egg sacs into an experimental and control group. We exposed the experimental group to five repeated water trials separated by 30s intervals. We subjected the control to only two trials separated by 37 min., the average time between the first and fifth trial in the experimental group. We hypothesized that the experimental group would exhibit learning as evidence by a decrease in escape time between the first and fifth trial and that the control group would not differ in escape time between the two trials because of the absence of repetition. Our data show no significant difference between either the first and fifth trials of the experimental group or between the two trials of the control group; however, we did find a significant reduction in time between the last trial of the control group and last trial of the experimental group which supports the presence of learning. *Millikin University, Biology Department, Decatur, Illinois 62522

## TRADEOFF BETWEEN PREDATION RISK AND PREY CAPTURE AND ITS INFLUENCE ON HABITAT ON HABIT AT SELECTION IN THE WOLF SPIDER *PARDOSA MILVINA* (ARANEAE, LYCOSIDAE)

*Carrie B. Myers

*Pardosa* and *Hogna* are competitors for space in both lab and field settings. When other factors, such as predation are eliminated, starved *Pardosa* will show a preference for a habitat containing an abundance of prey. When confronted with the presence of a predator the *Pardosa* will retreat to an alternative habitat in order to avoid potential predation. Although *Pardosa* do show a preference for habitats containing prey, when a predator is present as well, starved *Pardosa* will not exhibit a tradeoff and risk the threat of predation in order to obtain food. *1682 Christmas Run Wooster, Ohio 44691

## THE MATERIAL COST AND STICKINESS OF CAPTURE THREADS AND THE EVOLUTION OF ORB-WEAVING SPIDERS.

Brent D. Opell*

Prey capture threads are essential to the operation of spider orb-webs because they prevent insects that have been intercepted from escaping before a spider can subdue them. The volume of material invested in a web's capture threads is related to spider weight and is the same for primitive orb-weavers that produce cribellar capture thread and modern orb-weavers that produce adhesive capture thread. However, as adhesive capture thread achieves greater stickiness relative to its volume, adhesive orb-webs have a greater total stickiness and, consequently, a greater prey capture potential than cribellate orb-webs. These differences appear to have favored the transition from cribellate to adhesive capture threads and the success of adhesive orb-weavers, which include 95% of all orb-weaving species. Differences in the thread economy and the total stickiness of webs constructed by spiders of different weights also suggest that adhesive orb-weavers should grow more rapidly and be capable of attaining a larger size than cribellate orb-weavers. *Department of Biology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061-0406.

## FINDING THE WAY: SALTICID NAVIGATIONAL ABILITIES

Mary Ann Popson* and Elizabeth M. Jakob

A fundamental issue in animal behavior is how animals navigate through their environment. Studies of navigation have focused primarily on birds, mammals and social insects. We studied the navigational abilities of a salticid spider, *Phidippus audax*. We determined whether *P. audax* return to nests they had previously constructed. We placed one spider inside a terrarium with 6 potential nest sites and recorded its location in the evening for five consecutive days and found that *P. audax* exhibit nest site fidelity (chi-square goodness-of-fit test, $x = 12$, $p < 0.0001$). A T-maze was used to determine whether *P. audax* were capable of learning the location of prey. Spiders were released in the maze and videotaped until the prey, secured behind a barrier, was attacked or 30 minutes had passed. In 4 training trials the prey was always in the same arm, followed by a test trial with no prey present. Spiders learned the location of successful foraging sites. There was a significant decrease in the time taken to reach the prey from the first to the last training trial (Wilcoxon signed rank test, $Z = -2.58$, $p < 0.01$). The time taken to reach the location of the prey did not

significantly differ between the last training trial and the test trail (paired t-test, $t = -0.099$, $p > 0.05$), indicating the spiders learned locational cues and were not simply responding to cues from the prey. We used a radial maze to investigate whether spiders were capable of associating prey with a landmark. Results suggest that spiders may use landmarks in navigation; further tests are in progress. *Dept. of Biological Sciences Bowling Green State University Bowling Green Ohio 43403

## NEWS VIEWS OF SOME OLD ARACHNID STRUCTURES

Jon Reiskind*

The application of computer graphic and photo programs to SEM photos offer new and easy ways of illustrating complex external morphological structures. Three dimensional imaging methods, especially anaglyphs, offer a simple way to present external morphological structures in publications and presentations. *University of Florida

## RELATIVE DISPERSAL ABILITIES AFFECTS SPIDER ESTABLISHMENT IN HIGH QUALITY HABITAT ISLANDS.

Marshall, Samuel D., Ann L. Rypstra*, and Sean E. Walker

Patches of high quality spider habitat, 36 m2 in size, were created within soybean fields by spreading mulch on the soil surface and planting weeds. In some of these patches, habitat quality for spiders was further enhanced by spreading composted vegetative waste (as a prey attractant) at two week intervals. Densities of one or the other of two species of wolf spider, *Hogna helluo* and *Pardosa milvina*, were augmented biweekly in some of the composted and some of the non-composted plots. At the end of the season, comprehensive censuses of these wolf spiders and the web spider community were conducted. Both the small vagile, *Pardosa milvina*, and the large, *Hogna helluo*, responded to compost addition. However, *Hogna* numbers were only elevated in patches where they had been introduced along with compost, whereas *Pardosa* was in increased densities in all composted patches. Web spiders were in higher densities in all composted patches than they were in patches that had simply been mulched and seeded with weeds. Likewise the body size of one large web-spider, *Argiope trifasciata*, was significantly higher in composted patches than in other patches. These data provide evidence for a numerical response to prey attractant by good dispersers (bottom-up effect). *Hogna* appears to be limited by dispersal which restricts its ability to exploit high quality habitat islands. *Zoology, Miami University, 1601 Peck Blvd. Hamilton, OH 45011

## THE BIODIVERSITY OF CURSORIAL SPIDERS ON NICKEL/COPPER MINE TAILINGS NEAR SUDBURY, ONTARIO, CANADA.

Shorthouse, David*

The Copper Cliff, Ontario tailings area on Inco property covers approximately 2,225 ha, is up to 30 m deep, and contains more than 10% of all mine tailings in Canada. Deposition will likely continue for another 30 years. Ongoing restoration is accomplished by liming and fertilizing followed by the planting of grasses and trees. Since the early 1970's, the diversity of plants and animals has been increasing in a successional manner. However, little effort has been directed at how these rudimentary tailings ecosystems might affect responsible mine closure. In order to monitor the success of the revegetation program, cursorial spiders were pitfall trapped throughout the summer of 1996 at four tailings sites and at four control sites, far removed from tailings deposition and at similar successional stages. Fifteen species of cursorial spiders were trapped on barren tailings and 46, 42, and 38 species were trapped on 5-, 15-, and 30-year-old revegetated tailings respectively. Similar numbers of species were trapped on the four control sites. These results suggest that self-sustained ecosystems are developing. *Laurentian University, Sudbury, Ontario, CANADA, P3E 2C

## LIFE HISTORY AND REPRODUCTION OF THE JUMPING SPIDER, *PHIDIPPUS PRINCEPS* (ARANEAE: SALTICIDAE).

Alicia Stephens* and Marianne Robertson

The purpose of our experiment is to study the development of *Phidippus princeps* from spiderling development through maturity. We are also studying the reproductive biology and mating behavior of *P. princeps*. To study development, we are measuring carapace width and length, weighing spiderlings within 36 hours of each molt, and drawing the leg spination of each instar. Tracking the development of *P. princeps* may eventually make it possible to determine the sex and instar of an individual spider before it reaches the penultimate stage. We mated 8 pairs of spiders, recorded and described courtship and copulatory behaviors, and constructed and ethogram to show the frequency of occurrence for the behaviors. As females oviposited, we recorded time from oviposition to emergence of spiderlings, and the time required for oviposition of consecutive egg sacs. We will continue studying mating behavior as our spiders reach maturity. * Millikin University, Department of Biology, Decatur, IL 62522

## *THERIDION* SPIDER SPECIES IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK: HABITAT DISTRIBUTIONS, LIFE HISTORIES, AND OTHER OBSERVATIONS (ARANEAE, THERIDIIDAE)

Grant Jeffrey Stiles* and Frederick A. Coyle

Habitat distribution, life history, and other data on *Theridion* species from 672 1-hour samples collected during a 1996 survey of spiders in the 16 major habitats of the Great Smoky Mountains National Park revealed the following: From two to eight of the 14 *Theridion* species found in the park are associated with each habitat. *Theridion* species richness and evenness are highest in middle to low elevation habitats with highest values in hardwood cove forest. *Theridion aurantium* and *T. sexpunctatum*, two boreal sister species, differ in microhabitat and habitat preference. *Theridion frondeum* is much more common in high elevation habitats than is its sister species, *T. albidum*, which is virtually limited to low elevation habitats. *Theridion lyricum* is most common in dry, pine-dominated forests. The three most common species (*T. aurantium*, *T. sexpunctatum*, and *T. frondeum*) have a simple annual life cycle of five instars and similar phenologies, except that *T. sexpunctatum* overwinters in instar IV whereas *T. aurantium* and *T. frondeum* overwinter in instar III . *Theridion aurantium*, whose natural history was heretofore unknown, places its webs on the undersides of broad-leafed herbs close to the ground, engineers (as adult females) folded leaf retreats, and captures small flying insects. Several lines of indirect evidence indicate that a typical *T. aurantium* female produces more than one clutch during the summer. *Department of Biology, Western Carolina University, Cullowhee, NC 28723

## ROWING PROPULSION IN FISHING SPIDERS (*DOLOMEDES TRITON*): PHYSICAL CONSTRAINTS NECESSITATE CHANGES IN GAIT

Robert B. Suter* and Horatio Wildman

Kinematic studies and force measurements in our laboratory have shown how fishing spiders (Pisauridae) propel themselves horizontally on the water surface despite the hydrophobicity of their legs and the consequent lack of intimate contact between the legs and the water: resistance to the motion of a leg (which gives the spider purchase on the water) arises from drag produced when the leg-cum-dimple moves through the water. The forces generated by spiders in this way increase both with leg velocity and with dimple depth, but maximum dimple depth (1) decreases as leg velocity increases and (2) decreases as leg perimeter decreases. As a consequence, the forces generated in this form of locomotion are limited. In the current study we measured drag on *D. triton* leg segments both at the surface (leg-cum-dimple) and submerged, and derived a model that predicts a gait change (from rowing to galloping) when spiders need to maximize accelerations and velocities. *Department of Biology, Vassar College, Poughkeepsie, NY 12604, USA

## REVISION OF THE SPIDER GENUS *NEOANAGRAPHIS*

R. S. Vetter*

The spider genus *Neoanagraphis* contains 2 species, *N. chamberlini* Gertsch & Mulaik and *N. pearcei* Gertsch. Members of this genus are rather non-descript clubionoid-looking tan spiders except for the tarsal claws on Legs III and IV which are very long with only a few teeth at the base. Its range extends from eastern central California and the Nevada Great Basin, south through California to the northern portion of the Gulf of California in Mexico and east to the western tip of Texas. Approximately 75% of the specimens of both species examined in this study came from Dorald Allred's faunal study of the Nevada Test Site in southern Nevada in the early 1960's. Mapping of species to habitat shows distinct preferences of *N. chamberlini* for the flatlands and *N. pearcei* for the more montane habitats. Matures of the 2 species can be determined by the number of ventral tibia I spines; when juveniles at the Nevada Test Site are matched to habitat by spination, the distribution is almost identical to the adult distribution. Therefore, one may correctly key to species even the smallest spiderlings of *Neoanagraphis* using spination patterns. *Department of Entomology, Univ. Calif. Riverside, Riverside, CA 92521

## ECOLOGY AND BEHAVIOR OF *NERIENE* SPIDER SPECIES IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK (ARANEAE, LINYPHIIDAE)

*Richard L. Wright, Jr. & Frederick A. Coyle

Habitat distribution, life history, and other natural history data on *Neriene* species from 672 1-hour samples collected during a 1996 survey of spiders in the 16 major habitats of the Great Smoky Mountains National Park revealed the following: All four *Neriene* species found in the park (*N. radiata, N. variabilis, N. clathrata,* and *N. redacta*) are uncommon in high elevation habitats. *Neriene radiata* lives in more habitats and microhabitats than does any of the other three species. *Neriene redacta* lives only in non-forest habitats. Each species is dominant (much more common than any other *Neriene* species) in one or more of the habitats. There is only one habitat (wetland) where more than two species coexist. Ground-stratum species (*variabilis, clathrata,* and *redacta*) coexist in only two habitats, whereas *N. radiata*, which often builds its web above this stratum, coexists with others in six habitats. Life cycles include 7 (*radiata* and *variabilis*) or 6 (*clathrata* and *redacta*) post-emergent instars. *Neriene radiata, N. variabilis,* and *N. clathrata* have simple annual life cycles. *Neriene redacta* leaves its web to deposit egg sacs on the ground. *Neriene clathrata* and *N. redacta* build similar saucer-shaped sheet webs, while *N. variabilis* builds a slightly domed sheet web. Males of *N. variabilis* and *N. clathrata* appear to mimic ants. All four species perform typical linyphiid prey capture behavior. Van Helsdingen's hypothesis that *Linyphia davisi* (Chamberlin & Ivie) is a synonym of *N. redacta* (Chamberlin) is shown to be correct. *Department of Biology, Western Carolina University, Cullowhee, NC 29723

# Poster Abstracts

## WHAT MAKES AN EFFECTIVE BULLY? A CLOSER LOOK AT AGGRESSIVE INTRASPECIFIC INTERACTIONS USING TWO WOLF SPIDER SPECIES

Robert A. Balfour* & Ann L. Rypstra

Previous research has shown that the outcome of aggressive interactions is usually dictated by a body size parameter, with the larger individual usually the winner. This was further investigated using two species of wolf spider: *Hogna helluo* and *Pardosa milvina*. 100 individuals of each species were weighed, carapace width measured, and then randomly paired for a total of 50 pairs per species. Each pair was placed into a shoebox size arena and left for 24 hours. After that time, all arenas were checked and scored into one of three interaction categories: 1, coexistence (both spiders are present and uninjured), 2, aggression (both spiders are present but one shows visible signs of an aggressive interaction), and 3, predation (one spider is present). The frequency of aggressive interactions was greater between *Hogna* pairs than between *Pardosa* pairs. The outcome of the interaction between pairs of *Pardosa* was determined by weight differences, with the heavier individual usually the winner. *Hogna* had no significant advantage based on differences in weight or carapace width. All aggressive interactions between *Hogna* ended in predation, whereas approximately 50 % of the aggressive interactions between *Pardosa* ended in aggression. These data suggest that aggression level makes for an effective "bully" in *Hogna* and larger body size in *Pardosa*. *Dept. of Zoology, Miami University, Oxford, Ohio 45056

## SCREENING RANDOMLY AMPLIFIED POLYMORPHIC DNA(RAPD) FOR VARIATION IN THE GENUS *ZELOTES* (ARANEAE: GNAPHOSIDAE)

Clay Comstock*, Dan Mott, Eric Hugo and David Rider[1]

Genomic DNA was isolated from specimens of *Zelotes* using a Chelex 100 Resin (BioRad) extraction protocol. RAPD oligonucleotide primers (Univ. of British Columbia) were tested using the polymerase chain reaction (PCR) to determine primer suitability. *Dept. of Natural Sciences, Dickinson State University, Dickinson, ND; [1]Entomology Dept. North Dakota State University, Fargo, ND

## THE COURTSHIP BEHAVIOR OF *SCHIZOCOSA AVIDA* (WALCKENAER) (ARANEAE: LYCOSIDAE)

Elizabeth Grey* & Gail Stratton

Wolf spider courtship behavior generally consists of visual, acoustic, and chemical signals. In this study video-recordings and sound recordings were used to record, analyze, and describe the courtship behavior of the wolf spider *Schizocosa avida*. Out of the 26 pairings of *S. avida* observed, 12 males showed courtship behavior and 3 pairs copulated. All of the females who copulated had matured in the laboratory and thus were known to be virgins. The courtship of *S. avida* was compared to the courtship behavior of 15 other wolf spider species. The courtship behavior of *S. avida* was most similar to *S. retrorsa* and *S. mccooki* , two other species who perform palpal drumming. The courtship behavior of the male *S. avida* was found to have unique elements, confirming that courtship behavior is species specific. Some prominent behaviors observed during a male courtship sequence include Extend and Tap (legs 1), Extend and Vibrate (legs 1), Step Vibrate (legs 1), and Rapid Palpal Drumming. The Rapid Palpal Drumming produced audible sounds and was the most distinctive behavior of *S. avida* courtship, however its role in courtship is unclear and requires additional study. *Rhodes College, 2000 North Parkway, Memphis, TN 38112

## STRAW SHELTERS ENHANCE THE ABUNDANCE AND DIVERSITY OF SPIDERS AFTER DISTURBANCE BY CONVENTIONAL TILLAGE OF SOYBEANS

Juraj Halaj *[1], Alan B. Cady[1] and George W. Uetz[2]

Promoting generalist predators in agricultural systems through habitat manipulation has become a popular topic of current insect biocontrol research. The use of straw shelters to provide temporary refugia for spiders during disturbance generated by flooding of rice fields has been practiced by Chinese farmers for over 2,000 years. However, this method has not been systematically investigated. We studied the use of straw shelters as temporary refugia for ground-dwelling spiders following a major disturbance - conventional tillage in a soybean field. Tilling resulted in a 92.9% destruction of the field's weedy cover, and a 76% decrease of spider abundance, probably from direct mortality and emigration. Modular habitat refugia constructed of chicken wire loosely filled with bedding straw (=straw baskets; 50 x 80 x 20 cm) were placed in the field one week before and immediately following tilling. Two weeks following tillage operations, 37 times as many spiders were hand-collected from the straw baskets compared to bare ground (68.96±6.9/m$^2$, 1.85±0.4/m$^2$; respectively; mean±se). The bare ground spider community was dominated by Lycosidae, Linyphiidae, and Gnaphosidae (40.9, 36.6, and 10.8 %, respectively). A more diverse assemblage as found in the straw baskets, lead by the Linyphiidae, then the Salticidae, Lycosidae, and Clubionidae (37.8 ,21.1, and 12.1 % respectively). We suggest that this simple technique may lower mortality and emigration rates of spider fauna following its habitat destruction, and may simultaneously promote reproduction and establishment of a more diverse spider assemblage in agroecosystems.

*1 Dept. of Zoology, Miami University, Oxford, Ohio 45056, USA. 2 Dept. of Biological Sciences, University of Cincinnati, Cincinnati, Ohio 45221-0006, USA

## BEHAVIORAL AND MORPHOLOGICAL DEVELOPMENT OF *ARGIOPE AURANTIA* FROM THE PRE-EMERGENT INSTAR(S) TO ADULTHOOD

Jan Lund* and Robin Richardson

Thirty-seven days after egg-laying, an Argiope aurantia egg sac was opened. The spiderlings (8) that penetrated the flocculent silk layer were individually housed in tissue culture chambers. Behavior of these individually housed spiderlings was monitored and compared to videotape and direct observation of spiderlings remaining in the sac. Comparison of behavioral observations revealed differences between sac-dwelling and individually housed spiderlings. Individually housed spiderlings were observed for six months (observation time totaled more than 100 hours), and cared for in increasingly larger jars as growth warranted. These spiders were fed fruit flies, early instar crickets, and sugar water was made available daily in a 1:100 concentration. Morphological characteristics, behavior, molts, and mortalities were documented. Individually housed spiderlings showed highest mortality and deformities at molting, with recovery from deformities occurring after subsequent molting. Though removed seven months prior to typical emergence, individually housed spiderlings survived to maturity. *Winona State University, Winona, MN

## MISSISSIPPI—A TRANSITIONAL AREA FOR THE NORTH AND SOUTH?! NEW REPORTS OF GEOLYCOSA IN MISSISSIPPI

Miller, Patricia R.*, Gary L. Miller* and Gail E. Stratton

*Geolycosa*, the burrowing wolf spiders, are well known from studies from Florida but are less well known in other regions of the country. To better understand the distribution and variation of *Geolycosa*, in 1995 we undertook a survey for *Geolycosa* populations in Mississippi. This area is important because it could be a transition zone for northern, southern and western species of *Geolycosa*. Also, Wallace in his 1942 revision of the genus states that so few specimens were available for many species at that time that understanding the relationships within the genus was difficult and that more collecting in these intermediate areas would help clarify relationships among species. We surveyed habitats that appeared suitable including state and federally protected areas such as state parks and areas adjacent to watershed lakes. Twelve populations representing four species of *Geolycosa* were found in Mississippi. This represents a significant range extension for the more northern and western species, *Geolycosa missouriensis* (Banks), and for the more southern species, *Geolycosa rogersi* Wallace. Habitat and phenology for these species and for two other undetermined species are reported. In addition, intrapopulation variation in coloration is reported for *G. missouriensis in* Mississippi. *Northwest Mississippi Community College, Div. of Science and Math, Senatobia, MS 38668; Dept. of Biology, University of Mississippi, University, MS 38677.

## COLOR CHANGE IN *PEUCETIA VIRIDANS* (ARANEAE: OXYOPIDAE): IT'S NOT JUST FOR THOMSIDS ANYMORE!

Marianne W. Robertson*, Peter H. Adler, and John W. McCreadie

*Peucetia viridans* (Hentz) is a vivid green spider with varying degrees of white on the abdomen and red on the legs and body. In the field, we noted that females of *P. viridans* match their substrate when they are gravid. To test for an ability to change color to match their background, we collected gravid female spiders, placed them on different color backgrounds, and quantified color change. *Peucetia viridans* can change components of their color (hue, value, and/or chroma) to match green, purple, yellow, and white backgrounds. This ability should offer a selective advantage to the green lynx spider against visual predators. *Dept. of Biology, Millikin University, 1184 W. Main St., Decatur, IL 62522

## MULTIPLE ORIGINS OF HAIRY LEGS: A PHYLOGENETIC STUDY OF *SCHIZOCOSA*

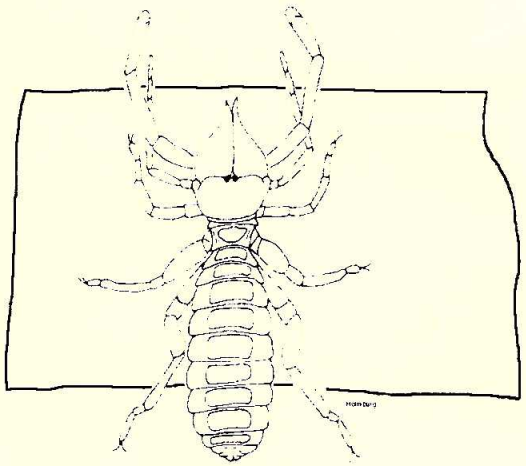
Gail E. Stratton*

Although there has been much recent interest in the behavior and ecology of *Schizocosa* (15 papers or posters in the last two AAS meetings), relationships between species and species groups in this genus have been unclear. Many of the recent studies have focused on communication and the role of the conspicuous tibial bristles found in mature males of *S. ocreata*, with comparisons to species lacking the bristles. I here report on a cladistic study of *Schizocosa* in which 26 species of *Schizocosa* were examined including three undescribed species. Forty-seven potentially informative characters were found including 13 somatic characters, 16 palpal characters, 6 epigynal characters and 12 secondary sexual characters (from leg I of mature males). The outgroup for this study was a *Trochosa* species. Tibial bristles have evolved at least four times in *Schizocosa*. The *S. ocreata* species group (united by round excavations in the transverse piece of the epigynum and the finger-like paleal process on the male palp) is a monophyletic group containing species with dense tibial bristles (in *S. ocreata*, a species near *S. ocreata* and *S. crassipes*), species with pigmentation on the tibia but not bristles (*S. uetzi* and *S. stridulans*) and by species lacking leg ornamentations (*S. rovneri* and *S. floridana*). *Schizocosa bilineata* (with thin bristles) and *S. crassipalpata* (lacking bristles) are sister species united by the character of the epigynal hood having a single opening. The affinities of *S. segregata*, a small coastal species with very small bristles and *S. salsa*, a coastal species with bristles on the distal end of the tibia, and *S. aulonia*, a northern species with thin bristles are unresolved. *Gail Stratton, Dept. of Biology, University of Mississippi, Oxford, MS 38677

## THE INFLUENCE OF SHORT-TERM FORAGING SUCCESS ON SITE INVESTMENT IN THE WOLF SPIDER, *HOGNA HELLUO*

Sean E. Walker* and Ann L. Rypstra

Numerous studies have demonstrated that foraging success can influence site choice in spiders. In this study, I experimentally manipulated ration level to examine how this influences burrow formation in the wolf spider, *Hogna helluo*. Adult females were collected in the fall and maintained in the laboratory through the winter. Animals were fed to satiation and then starved for one week. The spiders were then placed into new containers and randomly assigned to one of two ration levels: high-diet animals received one large cricket ($82.5 \pm 5.4$ mg) per week and low-diet animals received one small cricket ($11.1 \pm 0.62$ mg) per week. After 7 days, body condition was quantified and the presence or absence of a burrow was recorded. Body condition was significantly lower in the low-diet group compared to the high-diet group. Burrows were present at a significantly higher frequency in the high-diet group compared to the low-diet animals. These data suggest that short-term foraging returns can influence site investment. Coupled with data previously collected in our laboratory, these data suggest that like web spiders, *Hogna* may be making foraging decisions based on recent foraging success. * Department of Zoology, Miami University, Oxford OH 45056



# XIV International Congress of Arachnology
# 22nd Annual Meeting of the American Arachnological Society

Regularly updated information about the congress is also available on the Field Museum Web Server under **http://www.fmnh.org./new/new.htm.**

## Schedule and Program

All sessions and social events will take place at FIELD MUSEUM unless noted otherwise. All sessions and events are free with your registration fee unless noted as: "extra ticketed."

**Saturday, 27th June 1998:** Arrival Day: registration, poster set-up, congress reception (includes light buffet and beverages)

**Sunday, 28th June 1998:** Symposium: Spiders in Agroecosystems. Architecture Cruise on the Chicago River (includes light buffet and beverages, extra ticketed)

**Monday, 29th June 1998:** Morning symposium: Higher classification in Spiders.

Afternoon: Paper Sessions. Poster reception (includes light buffet and beverages) and auction of arachnid related books and memorabilia in the evening

**Tuesday, 30th June 1998:** Field Trip Day (extra ticketed), three different field trips are currently in the planning phase (box lunch included). FIELD MUSEUM's Insect Division and arachnid collection will be open, our library will offer a special Arachnid Book Exhibit (open all week), featuring treasures from our Rare Book Room. Informal evening with slides and videos (includes light buffet and beverages)

**Wednesday, 1st July:** Paper Sessions.

**Thursday, 2nd July:** Paper Sessions. Banquet (extra ticketed, reduced student price). The Banquet will be a festive event in Field Museum's magnificent Stanley Field Hall. Dr. O. Kraus (Hamburg University, Germany) will present an historic overview over CIDA and the past congresses. The winners of the student paper and poster competitions will be announced and we will enjoy a sit-down dinner. After dinner, a special Chicago Band will play danceable Jazz and Blues until midnight.

**Friday, 3rd July:** Paper Sessions in the morning. Separate AAS and CIDA Business Meetings in the afternoon. The congress will end at 5:00 pm. Informal farewell gathering on the north steps of FIELD MUSEUM to enjoy the Independence Day Fireworks over Lake Michigan at 9:00 pm.

Several Public Lectures at noon are being planned. These will be illustrated slide lectures presented by scientists who are excellent speakers. More details regarding the public lectures will be given in future updates.

## Accommodations

**Hotel:** The BLACKSTONE HOTEL, 636 South Michigan Ave., Chicago, IL 60605; 15 minute walk to FIELD MUSEUM. Approximate rates per night per room: single $79, double $89, $99 triples, $109 quads (add 14.9% tax), extended stay available at the same rate.

**Dormitories:** Illinois Institute of Technology (IIT), 3100 South Michigan Ave., Chicago, IL 60616, three miles south of FIELD MUSEUM, convenient public transportation. Approximate rates per night per room: $27 single, $47 double (no tax on dormitory rooms). You will book your accommodation yourself. Reservation forms with payment instruction will be mailed to you as part of your registration package.

## Travel

Chicago can be reached easily by plane, bus, train and car. Two airports serve Chicago, O'Hare International Airport and Midway International Airport. Both airports are served by Chicago's CTA trains, which provide comfortable and inexpensive rides into downtown and around the city. Bus and railway stations are centrally located in downtown Chicago. United Airlines is the "Official Airline" for the 1998 congress and will provide a 5% discount off any United, United Express of Shuttle by United published fare or a 10% discount off applicable BUA or like fares in effect when tickets are purchased at least 7 days in advance. The discounts apply for domestic flights to and from Chicago between 24 June 1998 and 6 July 1998. When booking your flight, use the following meeting id code: 515JO If you plan to travel by car please note that, as in every large city, parking spaces are scarce and expensive. If you arrive by car, plan on leaving your car parked (for a considerable fee) during the meeting and use public transportation. For participants staying at the IIT dormitories, parking your car is free. The registration package will contain detailed directions on how to reach The Field Museum, the Blackstone Hotel and IIT by car.

**Getting around during the meeting:** complimentary shuttle service to and from Blackstone Hotel and IIT

In the morning, trolleys will shuttle congress participants and accompanying persons to the Field Museum to sessions and events and return them to their accommodations in the evening after paper sessions and social events. The "EL" (for elevated train) and associated bus lines connect downtown Chicago with the airports, the bus terminal and the railway station. The "EL" provides fast and inexpensive rides between points of interest in the city, the Field Museum and IIT. An "EL" station is located right on the IIT campus.

## Papers

Contributed papers will be scheduled in 15 minutes intervals, talks should be 10 minutes long, allowing 5 minutes for questions.

## Call for Arachnid related Books and Memorabilia

A live auction of arachnid related books and memorabilia has became a cherished tradition during the Annual Meetings of the American Arachnological Society. Frequently, rare books are available or a scorpion-shaped belt buckle will find another proud owner. Dr. George Uetz, our renowned auctioneer has agreed to serve again as auctioneer. The proceeds from the auction to be held during the 1998 International Arachnological Congress will be used to cover some of the travel costs for participants who may need assistance to come to Chicago. Please search your bookshelf and your attic or basement. Find those items you are willing to part from and donate them to the auction at the 1998 International Arachnological Congress. We will ask for items again in the registration package and you can mail items to the meeting host anytime (wrap that crystal spider carefully). You can also bring the item(s) with you when you come to the meeting. Don't hesitate to contact me, if you have any questions regarding auction items.

## Student Paper and Poster Competition

All Students presenting a paper or poster at the congress may enter the student competition for best student paper and or poster. This also applies to past winners of the AAS student paper competition, since this is an international competition. In co-authored papers/posters, the student must be first author. The judges will be appointed by CIDA President Dr. N. Platnick and AAS President-Elect Dr. Fredrick A. Coyle. The winners (and runner ups) will receive a one-year AAS membership and cash prizes and will be announced at the banquet. ALL students participating in the competition will receive free housing at the Illinois Institute of Technology. Competing students need to send their abstracts no later than May 1st 1998 to the meeting host and to the President-Elect Dr. Frederick A. Coyle, Dept. Biology, Western Carolina University, Cullowhee, NC 28723, Phone: 704-227-7244, Fax: 704- 227-7647, COYLE@WPOFF.WCU.EDU.

## Proceedings

The Proceedings will be published by the Journal of Arachnology as a normal issue no later than 1999. Every member of the American Arachnological Society in good standing will therefore receive the volume. Manuscripts are restricted to six printed pages, including illustrations. This is equivalent to 4000 words or 12 double-spaced manuscript pages. The space occupied by printed tables and figures will reduce this text limit. Manuscripts will be subject to the regular peer-review procedure of the journal and its instructions to authors (inside back cover) must be observed. The registration package will contain a copy of the "Instructions to authors." The final version of the manuscript will have to be supplied on computer disk (either in PC or MAC format). Manuscript intended for publication in the proceedings must be received by Dr. Brent Opell no later than 1st May 1998. Address: Dept. of Biology, Virginia Tech, Blacksburg, VA 24061-0406.

## Abstracts

Mailed abstracts are due 1st May 1998; electronic abstract submission: 10th June 1998 to **sierwald@fmppr.fmnh.org**. Write: Congress-Abstract in the Subject line. The electronic submission deadline only applies to papers and posters not participating in the student competition. Fax submission is not feasible, since faxed text often causes problems during scanning. Paper and poster abstracts will be included in the congress program and the

abstracts of papers that are not published in the proceedings volume will be published in the November 1998 issue of American Arachnology, the newsletter of the American Arachnological Society.

### Deadlines

Registration packages will be mailed in January 1998 to those who returned the registration slip of the second circular. If you have not done that yet, pre-register now! Either use the slip below or send me an e-mail message. Manuscript submission to Dr. Brent Opell and registration: 1st May 1998 (late registration will require a late fee). Paper and poster abstracts due to the meeting host: 1st May 1998 by mail, 10 June via e-mail. Accommodation: 1st May 1998 at the Blackstone Hotel or at Illinois Institute of Technology. Reservation forms and payment information will be included in your registration package.

### Fees and Payments

Registration fees:
Full registration with proceeding volume: $160;
Full registration without proceeding volume: $145;
Student registration with proceeding volume: $100;
Student registration without proceeding volume: $90.
One day registration without proceedings volume: $50.
Registration for accompanying persons (without proceeding volume): $40 (includes all shuttles, free admission to The Field Museum, all non-ticketed social events).
Late registration fee: $30; Field Trips: about $30; Banquet: $45 for full registrant and accompanying persons, $30 for students; Architecture Cruise: $25. Children under 12 are free at the banquet. Before the meeting, registration and other meeting fees should be paid in US currency either by check drawn to an American Bank made payable to the American Arachnological Society, or by credit card (with a voluntary donation of 5%, AAS has to pay for the credit card use). At the meeting, cash, check (drawn to an American Bank), and US$ traveler checks and credit cards will be accepted.
Accommodation (Blackstone Hotel and IIT) can be paid by credit card, check, traveler's check or cash.

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**XIV International Arachnological Congress 1998**
**22nd Annual Meeting of the**
**American Arachnological Society**

**PRELIMINARY REGISTRATION**

- Those persons wishing to receive registration information, please send your **Name** and **Address** (E-Mail too), your plans regarding your presentations (**Paper or Poster**; no obligation), or if you anticipate submitting a **Manuscript** for the Proceedings.
- Please explicitly state if you plan to participate in the **Student Paper Competition** or **Student Poster Competition**.
- If you anticipate giving a presentation during the evening informal Slide/Video to show, please stipulate which (**Slides** or **Video**(s)).
- Please **Date** and **Sign** your submission.

Mail to: Petra Sierwald, Insects, THE FIELD MUSEUM, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605, USA. Phone: (312) 922-9410 ext. 841, Fax: (312) 663-5397; e-mail: **sierwald@fmppr.fmnh.org** (include your full mailing address and your paper/poster plans).

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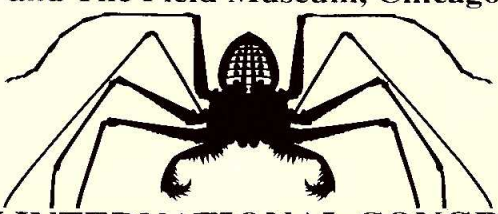
**The American Arachnological Society**
**and The Field Museum, Chicago**



**XIV INTERNATIONAL CONGRESS OF ARACHNOLOGY**

## A.A.S. Election Results

This year we elected a new President-Elect and Director. **Fred Coyle** was elected President Elect, and **Don Cameron** is our newest Director.

Our Executive Committee consists of:

| | |
|---|---|
| President | Ann Rypstra |
| President-Elect | Fred Coyle |
| Past-President & Director | Matt Greenstone |
| Treasurer | Gail Stratton |
| Secretary | Alan Cady |
| Membership Secretary | Norman Platnick |
| Directors: | Robert Suter |
| | Don Cameron |
| General Editor of the Journal | James Berry |
| Managing Editor of the Journal | Petra Sierwald |
| Associate Editors: | Gary Miller |
| | Robert Suter |
| Archivist | Lenny Vincent |

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## A.A.S. By-Laws Change

### Editorial Restructuring

A significant increase of submissions to the Journal of Arachnology has produced a particularly heavy workload for the Associate Editor. The Executive Committee moved during their 1997 Meeting to restructure the editorial configuration for the Journal. The former Associate Editor becomes a Managing Editor, and two new Associate Editors have been added. It was proposed that the Associate Editors should not remain members of the Executive Committee since their inclusion places a disproportionate number of non-elected members on the Executive Committee.

An amendment to the By-Laws of the American Arachnological Society removing any Associate Editors as members of the Executive Committee was proposed by the Executive Committee at the 1997 Annual Meeting. Amendments to the By-Laws require at least a two-thirds vote of the membership (Article V of the By-Laws). The proposed Amendment is printed here, with the Amendment appearing as a ballot item for the 1998 A.A.S. elections in the Spring issue of American Arachnology (#57).

Shall Article II, Section 2 of the By-Laws, which now read as follows:

"The elected officers, Membership Secretary, Editor, Associate Editor, and Board of Directors shall serve as the Executive Committee. Fifty percent of the Executive Committee represents a quorum."

be amended (proposed changes in ~~strikethrough~~ and **bold** ) to read as follows:

"The elected officers, Membership Secretary, Editor, ~~Associate Editor,~~ and Board of Directors shall serve as the Executive Committee. Fifty percent of the Executive Committee represents a quorum." ?

## A.A.S. Research Awards and Fund

The Research Awards Committee, Chaired by Beth Jacob, recently provided funding to support research by the following individuals. Congratulations to all! There were 9 proposals submitted for this latest round.

**Melissa Orr $500**
Dept. of Biological Sciences, University of Cincinnati, Cincinnati, OH 45221-0006

**Marshal C. Hedin,** Research Associate **$550**
Dept. of Ecology & Evolutionary Biology, Biol. Sciences West, Room 310 Univ. of Arizona, Tucson AZ 85721

**John Melville $800**
Dept. of Zoology, Rm. 3029 Cordley Hall, Oregon State University, Corvallis, OR 9733

**Cara Shillington $750**
Dept. Zoology, Oklahoma State Univ.,Stillwater,OK 74078

**Todd Blackledge $450**
Dept. of Entomology, The Ohio State Univ., 1315 Kinnear Road, Columbus, OH 43212-1192

**Jessica E. Garb $450**
Zoology Dept., Univ. of Hawaii, 2538 The Mall, Edmundson Hall, Honolulu, HI 96822

The next round of proposals is due **30 May**, with the awards being announced by 15 July. Qualifications and guidelines for those seeking support for arachnological research from the A.A.S. Research Fund may be found on the inside back cover of the *Journal of Arachnology*. PLEASE NOTE: We will be needing a new Chair of this important committee to start in Fall 1998. Anyone considering this position should contact Beth Jacob or any member of the Executive Committee.

## A.A.S. 1999 Meeting Trinidad & Tobago

The 1999 A.A.S. meeting will be hosted by Chris Starr at the University of the West Indes. Descriptions of facilities and the surroundings were outlined in a letter from Chris (Spring 1997 Amer. Arachnol., #55). The dates tentatively are Sunday 28 June (registration and informal mixer) through Friday 3 July (probably just the a.m., if we need more than three days for sessions), with Thursday devoted mainly or entirely to a field excursion. More information will be found in the Spring issue of the Newsletter (#57). One may contact Chris at: Department of Zoology, University of the West Indes, St. Augustine, Trinidad & Tobago, W.I (**cstarr@centre.uwi.tt**).

## TREASURER'S REPORT

1997 Second Quarterly Report

*The American Arachnological Society*
*Second Quarter Financial Report*
*July 3, 1997*

| | | |
|---|---|---|
| **Activity in Checking Account** | | |
| Balance in checking, 1st quarter, 1997 | | $38,884.83 |
| Chemical Bank South, Albion MI Acct. #075-964-7 | | |
| **Deposits** | | |
| Interest | | 175.29 |
| Membership | | 2,870.00 |
| Source Uncover (copyright charges) | | 9.00 |
| Sales, spider genera | | 383.00 |
| Sales, back issues | | 270.00 |
| | Subtotal | $3,707.29 |
| **Expenses** | | |
| State of Ca, filing fee | | 10.00 |
| Postage, Spider Genera | | 59.97 |
| Lou Sorkin, Co-collected dues for Russian Arachnological Society | | 720.00 |
| Postage, back issues | | 45.49 |
| correction to check 356 | | 1.20 |
| | Subtotal | $836.66 |
| Amt in Checking | | $41,755.46 |
| **Activity in Smith Barney Account** | | |
| # 227-11904-14-14 | | |
| Balance in account, 4th quarter 1996 | | $82,579.29 |
| Amount in CD (maturity 10/06/97) | $1,000.00 | |
| Amount in CD (maturity 3/05/98) | 20,000.00 | |
| Amount in money market, | 13,517.21 | |
| Dividends and interest, this year | 1,977.23 | |
| Balance in account, March 31, 1997 | | $84,556.57 |
| Total Assets | | $126,311.98 |

Respectfully submitted,

Gail E. Stratton, Treasurer
American Arachnological Society
P.O. Box 2198, Oxford, MS 38655

Page 1

*The American Arachnological Society*
*First quarter financial report*
*April 8, 1997*

| | | |
|---|---|---|
| **Activity in Checking Account** | | |
| Balance in checking, 4th quarter, 1996 | | $23,731.99 |
| Chemical Bank South, Albion MI, Acct. #075-964-7 | | |
| **Deposits** | | |
| Interest | | 122.71 |
| Membership | | 22,574.00 |
| Membership | | 3,476.00 |
| Page charges | | 2,125.00 |
| Sales, spider genera | | 692.45 |
| Sales, back issues | | 480.00 |
| Credit Memo (correction to deposit) | | 20.00 |
| | Subtotal | $29,490.16 |
| **Expenses** | | |
| Allen Press (JOA 24:2) | | 7,189.64 |
| New York Ent. Soc. renewal notices | | 192.52 |
| IRS Penalty for late filing | | 1,810.00 |
| Postage + box rental 1996, 1997 Treasure | | 198.47 |
| Postage, Spider Genera | | 56.79 |
| Postage, back issues | | 93.71 |
| Miami University, newsletter | | 2,000.00 |
| Student research awards (3 awards) | | 2,836.75 |
| Bank charge, return of check | | 49.00 |
| | Subtotal | $14,337.32 |
| Amt in Checking | | $38,884.83 |
| **Activity in Smith Barney Account** | | |
| # 227-11904-14-14 | | |
| Balance in account, 4th quarter 1996 | | $82,579.29 |
| Amount in CD (maturity 10/06/97) | $1,000.00 | |
| Amount in CD (maturity 3/05/98) | 20,000.00 | |
| Amount in money market, | 11,818.06 | |
| Dividends and interest, this quarter | 260.97 | |
| Balance in account, March 31, 1997 | | $82,840.26 |
| Total Assets | | $121,725.09 |

Respectfully submitted,

Gail E. Stratton, Treasurer
American Arachnological Society
P.O. Box 2198, Oxford, MS 38655

Quarterly report 1-1997

## GRADUATE STUDENT FELLOWSHIPS IN ARACHNOLOGY TO WORK ON SPIDER SYSTEMATICS

Two graduate fellowships for students wishing to earn Ph.D.'s on spider systematics are available to work jointly at the George Washington University and the National Museum of Natural History (Smithsonian Institution), in Washington, D.C. These two fellowships are made available through a PEET (Partnerships for Enhancing Expertise in Taxonomy) grant from the National Science Foundation, and include stipend, tuition and travel expenses for field work and to attend professional meetings. Successful applicants will be students at George Washington and Predoctoral Fellows at the Smithsonian, with the extensive national and international resources of both institutions at their disposal.

Why systematics? The ongoing biodiversity crisis may result in the loss of substantial portions of Earth's biological diversity. Now, more than ever, understanding biological diversity has a undeniable urgency. Unfortunately, the world is also losing the taxonomic expertise necessary to study and inventory the biota of the planet. To counteract these trends, the US National Science Foundation initiated "Partnerships for Enhancing Expertise in Taxonomy" (PEET). The main goal of systematics is to discover, describe and classify the world's taxa. Systematists uncover the evolutionary relationships among species (phylogeny) and use this knowledge to arrange organisms into predictive classifications that are powerful tools to conserve and sustain biodiversity.

Why spiders? Araneae is the sixth or seventh largest order on Earth. Spiders live on every major land mass (except, perhaps, Antarctica), perform crucial roles in all terrestrial ecosystems, and directly impact human affairs. Nevertheless, we still have a very incomplete understanding of spider systematics and diversity; e.g. species of Linyphiidae, the dominant Nearctic spider family, are very difficult to identify even for araneologists because basic taxonomic research and manuals are lacking.

We are seeking Ph.D. students to work on the diversity and phylogeny of groups within the families Tetragnathidae and Theridiidae. The students will be supervised jointly by Drs. Gustavo Hormiga and Jonathan Coddington. The Museum and University are only a few blocks apart in downtown Washington, D.C. and have long collaborated in advanced training in systematic biology.

For more information please contact:

**Dr. Gustavo Hormiga**, Dept. of Biological Sciences, George Washington Univ., Washington, D.C. 20052; Tel. (202)994-0302 (lab), 994-1095 (office, voice mail), FAX (202)994-6100 [Smithsonian Institution, Tel. (202)633-8162; FAX (202)786-2894] email: **hormiga@gwis2.circ.gwu.edu**

**Dr. Jonathan Coddington**, National Museum of Natural History, Smithsonian Institution, NHB 105, Washington, D.C. 20560, USA; **coddington.jon@nmnh.si.edu**

## Student Paper Awards

Once again the papers entered into the running for the 1997 Student Paper Award were difficult to judge and evaluate. The judges (Rick Vetter, Maggie Hodge, Bruce Cutler) are thanked and congratulated for performing this taxing job. More importantly, congratulations to the winners!

First Place: **Mary Popson**, Bowling Green State University. *Finding the way: Salticid navigational abilities.*

Second Place: **Insyiah Kakajiwalla**, College of Wooster, *Sexual aggression in the common house spider, Achaearanea tepidariorum.*

Third Place: **Heather Mathews**, Bowling Green State University. *The role of prey variance in the development of a pholcid spider.*

It should be noted that two of the winners were undergraduates. This bodes well for the future of arachnological research. Please note that two other items related to this: 1) Posters will be included in the student competition at the 1998 meeting in Chicago. 2) **JUDGES ARE NEEDED** for the student competitions at the 1998 meeting. If you are interested in doing this very important job, you are urged to contact the President Elect, Fred Coyle (COYLE@WPOFF.WCU.EDU)

## Arachno-Auction or Comb Your Closets

The annual Arachno-Auction which usually takes place at the Annual Meetings has been named the Vince Roth Auction in honor and memoriam of the founder of the auction and greatest contributor for this occasion. This event has produced significant funding for arachnological research, and always provides fun and sometimes exciting suspense when the bidding gets heated over a rare volume.

Once again we are urging everyone to search your storage and purge your bookshelves to find books, curios, T-shirts, and other objects for bidding at the Roth Auction. If you plan to contribute items, please notify Petra Sierwald (meeting host) to enhance coordination of this event. (pg. 9). It is good to know that materials you donate will probably go to another arachnophile.

From Bruce Halliday:

The 10th International Congress of Acarology will be held in Canberra, Australia, July 6-10, 1998. The host institution is the CSIRO Division of Entomology. Scientific sessions and accommodation will be in the Australian National University. For further information contact - Dr. R. B. Halliday, Principal Research Scientist (Acarology), CSIRO Division of Entomology, GPO Box 1700, Canberra ACT 2601 Australia; International Fax 61-6-2464000; Local Fax (06) 2464000; Tel. (06) 2464085; Internet BRUCEH@ENTO.CSIRO.AU

**Reply to review of *The Book of the Spider*:**

(Amer. Arachnol. 55, Spring 1997)

Linda Rayor's critical review of *The Book of the Spider* is a total misrepresentation that completely misses the point. My book is about spiders from a human viewpoint, about how they have appeared in stories throughout history and how they fit into many aspects of human culture, not just into biology. I deliberately wrote a book that is not about the biology of spiders. Such books already exist. My book cannot therefore be criticized, as Rayor does, for having an "inadequate biological overview of spiders". To do so is like criticizing a schedule of trains for having an inadequate overview of locomotive engineering.

My subject matter is made so clear that it is impossible to misunderstand. The book's simplistic title (i.e. "..the Spider") indicates that it is not a scientific work and the dust jacket features Little Miss Muffet as a clear introduction to the large number of poems it contains. Of the ten chapters, only one is about spiders without a human viewpoint and that chapter is a highly subjective selection. It is obvious to any reader, except the reviewer apparently, that this book is about history, poetry, folklore, myths and other quirky or simply interesting bits of information.

As if it was my mistake, the reviewer asserts: "Hillyard's book emphasizes the earliest historical references (from 1600-1920) to various phenomena, and only briefly concludes each section with some of the current research". Yes, of course, my book is about history. "Hillyard often uses archaic nomenclature and rarely uses family names, making it difficult for the curious reader to track down further information". How unfair can you get? My book is full of quotations from the distant past, which are not for modernisation, but I have in fact supplied full references so that the curious reader can track down further information, something that is not possible with the other books mentioned by Rayor.

My book has been appreciated by many and has been used by students majoring in the humanities and social sciences. If the reviewer claims to speak for the academic community then that community has been insulted by the insistence that it can conceive only of biological overviews. Regrettably though, that may be true of some of today's narrow-minded biologists. This is why I have concentrated on authors from the "golden age of arachnology" and, accordingly, I have reached a wider public. For someone within the community of arachnology to inject so much venom into a colleague's work clearly demonstrates that the bite of the human is far more deadly than that of the spider.

Mr. Paul D. Hillyard, Manager of Insect Info. Service & Curator of Arachnida & Myriapoda, Collections Mgmt. Div., Dept of Entomology, Natural History Museum, Cromwell Rd, London SW7 5BD, UK.

Reply to Mr. Paul Hillyard:

A book review reflects solely the opinion of the reviewer, which can, in turn, be accepted or rejected by readers of the review. In my opinion, there is a current need for a good popular book that presents the biology and attractions of spiders to the interested adult reader. *The Book of the Spider* book does not fill that need. Evidently, the book's goal was not to deal extensively with spider biology, but to fill a similar niche to those filled by books that recount the role of cats in history and literature rather than describe feline biology and behavior. It is a niche that is attractive to students in humanities and social sciences, but less so to biologically-oriented students. Parts of the book are charming. I enjoyed some of the folkloric sections. However, much of the biology described is poorly presented, is inaccurate in too many places, and is not particularly informative. The moderate bibliography does not compensate for a weak biological presentation. I may have misunderstood that the intent of the book was to emphasize the quirkiness of spiders, and not to provide a appealing insight into their biology. The book is being advertised as "A wonderfully entertaining study of the spider, by the curator of the British Museum spider collection. A man whose knowledge shines forth on every page." (Fitzgerald Publishing), which to me implies that biology will be part of the equation. In conclusion, it is entirely up to members of the American Arachnology Society to decide from my review and the author's rebuttal whether they want to spend the time reading the book or not. Let us move on!

Dr. Linda S. Rayor, Dept. Entomology, Cornell Univ., Ithaca, NY 14853.

# SYMPOSIUM: ISSUES IN SPIDER CONSERVATION

## CALL FOR PAPERS

This is an invitation to participate in a symposium entitled "Issues in Spider Conservation" at the 12th annual meeting of the Society for Conservation Biology at Macquarie University, Sydney, Australia from July 13-16, 1998. Rosemary Gillespie (University of Hawaii) and I are convening the symposium as an effort to bring together researchers and conservation professionals to discuss the growing body of knowledge related to spider conservation.

A brief description of the goals of the symposium is presented below. Presenters will have 20 minutes to present their papers as part of a 4-6 hour symposium. We are planning to use papers from this symposium as the foundation of a published volume on the subject. While we are exploring the possibility of providing a small stipend to presenters, we cannot guarantee any funding at this point.

If you are interested in presenting a paper at this symposium on any of the topics discussed below, please relay this intention to me (**kskerl@erols.com**). We will then follow-up with necessary instructions and information on the conference. Subsequently you would need to submit an abstract to meeting organizers and register for the meeting.

For some general information on the SCB meeting, visit the meeting WWW site at: **http://www.bio.mq.edu.au/consbio.** Please contact us should you desire further details or wish to contribute. Please feel free to pass this announcement to any interested party.

Thank you, Kevin L. Skerl, Rosemary Gillespie

Symposium Title: **Issues in Spider Conservation**

Conveners: Kevin L. Skerl (The Nature Conservancy) Rosemary G. Gillespie (University of Hawaii)

Symposium Description:

Like many invertebrates, spiders have traditionally received relatively little attention from the conservation community. With only 35,000 of an estimated 170,000 species described and relatively sparse distribution and abundance information available for much of the fauna, conservation needs may be difficult to grasp. However, a growing number of independent efforts to characterize the ecological value of spiders, document threats to spider diversity, and develop effective conservation programs are taking place around the globe. This symposium will provide one of the first conservation-focused forums for sharing and synthesis of this growing body of knowledge.

A variety of presentations will serve to increase the awareness of spider conservation issues in the general conservation community and improve communication between arachnological researchers and conservation professionals. To further these goals, papers contributed to this symposium will be included in the first published volume on this topic. Australia is an ideal venue for this symposium because of demonstrated Australian leadership in invertebrate conservation.

The symposium will be open to all topics relating to spider conservation. The ecological role of spiders will be highlighted, including techniques for measuring spider biodiversity. Several speakers will demonstrate the usefulness of spiders as ecological indicators. Factors impacting spider populations, such as habitat loss and degradation, alien species, and collection pressures will be discussed. Speakers from different continents will discuss current recovery efforts for threatened species including legislation, habitat protection, captive breeding, and creative management techniques. Conservation challenges and important research needs such as population genetics and systematics will also be discussed.

Kevin L. Skerl **skerl@zool.umd.edu, kskerl@erols.com** Spider Conservation Home Page WWW: **http://www.geocities.com/RainForest/9081/**

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The **ANIMAL BEHAVIOR SOCIETY ANNUAL MEETING** will be held 18-22 July 1998 at Southern Illinois University at Carbondale. Plenary speakers include Sidney Gauthreaux, Jane Brockmann, and Jeff Galef. For further information contact Local Host, Lee Drickamer, Dept. Zoology, Southern Illinois University, Carbondale, IL 62901, (618) 536-2314, **Drickamer@zoology.siu.edu** or **http://www.cisab.indiana.edu/ABS/index.html**

# ARACHNOLOGICAL NOTES

## Biology of Spiders course

The Biology of Spiders course is offered in even-numbered years at the Highlands Biological Station, Highlands, North Carolina. The course lasts two weeks and is usually scheduled for late July/early August. The goal of the course is to prepare students to do research with spiders by providing a broad base of knowledge of their biology and diversity.

In 1998, the course will be offered July 13-24.

Graduate credit is available through the University of North Carolina or Western Carolina University. All materials and equipment are supplied. Comfortable dormitory-style accommodations are available at the station for a very small cost. There is no food service, but a large kitchen is available to students and the town of Highlands, with several restaurants, is about a half-mile walk away.

Highlands, a resort community, is the highest altitude incorporated town in the eastern US, at over 4400' elevation. Surrounding mountains reach over 6500'. The area is extremely scenic, with deep gorges cutting down to the piedmont on the east and high ranges on the west. The weather in late summer is cool, with showers nearly every day, but we have yet to be caught in the rain on a field trip in 4 offerings of the course.

To get on the mailing list for the Highlands announcements, write to Dr. Richard Bruce, Director, Highlands Biological Station, Highlands NC 28741, e-mail **BRUCE@wpoff.wcu.edu**.

William A. Shear Department of Biology, Hampden-Sydney College, Hampden-Sydney, VA 23943 USA; Tel. (804) 223-6172; FAX (804) 223-6374; e-mail- BILLS@TIGER.HSC.EDU

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Ingi Agnarsson writes:

With the permit of the list owner I want to mention that the Icelandic Institute of Natural History has recently printed a book(let) on Icelandic spiders in the publishing series of the institute (no 31, by Ingi Agnarsson). If this is of interest to anyone out there please contact the library (**palina@nattfs.is**) for a copy (which will be given away free, or for a minimum price (2-3 pounds) to cover printing cost). Here follows the abstract from the work.

"All species of Icelandic spiders are treated. Previously published material is summed up and new material added. A new checklist of Icelandic spiders is presented. Each species is treated individually in the species synopsis and available information on their distribution, habitat selection, time of maturity and status in Iceland is given. Identification pictures accompany the information of all indigenous species as a part of an identification key. Maps showing the distribution of records is given for most species and general maps showing how and where spiders have been collected in Iceland are presented". The text is in Icelandic but with abstract, introduction and summary chapters in English, as well as English summary for each species. Identification keys are in English as well as in Icelandic. Most identification pictures are by Michael J. Roberts.

Ingi Agnarsson **ingia@nattfs.is**

Kirill G. Mikhailov writes:

My new book is already printed and is distributed by the KMK Scientific Press Ltd.: *Catalogue of the spiders of the territories of the former Soviet Union (Arachnida, Araneae)*, by Kirill G. Mikhailov. Archives of the Zoological Museum of the Moscow State University. ISSN 0134-8647. Vol.36. 1997. ISBN 5-211-03784-7. 416 pp. in hardback. Tabs 4. Figs 2. In English. A complete catalogue of the spiders of Russia and other former USSR territories is given for the first time. All literature data since the 18th century until August 1996 are compiled. Comparative calculations of the number of spider species in different physiographical areas and post-Soviet republics are provided (Chapter 1). A checklist of spiders (Chapter 2) comprises 2,694 species belonging to 473 genera and 49 families. Each species included is supplied with an attribution to both physiographical area(s) and republic(s). Necessary synonymies and valid subspecies are also enlisted, same as nomina dubia and nomina nuda. Correct spellings of most Latin generic and specific names is checked. A bibliographical index (Chapter 3) comprises over 1,900 citations. Regular rate is US $45.

With best regards, Kirill G. Mikhailov, KMK Scientific Press Ltd. c/o Dr. K. Mikhailov, Zoological Museum of the Moscow State University, Bolshaya Nikitskaya Street 6, Moscow, 103009 Russia. E-mail **kmk2000@glas.apc.org**

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## Arachnology ListServer News

Nils Koesters writes:

You must send to majordomo using exactly the same E-Mail address with which you had subscribed.

If you subscribed with **harry@msn.com** and your outgoing mail is from **JHarry@classic.msn.com**, then majordomo does not see you as a member of the list.

All E-Mail addresses can now be seen under **mail.biologie.de/~majordom/arachnology.txt**

The archives can be found under **http://mail.biologie.de/~majordom/archives/**. A new Interface for the archives can be found under **http://mail.biologie.de/cgi-bin/lwgate/ARACHNOLOGY/archives/**. Take your time :-) Info about the list is found on **http://www.biologie.de/arachnology.html**.

Anyone who wants information about the list and its members please contact the Listowner Nils Koesters (**koesters@biologie.de** or nils.koesters@stir.ac.uk). The WHO, and WHICH command are disabled. Posting is only possible for subscribers.

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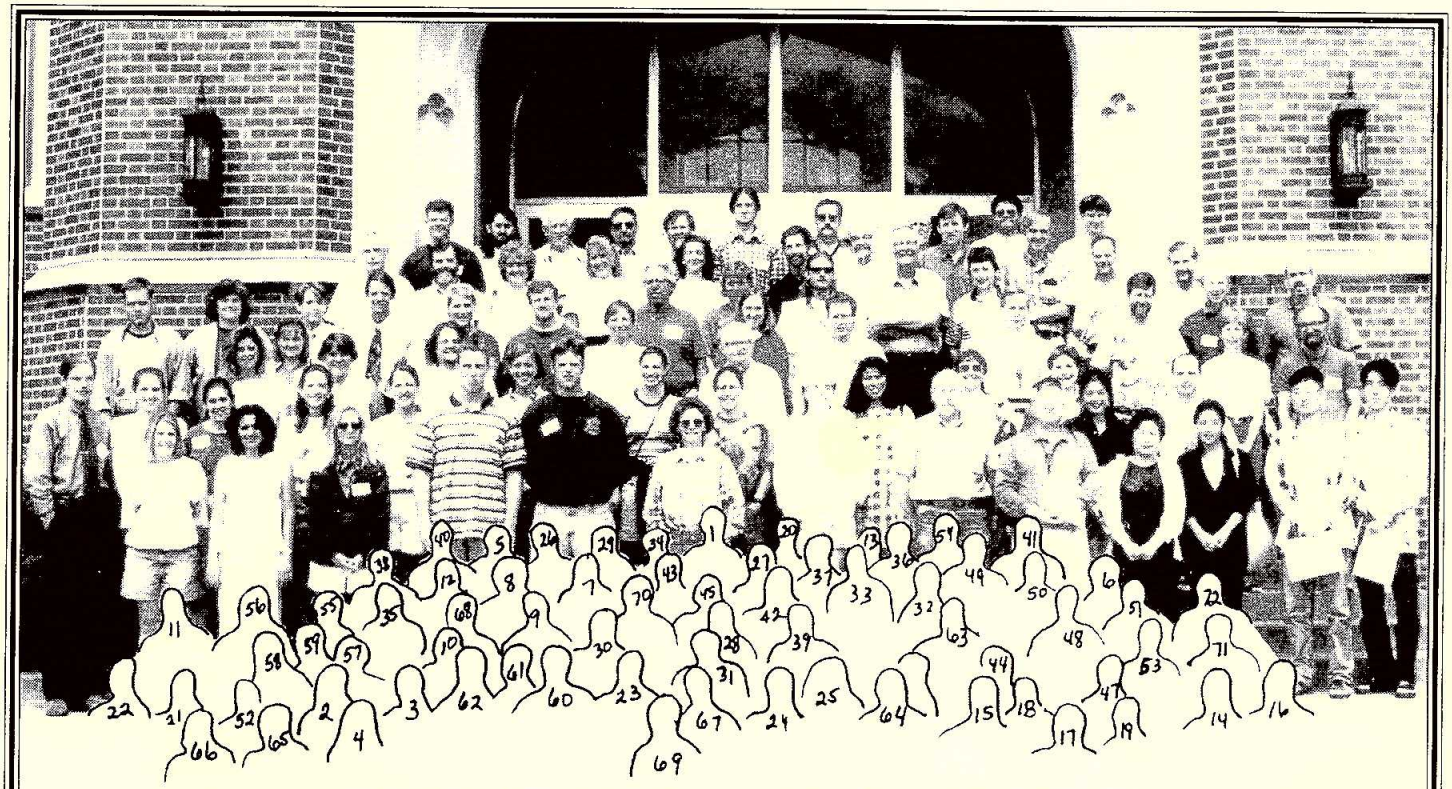
Ricardo Pinto da Rocha writes:

Dear colleagues: A new list for latiamerican arachnology was created. To subscribe it you must send a message to "**listproc@net.usp.br**" with the following words: subscribe aracno-l your name After receiving the first message you will be able to send your contributions. The address for postings is "**aracno-l@net.usp.br**". The main goal of the list are the development of the arachnology in latin America. We are waiting your subscription. Thank you. Ricardo Pinto da Rocha (**ricrocha@usp.br**).



**Indentification of Persons in Group Picture at AAS Meeting in Dickerson, N.D., July 1997**

1 Alan Cady; 2 Heather Mathews; 3 Mary Ann Popson; 4 Beth Uych; 5 Scott Johnson; 6 Dennis Radabaugh; 7 Jan Lund; 8 Robin Richardson; 9 Rob Bathot; 10 Sean Walker; 11 Juraj Halan; 12 Rich Bradley; 13 Bill Bennett; 14 Jung-Sun Yoo; 15 Joo-pil Kim; 16 Jang Hwan Cho; 17 In-sook Kong; 18 Hee Jin Kim; 19 Hee Sun Kim; 20 Rick Vetter; 21 Sara Marcantoginni; 22 David Shorthouse; 23 Dana Daniel; 24 Frances Fee; 25 Divina Amalin; 26 Robert Edwards; 27 Charles Griswold; 28 Elizabeth Grey; 29 Jack Caspar; 30 Cathy Caspar; 31 Joe Beatty; 32 Sara Brady; 33 Allen Brady; 34 Robert Holmberg; 35 Christopher Mulvaney; 36 Doug Gaffin; 37 H. Don Cameron; 38 Fred Coyle; 39 Robert Edwards; 40 Jeff Stiles; 41 Ian Stocks; 42 Ricky Wright; 43 Gitanjali Bodner; 44 Linda Strum; 45 Beth Jacob; 46 Petra Sierwald; 47 Edgar Leighton; 48 Bob Suter; 49 Doug Morse; 50 Jon Reiskind; 51 Jim Berry; 52 Paula Cushing; 53 Betsy Berry; 54 C. Neal McReynolds; 55 Douglas Griffith; 56 Marianne Robertson; 57 Alicia Stephens; 58 Lucinda Haney; 59 Jennifer Marquardt; 60 Matthew Thomann; 61 Lauren Searcy; 62 Jason Minton; 63 Jerry Rowter; 64 Bill Preston; 65 Insyriah Kakanwalla; 66 Carrie Myers; 67 Gail Stratton; 68 Ann Rypstra; 69 Pat Miller; 70 Hank Guarisco; 71 Bruce Cutler; 72 Dan Mott-Host

Paula Cushing writes:

"In March 1998, the Denver Museum of Natural History will have a new Assistant Curator of Entomology and Arachnology, Dr. Paula Cushing. Please consider DMNH as a depository for your arachnid or insect specimens — especially for those collected in the Great Plains states or in the Rocky mountain region. Contact me at the following address for more information:

Dr. Paula E. Cushing, Assistant Curator of Entomology and Arachnology, Department of Zoology, Denver Museum of Natural History, 2001 Colorado Blvd. Denver, CO 80205; Phone: 303-370-6353 FAX: 303-331-6492 e-mail: **PCushing@dmnh.org**"

From Jim Berry, Editor, Journal of Arachnology

Jim has the pleasure of reminding everyone that page charges for JOA have been eliminated! This is for electronic submissions only, and there is a $3 per line charge for changes in proof.

Authors are requested not to send the original illustrations when they submit a manuscript. With the four copies of the manuscript, they should submit only **photocopies** of the figures. Photocopies should be reduced to fit the exact size the author intends for final publication. Original figures should be submitted only when the manuscript is accepted for publication. For more information, contact Jim Berry (e-mail: BERRY@BUTLER.EDU).

## In The Next Issue ...

- Registration, presentation, and housing forms for CIDA & AAS Meeting, Chicago Il USA
- AAS By-Laws Amendment ballot
- A report on Museum Zoologicum Bogoriense, Indonesia
- Submit items for Vol. 57 by 1 March, 1998

# Join the A.A.S. !

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# AMERICAN ARACHNOLOGY

*The Newsletter of the American Arachnological Society*

**Number 56** **February 1998**


## CALENDARS !

We still have lots of 1998 A.A.S. calendars! They contain wonderful full-color photographs of many different representatives of arachnids, from amblypygids to pseudoscorpions to salticids. These images were carefully chosen by a committee of keen-eyed arachnologists from the hundreds submitted. They are of professional quality and are labeled with taxonomic designations, the photographer's name, and a snippit of interesting information about the displayed subject.

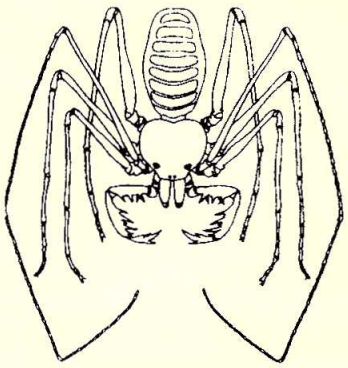
The images may be viewed in full color by visiting the website at: **http://faculty.vassar.edu/~suter/Calendar98.html** The "dates" section of each month shows phases of the moon, national & religious holidays, birth dates of famous arachnologists, and more small arachnid drawings.

Ordering information is below. They would look great on your office wall, start many conversations, and make GREAT gifts.

ORDER BY CONTACTING: Gail Stratton, P.O. Box 2198, Oxford, Mississippi 38655 USA

Prices: $10 per calendar (U.S. currency); shipping - $2.50 per order domestic, $3.50 per order foreign. Checks and money orders accepted. Please make all checks payable to the American Arachnological Society. Please DO NOT send cash. Calendars may be shipped to multiple addresses (all those friends you want to shower with gifts). Please include those addresses with your order.

If anyone wishes an A.A.S. E-mail Directory (ver. 5.0 ), please contact the Secretary (CADYAB@MUOHIO.EDU). A copy will be sent to you directly via e-mail. Please use the same address to submit address changes, corrections, or additions.



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