American Arachnology

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In this issue of AMERICAN ARACHNOLOGY:

AMERICAN ARACHNOLOGY is the newsletter of the American Arachnological Society and is sent only to society members. For information on membership, write Dr. Norman Platnick, Membership Secretary, American Arachnological Society, Department of Entomology, The American Museum of Natural History, New York, NY 10024, USA. Members of the Society also receive the JOURNAL OF ARACHNOLOGY three times a year.

Correspondence, submissions and requests for back issues of AMERICAN ARACHNOLOGY should be directed to the editor, William A. Shear, Biology Department, Hampden-Sydney College, Hampden-Sydney, VA 23943, USA.

Notice of a change of address should be sent only to the Membership Secretary (see above). To do otherwise merely delays the change; all mailing for the society is done from a list maintained by the Membership Secretary.

Research Requests

Rob BENNETT at Western Carolina University, Cullowhee NC 28723, is preparing a taxonomic revision of Wadotes (Agelenidae) and would appreciate the loan of any specimens in private collections.

Alexis HARRINGTON of the University of the Witwatersrand, Johannesburg, South Africa, has this question:

"While on a recent field trip to the Namib desert I came across some peculiar "spider webs". All these silk structures were found on the surface of soft, wind-blown sand on the sides of hills. Their shape was of a cloverleaf type, and the diameter ranged from 3-8 cm. No amount of searching revealed the builders of the webs. Does anybody know what is responsible for them?"

From E. A. MAURY (Museo Argentino de Ciencias Naturales, Av. Angel Gallardo 470, (1405) Buenos Aires, Argentina): "I'm planning a revision of the Central and South American solifugids (Solifugae). Unfortunately, the scarcity of these elusive arachnids in the Museum's collections is a great obstacle in my way. I'll be indebted if anybody could send me specimens from those regions, in loan or exchange. I can offer solifugids, scorpions, and other arachnids from Argentina."

1983 Meetings — and Beyond

Questionnaires have gone out from Mike ROBINSON to all CIDA members, concerning the IXth International Congress of Arachnology, to be held in Panama City, Republic of Panama, from August 1-8, 1983. If you are interested in the meeting and did not get the questionnaire, write to Mike at the Smithsonian Tropical Research Institute, P. O. Box 2071, Balboa, Panama. This will be the first CIDA International Congress to be held in the western hemisphere, as well as the first in the tropics.

The 1983 sectional meetings of the AAS now have homes, but times are to be announced later. The eastern section will be hosted by Jerry ROVNER, at Ohio University in Athens, OH, and the western section by Kate DENNE at Utah State University in Logan, UT. All members will receive notices of the details of these meetings early in 1983.

In 1984, George Orwell's year of ill omen, Terry CHRISTENSON will host the AAS International Meeting at Tulane University in New Orleans, LA. Again, more information will be forthcoming.

JOA Manuscript Preparation

This from Oscar FRANCKE, Editor of the JOURNAL OF ARACHNOLOGY:

"Some important matters for the next newsletter pertaining to the Journal:

(1) all manuscripts must be double spaced throughout--meaning everything including footnotes, figure captions, running head, what-have-you. The University has purchased a new composer and they will simply refuse to take any mss. that are not double spaced throughout. I will not retype authors' manuscripts, so they will get them back time and time again until they get them right.

(2) all ms. must be typed on 8.5 by 11 in. paper, or else! I know this is inconvenient for our foreign contributors in whose countries different-sized paper is used. However, I have no choice on the matter. They will have to adhere to the rule, and use a paper cutter to trim their paper. The 'scanner" for the composer will not take any odd-sized paper, just as it will not read space-and-a-half or single-space typing.

(3) Leave at least one inch on all margins, and preferably 1.5 inches on the left, or (once again) the ms. will be returned.

(4) We have run through ten orders of living arachnids (excluding Acari) in the front covers of the Journal, and it is time to start the cycle again. I have a nice Uropygi drawing in the making. Any artists out there wanting to contribute a front cover illustration for the Journal should send a good PMT, or the original, directly to me.

(5) We are probably going to produce a complete index for the first ten volumes. It will be printed separately, and mailed some time by the middle of next year (or whenever we get it done). Those individuals and institutions who bind their copies by the volume should defer binding volume 10 until they receive the index!"

New Books

Two new books of interest to arachnologists recently have been published. "The Biology of Spiders" by Rainer FOELIX, is a translation and adaptation of an earlier German version. It has been published by Harvard University Press; the price is $30.00. Also priced at $30.00 is "Spider Communication: Ecology and Significance," a collection of papers edited by Peter WITT and Jerry ROVNER, and published by Princeton University Press.

Reviews of these books will be forthcoming in the JOURNAL OF ARACHNOLOGY.

The AMNH has available for distribution a limited supply of about 45 papers published in the American Museum Novitates between 1960 and 1977. These are works on spiders, opilionids, scorpions, pseudoscorpions, ricinuleids, solpugids, whipscorpions, and millipedes. If you would like to receive a set, send $3.00 in U. S. cash or stamps (to cover handling and postage) to Dr. N. Platnick, Dept. of Entomology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024 USA.

ESRC/ESF Workshop Features Spiders

Herb LEVI sent the following report on the recent ESRC/ESF Workshop, held in Germany.

"The European Science Research Councils - European Science Foundation workshop on taxonomy, biology, and ecology of Araneae was organized by Prof. O. KRAUS and met in the small village of Gartow, Lower Saxony, near the Pevestorf field station of the Naturwissenschaftlichen Vereins Hamburg, from 7-12 May 1982. The area is one of low relief, a flood plain bordered by a large loop of the Elbe River. There are low meadows, flood control dikes (some first constructed during the time of Charlemagne), ponds, pine forests, and bogs. From many places the barbed wire fence and watchtowers of the German Democratic Republic are visible. The leaves were just coming out on the trees, the storks had recently arrived and were beginning their nesting, and the first cuckoos of the season were heard. Some participants saw rare European cranes, which nest in the area."

"The twenty participants came from Germany, Denmark, Austria, Italy, England, the Netherlands, and the U. S. A. All were happy to see Jerzy PROSZYNSKI arrive from Poland. The papers, of varying length, many on taxonomic problems, were almost all presented in English, and were followed by discussion. During an evening in the lab, participants compared various microscopical techniques for examining genitalia. Several field trips explored different habitats, including fishing for Argyroneta water spiders in a bog."

"The papers presented were: VOLLRATH: Growth in a spider; BLANKE: Questions and problems in the taxonomy of the genus Araniella, and behavior as an indicator for taxonomic relations in Araneidae; GRIMM: Sibling species in the Zelotes subterraneus group; THALER; Beta-Taxonomie an Spinnen der Alpen; BRIGNOLI: Spiders and zoogeography; PROSZYNSKI: Tracing history of a genus from its geographical area; PETERS: Struktur und Herstellung von Fangfaden cribellater Spinner; VAN HELSDINGEN: Mating sequences and transfer of sperm in Linyphiidae; KRAUS: Basic construction and terminology of the palpal organ in male spiders; SCHULT: Simple bulbs in male spiders, primitive or derivative?; GRASSHOFF: Neoscona species in Africa; Loerbroks: Construction and function of copulatory organs in thomisid spiders; SIERWALD: Biospecies concept in the genus Thalassius; SCHAEFER (and BACHMAN): Life cycle of Phalangium opilio and the opilionid fauna of beech wood and dry grassland in limestone; TAFT: Identifying juvenile spiders; LEVI: On phylogeny of the genera of the family Araneidae and on current status of Latrodectus taxonomy."

"Before attending the meeting we made a sojourn to Berlin to meet East German colleagues known previously only by correspondence. A non-arachnological highlight of the trip was to see hedgehogs emerging from their hiding places at dusk in Prof. KRAUS' Hamburg garden."

"After a visit and conference with CIDA officials in Paris on the future of CIDA, and the first international arachnology meeting to take place in this hemisphere, Lorna and I returned to Boston."

Eastern Section 1982 Meeting

This report on the meeting of the Eastern Section comes from Lou SORKIN:

"The AAS Eastern Section met this summer in Hampden-Sydney, VA, on the campus of Hampden-Sydney College, from June 18th through 21st. Our host, Bill SHEAR, provided the school's visitor accommodations and facilities, and both his and his wife's Virginia hospitality to ensure a productive and enjoyable AAS meeting. This was the first time the paper sessions ran over a weekend period. About 50 arachnologists and guests attended, some hailing from more distant areas, such as Victoria, BC and Gabrone, Botswana. As usual, a portion of the participants arrived early (Thursday evening) to socialize with fellow arachnologists before commencement of the formal presentations.

The sessions began Friday afternoon (after morning registration) with those papers concerned with spider bahavior. The moderator was G. B. EDWARDS. Topics included courtship, web construction, and care of egg sacs, in addition to chemical and vibratory communication in certain spider species.

To the delight of the famished, a steak cook-out followed the sessions and was held on Winston lawn (food and brew were well-stocked) after which the group moved back inside to attend the film sessions. More and more each year, many more workers are employing high speed cinematography and videotaping to record behavioral events from which new and interesting data can be ascertained. In addition to the scientific research films presented, the classic horror film, "Tarantula" was shown. Classic, yes. Horror, no. It received mixed reviews: "Say--isn't that an isotope?"

Saturday morning and afternoon was occupied by the Ecology sessions. The moderator for each of the sections were D. WISE and A. CADY. Topics ranged from life history work on solitary and social spiders, inter- and intra-specific involvements in habitats such as forest and mountain (rock outcroppings) regions, and papers dealing with different parasites of spiders. The evening was spent at the SHEAR's home where arachnologists could move about (with beer in hand) between the house, garden and grounds conversing with others or examining the greenery for eight-legged creatures. Many of us were examined by six-legged creatures (mosquitoes) as well).

Sunday was the last day for the formal presentations. The morning session was concerned with papers on systematic biology, anatomy and development and B. OPELL was moderator. The audience learned about newly found Paleozoic Arachnids and a new method developed for extricating these from the rock matrix, the importance of both morphological and nonmorphological characters and their use in systematic biology. A more or less informal lecture was presented on naturally-occurring anomalies and teratologies found in the Araneae. Those participants who were fortunate enough to attend certain lectures were able to witness three spontaneous and unrehearsed presentations on "How to entertain your audience when the slide carousel fails repeatedly".

The afternoon session consisted of two simultaneously offered workshops: computer methods in ecology (presented by W. TIETJEN and A. CADY) and arachnid systematics and identification (W. SHEAR, H. LEVI and L. SORKIN).

Cocktails and a splendid dinner followed. The kitchen staff must be commended for their excellent preparation throughout the meeting schedule. The Keynote Address, "Spider Fibers: A cross disciplinary study" was presented by Robert W. WORK, Professor Emeritus, North Carolina State University. It was certainly well received by all those in attendance.

A collecting excursion was arranged for Monday for those who wanted to visit virgin forest areas in George Washington National Forest. Great scenery and good collecting was available for those in attendance.

Again, Bill and his crew deserve a round of thanks for providing a well-run meeting."

Abstracts from the Eastern Section

The Life Cycle of the Semi-social Spider Cyrtophora moluccensis (Doleschall)

James Berry

Cyrtophora moluccensis (Araneae: Araneidae) is a tropical (south-western Pacific) spider that builds tent-like communal webs which may contain hundreds of individuals. Adults are present throughout the year. The species was studied to determine the time required for development from egg to maturity. The smaller instars were cage-reared; and in the field, the larger instars were marked for observation. After hatching, males mature in about 2 months, and females mature in about 4 months. Females typically produce 3 or 4 egg sacs (highest number observed was 7) at 10-23 day intervals.

A Possible Function of the Tangled Web of the Cyrtophora moluccensis Spiderlings

James Berry

After leaving the egg sac, Cyrtophora moluccensis spiderlings form a tangled "nursery web" and remain in it for 4-6 days before dispersing throughout the nearby communal web of the adults. One possible function of the "nursery web" may be as a water collecting device. In tropical environments there is no dew. Since there is very little rain during the dry season, it is advantageous to the spiderlings to catch what rain does fall. Spiderlings have been observed collecting water droplets caught in the tangle. Experiments showed increased survival of spiderlings in the "nursery web" when water was available.

Parasites of Pardosa Wolf Spiders (Acarina, Erythraeidea; Insecta, Hymenoptera; Araneae, Lycosidae)

Louis N. Sorkin

Three wolf spider species belonging to the genus Pardosa were collected from two Connecticut localities to study their attached mite associates. Originally, a phoretic association was thought to exist. Closer examination revealed that a parasitic one existed involving larval mites of the genus Leptus (Erythraeidae). Members of this genus (and family) are known protelean parasites of various arthropods. Post-larval instars are known to be predaceous on small arthropods, nematodes and/or arthropod eggs.

Rearings of the female spiders collected with egg sacs produced wingless wasps belonging to the genus Gelis (Ichneumonidae). These wasps are egg sac endoparasites, but are not true egg parasites.

A Comparison of Ground Stratum Spider Communities in Eastern and Western U. S.

Barbara J. Abraham

Ground stratum spiders from 3 areas were compared: sagebrush steppe at 1512 m elevation in northern Utah and at 2103 m elevation in southwestern Wyoming, and mixed mesophytic forest at 335-579 m elevation in southeastern Kentucky. The Kentucky site had the most spider families and species; the Wyoming site had the least. Lycosids were dominant in all 3 areas. Comparison of community similarity at the family level by Sorensen's and Jaccard's indices showed that the Wyoming and Utah sites were the most similar, while the Wyoming and Kentucky sites were the least similar. The Bray-Curtis index, however, which is based on quantitative data rather than just presence or absence, showed 60% similarity for the Kentucky/Wyoming and Utah/Wyoming sites and only 62% similarity for the 2 sagebrush sites. This across-the-board similarity of spider communities at the family level implies that spider guilds formed by grouping entire families will not be useful in determining functional differences in communities. Spider guilds should be formed a posteriori, after individual species have been examined along appropriate niche axes and grouped by an appropriate quantitative method.

Variation in the Life History of the Filmy Dome Spider

David H. Wise

Previous research on a Michigan population of the filmy dome spider Neriene radiata (Walckenaer) (=Linyphia marginata C. L. Koch) uncovered a variable life history pattern which suggested that some of the spiders hatching during the first half of the growing season mature and reproduce that season, whereas others over-winter as juveniles and complete development the next spring (Wise, 1976, Amer. Midl. Natur. 96: 66). A similar pattern also occurs among filmy dome spiders in Maryland. Two peaks occur in numbers of adults, one in late spring, the other in mid-summer. Adults that mature in the summer are smaller than spring-maturing spiders. This difference, in conjunction with the seasonal change in population structure, suggests that summer adults developed from young that hatched from eggs laid earlier that season. Rapid development of spiders reared in the laboratory confirms this interpretation. In the laboratory mean times to maturity (±95% C.L.) were 43 ± 3 days (males and 51 ± 7 days (females) for spiders that had emerged from egg sacs that had been deposited the first part of May. Results of a preliminary field experiment indicate that, as with the Michigan population, apparently not all Maryland filmy dome spiders that emerge from egg sacs laid during the first half of the season mature that year. Open experimental populations of juveniles (instars 2-3) that were established in July produced adults during the next two months, but also still had substantial numbers of immature spiders in September. Three hypotheses to explain this variable life history are discussed.

Patterns of Resource Use and Tests for Competitive Release in a Spider Community

Susan E. Riechert and Alan B. Cady

Determinations were made of the temporal, functional and spatial niche relations of 4 web-building species comprising 98.3% of the individuals of a sandstone rock outcrop spider community. Three of the species were found to be potential ecological equivalents--despite dissimilar web structures, significant overlaps (60-85%) were exhibited in their diets, timing of activity, and microhabitat use.

Investigation of the degree to which various resources are available in limited supply to these species indicates that while prey availability was in excess of the needs of the populations supported duirng the course of study, space appeared to be a potentially limiting factor. We then completed removal experiments, seeking evidence for changes in various demographic parameters of the populations (e.g., in adult and juvenile densities and in egg production) and in their use of various microhabitats in the absence of heterospecifics. No evidence for competitive release was observed on the single-species cliffs during the 11-month period of the experiments. Inspection of the individual cases, however, shows interspecific effects present to be masked and/or offset by the operation of other impinging effects (e.g., the fact that in removing all other spiders from the experimental cliffs, we were removing a major source of food to two of the species).

Parasitism on Coelotes montanus (Araneae: Agelenidae) by Small-headed Flies (Diptera: Acroceridae)

Alan B. Cady

The larvae of the rare dipterous family Acroceridae are internal parasites of spiders. Valuable field observations of the infected spider, emergence of the larva, pupation, eclosion, and the adult provide more information on the fly's life history. Some behaviors of both larva and spider are described, and the possible sites for ovi-position are discussed. Dates and durations of life stages in the field are given. It would seem that the overall impact of this parasitoid fly upon spider populations is negligible. It is hoped that these descriptions will raise the awareness of other arachnologists to acrocerids, and that they will be more prone to notice infected spiders, and fly pupae, and adults while they are afield.

Orb-web Constriction in Dinopis longipes

Jonathan Coddington

Detailed observations of web-spinning behavior in Dinopis longipes reveals behavioral sequences characteristic of orb-webs, specifically frame, radius, non-sticky spiral, and sticky spiral construction. Dinopids are therefore orb-weavers, although the data do not clearly indicate whether they are more closely related to the oloborid or the araneoid orb-weavers.

Announcement Displays by Male Dolomedes triton Utilize Surface Waves on Water

Jerome Rovner

Male Dolomedes triton perform announcement displays consisting of leg-waving and jerks in response to water that has contacted the integument of female conspecifics. Jerks cause bursts of concentric surface waves that probably provide a signal for the female. Males also allow the female's dragline, using a lycosid-like manner on land but switching to rowing and pulling when the line is on water. When close enough to touch the female, the male performs a courtship display consisting of rapid leg tapping, which, with the female's leg-waving, results in prolonged leg interplay between the sexes.

Communal Prey Capture and Feeding in Mallos gregalis (Araneae:Dictynidae)

George W. Uetz

Mallos gregalis (Simon) lives in large groups of thousands of individuals in communal webbing on the branches of oak trees in West Central Mexico. These spiders are known to exhibit "communal-cooperative" behavior, in that individuals live together in common webs, and capture prey and feed together. Questions raised regarding the cooperative nature of prey capture in these spiders are addressed by this study, which involves analysis of filmed capture and feeding efficiency.

The presence of a prey item (Musca domestica) on the surface of the web elicits orientation of numerous individuals, but attack behavior only occurs when the fly struggles actively. During pursuit and capture of prey, many individuals are involved, and the time required to subdue a prey item decreases rapidly as the number of spiders involved increases. Consequently, capture efficiency of groups is likely to be much greater than that of solitary individuals. After the capture of a prey item, there is some turnover in the individuals involved. Some of the individuals involved in subduing the prey do not feed, while others that have not participated may feed on the prey. Feeding may last several hours, and many arrivals and departures of individuals are seen at this time. Analysis of extraction rates of individuals feeding solitarily and in groups of varying size shows that individuals in groups extract more than solitary individuals do. Increased extraction efficiency in groups is perhaps related to the combined effect of digestive enzymes secreted by several individuals. The data on prey capture efficiency and feeding efficiency strongly suggest that prey capture and feeding in Mallos gregalis is a cooperative effort, and that individuals may gain more by cooperating than by being solitary.

Problems in Black Widow Taxonomy

Herbert W. Levi

Reducing the number of widow spiders worldwide from thirty species to six was incorrect. McCrone, Abalos and Kaston have shown that different sympatric and allopatric populations do not interbreed, despite having quite similar genitalia. Behavioral differences, differences in coloration, and chromosomes might be used to separate species. One stumbling block in doing taxonomic work with Latrodectus is that normally quite uncommon species are known to have huge population explosions.

Stridulation in the Agilis Group of the Jumping Spider Genus Pellenes

Wayne Maddison

Males of the jumping spiders Pellenes agilis and P. peckhami stridulate during courtship. Presumably the sound is produced by the rubbing of stiff setae on the front of the abdomen against a file on the back of the carapace, as the abdomen is bobbed during courtship. Males of other species of the agilis group also have the file and stiff setae (hence presumably also stridulate), while males of other species groups of Pellenes lack these. The sclerites and some muscles of the pedicel region are more robust in P. birgei males (a species with file and setae) than in P. borealis males (a species without).

Social Anelosimus: Care of Egg Sacs and Spiderlings

Terry E. Christenson

During field work in Panama, Anelosimus eximius were found in large colonies containing several hundred spiders, and in smaller webs inhabited by up to three females. Early in the summer, when adult females and sacs in the colony were numerous, several females would care for a given sac. By late summer, when the adult population had decreased, individuals remained near a given sac with other females rarely approaching and attempting to contact it. Observations of smaller webs inhabited by more than one female indicated that under this condition a female may tend her own sac.

In the colony, newly emergent spiderlings were regurgitation-fed by several adult females. On occasion, females would move from one group of spiderlings to another, appearing to feed indiscriminately. In smaller webs inhabited by more than one female, spiderlings were fed by the females of that web. Factors which relate to the nature of egg sac and spiderling care are discussed.

Courtship-based Lineages in the Genus Phidippus, With a New Type of Courtship for the Salticidae

G. B. Edwards

The Type I (visual) courtships of males of species of Phidippus can be assigned to one of three Series. In Series 1 (the largest group), courting males move their legs I up-and-down from pre-set positions (in species-specific patterns of position and movement), move their palpi back-and-forth, and typically display leg I fringes that alternate black and white. Series 2 males extend the legs I forward (moving only the distal segments up-and-down), use the palpi to produce sound (at least one species has a stridulatory organ), and typically display yellow leg I fringes. Series 3 males move the legs I in rotary patterns, move the palpi in rotary patterns, and also display yellow leg I fringes. Species from each Series are morphologically most closely related to other species within their own Series. Additionally, species in Series 2 are intermediate between those of Series 1 and Series 3 in aspects of both courtship behavior and morphology (including genitalia).

The Appalachian Species of Hypochilus

Richard L. Hoffman

The historical background of our knowledge of Hypochilus involves only a few, chiefly taxonomic papers. For decades following the discovery of H. thorelli Marx, this species was considered to be the only member of the genus in eastern North America, although Gertsch distinguished a western species, H. petrunkevitchi, in 1958. A second Appalachian species, H. gertschi Hoffman, was named in 1963, and subsequent studies have shown that a third eastern species still lurks under the name thorelli. The three eastern United States taxa are distinguished most readily by the shape of the palpal conductor, and are essentially allopatric in distribution. H. thorelli occurs in the Appalachian Plateau province from northern Alabama into southeastern Kentucky; H. gertschi occurs in the same province in southern West Virginia, as well as the Ridge & Valley province in western Virginia. The undescribed form, which is to be named for R. I. Pocock, occurs in the southern Blue Ridge province, from Washington Co., Va., south to northern Georgia. It now appears unlikely that any other species will be found in the eastern United States, although considerable refinements of the known ranges may be expected for the three presently known forms.

Remarkable New Fossils of Terrestrial Arthropods from the Devonian (Middle Givetian) of Gilboa, New York, and Thoughts on Arachnomorph Phylogeny

William A. Shear

Drs. James D. Grierson and Patricia M. Bonamo, Department of Biology, SUNY/Binghamton, in the course of paleobotanical investigations of Devonian rocks near Gilboa, New York, discovered the fossil remains of an assemblage of terrestrial arthropods--the oldest in North America (ca. 380,000,000 ybp). The fossils include trigonotarbids, amblypygids, centipeds, and possible insects, as well as a complete specimen of a paleosomatid mite. The preservation of the fossils is remarkable; they may be digested free of the rock matrix and mounted on microscope slides. Fine setae and slit sense organs have been preserved on the trigonotarbids, as well as modified setae probably representing sense organs of an unknown type.

Fossils can provide important data on arachnid evolution. Fossil studies show rather conclusively that scorpions, for example, are not arachnids, but terrestrial merostomes. The earliest scorpions had compound eyes, gills, and flap-like abdominal appendages, and their fossils are usually found associated with fossils of other aquatic forms. On the other hand, the origin of the Arachnida sensu strictu remains obscure, and the group may have derived from more than one "pre-arachnid" ancestor. An apparently amphibious creature called Diploaspis lived in the Devonian and may be derived from the ancestral group of at least some modern arachnids. According to Jan Bergström, Beckwithiida is the sister-group of Arachnida (sans Scorpionida), and the two together are the sister-group of Merostomata.

The Inheritance of Foreleg Bristles and Courtship Behavior in Schizocosa Wolf Spiders (Araneae;Lycosidae)

Gail Stratton

Courtship behavior in Schizocosa rovneri is distinct from its co-occurring sibling species, S. ocreata. Mature males of S. ocreata have prominent tufts of bristles on their forelegs; males of S. rovneri lack these bristles. While males of both species will court females of either species, females show no receptivity to heterospecific males. Heterospecific matings were achieved by anesthetizing the female and allowing a heterospecific male to mate with her. These matings resulted in viable offspring. Likewise, F1 hybrids were mated to each other and to both parental species to produce F2 and backcross progeny. Observations of foreleg bristle pattern and courtship behavior in F1, F2 and backcross progeny provide evidence that the inheritance of the foreleg bristles is controlled by a single gene or gene complex, and the inheritance of the predominant behaviors seen in courtship are also controlled by a single gene or gene complex. Further evidence suggests that these characters are not assorting independently.

Anomalies and Teratologies in Spiders

Louis N. Sorkin

A slide show/lecture concerning anomalies and teratologies was produced for the audience in hopes of illustrating that these phenomena do occur naturally and the taxonomist should be aware that species have been described from these freaks of nature and can be found even in the most recent literature.

Sibling Species of Philoponella (Uloboridae): The importance of Non-Morphological Characters

Deborah H. Smith

While carrying out a study of the social behavior of Philoponella oweni in southeastern Arizona, I found that the local populations of P. oweni could be separated into two populations on the basis of the size and shape of the egg-case. Since I could find no morphological differences between members of the two populations, I documented behavioral and ecological characters that separated the two populations.

I found that the two populations differed not only in the size and shape of the egg-case, but also in clutch size, mean number of egg-cases laid, behavior of females with egg-cases, color of hatchlings, the web structure and colony structure. I found ecological differences as well; the two populations differed in their phenology, and in the elevation and vegetation types they occupied.

Specimens of both populations were collected and transported live to Ithaca, N. Y. and frozen at -70 C. At the Cornell Laboratory for Ecological and Environmental Genetics, they were subjected to horizontal starch gel electrophoresis. Staining for 13 enzyme systems gave 8 usable systems. In three enzyme systems, the populations shared no alleles in common. This indicates a lack of gene flow between the two populations, and indicates that these populations are two distinct species.

Comparison of Carapace Features in the Family Uloboridae (Araneae)

Brent D. Opell

The phenogram resulting from a cluster analysis of carapace features of 34 species representing all known uloborid genera corresponds neither to the family's recognized generic division, nor to its suggested phylogeny. Instead, the grouping appears to reflect changes associated with web modifications. Of the 51 carapace contour and eye position measurements used, a total of eight describing the anterior lateral eye and posterior lateral eye tubercle are sufficient to correctly classify known web forms of included species, and to indicate the amount of web modification in species whose webs are undescribed. A survey of the endosternites of Hyptiotes, Miagrammopes, and Philoponella, and carapace musculature of the latter two genera, indicates that changes in carapace form are associated with muscle reorientation accompanying the use of a modified web. The presence of eye tubercles, which allow the most extreme muscle shifts, also ventrally extends the spider's vision.

Frontinella pyramitela (Linyphiidae): Inter-male Competition for Webs and Females

R. B. Suter and M. Keiley

Adult male F. pyramitela occupy females' webs during courtship, mating, and foraging. The duration of occupancy on female webs (web tenacity) increases significantly with male weight and with recent prey consumption, but not with recent agonistic encounters with other males. (However, much between-male variability in web tenacity cannot be explained by variation in those parameters.) Encounters between males occur frequently during the spring when males can be found on about 25% of all adult females' webs. The encounters take place on females' webs and are characterized by species-typical vibrational and tactile displays. Outcomes of encounters are highly predictable: the heavier males win in about 90% of encounters and no detectable advantage accrues to residents (as opposed to intruders). A weak but significant inverse correlation between weight difference and the duration of the "jawlock" display suggests that the display may provide each male with information about his opponent's relative size.

Spiders Living at the Nest-sites of Spider-hunting Mud Dauber Wasps

Martin Obin

Ten families (20 genera) of spiders were observed living at nest sites of mud-daubing wasps (Hymenoptera:Sphecidae) in Alachua County, Florida. Spiders were found living close to as well as inside mud dauber nests, tending egg cases and preying on wasps. This included spider species being captured elsewhere and provisioned by these same mud daubers. No wasps were observed hunting within 5m of any nest site. The advantages of living at mud dauber nest sites are discussed, with particular emphasis placed on the reduced threat of wasp predation.

Western Section 1982 Meeting and Abstracts

A telephone conversation with Norman HORNER gave a good picture of the Western Section meeting at Doane College, in Crete, NE. About 25 people attended, coming from Missouri, Texas, Kansas, Oklahoma, Utah, New Mexico, and Manitoba. Host Bill RAPP did an excellent job in organizing the meetings, and led a very interesting field trip to a prairie habitat. The accommodations were fine and the food hearty. Kate DENNE of Utah State University agreed to host the 1983 Western meeting. The exact date and place (either Logan or Ogden, UT) will be announced later.

TUTELINA SIMILIS (ARANEAE:SALTICIDAE) AN ANT MIMIC THAT FEEDS ON ANTS

Kate Denne

Evidence gathered from 15 hours watching Tutelina similis in big sage shrubs (Artemisia tridentata) in northeastern Utah suggests that T. similis is a myrmecomorph and a behavioral ant mimic which consistently preys on ants. A measurement index (carapace width/body length) calculated for common salticids found in big sage shrubs was significantly lower for T. similis indicating mimetic adaptation (senu Reiskind, 1977). Its reddish body and dark eye region appear similar to the coloration of Fromicinae workers encountered in big sage shrubs. T. similis has long, thin, horizontally striped legs which are moved about in antenna-like fashion. Forty-three T. similis were seen feeding on prey--all Fromicinae workers. Although Drosophila were captured and eaten under laboratory conditions, that prey sequence differed from the sequence used by T. similis capturing ants in big sage shrubs. Laboratory prey preference studies and geographically ubiquitous field observations are necessary to categorize this behavior as either a whole or a genetically plastic, learned behavior restricted to this Utah shrub steppe population of Tutelina similis.

FOOD OR FORM: DO SPIDERS MAKE A CHOICE?

Kate Denne

This study assessed the effects of vegetation architecture and insect abundance on the composition of spider species (numbers, abundance and biomass) in big sage shrubs (Artemisia tridentata) in northeastern Utah. In a factorial design, treatments of 2 levels of foliage density--control and tied--and 2 levels of insect abundance--control and baited--were randomly applied to 120 big sage shrubs. Microweather differences between the 2 types of shrub architecture were not significantly different. Insect numbers were not significantly increased by foliage density treatment. Numbers of ambush hunting spiders significantly increased in the tied, more foliage-dense shrubs. Numbers of active, running and jumping spiders increased significantly in shrubs baited to increase insect abundance. Observations of spiders moving between shrubs and hunting within shrubs implicate differences in specific activity and the scale of "hunting territories" which may account for the differential response by spider species to vegetation architecture and insect abundance.

PREDATORY BEHAVIOR OF SPITTING SPIDERS (SCYTODIDAE)

Cole Gilbert & Linda Rayor

The predatory behavior of the spitting spider, Scytodes sp. nov., was studied during controlled feeding of prey to laboratory housed spiders. Scytodid predation was subdivided into component behaviors: tapping, spitting, biting, wrapping, and sucking. Although the components usually appear in this sequence, the behavior is not stereotypic. Prey was usually eaten at the capture site after wrapping which has the typical form seen in "higher" spiders: the spider holds the prey in both third legs and alternates the use of right and left fourth legs in applying swathing silk. Prey wrapping occurred in only two-thirds of the captures analysed (N-30). These behaviors are discussed in the context of the evolution of the use of silk in attach wrappings in more advanced spiders.

THE EFFECTS OF PITFALL TRAP COLOR ON CURSORIAL SPIDERS IN A MANIPULATED OLD-FIELD ECOSYSTEM

Mary F. Haskins, R. F. Meiser, and J. H. Shaddy

White and clear pitfall traps were used in sampling manipulated old-field habitats during an eight-month period. Chi-square analyses revealed significant differences between the numbers of spiders captured in white and clear traps. Wolf and running spider pitfall catches were more highly influenced by trap color than other spider guilds. Significantly more adults were captured in white traps as compared to clear traps in both community and guild analyses. Light reflection from the traps was also measured. Differences in the amount of light reflected were observed between the two colors. Spiders in the families Lycosidae and Gnaphosidae were the most frequently captured. Schizocosa avida (Lycosidae) and Zelotes laccus (Gnaphosidae) exhibited the highest active density during the sampling period.

GNAPHOSIDAE OF WICHITA COUNTY, TEXAS

Greg Zolnerowich

Twenty-five species representing eleven genera are recorded from Wichita County, Texas. The study has extended the ranges of Gnaphosa altudona and Rachodrassus captiosus from South Texas north to Wichita County (North Central Texas) and Nodocion refithoracicus from New Mexico east to North Central Texas. Adjacent county records and range maps indicate an additional pine species and one genus may be present. Habitat and natural history data for species are presented.

RATES OF WATER LOSS IN THREE SYMPATRIC SPECIES OF CRAB SPIDERS IN NORTHERN UTAH

Eric J. Zurcher

Three species of crab spiders (sensu lato), Misumenops lepidus (Thorell), Xysticus cunctator (Thorell), and Philodromus histio (Latreille) co-occur as important components of the spider fauna of sagebrush steppe in northern Utah. A study was undertaken to determine the extent to which the rates of water loss for these spider species are related to their temporal and spatial patterns of distribution and abundance. The effects of sex, temperature, body size, and respiration rate on water loss rate were also assessed for each species.

Although captured relatively more frequently during the dry summer months, X. cunctator exhibited the highest water loss rate. M. lepidus, most commonly seen during the relatively moist spring and fall months, lost water most slowly. Males lost water more rapidly than did females in all three species. Body weight, body surface area, and respiration rate all bore significant positive correlations with rate of water loss, but respiration rate exhibited a higher partial correlation than body size measures. Loss rates increased with increasing temperature, yielding a pooled Q_{10} value of 1.73 for the range 15°-35°C. Q_{10}s did not differ significantly among the three species.

Water loss rate for these spiders, although low in comparison with many other kinds of organisms, are comparable with those reported for other spiders living in xeric habitats. These rates are sufficiently low that desiccation stress may be experienced by these spiders only rarely in nature.

DIGESTION TIME AND REEMERGENCE IN THE GRASSLAND SCORPION PARUROCTONUS UTAHENSIS (WILLIAMS).

Richard A. Bradley

The desert grassland scorpion Paruroctonus utahensis spends most of its life in its burrow. On any night during the active season only about 5% of the individuals in a population appear on the surface. Individuals of this species do not appear on the surface for several nights following a meal. To determine if physiological digestion time could account for this delay in reemergence after eating, I measured changes in oxygen consumption immediately following a meal. Oxygen consumption exceeded 125 µl $O_2 g^{-1} h^{-1}$ just after completion of a meal, then dropped to normal levels (53 µl $O_2 g^{-1} h^{-1}$) within 6 hours. I also measured the interval between completion of the meal and subsequent defecation. All individuals defecated by 72 h following ingestion (median 12 h). In field enclosures, scorpions returned to the surface after a mean of 20.3 (median=16 n=62) following a successful predation event. Lack of correspondence between estimates of physiological digestion time and the reappearance interval led me to reject the idea of a long digestive pause in Paruroctonus utahensis. This conclusion lends support to the hypothesis that scorpions remain in their burrows to minimize exposure to predation.

Shameless Gossip

Congratulations to Norm and Sher PLATNICK. William Durin PLATNICK arrived on planet Earth June 25, 1982, and weighed in at 7 lbs., 12 oz.

Family business kept AAS President Jon REISKIND from attending the meetings this year, but he was able to stop briefly by Hampden-Sydney the day before the Eastern Section Meeting began and make certain that all was in order. Jon and Yael LUBIN are offering an Arachnology course in the University of Florida Zoology Department this fall semester. Yael has an appointment 2/3 time at the Charles Darwin Research Station in the Galapagos, and 1/3 time at the University of Florida.

David MASK, billed as a "spider watcher" and staff member of the Houston (TX) Children's Zoo, presented a three-hour workshop at the Zoo August 7, exploring the lives of some of the common spiders of Texas. David displayed live specimens, showed slides, and led a spider-hunting expedition. The program was aimed at interested adults, and was well-received.