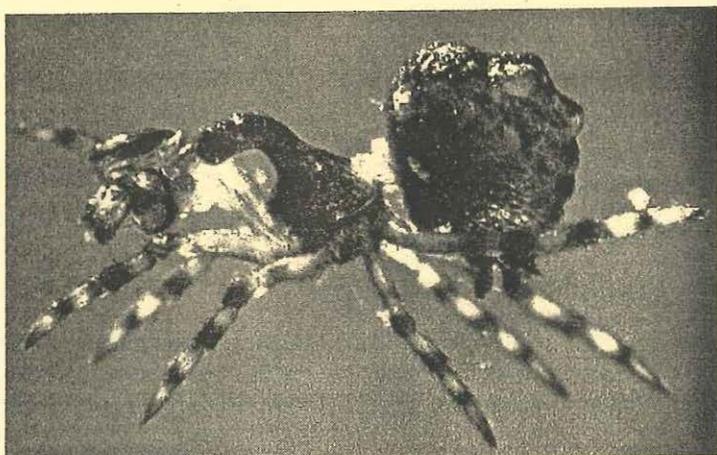


**AUSTRALASIAN
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THE AUSTRALASIAN ARACHNOLOGICAL SOCIETY

We aim to promote interest in the ecology, behaviour and taxonomy of arachnids of the Australasian region.

MEMBERSHIP

Membership is open to amateurs, students and professionals, and is managed by our Administrator :

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Previous issues of the newsletter are available at \$2 per issue plus postage.

ARTICLES

The newsletter depends on your contributions! We encourage articles on a range of topics including current research activities, student projects, upcoming events or behavioural observations.

Please send articles to the Editor:

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Museum & Art Gallery of the
Northern Territory
GPO Box 4646
Darwin NT 0801
Australia.

email: spider@octa4.net.au

Format: i) typed or legibly printed on A4 paper or ii) as text or MS Word file on CD, 3 ½ floppy disk, or via email.

LIBRARY

The AAS has a large number of reference books, scientific journals and papers available for loan or as photocopies, for those members who do not have access to a scientific library. Professional members are encouraged to send in their arachnological reprints.

Contact our librarian :

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COVER PHOTOGRAPH: *Phorancidia* sp. ♂
from Western Australia by Melinda Moir

EDITORIAL



In this issue I am pleased to include the first of a series of natural history articles from Mr Doug Wallace in Rockhampton. Doug has long been a keen observer of spiders and has documented many interesting behaviours and aspects of life history. Steve Nunn has also provided an article describing a rare observation of wasp predation upon a spider.

I hope that these articles will help encourage other members, who may be patiently watching our fascinating arachnids in action to record their findings. It is best to note detail such as when (date, time of day), where (township, habitat type, microhabitat type), and for how long behaviours occur. This makes the article more useful for future reference and to enable good comparisons with other individual arachnids or species.

As many of our members appreciate, the ecology, life history and behaviours of so many of our regional arachnid species are poorly known, especially compared to the faunas of the northern hemisphere. So feel inspired: there are endless mysteries out there to discover and to share with fellow enthusiasts! And what a great way to distract the children in the holidays!

Please remember that I require good contrast photos for issue covers so feel encouraged to snap those magic moments!

.....Tracey

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The Bird Dung Spider's Egg-Sac

by Doug Wallace

One of the most interesting activities of the spider, and at the same time, one of the most unobserved, is the construction of the spider egg-sac. This is very important business, for this is the event of creation and the proliferation of the species. It also makes for a quite fascinating study. From my observation, making of the egg-sac takes about three hours, occurs mostly during the hours of dusk and darkness, and early dawn, when the activities of the spider are least likely to attract the attentions of unwelcome visitors.

The shape, colouration, size and contents of egg-sacs are as diverse as the spiders themselves. Familiarity with an egg-sac discovered in its natural location identifies the spider which made it. The spider may be hidden beneath a nearby leaf, or it may be missing, through predation, or death if its reproductive power has ended. The spiderlings can be identified by examination through the microscope, and except for some minor differences due to immaturity they can typify the adult species.

An interesting species to study is the Bird Dung Spider (*Celaenia excavata*) which is very common to Central Queensland.

My careful study over a period of several years has shown that this particular spider can produce a cluster of egg-sacs, numbering up to 28, each with a diameter of up to 12mm, in both captivity and its natural state. This is a remarkable achievement for a spider the size of its own egg-sac. What a tremendous amount of energy is used in the production of the silk required to make one sac! The spider eats one or two moths each night which is evidenced by the count of empty moth carcasses found in collecting trays which I have placed carefully beneath the spider (at a distance estimated to be beyond the reach of maurauding frogs which often use these trays as a springboard).

Celaenia begins her sac by creating a partial "umbrella" of silk, and presses the egg-mass into this curve, holding it awhile until the mass adheres firmly. She then completes the spherical shape, continually rotating it to right and left with her front legs while applying the silk. After the sac is fully covered in white silk, the colour slowly changes to brown and the sac becomes weatherproof.



Egg-sacs of *Celaenia excavata*.
Photograph by Doug Wallace

Finally she applies her "signature" colour of very dark brown, almost black silk, to form the familiar criss-cross pattern. The sac is then hauled up and attached to the bottom of the egg cluster.

Celaenia makes a new sac about every six days once she starts producing, and during the respite time recovers her energies by resting and feeding. The spiderlings appear after about six weeks, and it is very interesting to watch the emerging juveniles as they rest awhile, perhaps for a couple or days before dispersing on the breeze. It is obvious that this is not the time to attempt counting them, without separating the sacs from the cluster. Interfering with the sacs can disturb the spider to the extent she may move away to another location, in which case a true record of events may be lost. Apart from all else, the sacs do not always hatch in the correct chronological sequence!

Editors note: For those not familiar with *Celaenia* species, they derive their common name from the fact that they resemble bird faeces. White pigment is concentrated in the cuticle of the abdomen and, in some species, the legs, which, combined with their body shape and resting position provides a deceptive image of a lump of bird's poo! This effective camouflage helps them avoid predators. Ironically, the cluster of egg-sacs that Doug has described is quite obvious and easily reveals their presence on closer inspection!

Observations on the behaviour of a predatory wasp, *Hemipepsis* sp. (Hymenoptera, Pompilidae), and its' prey, *Selenocosmia crassipes* (Araneae, Theraphosidae).

by Steven C. Nunn

The following account of events took place on the 10th September 2001, at about 1.30pm. The outside temperature was approximately 25^o celcius.

On this particular day I was out walking on one of the many hills that surround my hometown, Sarina, on the Central Queensland coast. Sub-tropical vegetation dominates these hills, providing habitat for a wide array of native wildlife. As I walked, I observed a giant spider wasp flying extremely low to the ground. The wasp was later identified by entomologists at the Queensland Museum as a *Hemipepsis* sp. and it had a total length of 34mm (head, thorax and abdomen), a wingspan of 55mm, and a leg span of 76mm.

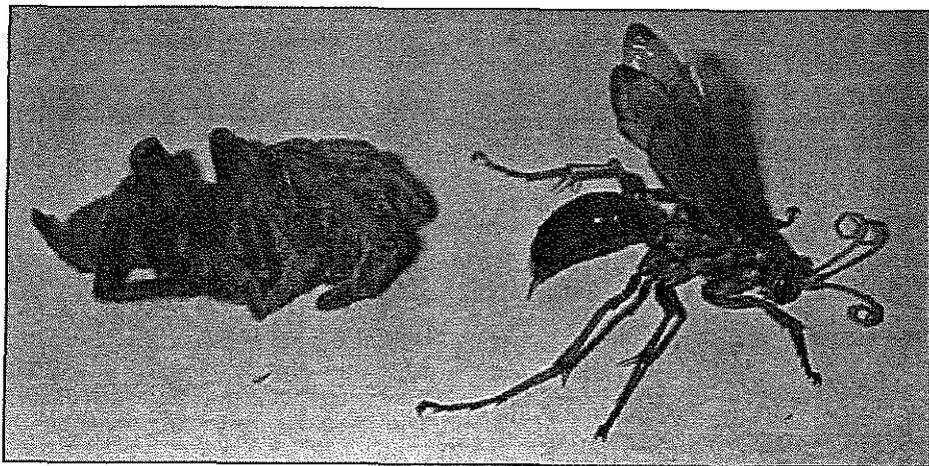
The wasp appeared to be deliberately flying very slowly and extremely close to the ground. Upon landing, the wasp promptly scurried down the web-lined burrow of a theraphosid spider, *Selenocosmia crassipes* (Koch, 1874). The burrow was located underneath a large rock, which, when removed, revealed its web-lined retreat. I was therefore able to observe (at extremely close quarters), the interactions between the predator wasp and its spider prey.

The *S. crassipes* observed in the burrow, was hunched into a tight, cowardly stance at the far end of its retreat. As the wasp closed in, the spider stayed motionless and made no attempt to confront or attack the intruder, but instead appeared to be trying to lay low in an attempt to remain undetected. The wasp swiftly positioned itself on top of the spider, delivering a single sting to the side of the abdomen. Almost instantly, the *S. crassipes* seemed paralyzed, and the wasp dismounted.

Immediately following this, in what could be described as a "frenzy", the *Hemipepsis* sp. hurriedly inspected the area surrounding the spider within the retreat. At no stage did I notice any vibrating of the wasp's wings (a trait of spider wasps, *Pepsis* spp., from Central America), nor did the *Hemipepsis* sp. try to remove the spider from the burrow (*Hemipepsis* sp. are known to either dig their own burrows, use empty burrows, or utilise the existing burrow within which the prey was captured).

Interestingly enough, the wasp displayed no apparent reaction to my intrusion. At this stage the wasp was captured in a specimen jar. The wasp is now preserved in 70% ethanol solution, and is to be included in the entomology collection of the Queensland Museum. The *S. crassipes* was also collected and as of the time of writing, is still alive. During this time, the spider has shown only a slight improvement from its original incapacitated state. She is still quite paralyzed and has regained only very slight and restricted movement.

Hopefully, through further observations, I may be able to determine an approximate time period for the length of paralysis by this species of spider wasp in this particular situation. This of course is dependent on whether or not the spider will survive and make a full recovery. Never the less, I intend to continue recording my observations and look forward to providing a follow up report on the outcome of this event.



The paralyzed *Selenocosmia crassipes* and the wasp *Hemipepsis* sp. Photograph by S. Nunn.

ARACHNOLOGICAL ACTIVITIES



MELBOURNE

The Department of Zoology at The University of Melbourne has seen some very active spider research recently. Between last November and April this year, Jutta Schneider (js@gilgamesh.de) was visiting Mark Elgar's (m.elgar@unimelb.edu.au) research group. Her work focused on sperm priority patterns in *Nephila plumipes* and heritability of male size in *Nephila edulis*. Jutta then left to take up a research position at the University of Bonn, Germany. However, Jutta left Melissa Thomas (a Ph.D. student working on ants: m.thomas4@pgrad.unimelb.edu.au) to raise hundreds of *Nephila edulis* spiderlings to maturity over the next few months.

Anna Cutler recently finished her honours project (arcutler@ugrad.unimelb.edu.au) with Mark Elgar on the mating behaviour of the wolf spider *Venatrix lapidosa*. In a series of bioassays, males courted readily in response to conspecific female silk or pheromones, and altered the intensity of their response according to their size and the reproductive history of the female. In addition, larger males seem to gain a competitive advantage over smaller males, although females were capable of rejecting males, and did so before and after the first copulation.

In a current honours project in Mark's research group, Adrian Rakimov investigates the mating behaviour of the

social spider *Phryganoporus candidus*. He is especially interested to see if males adjust their mating behaviour in response to the social origin of the females (i.e. if males are more attracted to their own nestmates or females from other nests).

Volker Framenau has recently been appointed (framenau@alphalink.com.au) as Honorary Research Fellow (unpaid) at the Department of Zoology. He continues his work on the systematics of Australian wolf spiders, currently focusing on the genus *Artoria*. In April, he visited Travis Gotch and Andy Austin at the University of Adelaide (funded by Travis and Andy) to assist in the identification of spiders in Travis's Ph.D. project on the lycosids of South Australian mound springs. A highlight of the visit was certainly accompanying Travis and Andy on a week field trip to Travis's field sites along the Oodnadatta Track.

In August 2002, Thérèse Jones (theresa@unimelb.edu.au) will start an ARC funded project with Mark Elgar. Stay tuned for more information!

At Monash University, Andrea Ballinger (andrea.Ballinger@sci.monash.edu.au) is investigating the impacts of changed flood regimes and coarse woody debris (i.e. log) levels on terrestrial invertebrate assemblages (ants, beetles and spiders are the focal taxa) in River Red Gum (*Eucalyptus camaldulensis*) floodplain forest. Flooding produces a short term numerical dominance of lycosids, at the expense of zodariids. The key to being a 'successful' spider in this system appears to be related to their ability to utilise the arboreal habitats.

ROCKHAMPTON ARACHNOLOGICAL SOCIETY

It is with much regret that Doug Wallace reports the closure of the Rockhampton Arachnological Society. Doug founded the society in 1991 and over the years has encouraged many locals to take more than a passing interest in the spiders they initially wanted identified. Doug educated his members with field trips exploring the regional fauna and often had the society's patron, Robert Raven from the Queensland Museum, share his expertise with the group. The closure of the society at least allows Doug to spend some more time relaxing with his family and really enjoy his retirement!

CSIRO DARWIN

Since resigning from her position as Research Scientist in July 2001, Tracey Churchill maintained an association with CSIRO Sustainable Ecosystems as a Research Fellow until July 2002. Tracey's technician, Gus Wanganeen, has had to come to terms with termites, working with Tracy Dawes-Gromadski on her project with the Co-operative Research Centre for Tropical Savannas Management (CRC-TSM). The spider collection Tracey developed with the CRC-TSM and CSIRO invertebrate indicators project is now in the process of being relocated to the Museum and Art Gallery of the Northern Territory where it will make a significant addition to the existing arachnid collection.

Hazel Brown, formerly of the spider lab, has since taken up a position as an

administrative assistant with CSIRO, but of course has not lost her primary preference for all things arachnological! Since the move, Hazel's and Tracey's productive energies have still been put to good use, however, with each expecting their first child later in the year!

MUSEUM AND ART GALLERY OF THE NORTHERN TERRITORY

Dr Barry Russell, Assistant Director of Natural Sciences at the MAGNT, welcomed Tracey Churchill as a Research Associate in July. Tracey will resume some taxonomic activities on a casual basis for a while, working on the diverse zodariids she collected throughout the Northern Territory. One project is in collaboration with Barbara Baehr of the Queensland Museum who is undertaking a wider revision of the "Asteron" group.

In addition, Tracey will be able to oversee the integration of the spider material collected during her time with the CRC for Tropical Savannas Management and CSIRO, into the museum's arachnological collection. There are many new species for the NT among this material and through the museum Tracey can ensure that it is available for current taxonomic projects being conducted by colleagues. The material collected in Queensland will be donated via Robert Raven to the Queensland Museum.

Likewise, Tracey can help ensure the successful integration of all the data associated with this collection into the museum's database.

WEB VIBES



SPIDERS OF AUSTRALIA

www.xs4all.nl/~ednieuw/australian/Spidaus.html

Nick Nicholls, of CSIRO in Canberra kindly suggested the index page of:

www.xs4all.nl/~ednieuw/index.html which leads to the webpage discussed here, on Australian spiders and also to pages on European spiders.

The Australian spider site provides a wonderful array of photographs of common Queensland spiders, taken by the author, Ed Nieuwenhuys, during his stay in Australia. The photos are easily accessed through a hypertexted list of 15 family or broad taxon groups. The quality of many of the 200 odd photographs is excellent and provides the highlight of this webpage. Unfortunately some images are fuzzy, having been enlarged beyond their optimal size given the original resolution of the photograph.

It is clearly presented from a European perspective with some non-English words (eg. boeklong) or imperfect English. But more importantly, it highlights the reality that the accuracy of information on webpages is dependant on the knowledge and research efforts of the author. If you the author is respected in their field then you tend to trust the information. The author of this page is not an authority on Australian spiders so members need to be wary of the identifications and related

information. For example, under the "comb-footed spiders, Theridiidae (Redback)" entry is listed the "Family Achaearanea" (not a family, the genus is *Achaearanea*), and the "Genus Steodata" (= *Steatoda*). I also would not agree that the family Thomisidae "normally have two big front eyes"! There were other errors that caught my eye and specialists may want to check out their respective groups.

Ed Nieuwenhuys has tried to rely on some publications on Australian spiders, which unfortunately are outdated in terms of taxonomic names, or not produced by qualified experts. For example, he referred to Raymond Mascord's 1970 book "Australian spiders in colour" to label some salticid genera, and to "Spiderwatch" by Bert Brunet (1996) which has been noted to contain a number of inaccuracies in a previous review by our society newsletter.

The webpage also has a link to "Common spider information" which covers a range of topics including anatomy and web construction. The anatomy section is helpful, but sadly the whole body image used does not allow clear definition of the segments labelled. There are many great facts included and it would have been useful if they were backed by a source of reference so that the reader could better gauge their accuracy. Again, there are some great images (although a few overlay the text) with a fantastic scanning electron microscope photograph of fangs clearly showing the venom duct.

So overall the page is worth a look!

..... Tracey

GIANT SPIDERS AND EXPLODING CACTI



This story is a shorter version of an urban myth from the 1960's and was sourced through Carson Creagh of Australian Quarantine Inspection Service, Canberra.

"A bloke and his family were on holiday in Mexico. As an avid cactus fan he bought a rare and expensive cactus which was about a metre high and cost about A\$500. He got it home and the customs people, unimpressed, said it must stay in quarantine for 3 months, cost \$800 or so.

He finally got his cactus home and planted it in his backyard where it grew to about 2 metres high. One evening after a beautiful warm spring day he was out watering his garden and thought he might give the cactus a light spray. This he did and was amazed to see the plant shiver all over. He gave it another light spray and it shivered again. All its arms moved. He was puzzled so he rang the council who put him on to the state gardens. Eventually, he got the state's foremost cactus expert who asked him many questions (how tall is it, how tall was it when you got it, has it grown well, has it flowered, what type of spines etc.)

Finally he asked a most disturbing question, "Is your family in the house?". As the guy answered yes, the cactus expert said get them out of the house, and wait for me, I will be there in 15 minutes. Minutes later, two fire trucks, two cop cars and an ambulance came screaming around the corner and stopped

out the front of the house. A fireman got out and came up to him, "Are you the guy with the cactus?". "Yes" he said. The fireman returns to the truck and a guy jumped out wearing what looked like a space suit, a breathing cylinder and mask, and a scuba backpack with a large hose attached. "Stay here", said the fireman, as they headed for the backyard.

The bloke found the guy in the space suit firing at his prize cactus with a flamethrower: he sprayed it up and down with this huge flame which fried everything within a 10 metre radius, caught fire to the fence and set off the neighbours trees as well. After about 10 minutes the flamethrower man stopped, the cactus stood smoking, half the fence was gone, and the garden was ruined.

Just then the cactus expert appeared and laid a calming hand on the guy's shoulder. "What is going on?" says the bloke. "Let me show you" says the cactus man. He went over to the cactus and picked away at a crusty bit. It was almost entirely hollow and filled with tiger striped bird eating tarantula spiders, about the size of two hands span. "This type of spider lays eggs in this type of cactus and they hatch and live in it as it grows and grow to full size. When they are all grown to full size they release themselves. The cactus explodes and about 150 plate size tiger striped hairy spiders are flung from it, dispersing everywhere. They had been just ready to pop, can you imagine??"

His house and the two adjoining houses had to be vacated, fumigated and sealed off for two weeks. Then the all clear was given and they moved back in." ☺