

The Spider Club News

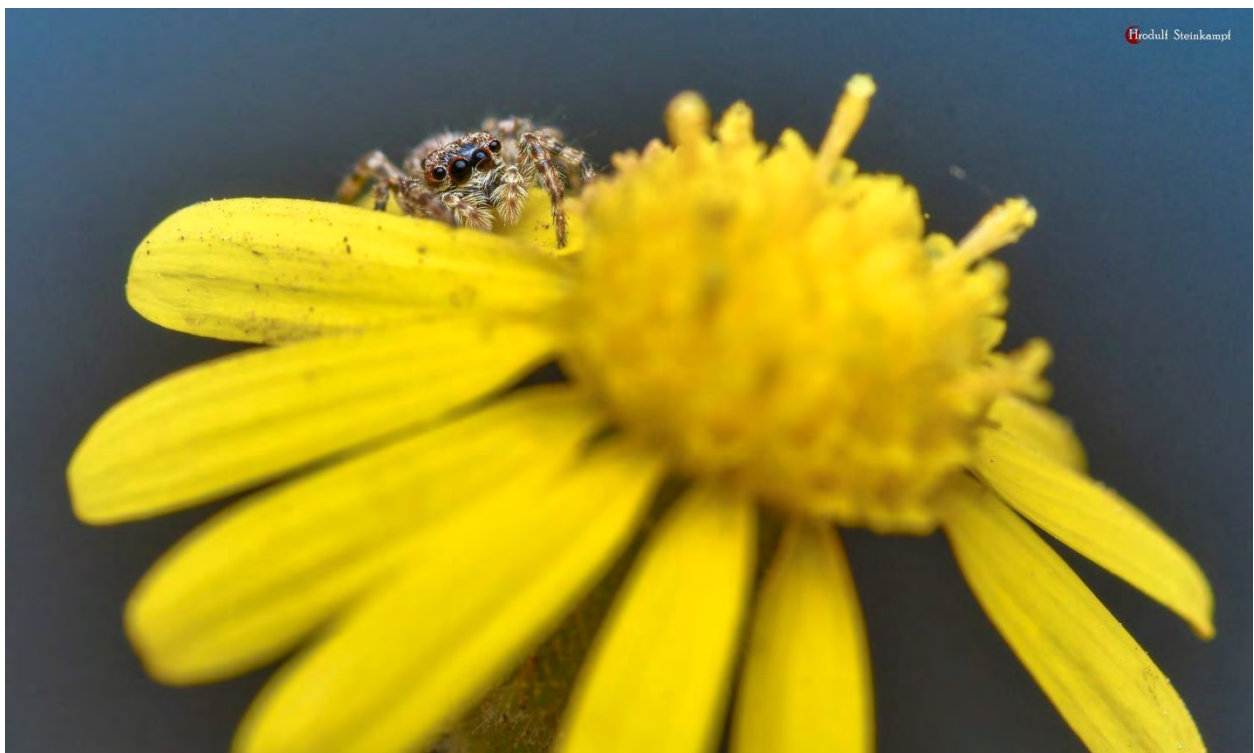
Edited by Rudolph Steenkamp



September 2020 – VOLUME 36, No.3

“The Spider Club provides a fun, responsible, social learning experience, centred on spiders, their relatives, and on nature in general.”

SPRING EDITION



CONTENTS

About the Spider Club	2
Snippets	5
Book Review: Spiders of the World: A Natural History.....	9
Spider Walk – 20 September 2020.....	11
Bolas spiders.....	14
Mike’s musings: A beginner’s guide to spiders	17
How long do spiders live?	21
Spider of the month	23
Feel-good post.....	26
Events	27

About the Spider Club

The Spider Club of Southern Africa is a non-profit organisation. Our aim is to encourage an interest in arachnids – especially spiders and scorpions – and to promote this interest and the study of these animals by all suitable means.

Membership is open to anyone – people interested in joining the club may apply to any committee member for information.

Field outings, day visits, arachnid surveys and demonstrations, workshops, and exhibits are arranged from time to time. A diary of events and outings is published at the end of this newsletter.

Contact us

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at “The Spider Club of Southern Africa”

Your committee; always available and ready to help

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Acknowledgements:

Our sincere gratitude goes to the following people for this edition of the newsletter:

- All the photographers of the photos used in this edition. Without you, these pages would be very dull.
- Norman Larsen, for helping me fill the pages.
- Astri Leroy, of course, for all her contributions, and informing me of any new content.
- Caren Neal, for taking on the responsibility to write the reports on the Spider Walk and other events.
- Everyone on SCSA and its sister groups for all the interesting content.
- All the readers of this newsletter, and all the positive feedback we receive. Of course, keep the negative feedback coming, so that we can improve on this newsletter.



FROM THE HUB

by Astri Leroy

SPRING 2020 Freedom at last!



Yes, I know that this Thomisus is not in a web, so technically there is no hub but the petunia does a pretty good Imitation.

We are certainly waaaaay more free than we have been for a while. It's been a long and strange five months and it is so, so good to be out and about in the great outdoors again. On page 11 you will see a report on the spider walk last Sunday, 20 September, in the Pretoria National Botanical Garden and all those free, happy spider people doing what spider people do. (No, not walking upside-down on the ceiling.) This event was decidedly well attended and I really hope everyone enjoyed it as much as I did. Spider folk are definitely rarin' to go. Watch this space, Caren Neal will have your next event sorted in no time at all.



Ruan Booysen on achieving your M.Sc. You are on the ladder now and I personally really hope you stay with spider taxonomy. We NEED you there! Well done.

As usual, our Facebook page has turned up some really interesting finds. Tinus Odendaal is in Cameroon where many spectacular spiders, rare here in Southern Africa, are much more common. See his amazing photos of *Cladomelea longipes* on page 14. He posted photos of a pink *Paraplectana* sp., making its web. Thanks Tinus for showing us your great observations and photos.

A long-awaited and beautiful book, "Spiders of the World: A Natural History" was published and distributed in most countries in June and July. We were cruelly taunted by many of our foreign friends who posted pictures of the book on our Facebook page. It only arrived on South African shores very recently. For a review of this wonderful book go to page 9, where Heide Pretorius and Norman Larsen have given us their thoughts on it. If you haven't got it yet, get it. It is available on Loot and Takealot at between R555 and R570. Spiders of the World is a fitting memorial for the editor Norman Platnick, who tragically passed away late last year before final publication. He never saw it on the shelves. Norman was a giant in the arachnological world and arachnologists from all over were invited to a virtual memorial service held in Philadelphia, USA, on 12 September.

There are two other books in the offing on our own South African spiders. Norman Larsen is busy with a new field guide, which will be distributed through Struik Nature, and Jacky Collier is using some of her beautiful spider photos to produce a large-format "coffee table" book. I have been wondering why we didn't see so many of her pictures "out there" recently! Now I know. Spider Club members should be the first to know when these two publications are available.

Another important publication that will be available online soon will be PHOTO GUIDES in PDF format using much the same content as the First Atlas to SA spiders, but updated and with more pictures of live spiders. It has been a joint compilation by our senior arachnologists – Prof. Ansie Dippenaar-Schoeman, Drs Stephan Foord, Charles Haddad, Leon Lotz, and Robin Lyle – using many of the photos submitted by the public over the years as well as those by such prolific photographers as Peter Webb and Vida van der Walt.

HOW TO OBTAIN COPIES: People interested in obtaining a copy can contact Ansie Dippenaar-Schoeman directly at DippenaarA@arc.agric.za. Each of the copies is >11MB. If interested, your name can be placed on a mailing list so that you can be informed as volumes become available. This is very much a first draft and a work in progress, so if you see any editorial and other information errors, please refer them back to Ansie. Anyone who has more information or photographs that they would like to add is also welcome to send them. Eventually we will have complete information for each of the species. Volumes will also be made available on a website later.

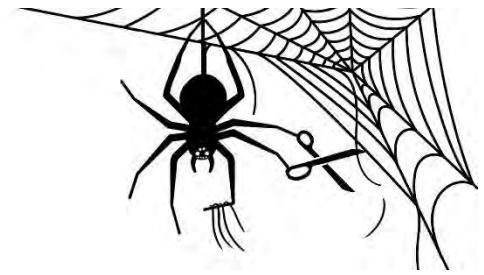
First drafts of the following families were available at the time of going to press (more will follow):

Agelenidae, Amaurobiidae, Ammoxenidae, Anapidae, Anyphaenidae, Araneidae parts 1 to 3, Archaeidae, Atypidae, Barychelidae, Caponiidae, Citharoniidae, Ctenidae, Cyatholipidae, Cyrtaucheniidae, Deinopidae, Drymusidae, Eresidae, Hahnidae, Hersiliidae, Sparassidae and Tetragnathidae

Happy spidering!



Snippets



Spider Club of Zimbabwe up and running

The Spider Club of Zimbabwe has recently been founded by Moira Fitzpatrick, Regional Director at the Natural History Museum of Zimbabwe. Their Facebook page describes the group as “A fun and friendly environment for requesting identification of Arachnids, sharing discoveries, participating in citizen science and discussing related topics. (spiders, scorpions, whipscorpions, tailless whipscorpions, harvestmen, solifugids, pseudoscorpions, ticks and mites).



Please Join
The Spider Club of Zimbabwe
by filling in the membership form
available in the link above.

This will entitle you to our newsletters, join in our outings, events, talks, identification courses and more

To join the Spider Club of Zimbabwe, go to <https://docs.google.com/forms/d/e/1FAIpQLScPBs40XYybejLoGvRlTEBu7dOdKizN5wijap5EOXuSZRP24g/viewform> and fill in the membership form.

Spider silk made by photosynthetic bacteria

Spider silk is the strongest natural material on the planet, and therefore has immense benefits to the manufacturing industry. However, only small amounts of silk can be harvested from spiders, which makes mass manufacturing very difficult. Scientists¹ from Japan have figured out how to create synthetic spider silk by using photosynthetic bacteria.

The researchers genetically modified the marine bacterium *Rhodovulum sulfidophilum* to

produce the MaSp1 protein, which is a main component of *Nephila/Trichonephila* dragline silk and which is believed to give it its strength. By optimising the bacterium's gene sequence, the amount of silk produced is maximised.

This breakthrough could mean a lot for the planet, considering that the material is biodegradable, and the bacterium requires carbon dioxide and nitrogen, which could help decrease greenhouse gases. Also, it uses solar energy, so no unsustainable use of energy is required.

Knife brings in thousands for SCSA



George Dirk Britz, owner of Britz Signature Knives, recently made this beautiful knife with the SCSA logo on it, and auctioned it, where 50% of the profits went to the club. Vincent Allan put in the winning bid of a whopping R11 000.

Peacock jumping spider named after Van Gogh's Starry Night

The peacock jumping spiders (*Maratus* spp.) from Australia are certainly some of the most impressive jumping spiders on the planet, with their bright colours and unique dances to

¹ Foong, C.P., Higuchi-Takeuchi, M., Malay, A.D., Oktaviani, N.U., Thagun, C. & Numata, K. 2020. A marine photosynthetic microbial cell factory as a
The Spider Club News: June 2020 – Volume 36, No. 2

platform for spider silk production. *Communications Biology*, 3(1)
DOI: [10.1038/s42003-020-1099-6](https://doi.org/10.1038/s42003-020-1099-6)

impress the female, flaunting their colours like a male peacock. A total of seven new species were recently discovered. Joseph Schubert, an entomologist with Museums Victoria in Australia, named one of these new species *Maratus constellatus*, in honour of Vincent van Gogh's iconic painting, *The Starry Night*. It is easy to see why.

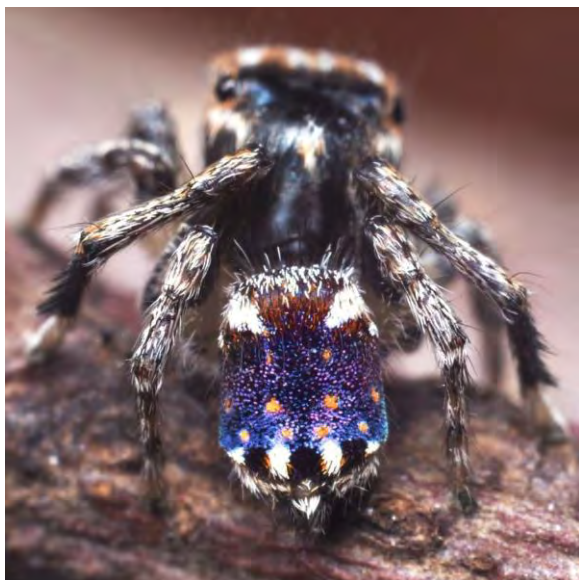


Photo: Joseph Schubert

Scorpion venom helps against heart attacks

The venom from animals like snakes, spiders, and scorpions has long been of immense value in medical research. A recent study² found that if the tripeptide KPP (Lys-Pro-Pro) from scorpion venom is isolated and administered to hypertensive rats, it causes the blood vessels to dilate and blood pressure to drop. However, this also caused the reduced contraction of the heart muscle cells, so even though there is a lot of potential, further studies still need to be conducted before these venom compounds can be used to treat the number one cause of death in the Western world, i.e. heart disease.

² Gómez-Mendoza, D.P., Lemos, R.P., Jesus, I.C.G., Gorshkov, V., McKinnie, S.M.K., Vederas, J.C., Kjeldsen, F., Guatimosim, S., Santos, R.A., Pimenta, A.M.C. & Verano-Braga, T. 2020. Moving pieces in a cellular puzzle: A cryptic peptide from the scorpion toxin Ts14 activates AKT and ERK signaling and

Araneomorph? Mygalomorph? No, xenomorph

Can anybody tell me what kind of spider this is? Normally I'm pretty good about our local spiders but this one has me stumped. This is the third one I've found in my house this summer.



This photo recently did the rounds on social media, with way too many people thinking it's real, and some saying it's a scorpion-tailed spider. In fact, it's a replica of the "facehugger xenomorph" from the movie *Alien*...

New spider species named after Joker



Photo: Niloofar Sheikh

A new species of velvet spider, *Loureedia phoenixi*, was recently named by researchers after Joaquin Phoenix for his role as The Joker (from the *Batman* series). The genus name,

decreases cardiac myocyte contractility via dephosphorylation of phospholamban. *Journal of Proteome Research* DOI: [10.1021/acs.jproteome.0c00290](https://doi.org/10.1021/acs.jproteome.0c00290)

Loureedia, was ironically named after Lou Reed, who always wore black and rarely smiled. The spider was only recently discovered because velvet spiders in this genus reportedly only resurface from their subterranean nests for three weeks every year.

Spider named after mathematician



Photo: Anatoliy Ozerney

A newly discovered orb weaver was recently named after the flamboyant French politician and mathematician, Cédric Villani. The spider, which uses mathematics to build its incredibly precise and consistent webs, was named *Araniella villanii*, and seems to use the Golden Ratio in the construction of its web. Villani himself is apparently a huge spider fan, and is often seen wearing a spider pin.



Photo: Marie-Lan Nguyen

Stonehenge silk structure



Photo: Phil Torres

Since these little “Silkhenge” structures were discovered in Peru back in 2013, it confused scientists as to their origin. Although scientists still do not know which spider creates this protective “fence” to keep the eggs safe, the spiderlings have, however, been filmed, but none of the spiderlings lived to maturity, and have yet to be identified. A recent expedition, led by Phil Torres, found more of these structures (see the video at <https://www.youtube.com/watch?v=NNaj-82QIK8>), and from the video of the spiderlings (see video at <https://www.youtube.com/watch?v=evUdZq6vEvA>), it appears to be some kind of jumping spider (Salticidae).

World Catalogue on Opiliones

The International Society of Arachnology recently circulated this email:

Dear ISA members,

Adriano Kury would like to announce the release of the 'lite' version of the World Catalog of Opiliones:

A searchable pdf version can be downloaded here.

<http://www.museunacional.ufrj.br/mndi/Aracnologia/WCO/Site/WCO-Lite%20hub.html>

Congratulations to Adriano, Amanada, Lilian, Milena and Alexia for this major effort, which means another large arachnid group is now supported by a modern taxonomic catalogue.

Yours sincerely,

Jason Dunlop (Secretariat)

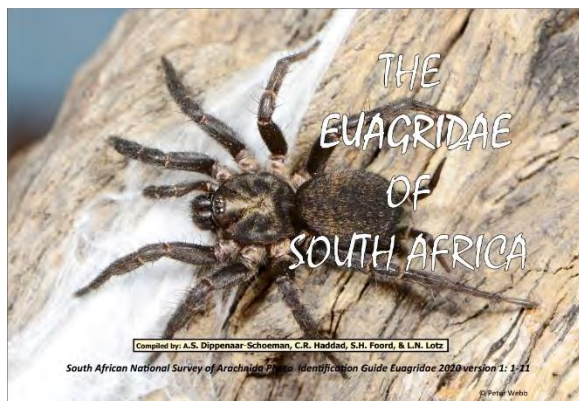
Nine new trapdoor spider species

Nine new *Lepthercus* spp. were recently described³. This genus hasn't been revised in more than 100 years. The genus, which occurs only in South Africa, belongs to the family Entypesidae. There are two clades, namely Group *haddadi* and Group *dregei*. The former clade consists of *L. dippenaarae*, *L. engelbrechti*, *L. haddadi*, *L. sofiae*, and *L. rattrayi*, while the latter clade consists of *L. confusus*, *L. filmeri*, *L. kwazuluensis*, *L. lawrencei*, *L. mandelai*, and *L. dregei*. The *haddadi* clade is characterised by the males having a curved metatarsus I and a swollen tibia, while in the *dregei* clade males have small maxillary cuspules.

New jumping spider genus described

In a recent paper⁴, Galina Azarkina described a new Salticidae genus, named *Manzuma*. The genus consists of seven species, of which two species, namely *M. botswana* and *M. petroae*, can be found in South Africa.

Photo identification guides coming soon



As mentioned in the previous newsletter, the mygalomorphs were recently revised, and a few new families and ranks were created. The Euagridae are one of the new ranks, and all our *Allothele* spp. (previously family Dipluridae) were moved to this family. A photo guide, compiled by A.S. Dippenaar-Schoeman, C.R.

Haddad, S.H. Foord, and L.N. Lotz, will be available soon.

SANSA will also create photo identification guides for every other family. These guides will be available online, and families will be covered in separate issues. Larger families, like the Araneidae and Salticidae, will be split into more than one issue.

Each issue will cover family morphology and lifestyle, genus morphology and lifestyle, key to genera (where available), and a page for each species, with information on national status, conservation status, global distribution, distribution in South Africa with a map, lifestyle, and taxonomic status.

People who are interested in obtaining copies, can email Ansie Dippenaar-Schoeman at DippenaarA@arc.agric.za.

Spiders of the World: A Natural History

World-renowned arachnologist Norman Platnick may have passed, but his legacy lives on; not only in all the species he has described and the work he has done, but also in a beautiful book recently published, titled *Spiders of the World: A Natural History*. See the review of the book on page 9.

³ Ríos-Tamayo, D. & Lyle, R. 2020. The South African genus *Lepthercus* Purcell, 1902 (Araneae: Mygalorphae): phylogeny and taxonomy. *Zootaxa*, 4766(2):261-305. <https://doi.org/10.11646/zootaxa.4766.2.2>

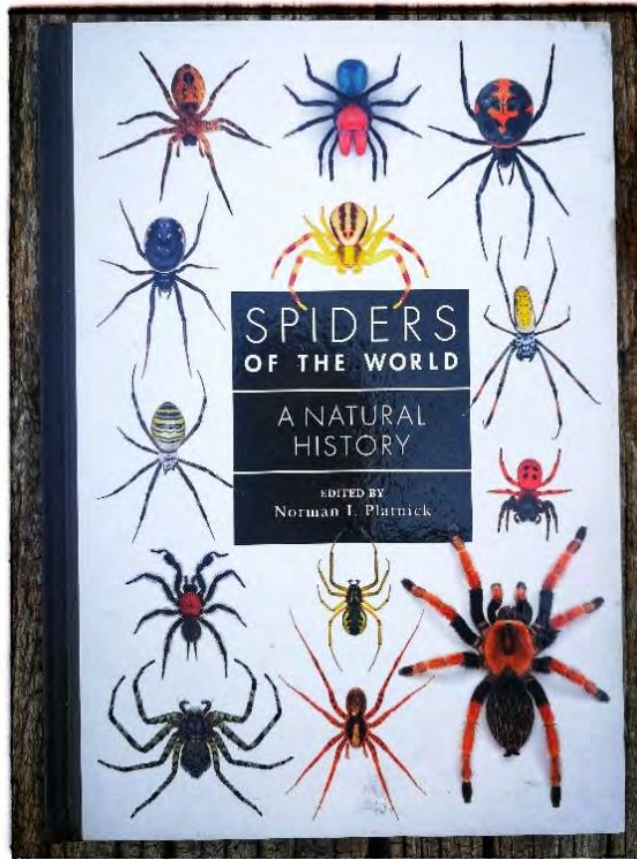
⁴ Azarkina, G.N. 2020. *Manzuma* gen. nov., a new aelurilline genus of jumping spiders (Araneae, Salticidae). *European Journal of Taxonomy*, 611:1-47.

Book Review:

Spiders of the World: A Natural History

A Southern African perspective on **Spiders of The World: A Natural History** by Norman Platnick, 2020. Ivy Press – 256 pages

Hardcover, R568 from Loot, R555 from Takealot and e-book R499



By Heide Pretorius

An unusual and beautiful tribute to spiders edited by the late Norman Platnick and co-authored by Rudy Jocqué, Martín J. Ramírez, Peter Jäger, Gustavo Hormiga, and Robert J. Raven, this book is a collector's gem.

Written to engage both experts and amateurs, it is suitable for your reference library and coffee table alike. A broad overview of spider anatomy, physiology, and classification is explained in accessible terminology and accompanied by diagrams and scanning electron microscope images.

The spider families are separated according to the major groupings, with examples of each genus selected based on the most typical behaviour as well as some unusual exceptions. Beautiful full-colour photos of selected genera are accompanied by a distribution map, typical habitat, diagnostic characteristics, and a fascinating description detailing some common and then more cryptic

behaviour and life histories. Of the 112 featured genera in the infraorder Araneomorphae (true spiders), 42 are found in Southern Africa, of which 16 fall into the subgroup Entelegynae and 21 in the RTA clade. There are no Mygalomorph genera representative of Southern Africa.

A visually stunning peek into the secret world of spiders. Be prepared to find yourself gawking at mind-boggling facts about spider behaviour that will make even the most knowledgeable amateur arachnologist realise how much there is yet to discover about these intriguing animals and their contribution to the natural world.

By Norman Larsen

I received *Spiders of the World, a Natural History*, thanks to a very special friend. The book is edited by the late Norman Platnick and written by Norman Platnick, Gustavo Hormiga, Peter Jager, Rudy Jocqué, Martin Ramírez, and Robert Raven, all eminent arachnologists. I hope he had a chance to view the book before entering the pearly gates.

This is a well-produced hardcover book with 256 pages of very useful information and an incredible selection of images. The design is very pleasing and uncluttered with basic natural history, diagnostic information, and distribution maps. The book is divided into the following sections: Introduction, The Spider Families, Entelegynae, Opisthothelae and Mygalomorphae, Araneomorphae, and The "RTA-Clade", with the usual glossary, etc. The paper used is thick, making the book thicker than it really is.

There are a few negative points:

The book appears to avoid African spiders to a large degree. Is Africa not part of the world? We have fauna like no other continent. The maps are misleading and I would have preferred it to reflect the family distribution and not the genus as when other genera are discussed. Page 66: It is stated that *Loxosceles* lines its retreat with cribellate silk; this is incorrect as the silk is sticky and resembles cribellate silk but is not. Therefore this should be moved to the correct section in the book. Page 53: The Australian tarantulas are discussed, ignoring that they have a small number of species, again ignoring Africa's and Asia's diversity. Page 71: The South African violin spiders are incorrectly called *Hexophthalma* instead of *Loxosceles*. Page 88-9: *Dysdera crocata* is discussed but not shown on the map as it occurs in South Africa.

I did like some of the common names used and we can take note. *Episinus*, cable spiders or cable-web spiders; *Penestomus*, flattened ant spiders; and Zoropsidae, false wolf spiders.

This is a book that I can recommend to all in Southern Africa interested in spiders. But do not expect to gain much natural history information about our spiders.

Spider Walk – 20 September 2020

PRETORIA BOTANICAL GARDENS – SUNDAY 20 SEPTEMBER 2020

by Caren Neal

What an incredible way to start off the spidering season! Our first walk post-lockdown and we had a fantastic turnout. In fact, our best ever! Thank you to everyone who was able to join us and make this such a memorable walk. The people aspect of the spider walks has always been what has kept my passion alive. Seeing all these eager faces. Eager to find some beautiful spiders and eager to learn more about them.

The Botanical Gardens were still very dry this time of the year. The rains hadn't started yet and it was also incredibly hot. Most of the spiders that we had found were hiding very well. We had to work really hard to find them. Finding spiders under the rocks seemed to be the order of the day. Some manual labour was required, but luckily we had so many people who were able to help with the heavy lifting!

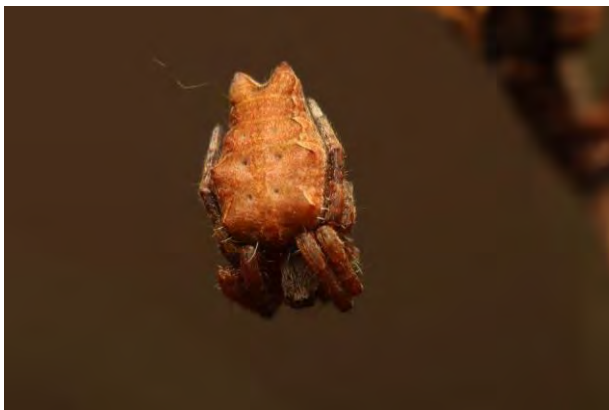


Spitting spider (*Scytodes* sp.) with egg sac. Image: Jacky Collier.

Upon arrival, we all congregated at the entrance to the gardens. All COVID-19 protocols needed to be followed, so it was compulsory for everyone visiting the gardens to wear a mask. There were some familiar faces, albeit with masks on, as well as some new people who had never been on a walk with us before. Quite a lot of children were in attendance too. It is always lovely to see how excited the kids are with our finds. As adults, we always have our “favourites” and

“bucket-list” spiders, but with children they are excited about any spider we find. Makes it more fun for all of us.

As we began the walk, we walked along the path heading to the gardens. One of our new members collected a beautiful little tropical tent-web spider (*Cyrtophora citricola*) in a tree alongside the path. This was special for me, as I had never seen one in real life before. They are not uncommon spiders, but one that had eluded me previously. Now, although I had not actually found it, it was still really nice to see it in person. I had only ever seen them in photos.



Tropical tent-web spider (*Cyrtophora citricola*)



Ground velvet spider (*Dresserus* sp.) Images: Jacky Collier.

A couple of steps ahead, we walked into a garden and under a rock, another member found a few flatties/wall spiders (*Selenopidae*) with two egg sacs. Hiding under the rock with them were some wolf spiders (*Lycosidae*).

We were such a big group, that we couldn't all stay together, so we split up and surveyed the gardens in smaller groups. There were plenty of juvenile hairy field spiders (*Neoscona* spp.) that were still out on their webs in the middle of the day. They clearly didn't read the spider books about eating their webs in the morning and hiding for the day 😊

Another lovely find for the day, which most of us had never seen either, was a tailed araneid (*Eriovixia* sp.) and an abundance of baboon spiders (*Theraphosidae*).

When we were done collecting all of our finds, we met under the shade of the trees, and our members were able to photograph and identify the spiders. Again, the kids were very interested to not only ID the spiders, but also to see how our knowledgeable members handled the spiders and photographed them too. A lot of questions were asked and a lot of learning took place. Once they were identified correctly and photographed, all spiders were released back into the gardens, as we made sure every that catch was released.



Tube-web spider (*Ariadna* sp.)



Long-spinnered bark spider (*Hersilia* sp.). Images: Jacky Collier.

Here is a list of all the spiders we were able to find:

Araneidae	<ul style="list-style-type: none"> ✓ Tropical tent-web spider (<i>Cyrtophora citricola</i>) ✓ Tailed araneid x 2 (<i>Eriovixia</i> sp.) ✓ Hairy field spider (<i>Neoscona</i> sp.)
Eresidae	✓ Ground velvet spider (<i>Dresserus</i> sp.)
Hersiliidae	✓ Long-spinnered bark spider (<i>Hersilia</i> sp.)
Lycosidae	<ul style="list-style-type: none"> ✓ Slim-legged wolf spider (<i>Pardosa</i> sp.) ✓ Burrowing wolf spider (<i>Hogna</i> sp.)
Pholcidae	✓ Spotted daddy longlegs (<i>Quamtana</i> sp.)
Pisauridae	✓ Crowned nursery-web spider (<i>Rothus</i> sp.)
Phyxelididae	✓ Hackled mesh-web spider x 2
Salticidae	<ul style="list-style-type: none"> ✓ Reddish ground jumping spider (<i>Cyrbia</i> sp.) ✓ Ant-mimicking jumping (<i>Myrmarachne</i> sp.) ✓ Rumburak jumping spider (<i>Rumburak laxus</i>)
Scytodidae	✓ Spitting spider x 2 (<i>Scytodes</i> sp.)
Segestriidae	✓ Tube-web spider (<i>Ariadna</i> sp.)
Selenopidae	✓ Flattie
Theridiidae	<ul style="list-style-type: none"> ✓ False button spider (<i>Steatoda</i> sp.) ✓ False house button spider (<i>Theridion</i> sp.) ✓ Common brown button spider (<i>Latrodectus geometricus</i>) ✓ Ant-eating false house button spider (<i>Parasteatoda</i> sp.)
Thomisidae	<ul style="list-style-type: none"> ✓ Pactates crab spider (<i>Pactates</i> sp.) ✓ Green crab spider (<i>Oxytate</i> sp.)
Theraphosidae	✓ Baboon spider
Trochanteriidae	✓ Scorpion spider (<i>Platyoides</i> sp.)
Uloboridae	✓ Feather-legged spider (<i>Uloborus plumipes</i>)

All-in-all, a fun day was had by all.

Please do join us on our next walk at Norscot Koppies on 18 October. The poster and details for the walk are at the end of this newsletter. See you there!

Bolas spiders

by Norman Larsen and Tinus Odendaal



Cladomelea longipes with her bolas holding one or two sticky globules. Image: Tinus Odendaal.

There are a few advanced araneids that have abandoned the normal orb web and have evolved an advanced method of prey capture. They all belong to the subfamily Cyrtarachninae, with the genera *Cladomelea*, *Cyrtarachne*, and *Pycnacantha* occurring in Southern Africa. A scaffold web is constructed with a few strands of dry silk and hangs suspended, waiting to capture moths in flight. *Cladomelea* is an African genus with four described species, with three occurring in Southern Africa.

These spiders have a body length of 14-17 mm. The carapace is decorated centrally with a row of tubercular spines that are long on *C. akermani*. *C. debeeri* has shorter tubercles, with the second slightly longer and the third paired. They are straw-coloured spiders. *C. longipes* have a pinkish body; the abdomen has two large round yellow tubercles on the anterolateral corners of the abdomen and numerous smaller white tubercles arranged in rows. The legs have the femur pink and distally yellow. The eyes are grouped; median eyes are on tubercles and the lateral eyes on shallow tubercles.



C. akermani. Image: Dee Bennion.



C. debeeri. Image: John Roff.

Prey is caught while suspended from the scaffold web from either the second, third, and fourth legs or the third may not be used. On the suspended side the third and fourth legs are tucked away. The first legs are held forward and the second leg holds the bolus that it whirls around, catching male moths. The bolus thread consists of a few strands of silk up to 15 mm in length with a 2-3 mm sticky globule at the end. *C. akermani* uses one bolus with one to two sticky globules. The first pair of legs are swung forward and backward causing the bolus to rotate in a circle. This swinging continues for 1-5 minutes or up to 15 minutes. *C. debeeri* constructs two or three threads of various lengths each with two to three globules. It is not known if a pheromone is given off by the spider or if it is in the pheromones. It is believed that the spider produces female moth pheromones, as moths are attracted before a bolus is made. Juveniles and males probably produce pheromones to attract moth flies in the family Psychodidae that they catch with their outstretched anterior legs. It is not known if this applies to our bolas spiders.

All bolas spiders, including *C. longipes*, need a humid climate to prevent the bolas from drying out. The night temperature recorded by Tinus Odendaal in Cameroon was 22 °C, with day temperatures reaching 37 °C. The night humidity was 80 to 90%, while during the day it was about 65%.

C. longipes becomes active between 20:30 and 21:30. Unlike other Bolas spiders, *C. longipes* appears to hang suspended on a silk thread using only the second leg. The bolas is left hanging for up to 30 minutes with the spider swinging her legs vigorously for 10-29 seconds at short intervals. Once caught, the spider partly wraps the moth using all its legs to rotate the moth. The moth is then transported up the thread, where it is further wrapped and then consumed. At other times she would pull the bolas up after 10 minutes. The bolas will not always be rotated but on detecting a moth, it rotates the bolas and the moth was caught. The moths are detected with vibration-sensitive setae, trichobothria, on the outstretched anterior legs.



C. longipes female & male. Image: Tinus Odendaal.



C. longipes with a wrapped moth. Image: Tinus Odendaal

To construct her egg sac, the spider first makes a reinforced, multistrand support. A base of white fibrous silk is spun into which she lays a yellow round egg. This is further covered in tough paper-like silk. The 10 x 18 mm egg sac construction occurs from about 02:00 and is a light colour and turning a darker amber brown by 06:00. Four egg sacs were observed suspended 0.5 to 1.9 metres above the ground.



C. longipes constructing her egg sac. Images: Tinus Odendaal.



C. akermani with her egg sac. Images: Astri Leroy

There are several undescribed species of bolas spiders in Southern Africa. Two are illustrated below with one in the genus *Acantharachne* occurring in Southern Africa for the first time.



Cladomelea sp. Image: John Roff.



Acantharachne sp. Image: Andrea Sander.

Mike's musings

A beginner's guide to spiders



Michael Green is a very active member on many of the nature-related groups, especially those dealing with the tiny world of insects, spiders, and other arthropods. He often posts informative posts on SCSA to educate the new members and those unfamiliar with how the world of spiders works. The following are just some of his posts (more will be posted in the coming newsletters).

About my posts on Spiders

I am not an arachnologist but I am a very passionate nature lover and photographer. As a photographer I have learnt that it is very important to study your subjects so that you know where and when to find them as well as any habitual behaviour to look out for.

In this regard I have studied several sources on spiders, e.g. Google, books, field guides, and scientific publications. Personal observations also help a lot when learning about a specific subject. Over the years spiders have received such a bad and false reputation, mainly due to ignorance. I am learning something new about spiders almost every day and just have to share it with as many as possible.

A very BIG thank you must go to this group and its admin members for all the help and advice over the years. A special thanks also to Astri and John Leroy for their amazing book, 'Spiders of Southern Africa', as well as to the late Martin R Filmer for his awesome book, 'Filmer's Spiders'. Last but not least, to Norman Larsen who revised Filmer's book (see the new revised edition). I am sure we will be hearing from Norman again and hopefully sooner than later.

Without these amazing books and people I would be lost. Salti's advice to you is to go out and buy these books because Education is the Key!

Spider eggs and spiderlings

In female spiders that have complex genitalia, fertilisation does not take place during the mating process. She stores the male's sperm in a special chamber near her ovaries. She will then only release the sperm when she lays her eggs. This process enables the female to lay several batches of eggs from just one mating session.

The females of different species can lay between 6 and 100 or more eggs at a time. In species where the females guard their eggs and/or offspring they do not need to lay so many eggs. Because they protect the eggs and/or offspring against danger, they ensure a high survival rate.

However, in species where the female does not guard her eggs and/or offspring, they will lay a lot of eggs. Mortality due to bad weather, predators, and even cannibalism is high amongst these spiders' offspring. They therefore need to lay large numbers of eggs to ensure that enough spiderlings live to reach adulthood to be able to mate.

Spiderlings hatch within the egg sac and will moult a few times before emerging. While still being nourished by the egg yolk, their mouthparts and digestive systems are not completely formed. When the yolk is used up, they need to start leaving the nest to explore the world and find food.

Pic 1 is of a rain spider female constructing her nest around the eggs she has laid. Pic 2 is of the spiderlings after they have hatched.





The strategic use of venom by spiders

Yesterday we looked at the spiders fangs and venom glands. We now need to look at the venom itself and why the spider must use it sparingly. To manage the use of its venom, the spider's central nervous system is used to control the muscles that discharge the venom and the volume to be discharged.

The venom is a 'cocktail' of various proteins, designed to paralyse or kill their prey. Different species have different venom 'cocktails' and strengths. To fully explain the various spiders' venom in detail would take forever. What is

important to remember is that they need the venom to overpower prey, to eat, and protect themselves.

Once they have used some of their venom, they need to replace it as soon as possible. The regeneration of spent venom can take days and even weeks. If a large volume of venom needs to be replaced, then the spider is in trouble. It will not only have to use most of its energy and time to do so but during this time it will not be able to catch prey, eat, or defend itself.

They must therefore be very selective in using their venom, using it in limited amounts and only when really needed. Spiders will often administer a 'dry bite' using no venom. They can, however, decide on the amount of venom needed to kill a specific prey and for defence. This means that they are able to limit the use of their venom so as to enable several bites of various doses. It stands to reason why they do not willingly waste their venom on humans.

The two pics are of flower crab spiders enjoying lunch!



About spiders' pedipalps and legs

The pedipalps are situated on either side of the two 'chelicerae' or fang bases. They each have six segments and in males the last segment is modified as a mating organ; the ends are enlarged (pic 2) to store and transfer sperm to the female. Females' and juveniles' pedipalps resemble short legs, don't have enlarged ends (pic 1), and don't have a sexual function. At the ends of the pedipalps are chemical scent receptors that enable the spider to taste and smell but also respond to changes in humidity and temperature.

Spiders have four pairs of jointed legs, each with seven segments. Each leg is connected to the cephalothorax or 'head' section, (pic 1). Most animals use flexor and extensor muscles to move their legs but spiders use hydraulics. Their blood acts as a hydraulic fluid and is pumped into the limbs by strong muscles in the 'head' section.

Spiders that jump, like the lynx and jumping spiders, do therefore not need enlarged hind legs, like a grasshopper, to help them jump. Their main vibration hearing and touch sensors are also situated in the legs.

Pic 1 is of a female garden orb spider and pic 2 is of a male nursery-web spider.

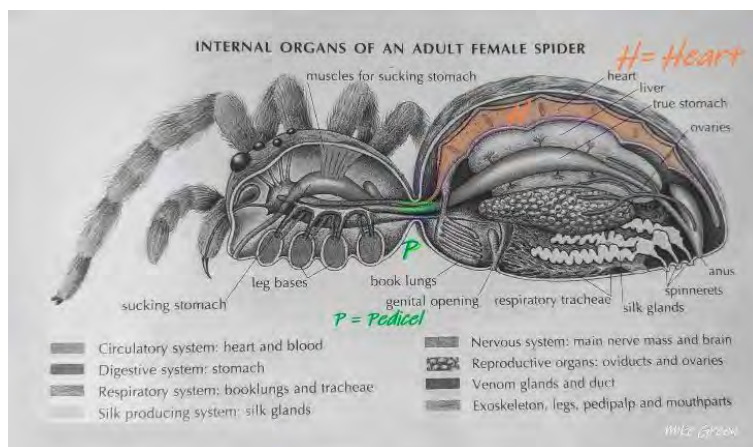
Do spiders have hearts and blood?

Just like mammals, insects and spiders must have hearts and blood, of some kind, to be able to function. Spiders' hearts are long muscular organs situated in the upper part of their abdomen, and which stretch from the front end of the abdomen to the back. Pic 1 shows the heart in brown.

Unlike the blood of mammals, the spiders blood or 'haemolymph' is clear to a light yellow in colour. Although spiders have an open circulatory system, which means that the inside of their bodies are constantly bathed in blood, they also have arteries. The arteries lead blood from the heart to the various parts of the body, including the booklungs.

However, they lack veins to carry oxygen-poor blood back to the heart. It is simply pulled back to the heart through the open body cavity as a result of the heart's pumping action. Non-return valves situated in the abdomen prevent any back-flow of blood.

The abdomen is amazingly attached to the head area or 'cephalothorax' by only a very thin 'pipe' called the pedicel, marked in green in pic 1. In pic 2 of a violin spider you can see just how thin the pedicel is. Although it is extremely narrow it not only connects the head and abdomen but carries the aorta 'major blood vessel', the intestine, and main nerves to the abdomen. Amazing!!



Mating

I discussed the courtship behaviour of spiders before. Today we can take a brief look at the actual mating process.

The adult male has a genital pore under his abdomen. He must first spin a sperm web and then deposit a drop of sperm in the centre of the web. He must now dip his pedipalps i.e. organs of reproduction, into the sperm. The sex organ, situated at the end of his pedipalps, now sucks up the sperm; much like an old fountain pen sucked up the ink.

He can now approach the female. Once he believes it is safe to do so, he will attempt to mate with her. He does this by getting under her abdomen and inserting his pedipalps, loaded with sperm, into her 'epigynum' reproduction organ, which has two internal ovaries. He has now transferred his sperm into her.

This act of copulation can differ slightly between various species. It can last from just seconds or up to seven hours in some species. Very interesting is that the female's reproductive organ can only accept the male pedipalps of the exact same species as herself. Immature spiders are basically sexless and can only mate when they reach adulthood. Therefore no inter-breeding or teenage pregnancies possible.



How long do spiders live?

by Astri Leroy

HOW LONG DO SPIDERS LIVE? That's a question people often ask. Well, as Barbara York-Main in Australia recorded, at least up to 45 years but in reality it's from a few months, to years and decades, depending on lifestyle and metabolic rate. Answer: "How long is a piece of string?" With more than 45 000 spider species – and counting – there must be a huge variation in longevity.

Here are some illustrations of individual spiders that I know:

Nilus* probably *Nilus margaritatus

During the course of the second half of summer I generally collect specimens to add to those I already have for the annual Yebo Gogga exhibition at Wits University in May each year, but of course this year it was cancelled. Live spiders, scorpions, and other arachnids are hugely popular, rain spiders and burrowing scorpions being the stars of the show. For many years I have wanted to exhibit a fishing spider, and from time to time



have collected one or two adult females during Easter weekend. They have never lasted till May, having laid eggs and turned up their toes too soon. This year I collected two adults much earlier in the season, on 25 January. One was released near our fishpond. It was never seen again – I suspect a green-striped river frog had something to do with it. The other I made comfortable in a terrarium with enough water to hold tadpoles and small fish and rocks and vegetation for the spider to hide in.



I wanted to photograph the spider catching and eating a fish, tadpoles, or froglets, but although she spent most of the time resting on the water surface she never caught any of them but readily took insects. The moths of *Brithis crini* lily borers and *Spodoptera acuta* tomato semi-loopers were common, easy to catch, and accepted. She fed on average every third day on these; more often when there were harvester termite eruptions. By April, insects were becoming scarce and on 11 April she stopped eating and made an egg sac, which she carried around until 6 May when she constructed a classical pisaurid nursery among the vegetation. Presumably there were eggs but no doubt they were infertile. She abandoned both nursery and egg sac; the latter was dropped onto the ground and then disappeared, I

wonder if she ate it. She died on 1 June. Spiders with high metabolic rates such as *Nilus* spp. probably don't live long and she died on 1 June. This one lived as an adult in captivity for four months but of course I do not know when it hatched.

Velvet spiders: *Gandanameno* sp.



On 25 November 2017 I collected a female tree velvet spider from under the bark of a blue gum at Joanie Beytell's farm in the far southwestern corner of Gauteng. I kept her under a strip of bark and she produced the first of many flat, disk-shaped egg sacs in December that year, the next in October 2018, and another in November 2019. All egg sacs contained fertile eggs and I released as many spiderlings as I could find every

summer but each time missed some. The offspring that I missed remained in the maternal web, which meant four generations lived together in a very small container. I kept them well fed to attempt to avoid cannibalism, but on 6 May 2020 I found the original female comatose and apparently being eaten by one of her offspring but the remaining individuals seemed to avoid cannibalism. Of course *Gandanameno* spp. are in the family Eresidae, which contains two species of social spiders in the genus *Stegodyphus* – community-web spiders – so there may be a leaning towards sociality with *Gandanameno* spp. too. In fact, some 20 or 30 years ago, I found an extensive *Gandanameno* web in the Karoo with what seemed to be several generations sharing their accommodation. I estimate the original female from Joanie's farm to have been at least one year old when I collected her and she lived on for another three years.

Button spiders: *Latrodectus geometricus* (brown button spider) and *L. renivulvatus* (common black button spider).

I removed one *L. geometricus* spiderling just after hatching from a captive female on 15 February this year, feeding her first on vinegar flies, later small flies of various kinds, then larger ones, some Christmas beetles, and the odd cricket. She has moulted only twice since then and looks, but may not yet be, an adult. I shall keep her as long as I can to record her longevity. I have had the captive female brown button spider since December 2019 and she has produced seven egg sacs since then, all fertile, so she was adult and probably several months old in December, if not more. A juvenile black button spider, probably *L. renivulvatus*, was collected in Ruimsig on 26 May 2019, she is still going strong so has lived more than a year already.

So from these examples, my answer is still "How long is a piece of string?"

P.S. I do have the necessary permits for collecting and keeping spiders.

Spider of the month

Since the Spider of the Month poll often features more than ten contenders, we will from now on only feature the five with the most votes.

JULY



(1) Undescribed theridiid, by Andrew Baxter. (2) Flower crab spiders (*Thomisus* sp.) mating. (3) Green jellybean theridiid (*Meotipa pulcherrima*), by Desiré Pelser. (4) Long-legged bolas spider (*Cladomelea longipes*) by Tinus Odendaal. Bird-dropping orb weaver (*Pasilobus* sp.) by Steve Woodhall.

AUGUST

1



2



3



4



5



(1) Undescribed salticid, by Debbie Taylor. (2) Green huntsman (*Olios correvoii*) by Andrea Sander. (3) Baby grass lynx spider (*Oxyopes* sp.), by Rudi Steenkamp. (4) Crowned lynx spider (*Hamataliwa* sp.) by Ben Cobb. Flower crab spider (*Thomisus* sp.) by Mike Green.

SEPTEMBER



(1) Flat crab spider (*Platythomisus sibayius*), by Brian Ashby. (2) Jumping spider (*Brancus* sp.) by Desiré Pelser. (3) Burrowing zodariid, by Desiré Pelser. (4) Biscuit box kite spider (*Isoxya tabulata*) by Desiré Pelser. Lady beetle orb weaver (*Paraplectana* sp.) by Tinus Odendaal.

Feel-good post

We try to include at least one “feel-good post” in the newsletter, whether it is about someone who has learned to overcome their fear of spiders through educating themselves, or about someone, like Bonita Viljoen, who clearly taught her daughter not to be afraid of spiders. This is what she posted:



Events

Sunday 18 October 2020



**SPIDER WALK ON 18 OCTOBER 2020, 8 AM FOR 8.30 TILL WHENEVER.
LEADER: CAREN NEAL**

**AT NORSCOT KOPPIES & KINGFISHER NATURE RESERVE – 16 ha
of nature in the heart of the northern suburbs. It is situated at
15 Alexander Ave., Douglasdale, Fourways.**



From the N1 William Nicol offramp, drive towards Montecasino/Fourways and go left at the first intersection into Leslie Road. After about 800 metres, turn right at the four-way stop into Westway Road. Continue to the end of Westaway; at the T-Junction with Alexander Avenue you will see the entrance to Norscot Koppies on the opposite side of the road. GPS Coordinates are: -26.0321955, 27.9952897,15.

We charge R50 per adult and R12 per child under 12 (CASH ONLY) to attend these events. We will supply a limited amount of collecting equipment, such as vials, sweep nets, and reference books, but if you have your own, please bring them. We will also have eye glasses (magnifiers) at R55.00 and sweep nets at R80.00 for sale, again CASH ONLY.

Please remember to wear a hat and strong shoes, carry enough water, and if you need them, bring snacks. If you want to stay longer in the reserve, bring a picnic lunch. We know you will abide by the regulations of JCPZ (Joburg City Parks & Zoo) and those of the Spider Club and that you will take any litter away with you.

P.S.: Norscott Koppies Nature Reserve was the first place I ever saw a Zimbabwe brown button spider (*Latrodectus rhodesiensis*). Here's a copy of a photo taken by John Leroy as a photographic slide around 1980 (note the big fluffy egg sacs). Sorry for the strange colour but reviving old slide photos is quite tricky.

- Astri -



TO BOOK, SMS Caren on 083 753 2946 OR Email caren@nicholsonsmith.co.za

November 2020

Since we couldn't celebrate the club's 45th birthday during the lockdown, we MIGHT hold something in November.

Watch our Facebook page for updates.

Sunday, 6 December 2020

Spider Walk at Modderfontein Nature Reserve (JHB East).

8:30 am till late.

Watch our Facebook group and the next newsletter for more information.

Late February 2021

Spider Walk at Klipdrift near Potch (Joanie Beytell's place) (Potch area).

Watch our Facebook group and the next newsletter for more information.