AFRAS
13TH COLLOQUIUM

On behalf of the Organising Committee of the 13th Colloquium of the African Arachnological Society, we would like to welcome you to the Klein Kariba Resort.

We trust that the Colloquium will be an enjoyable and stimulating experience, and that the natural beauty of the Waterberg will provide you with the opportunity to sample many interesting arachnids from the resort and increase your appreciation for the unique fauna and flora of the area. For a checklist of Klein Kariba from a previous colloquium see p........

Stefan Foord

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Organizing committee

Stefan Foord UNIVEN
Ansie Dippenaar-Schoeman ARC/UNIVEN
Robin Lyle ARC
Petro Marias ARC
Vida vd Walt (photo competition)

University of Venda ARC • LNR

CONTENT

5th COLLOQUIUM-KLEIN KARIBA 1996

AFRICAN ARACHNOLOGICAL SOCIETY (AFRAS)

The AFRICAN ARACHNOLOGICAL SOCIETY (AFRAS) is a scientific society devoted to the study of spiders and their relatives.

Founded:
It was initiated in 1986 in Pretoria and was first called "The Research Group for the Study of African Arachnida". At the 5th African Arachnological Colloquium (November 1996) the name was changed to the AFRICAN ARACHNOLOGICAL SOCIETY **(AFRAS**).

Purposes and objectives:
- To promote the study of African Arachnida (non-Acari)
- To achieve closer cooperation and understanding between local and overseas professional arachnologists
- To organize a colloquium in Africa every second or third year
- To circulate a newsletter annually

Membership:
Open to any person actively involved in research on African arachnids.

Costs:
No membership fees are presently charged. Work on donations and surplus made during colloquia.

Committee members:
Chairman, secretary, editor and sub-editor of the newsletter to be elected during AFRAS general meeting to be held during the week of the colloquium (voluntary).
The chairman and convenor of the next colloquium to be appointed during this meeting.

Official language:
English.

13th AFRAS COLLOQUIUM DAILY PROGRAMME

Sunday 19 January 2020 - Arrival, registration , EVENING—welcoming braai

Monday 20 January 2020 - Talks, posters GROUP PHOTO, EVENING—Photo competition

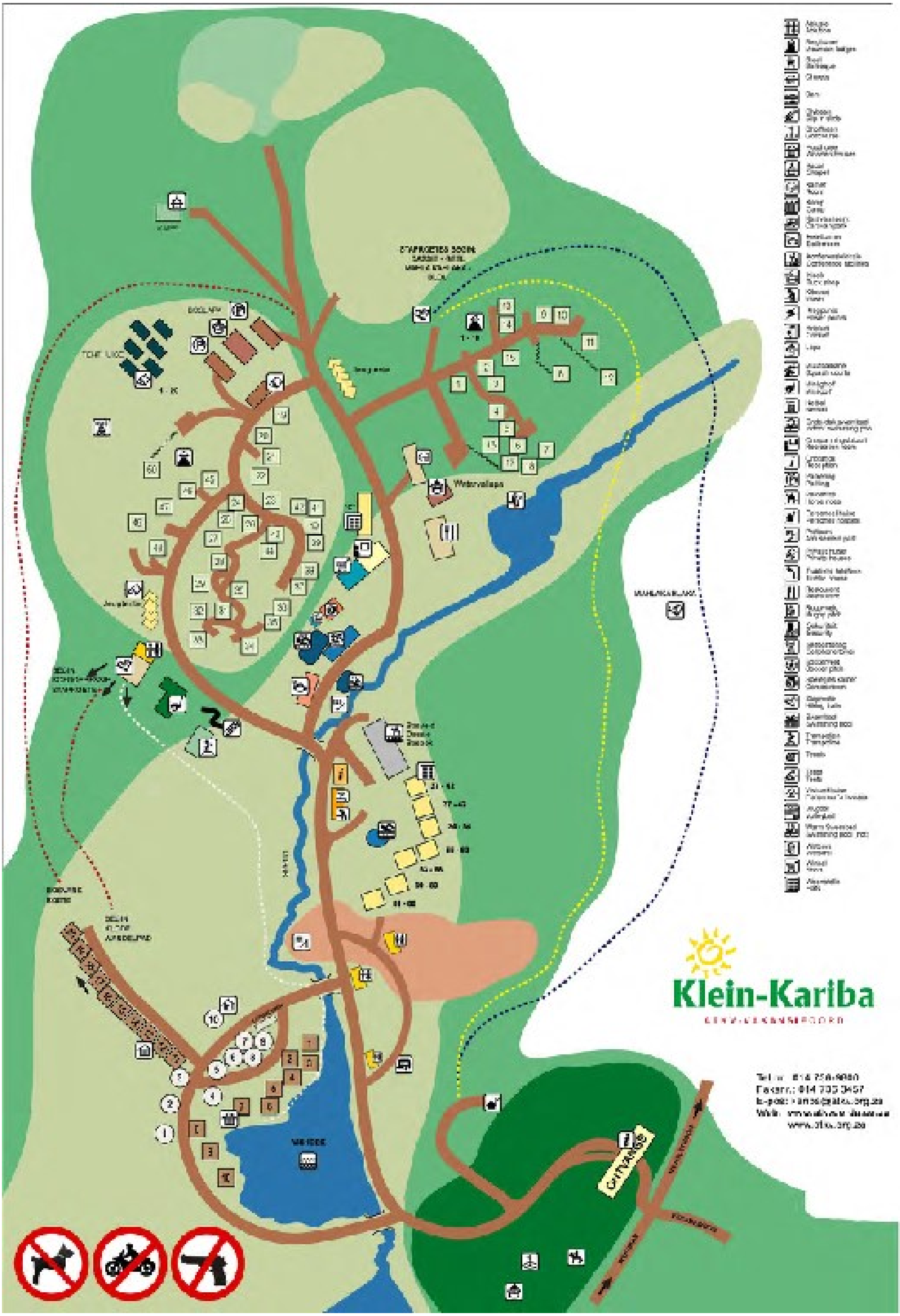
Tuesday 21 January 2020 - Talks, posters EVENING—Russian function

Wednesday 22 January 2020 - Free day (collecting, sightseeing etc.), AFRAS GM, EVENING—Colloquium Dinner and Awards Ceremony

Thursday 23 January 2020 – Departure

ACKNOWLEGEMENTS

We would like to thank the University of Venda and the Chair in Biodiversity Value and Change in the Vhembe Biosphere Reserve for providing funding.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PROGRAMME

TIME	MONDAY 20/01/2020
SESSION 1	***SYSTEMATICS AND BIOGEOGRAPHY chairperson: Rudy Jocqué***
09:00 – 09:05	Welcome Stefan Foord
09:05 – 09:35	**KEY NOTE** **1. C. Haddad** Massive radiation of the prowling spider genus *Parapostenus* Lessert, 1923 (Araneae: Miturgidae) in South Africa: a poster-child for studying biogeography and endemism.
09:35 – 09:55	**2. R. Booysen** Revision, molecular phylogeny and biology of the spider genus *Micaria* Westring, 1851 (Araneae: Gnaphosidae) in the Afrotropical Region.
09:55 – 10:15	**3. R. Lyle** Current knowledge and understanding of the spiders of the family Nemesiidae in South Africa.
10:15 – 10:35	**4. Danilo Harms** Evolutionary processes in old climatically-buffered and infertile landscapes (OCBILs): an arachnid perspective.
10:35 –11:00	**MORNING TEA**
SESSION 2	***TROPHIC PATHWAYS AND VENOM Chairperson: Robin Lyle***
11:00 –11:20	**5. Y. Marusik** The inconsistency and confusion in terminology concerning copulatory organs in female spiders.
11:20 –11:40	**6. H. Badenhorst** Using next generation sequencing to determine the diet of *Heliophanus termitophagus* (Araneae: Salticidae) from termite mounds in central South Africa.
11.40 – 12:00	**7. T.L. Bird** Temporal and spatial dynamics of the social spider *Stegodyphus dumicola* microbiome
12.00 – 12:20	**8. A. du Plessis** Venomous Spider Bites in South Africa: Epidemiology and Clinical Features
12:20—13:00	**9. A.C.E. Eichhoff** Cuddly homes and nest building of spiders observed and photographed in the north eastern bush savanna in Namibia.
12:40 –14:00	***LUNCH AT ……….. VENUE***
SESSION 3	***CONSERVATION, Chairperson: Tharina Bird***
14:00—14:20	**10. S. Foord** The South African National Red List of spiders: patterns, threats and conservation
14:20– 14:40	**11. A.S. Dippenaar-Schoeman** South African National Parks: Spider diversity and conservation.
14:40-15:00	**12. C. S. Schoeman** Vegetation type is the best predictor of epigaeic spider diversity in an African Savanna
15:00-15:20	**13. Y. Marusik** The World Spider Catalog and information about species distribution
	AFTERNOON TEA
	POSTER SESSION/WORKSHOP

PROGRAMME

TIME	TUESDAY 21/01/2020
SESSION 1	***SYSTEMATICS Chairperson: Charles Haddad***
08:30—09:00	Coffee & Tea + Poster session
09:00– 09:35	**KEY NOTE** **1. R. Jocqué** *Psammorygma* (Araneae: Zodariidae): splendour lost in collection.
09:35 – 09:55	**2. Z. Mbo** A revision and phylogenetic analysis of the spider genus *Clubiona* Latreille, 1804 (Araneae: Clubionidae) in southern Africa.
09:55 – 10:15	**3. J.A. Neethling** On the current state of South African pseudoscorpion taxonomy.
10:15 – 10:35	**4. Y. Marusik** How many species of Diphya Nicolet, 1849 (Araneae: Tetragnathidae) occur in South Africa?
10:35 –11:00	**MORNING TEA**
SESSION 2	***Ecology Chairperson: Stefan Foord***
11:00 –11:20	**5. A.S. Dippenaar-Schoeman** Spider research in the Limpopo Province of South Africa
11:20 –11:40	**6. I. Yekwayo** Wandering spiders recover more slowly than web-building spiders after fire.
11.40 – 12:00	**7. G. Canning** The effect of fire disturbance on spider communities in Welgevonden Game Reserve, Limpopo Province.
12.00 – 12:20	**8. M.A. Mowery** Behaviour and life history shifts across brown widow spider invasion fronts.
12:40 –14:00	***LUNCH AT ……….. VENUE***
SESSION 3	***Inventories Chairperson: Jan Andries Neethling***
14:00—14:20	**9. O. D. Nwankwo** The first national inventory of spiders (Araneae) in Nigeria.
14:20– 14:40	**10. A.S. Dippenaar-Schoeman** The rich spider diversity of the Gauteng Province: examining a small urban grassland patch.
14:40-15:00	**11. R. Lyle** Karoo BioGap Project – Spiders contribute to filling biodiversity information gaps in the Karoo.
15:00-15:20	**12. G. N. Azarkina** Aelurillina (Salticidae, Araneae) of the Afrotropical Region.
	AFTERNOON TEA
	WORKSHOP

ORAL PRESENTATION

Aelurillina (Salticidae, Araneae) of the Afrotropical Region

G. N. Azarkina

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The subtribe Aelurillina Simon, 1901 (*sensu* Maddison 2015) contains 291 species belonging to 10 genera; this subtribe is the most speciose among tribe Aelurillini Simon 1901 which otherwise includes 189 species and 26 genera in Freyina Edwards, 2015 and 62 species and 14 genera in Thiratoscirtina Bodner et Maddison, 2012 (World Spider Catalog 2019). Five of the subtribe's genera were recently revised, described or reviewed: *Aelurillus* Simon, 1884 (Azarkina 2006), *Asianellus* Logunov et Heçiak, 1996 (Logunov & Heçiak 1996), *Langelurillus* Próchniewicz, 1994 (Próchniewicz, 1994), *Proszynskiana* Logunov, 1996 (Logunov 1996a) and *Stenaelurillus* (Logunov & Azarkina 2018; Wesołowska 2014a, b). One genus *Manzuma* Azarkina, 2020, endemic to Afrotropical region, was recently described. Four genera, *Langona* Simon, 1901, *Phanuelus* Caleb et Mathai, 2015, *Phlegra* Simon, 1876 and *Rafalus* Prószyński, 1999, remain in need of revision.

Modern chorological centers of the subtribe Aelurillina lie in the Afrotropical Region and the south part of the Palaearctics. The most diverse subregions of the Afrotropics are South Africa, with 49 species (39.2 % of all Afrotropical aelurillines), and East Africa, with 42 species (33.6 %). Surprisingly, the most insect-rich subregion of Afrotropical Region, West Africa, contains only 21 aelurilline species (16.8 %). The same holds true for Central Africa, with only one aelurilline species (0.8 %) being described from this region to date. Ten species are known from two or three subregions. East and South Africa share five species (4.0 %), West and Central – two species (1.6 %). Central and East, and Central and South Africa, share one species each (0.8 %). One species (0.8 %) – *Stenaelurilus hirsutus* – is found in West, Central and East Africa. The most unusual distribution is that of *Stenaelurillus glaber*, which is found in West and East Africa, but apparently the species also occurs in the countries in between and to the east of African continent. Aelurilline fauna of Afrotropical Region is underestimated. There are several undescribed endemic aelurilline genera from Africa, with species that are mistakenly assigned to genera, such as *Aelurillus*, *Langona*, *Langelurillus* and *Phlegra*.

ORAL PRESENTATION

Using next generation sequencing to determine the diet of *Heliophanus termitophagus* (Araneae: Salticidae) from termite mounds in central South Africa

H. Badenhorst[1], M.T. Madisha[2], M.M. Nyaga[3], C.R. Haddad[1] & M. Gryzenhout[2]

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Termites are significant terrestrial insects that fulfil various ecological functions. The snouted harvester termite, *Trinervitermes trinervoides*, is common and widespread in South Africa. These termites are an important food source for many animals, and their abandoned mounds provide refuge for various taxa. Unfortunately, little biological research has focused on the termitophiles occupying active and abandoned *T. trinervoides* mounds. We want to test the following hypotheses: 1) The diet of immature *Heliophanus termitophagus* contains a higher proportion of Collembola than the adults; 2) Adult *H. termitophagus* prey exclusively on termites, particularly workers; 3) Adult female gut content has the highest prey abundance. *Heliophanus termitophagus* specimens were collected by hand from abandoned *T. trinervoides* mounds in Bloemfontein during February and March 2019, and all specimens were stored in 96% ethanol. Pitfall traps were placed in the sampling area from 5-26 March 2019 to assess the distribution of *H. termitophagus* inside, on and near both living and abandoned mounds. Further, potential arthropod prey of *H. termitophagus* were collected inside and around *T. trinervoides* mounds. DNA was extracted from 150 possible prey arthropod species, and sequenced (using Sanger sequencing) using several genetic markers (nuclear/mitochondrial). DNA was extracted from the gut contents of 48 spiders (14 adult males, 14 adult females, 10 sub-adult females and 10 juveniles) and sequenced using Next Generation Sequencing (NGS). The potential prey sequences will serve as reference data for dietary assessments. In addition, morphological identifications will be done for all the potential prey species to supplement the genetic identifications.

ORAL PRESENTATION

Temporal and spatial dynamics of the social spider *Stegodyphus dumicola* microbiome

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Social spiders live in highly inbred family groups that propagate genetically homogeneous lineages. Their mating system and population dynamics result in extraordinarily low population and species-wide genetic variation. Consequently, social spiders may experience increased susceptibility of pathogen infection, and reduced risk of coping with environmental challenges. The spider microbiome can harbour symbionts that facilitate host adaptive responses, or pathogens that threaten host fitness. Their function depends on the type of host-microbe association, which may be obligatory or vary with temporal or spatial conditions. We characterised the microbiome within and between populations of the social spider *Stegodyphus dumicola* using 16S rRNA gene amplicon analysis. Furthermore, we determined temporal and spatial variation in the microbiome in addition to host nest survival in the same natural populations, by sampling individuals from marked nests over a two-year period. We present results on community composition, population structure and temporal stability of the social spider microbiome, and discuss putative functional host-symbiont relationships and influence on host survival.

POSTER PRESENTATION

Are social spiders (*Stegodyphus*) keystone species on arthropod-level?

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Microhabitats play a major role in the niche selection and distribution of arthropods. Nests of the social spiders *Stegodyphus dumicola* and *S. mimosarum* are constructed with silk using some part of a plant as scaffold. Over time, more plant material become incorporated in the silk. The nests consist of tunnels and chambers used by the spiders for different functions (brood chambers, movement, protection, and temperature regulation). Social spiders themselves are generally known to be less aggressive compared to solitary spiders. This combination of nest structure and spider behaviour could provide a valuable microhabitat for other arthropods. As a first step to investigate this hypothesis, we recorded arthropods from nests from which we had to collect spiders. Some arthropods seem to use the nest only as a microhabitat, while others also use the nest as a source of prey.

ORAL PRESENTATION

Revision, molecular phylogeny and biology of the spider genus *Micaria* Westring, 1851 (Araneae: Gnaphosidae) in the Afrotropical Region

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The genus *Micaria* Westring, 1851 are small gnaphosids about 2–5 mm in length. They are recognised by their elongate ant-like bodies, cylindrical abdomen, unciferous and brachiate hairs on the legs, abdomen, chelicerae and carapace. Furthermore, the piriform spigots on their anterior lateral spinnerets are retracted and barely visible. The objectives of this study are to revise the genus *Micaria* in the Afrotropical Region and provide insights on their phylogenetic relationships and biology. There are 105 species of *Micaria* described to date, of which the majority have Nearctic and Palearctic distributions. A few species are recorded from Australia and South Africa. Three species, *M. beaufortia* (Tucker, 1923), *M. chrysis* (Simon, 1910) and *M. tersissima* (Simon, 1910) were described from South Africa, but no other species have been described from the Afrotropical Region. Males and females of recently collected and voucher specimens have been sorted into morphospecies. Thus far, a total of 989 individuals of *Micaria* were examined. CorelDraw® computer software was used to make a template of their genitalia, providing a basis for hand ink drawings and shading. Furthermore, Adobe Photoshop® 2019 was used to adjust the black and white colours, crop and refine the images. A total of 27 species were identified, of which 24 are new species. Based on preliminary molecular phylogenetic data (COI) using PhyML and morphological analyses, five species groups were identified (including foreign species), namely the *dives*-, *pulicaria*-, *subopaca*-, *beaufortia*- (new) and *tersissima*-group (new).

ORAL PRESENTATION

The effect of fire disturbance on spider communities in Welgevonden Game Reserve, Limpopo Province

G. Canning[1], B.K. Reilly[1] & A.S. Dippenaar-Schoeman[2]

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Welgevonden Game Reserve experiences frequent fires, both natural from lightning strikes and anthropogenically induced from intentional management fires and accidental fires. This type of stochastic disturbance event is important in maintaining ecosystem functionality. Spiders are an important component of natural systems and a principle component of biological diversity. With little research having been conducted on the effects of fire-induced habitat change on spider assemblages it is essential to determine the effects of disturbance events on these communities. Surveys have been conducted to determine how the frequency of fire in diverse habitats impacts spider communities. Forty sites in six habitat types, with diverse fire frequency, were sampled on the reserve prior to fires and six sites from savanna and grassland habitats were sampled on a monthly basis after fires. Results from the surveys will include a reserve spider species list and a better understanding of how spider communities are affected by fire events. Spatio-temporal spider community recolonization rates and pathways in fire-affected habitats will also be determined.

ORAL PRESENTATION

South African National Parks: Spider diversity and conservation

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South African National Parks (SANParks) was formed in 1926, and currently manages 22 parks consisting of 3,751,113 hectares, over 3% of the total area of South Africa. In terms of the National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003), the primary mandate of SANParks is to oversee the conservation of South Africa's biodiversity, landscapes and associated heritage assets through a system of national parks. In 1997 the ARC registered a project (DIPSA 1296) at SANParks to determine the diversity of arachnids in the different parks. Firstly, all available data on specimens described from the parks was collated into a database. Surveys were then initiated with the overall aim to collect, identify, describe and make an inventory of the Arachnida species; to determine the number of species already protected in each park; to eventually publish a checklist for each park, to identify the species of special concern and indicate possible exotic species. The information generated through these surveys feeds into the SANSA conservation assessments used to compile the Red Data List of the spiders of South Africa. The project ended in December 2018 and the final spider reports with meta data is prepared for the SANParks database. Through the DIPSA 1296 project 13 of the 22 national parks were surveyed.

ORAL PRESENTATION

Spider research in the Limpopo Province of South Africa

A.S. Dippenaar-Schoeman[1] & S.H. Foord[2]

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This paper reviews the spider research undertaken in the Limpopo Province of South African over the last 63 years. *Phyxelida makapanensis* was the first spider described from the Limpopo in 1894 and the first Limpopo surveys started in 1967. Surveys consists of 1) formal projects undertaken over periods of 1-10 years, 2) student projects usually 12-18 months addressing specific ecological questions, 3) SANSA surveys usually over period of 5-14 days and 4) public surveys, including bio-blitzes over several days or months. In total 500 sites have been sampled in the province and 14 975 records have been databased. This include 27 protected areas as well as two national parks and three Biosphere Reserves. Presently 60 families from 921 species are known from Limpopo, while >20 species are new, waiting to be described. This represent 41.5 % of the South African fauna. The families Salticidae (145 spp.), Thomisidae (95 spp.), Gnaphosidae (87 spp.) and Araneidae (78 spp.) were the most species rich. Forty-eight species are endemic to the province. Of these 31 species are data deficient and only eight are of special concern. One species *Galeosoma hirsutum* is endangered, three species are critically endangered under criteria B, *Caerostris tinamaze*, *Afrarchaea entabeniensis* and *Quamtana nylsvley* and three are Vulnerable under criteria B: *Hortipes coccinatus*, *Tyrotama soutpansbergensis* and *Xevioso lichmadina*. But the majority of species (92 %) have a wide distribution and are of least concern.

ORAL PRESENTATION

The rich spider diversity of the Gauteng Province: examining a small urban grassland patch

A.S. Dippenaar-Schoeman[1,2] & P. Webb[3]

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Gauteng is the smallest province in South Africa and the most densely populated with the highest population growth rate. The demand for land in this rapidly urbanizing province is therefore high. The province falls within both the Savanna and the highly threatened Grassland Biomes, and approximately 83% of the province comprises Highveld Grassland vegetation types, of which a mere 0.8 % is currently conserved in South Africa. Consequently, the biodiversity in the province is highly threatened by industrialisation, mining, agriculture and especially urbanisation, the latter due to the current high demands for the provision of land and basic services to alleviate poor living conditions. But before the biodiversity of a group can be conserved, basic biodiversity data is needed.
The first spiders , *Loxosceles speluncarum* Simon, 1893 and *Idiops pretoriae* (Pocock, 1898) were recorded from Gauteng in 1800. The first planned spider surveys only started in 1972 and most of the sampling was done by members of the Agricultural Research Council and the Gauteng Department of Agriculture Conservation and Environment. Over a period of 47 years the SANSA Gauteng database has grown and now contains 8150 records from >100 sites sampled. A total of 52 families, 262 genera and 578 species are presently known from Gauteng, 26 % of the South African spider fauna. Only eight species are Gauteng endemics and they are listed as vulnerable and endangered.
We report here on a 10-year arachnid survey in a very small suburban grassland (about 1 km^2) near the Irene village in Centurion, Gauteng. It forms part of the SANSA Grassland projects for Gauteng. Because Gauteng is small, the interest in the invertebrate faunas of urban and suburban areas has increased in the last few years. The suburban areas can be potential corridors for dispersal of wildlife through urban areas, promoting connectivity between meta-populations both within and outside towns and cities. Spiders from the grass patch were mainly sampled with a sweepnet or by hand by the second author. Thirty-nine spider families represented by 148 genera and 258 species have so far been collected. That is 44.6 % of the known
Gauteng species. All species have been photographed and observations made on their behaviour adding valuable information to the documentation of the spiders of South Africa.

POSTER PRESENTATION

Red Listing South African spiders: the end-game of the South African National Survey of Arachnida

A.S. Dippenaar-Schoeman[1, 3]; C.R. Haddad[2]; S.H. Foord[3]; R. Lyle[1]; L. Lotz[4]; T. Sethusa[5] & D. Raimundo[5]

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The South African National Survey of Arachnida (SANSA) was launched in 1997 to improve knowledge of the arachnid diversity of the country through collaboration and co-ordination of arachnological research. During the last two decades, considerable effort has been made to collect, identify, database and create products on the biodiversity of the country's arachnids, including the *First Atlas of the Spiders of South Africa (Arachnida: Araneae)*. This document included detailed information on the region's spider species such as occurrence, biome records and conservation status of 2003 species known from South Africa until 2010. Since then, considerable effort has gone into identifying and describing species in preparation for the Red Listing of South African spiders, which also includes the species from Lesotho and Swaziland. This process is in its final stages, with an assessment being made for each of the approximately 2240 species in 70 families now known from the country. Assessment information includes the common name, taxonomic status (such as sexes known, whether recently redescribed, illustrated or not), national status and rationale for this classification, distribution globally and in South Africa, habitat, threats, assessment comments, and a list of georeferenced localities from the three countries covered (country, province, locality, sub-locality, decimal degree co-ordinates), with maps as well as all relevant literature. As per the IUCN Red Listing categories and criteria, a large proportion of the species (62.5%) are of Least Concern having a wide distribution. For 31.6% of the species the data is deficient; 49 species are Rare (2.2%); 15 species are Critical Rare (0.7%); 22 species are Endangered (1%); 10 species are Near Threatened (0.4%) and 36 species are Vulnerable (1.6%). The Red List data will soon be available on the SANBI online database portals.

ORAL PRESENTATION

Venomous Spider Bites in South Africa: Epidemiology and Clinical Features

A. du Plessis[1] & H. Reuter[1]

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Only a small proportion of spiders cause serious envenomation in humans. The known medically important spiders of South Africa include the *Latrodectus* (button), *Cheiracanthium* (sac) and *Loxosceles* (violin) species. The button spiders can cause neurotoxicity while violin and sac spider bites can cause necrotic skin lesions. The clinical syndrome of latrodectism is well defined compared to the diagnosis of necrotic arachnidism. Necrotic skin lesion are not specific and have a wide differential diagnosis. Therefore, the aim of the study was to perform a retrospective assessment of poison centre data regarding spider bites from January 2005 to December 2017 and to develop an algorithm for the diagnosis of spider bites. Results from the study showed that only 1917 (2.3%) from a total of 83 974 calls were related to suspected spider bites. Bites usually involved adults (n=1497, 78%) and occurred mostly during the warmer months of the year. Most of the calls originated from the Western Cape. Antivenom was administered in 80 (28.1%) of the 138 positively identified button spider bites. In the cytotoxic spider group only 5 spiders were positively identified. In the majority of calls the spider could not be identified (n=1301, 68%). Although serious effects is unlikely with the majority of spider bites, early identification and recognition of a clinical syndrome associated with certain spider bites, would assure safe and effective treatment. Neurotoxic spider bites can be diagnosed and antivenom advised based on the clinical presentation. Reported skin lesions were unlikely to be caused by cytotoxic spider bites. A diagnostic algorithm that incorporates the most important clinical features and the distribution of spiders were developed to assist with the diagnosis. Furthermore, the following diagnostic categories were suggested for data collection namely definite, probably and unlikely spider bites.

POSTER PRESENTATION

Cytotoxic Spider Bites – Cases of Mistaken Identity

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In South Africa medically important cytotoxic spiders include the *Cheiracanthium* and *Loxosceles* spiders. The diagnosis of necrotic arachnidism is difficult, because bites are often unwitnessed and lesions nonspecific. Therefore, the objective was to establish if a new classification for the grading of aetiological certainty of spider bites could be determined and secondly to illustrate misattributions of skin lesions to spider bites. An assessment of poison centre data regarding cytotoxic spider bites from January 2005 to December 2017 was performed. Patient demographics, geographical locations and symptoms experienced by patients were extracted. Spider bites were classified as definite, probable or unlikely based on positive identification, clinical features recorded and geographical locations. Prospectively collected cases initially reported as a spider bite were identified and the clinical progression monitored. Results showed that only 5 (2.1%) of the 242 possible cytotoxic spiders bites reported were positively identified: namely two sac, two violin and one six eyed sand spider. Another 27 (11.2%) were classified as probable cytotoxic bites due to geographical location and clinical features. The majority of reported bites can be regarded as unlikely, 211 (86.8%). Although swelling (22.4%), redness (17.0%) and pain (15.8%) are features of early necrotic arachnidism, these are nonspecific and are observed in various other illnesses. Therefore, the majority of reported skin lesions are unlikely to be caused by cytotoxic spider bites. A distribution map illustrating reported cytotoxic spider bites highlighted the geographical areas in which these could be a concern. The poison centre data was insufficient to fully describe necrotic arachnidism, however, certain categories for the diagnosis of cytotoxic spider bites can be suggested, namely definite, probable and unlikely. Medical conditions misdiagnosed as necrotic arachnidism included folliculitis, varicose eczema, cellulitis and atypical ulcers.

ORAL PRESENTATION

Cuddly homes and nest building of spiders observed and photographed in the north eastern bush savanna in Namibia

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The construction of the retreats of six spider genera of seven spider families were observed and photographed in a bush savanna area in Okahandja, Namibia. The two Araneidae species (*Cyclosa* and *Cyrtophora*) observed are possibly new. The Filistatidae species recorded from built-up areas make their webs against walls and trees. This is a new record from Namibia and might be an invasive species. The *Nilus* fish eating spiders (Pisauridae) carry their egg cocoon beneath their bodies but before the eggs hatch the female make a silk nest high up in the grass. The egg cocoon is deposited on vegetation before the spiderlings hatch. Three *Nilus* spp. were observed making their nursery-webs in grass and guarding them for some time. It consists of a silk dome attached to grass bundles helping to shelter the egg cocoon. Of the Eresidae spiders, a solitary and community species of *Stegodyphus* are discussed and their retreats shown, as well as retreat building in two *Gandanameno* species. From the ground layer the stone-curtain-web and egg cocoons of a *Tyrotama fragilis* (Hersiliidae) were photographed for the first time as well as the stone igloo retreats of a *Diores namibia* (Zodariidae).

ORAL PRESENTATION

The South African National Red List of spiders: patterns, threats and conservation

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Triage in conservation biology necessitates the prioritization of species and ecosystems for conservation. Although highly diverse, ecologically important, and a taxon that elicits widely disparate emotional responses from humanity in general, spiders are rarely considered. With 2240 known species, South Africa's spider diversity is one of the highest in the world. A 22-year initiative culminating in a national assessment of all the South African species saw a 33 % increase in described species and 350 % rise in accessions in the national collection. Endemism is high, at 60 % of all South African species. Highest densities of endemics occur in the Forests and the Indian Ocean Coast Belt. A total of 127 species (5.7 %) are either rare or endangered. Threats to these species are largely linked to habitat destruction in the form of urbanization and agriculture. The bulk (62.8 %) of taxa are of least concern, but several species are data deficient (27 %). Predicted large-scale diversity patterns are confounded by the localised nature of distribution records. Best estimates of compositional turnover point to an east-west bias in our understanding and conservation of spiders in the country, a bias that is most acute in the north-western parts of the country. In general, rare and threatened species are mainly ground-dwelling species that are either relictual or taxa that have poor dispersal abilities. Complemented with long-term surveys that will provide insights in to population dynamics of spiders, exploring the use of natural history traits in predicting extinction probability could provide additional criteria for conservation prioritization. Based on these assessments, targeted species-level interventions might provide a platform for more public awareness and institutional involvement.

ORAL PRESENTATION

Massive radiation of the prowling spider genus *Parapostenus* Lessert, 1923 (Araneae: Miturgidae) in South Africa: a poster-child for studying biogeography and endemism

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The family Miturgidae is poorly represented in the Afrotropical Region, with only four of the 29 genera recorded here: *Palicanus* Thorell, 1897 (one species recorded from Reunion and Seychelles), *Parapostenus* Lessert, 1923 (monotypic), *Syrisca* Simon, 1886 (seven African species) and *Voraptus* Simon, 1898 (six species, all Afrotropical). The bulk of the family's diversity is found in Australasia and South-East Asia. In the current study we revise *Parapostenus*, until now only known from the type species, *P. hewitti* Lessert, 1923 from South Africa. We describe the female of *P. hewitti* for the first time, and discover 16 new species, all endemic to South Africa. Eight are known from both sexes, six from females only, and two only from males. Various parts of South Africa contain multiple endemic species: five species are only known from the coastal and Afromontane forests and thickets of the southern Cape; three species are recorded each from fynbos in the Western Cape, and alpine grasslands of the Drakensburg and Eastern Cape; and two are endemic to the Pondoland coastal forests. Although most of the species have been collected from leaf litter, grass tussocks or the soil surface, one species from the Amatola Mountains has regularly collected by beating or canopy fogging in Afromontane forests, in addition to also being common in leaf litter. We compare the distribution and endemism of *Parapostenus* with some other examples of endemic genera, and discuss similarities in the distribution of some of these hotspots.

ORAL PRESENTATION

Evolutionary processes in old climatically-buffered and infertile landscapes (OCBILs): an arachnid perspective

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The recently proposed OCBIL theory aims to explain evolutionary processes in very **o**ld, **c**limatically **b**uffered, **i**nfertile **l**andscapes and seeks to improve conservation practices by acknowledging selective regimes that act within them. Prime examples for OCBILs are South Africa's Greater Cape, the Southwest Australian floristic region, and South America's Pantepui. These regions are geologically old and share a relatively stable climatic history. This long-term stability has allowed for extensive *in-situ* speciation processes of both flora and fauna, and specific adaptation processes to local climates and landscape features. Perhaps more importantly, OCBILs share an exceptional biodiversity despite the lack of obvious features that would foster diversification, such as major river systems or mountain ranges. OCBIL theory predicts five principal patterns that need to be acknowledged to achieve optimal conservation outcomes: 1) reduced dispersal capacities, increased endemism and common rarity; 2) long-term persistence of ancient lineages through time; 3) pronounced speciation patterns at the OCBIL margins; 4) biological specialisations in the groups present; and 5) special vulnerability to disturbance linked with enhanced resilience to fragmentation. In the Southwest Australian floristic region, several studies have tested the theory for animals, including arachnids such as trapdoor spiders and pseudoscorpions, and derived explicit predictions about speciation modes. New conservation procedures include the recognition of refugia with high diversity and resilience across the landscape, and through time, rather than protecting single flagship taxa. In this presentation, I will first introduce the OCBIL theory by providing examples from the southwest Australian landscape, its arachnid fauna, and its conservation. Following this, I will provide some examples of arachnid lineages in southern Africa that warrant study in regards to OCBIL predictions, and have the potential to provide deep insights into evolutionary processes and biogeographical patterns of South Africa's

ORAL PRESENTATION

Psammorygma (Araneae: Zodariidae): splendour lost in collection

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Representatives of the cryptotheline genus *Psammorygma* Jocqué, 1991 are easily recognized: they are fairly large, both sexes have an exceptionally dense spination on the posterior leg pairs, mainly on patellae and tibiae, and the AME and ALE widely separated. The males are recognized by the modified posterior tarsi, with a ventral pad of chemosensitive setae and a tegulum with a retrolateral knob in the palp. The males of some of the species are among the most spectacularly coloured spiders. Females on the other hand are mostly unicolorous. They live in a burrow provided with a trapdoor, which is unique in the Araneomorphae.
So far only three species are placed in the genus: the type species *P. caligatum* Jocqué, 1991 (♂♀), *P. rutilans* (Simon, 1887) (♀) and *Psammorygma aculeatum* (Karsch, 1878) (♀). At least two more described species belong in the genus: *Caesetius biprocessiger* (Lawrence, 1952) (♂♀), synonym of *Cydrelichus rosei* Bacelar, 1953, and *Cydrela friedlanderae* Hewitt, 1914 (♀). Apart from these, several new species remain to be described. The matching of males and females is particularly difficult because of the sexual dimorphism and because much of the colour pattern is lost in ethanol. Several species may occur together and it was found that the spectacular colour pattern of the males is subject to large amount of intraspecific variation.
These impediments explain why this relatively small genus of splendid spiders has still not been revised. It appears that, pending molecular studies, matching of sexes will remain temporary.

POSTER PRESENTATION

Where have all the Ctenidae gone on Madagascar?

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The Tropical Wolf Spiders (Ctenidae) are among the most prominent, common and abundant spiders in all tropical rainforests of the world. They are easily spotted during the night using a headlamp. Yet, they are completely absent in the rainforests and woodlands of Madagascar and their niches are entirely filled with Zebra Spiders (Viridasiidae). Not only their morphology but also their life style is very similar to those of the ctenids: they share the particular eye pattern as well as night activity. However, molecular studies in the TWOSS project, have shown that the Viridasiidae are clearly monophyletic and separated from the ctenids. A closer look at the genitalia also reveals structures (bauplan) that are absent in the Ctenidae. The handling of the egg case is also noticeably different from the ctenid behaviour in this respect.
The study of the Viridasiidae has merely started and only two genera are presently listed in the family (*Viridasius* Simon, 1889*, Vulsor* Simon, 1889) with respectively one and eight species. Another genus, (*Mahafalytenus*, Silva-Davila, 2007, seven species), is still among the Ctenidae but our molecular studies of closely related taxa reveal that they also belong in the Zebra Spiders. Recent collections show that the family contains many more species, some of which are particularly spectacular. It remains an enigma why the Ctenidae have been completely replaced by Viridasiidae on Madagascar and the Comoros.

POSTER PRESENTATION

Four new species of the sac spider genus *Planochelas* Lyle and Haddad, 2009 (Araneae, Trachelidae) from central and southern Africa

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The genus *Planochelas* Lyle & Haddad, 2009 of the family Trachelidae is endemic to the Afrotropical region. Members of the genus are very small, arboreal sac spiders. They are mainly collected by canopy fogging in tropical forest and savanna. In this study, four new species of *Planochelas* are described: *P. brevis* **sp. nov.**, *P. jocquei* **sp. nov.** (Democratic Republic of the Congo) and *P. haddadi* **sp. nov.**, *P. neethlingi* **sp. nov.** (South Africa). An up-dated key to the genus is provided, and the new species are illustrated by photographs and drawings. A distribution map for the genus is provided. This paper increases the number of species in the genus to seven.

ORAL PRESENTATION

Current knowledge and understanding of the spiders of the family Nemesiidae in South Africa

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The spiders of the family Nemesiidae in South Africa were last studied over a hundred years ago. In the present review, all the South African genera were studied, but only *Hermacha* and *Lepthercus* were treated in depth. In the genus *Lepthercus, L. dregei* Purcell, 1902 and *L. rattrayi* Hewitt, 1917 were redescribed, and the female of *L. dregei* was described for the first time. In addition, six new species of *Lepthercus,* and a new genus with three new species were also described. The genus *Hermacha* was previously represented in the country by fourteen species; six of them were redescribed and three new species were described. The female of *H. sericea* and the male of *H. evanescens* were described for the first time. The genera *Brachytheliscus* Pocock, 1902 and *Hermachola* Hewitt, 1915**,** which had previously been synonymized with *Hermacha*, were reinstated and redescribed. Resulting from an extensive morphological revision, *Hermacha capensis* (Ausserer, 1871) and *Hermacha crudeni* Hewitt, 1913 were transferred to the genus *Hermachola*. *Hermacha crudeni* Hewitt, 1913, originally described from a female, was synonymized with *Hermachola grahami* Hewitt, 1915, originally described from a male. A new species of *Hermachola* was also described. *Hermacha curvipes* Purcell, 1902 and *Hermacha nigra* Tucker, 1917 were considered species *incertae sedis*, and *Hermacha nigromarginata* Strand, 1907 was considered a *species inquirenda*. *Pionothele capensis* Zonstein, 2016 was synonymized with *Hermacha brevicauda* Purcell, 1903. New morphological characters for the diagnosis of each genus were described and new geographic distributions were presented. A phylogenetic analysis under implied weight was carried out for these two genera *Lepthercus* and *Hermacha*, using Ixamatinae as outgroup. The biogeographical history of these genera was studied, using a Multiple Event Method (GEM). The analysis found one reconstruction with two vicariance events, twelve sympatry events, and eleven founder events. The ancestral areas found corresponded with the different biomes present in the country and were also in accord with previous biogeographical hypotheses.

ORAL PRESENTATION

Karoo BioGap Project – Spiders contribute to filling biodiversity information gaps in the Karoo

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The South African National Biodiversity Institute (SANBI) has secured funding from the National Research Foundation (NRF) Foundation Biodiversity Information Programme (FBIP) to sample biodiversity in the proposed Karoo Shale Fracking Area. The funding is used to help provide the National Department of Environmental Affairs (DEA) with foundational biodiversity data that will contribute to the Shale Gas Exploration Strategic Environmental Assessment (SGE SEA). Currently, the Karoo is poorly surveyed and existing biodiversity data have major gaps, especially in the area targeted for shale gas exploration. Spiders is one of the eleven different taxa to be studied as part of this project. The project contributes to the South African National Survey of Arachnida (SANSA), as sampling will be done at sites in the Karoo, where little or no sampling has been done before. All specimens sampled will be accessioned into the National Collection of Arachnida and all databased records will be shared with SANBI. Some findings to date are discussed.

ORAL PRESENTATION

How many species of *Diphya* Nicolet, 1849 (Araneae: Tetragnathidae) occur in South Africa?

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Diphya (Araneae: Tetragnathidae) is a small genus of tetragnathid spiders that belongs to its own subfamily. So far 15 named species of this genus occur in South America, Africa and East Asia. Currently, two species are known from South Africa from two extremities of Cape Town (*D. tanikawai*) and Kruger National Park (*D. simoni*). Both species are known based of female specimens. The survey of material deposited in National Collection of Arachnida reveal the occurrence of at least six closely related species, that are distributed all over the country. Studies of the morphology of the male palp (previously unknown of African *Diphya*) reveals that African species are distantly related to the generotype (from Chile) and Asian species, and the genus will most likely will be split in future. Diagnostic characters of the genus and species will be shown as well as distribution of all species in South Africa and Ethiopian Zoogeographical Realm.

ORAL PRESENTATION

The inconsistency and confusion in terminology concerning copulatory organs in female spiders

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After editing, reviewing, and writing taxonomic papers dealing with spiders for several years, I have recognized several instances in which the terminology used to describe the copulatory organs of spiders can be confusing. The triggers to writing of this paper are twofold: 1) several authors use the term spermathecae as equivalent to the term vulva (or endogyne), and 2) authors use different spellings of Latinized terms derived from Greek (e.g. - epigyne *vs*. epigynum or spermatheca *vs*. spermathecum).

In first case it is unclear if the authors mean a particular part of the internal female copulatory organ, the spermatheca (=receptacle, receptaculum seminis), or the entire internal female copulatory organ. In the second case mentioned above, there is no confusion regarding the meaning of the terms epigyne or epigynum, but some editors do not allow the use of the term epigyne.

To understand the origin of different terms and their usage, I have searched all literature since Clerck (1757) to find the first usage and author of certain terms and the author's original meaning. None of the modern textbooks or papers that include spider morphology address the etymology of the copulatory organs. Furthermore, while examining the history of the terminology, I recognized that that there are no data on who first proposed terms such as vulva and spermatheca, epigyne, and endogyne in papers dealing with spiders. Additionally, I have recognized differences in the terminology used by European and American authors (e.g. - North American authors do not use word 'vulva'). The goal here is not to repeat the entire history of the terminology behind female copulatory organs, and I will not list all terms, but will focus only on terms that are currently used in the arachnological literature. The goals of this paper are: 1) to reveal who introduced the terms used when discussing the female copulatory organs of spiders that are in current usage, 2) to provide the etymology of these terms, 3) to determine whether the terms have alternative definitions and meanings, both historically and at present, 4) provide a list of synonyms, and 5) to comment on some superfluous adjectives often used in araneological publications.

ORAL PRESENTATION

The World Spider Catalog and information about species distribution

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It is impossible to imagine Arachnology of the modern time without using WSC almost every day, whether it is by taxonomists and faunists or by those who work on ecology, ethology, or physiology of spiders. The WSC is a powerful tool lacking in other diverse orders of arthropods. Although the Catalog was originally designed to provide references to taxonomic literature, WSC also lists as supplementary data the distribution of species. Many arachnologists uncritically rely on this supplementary data. In our presentation we will give examples of erroneous distribution records in the Catalog and will demonstrate an algorithm that extracts correct data about the known distribution of certain species, at least in the Holarctic.

ORAL PRESENTATION

A revision and phylogenetic analysis of the spider genus *Clubiona* Latreille, 1804 (Araneae: Clubionidae) in southern Africa

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Clubionidae Wagner, 1887 is a moderately large family of sac spiders that is represented by 16 genera and 640 species, with only *Clubiona* Latreille, 1804 and *Carteroniella* Strand, 1907 occurring in southern Africa. *Clubiona* already has 506 spp. described worldwide, and of those, 33 spp. are known from southern Africa. Unfortunately, none of these species have been assigned to any species groups yet. Hundreds of specimens were borrowed from at least 10 different institutions and museums in southern Africa, United States of America and Belgium to do identifications and descriptions. Field work in South Africa provided fresh material for molecular work and taxonomy of some of the species sampled. Consequently, over 180 species have been identified, (re)described, and subdivided into 22 species groups. The groupings are based mainly on the shape of their carapace, eye arrangement, cheliceral structure and dentition, endites, sternum, intercoxal and precoxal sclerites, shape of pedicel, spines on palps and legs, leg formulas, length and form of individual segments of the legs including coxae and trochanters, and genitalic morphology. The *C. annuligera*, *C. aspidiphora*, *C. biaculeata*, *C. capensis*, *C. chevalieri, C. citricolor*, *C. helva*, *C. lawrencei*, C. *limpida*, *C. natalica*, *C. pupillaris*, *C. revillioidi* and *C. subtrivialis* species groups are proposed in the current study based on described species. The nine remaining species groups contain only new species, with characteristic somatic and genitalic morphology. Of the 22 species groups, only nine are endemic to South Africa, with one species group currently found in Zambia and Zimbabwe. The largest number of these species occur in the eastern and southern parts of South Africa and neighboring countries. Meanwhile the western and central parts of South Africa have fewer, more distinctive species with a limited distribution.

ORAL PRESENTATION

Behaviour and life history shifts across brown widow spider invasion fronts

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As invasive species spread around the world, understanding the factors underlying invasion success has become increasingly important. Using an evolutionary perspective to examine biological invasions, we investigated how selection on phenotypic traits changed over population establishment time. Here, we studied how behaviour and life history have shifted in invasive populations of brown widow spiders (*Latrodectus geometricus*), likely native to South Africa. Using temporal and spatial variation across four populations from the United States and four populations from Israel, we tested predictions about changes in trait distributions over establishment time. We predicted that selective filters during the invasion process would result in larger, more fecund, more dispersive, and more exploratory spiders from recently-established populations, and that if tradeoffs occur, they would favour dispersal at the expense of fecundity and size at the invasion front. After common garden lab rearing, we measured dispersal capacity, web building behaviour, size, and reproductive output. We found that recently-established invasive spiders were faster and more likely to disperse than spiders from longer-established populations. Spiders at the invasion fronts were also larger, yet had lower fecundity than expected based on body size. However, despite lower fecundity, invasion front spiders showed more plasticity in egg investment, which may be adaptive in a novel environment. Across significant environmental heterogeneity in the eight populations studied on two continents, we found consistent patterns in dispersal propensity and speed depending on population history. These patterns of behaviour and morphological differences, seen across independent invasion fronts, suggest that fast dispersal and larger size promote invasion success and are under positive selection in invasive populations. We infer that common traits may underlie success in spreading past the point of introduction. This work expands knowledge of how evolutionary processes affect the spread of invasive species through selective filters in the invasion process.

ORAL PRESENTATION

On the current state of South African pseudoscorpion taxonomy

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Despite recent taxonomic revisions and phylogenetic analysis, detailed morphological and ecological data is still lacking for the vast majority of pseudoscorpions, including the poorly-known South African fauna. South Africa currently has 152 known species in 17 families, with over 70% of these species endemic to the country, ranking the region eighth in the world with regards to pseudoscorpion species richness (Dippenaar-Schoeman & Harvey 2000; Harvey 2013). Historically most of the early research, specifically species descriptions, was done by foreign scientists with many of the original descriptions being no more than a single paragraph with a simple accompanying sketch. Due to the lack of local pseudoscorpion specialists, the main focus of modern research has since shifted to the creation of species checklists of the region. However with a recent order-level revision published by Harvey (1992), as well as molecular work by Murienne *et al.* (2008), the need for detailed revisions of our indigenous fauna was recognized. Short-term future research will first focus on revisions of previously described species, the description of any new species and reducing the gaps in the largely unsampled areas in the interior of the country, then long-term research on gaining detailed biological and ecological data. To this end the first revision, covering the Geogarypidae family, was published in 2017. Currently the revision of the next family, Gymnobisiidae, is underway. Here a brief report is presented on the progress of the project thus far, and what still needs to be achieved.

ORAL PRESENTATION

The first national inventory of spiders (Araneae) in Nigeria

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The first inventory of Nigeria spiders was a combination of a field study carried out in Awka, Southeast zone and collation of data on Nigeria spiders from experts across the globe. The sampling work in Awka was the second spider study in Southeast and was done once a month for twelve months. A total of 238 species, 140 genera in 34 families were recorded from Nigeria in the present study. This is 2.4% of the world spiders from only 19 locations. No spider related research has ever taken place in the whole of Northwest zone, while just a single species, *Hersilia caudata* recorded from the Northeast zone. Salticidae was the most dominant family representing 35% of the total species in Nigeria. It is also the most distributed alongside Araneidae and Sparassidae. They were found in four of the six zones of the country. Out of the 15 families that were exclusive to different zones, Nesticidae, Oxyopidae and Gnaphosidae were from Awka. Only eight out of the 34 families in Nigeria were not found in the Southwest zone making Southwest the most productive in terms of population and diversity. Also, with six different locations, Southwest stood as the most studied zone in Nigeria. It could be concluded from the result that very little is known of Nigeria spiders due to very little work done so far. Finally, the findings of this study provide a comprehensive data on Nigeria spiders.

POSTER PRESENTATION

Neonicotinoid insecticides suppress the ability of spiders to re-colonise disturbed agroecosystems

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Agroecosystems are characterised by regular disturbances that cause extinction or migration of a large part of their fauna. Therefore, they have to be repeatedly recolonised from surrounding refuges. In spiders, such recolonization is potentiated by their ability to rapel and balloon. These are complex behaviors that we hypothesized to be affected by neurotoxins, namely by neonicotinoids. We tested this hypothesis using two model species of common farmland spiders, *Oedothorax apicatus* (Linyphiidae) and *Phylloneta impressa* (Theridiidae). The spiders were subject to two modes of contact exposure to formulations of neonicotinoids that are widely used in agriculture, namely to Actara 25 WG, Biscaya 240 OD, Mospilan 20 SP and Confidor 200 OD, in concentrations that are recommended to be applied in agriculture. We then recorded the effects on ballooning and rapelling behavior at 1 h and 24 h following the treatment with neonicotinoids. We found that contact exposure to neonicotinoids suppressed the ability of spiders to produce major ampullate fiber and anchor it to the substratum by piriform fibrils. Contact exposure to neonicotinoids also suppressed the ballooning behaviour that is manifested as climbing to elevated places, adopting tiptoe position and producing silk gossamer in wind. We found that all four tested neonicotinoids, including those with previously claimed negligible effects on spiders, severely inhibited both ballooning and rapelling behavior of spiders when applied in concentrations recommended by the manufacturers to be used in agriculture. Impaired ability of affected common farmland spiders to quickly recolonise disturbed agroecosystems after their regular disturbances may stay behind their decline in multiple farmland ecosystems where neonicotinoids are applied. The study was supported by the Czech Ministry of Education, Youth and Sports (project LTAUSA18171).

ORAL PRESENTATION

Vegetation type is the best predictor of epigaeic spider diversity in an African Savanna

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Spiders and beetles are mega-diverse taxa for which no standardized, large scale, spatial (> 30 000 km^2) diversity studies exist in Africa. Most contemporary studies are limited to a single property or reserve, and broad regional scale comparisons are confounded by differences in sampling protocols and timing. Here, for the first time, we provide a comparative regional assessment of patterns in epigeal spider and beetle diversity in the largest biosphere reserve in South Africa. More specifically we test the ability of a range of large and small scale predictors to explain the variation in the diversity of these two taxa. Epigeal spiders and beetles were sampled across an approximate spatial extent of 30 000 km2. Replicated sampling units, consisting of pitfall trap grids, were stratified across the dominant vegetation units, aspects and elevational ranges of untransformed sites in the biosphere. The response of α- and β-diversity of the two taxa to broad (rainfall, vegetation type, longitude and latitude) and fine-scale predictors (vegetation structure, bare ground, leaf litter, carbon content of soil, canopy cover, topographic ruggedness) were modelled using Generalized Linear Mixed Effects Models (GLMM) for α diversity, and Canonical Correspondence Analysis (CCA) for β diversity. For both taxa, and both metrics (alpha and beta diversity) vegetation type was the best predictor. Generally alpha diversity increased to the east of the region, decreased to the north, and responded negatively to increases in topographic ruggedness and canopy cover. After accounting for the variation explained by vegetation type, spider and beetle assemblage composition was mainly related to elevation and mean annual temperature. These results show that vegetation type is a major determinant of invertebrate diversity observed and thus the size and isolation of areas conserved in each of these vegetation types would have important implications for the conservation of ground dwelling invertebrates.

ORAL PRESENTATION

Wandering spiders recover more slowly than web building spiders after fire

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Fire is a natural feature of many ecosystems, with some vegetation types highly adapted to fire. However, very little is known about the effect of fire on spiders, especially as fires have become more frequent owing to human activity. We determine whether different spider functional guilds (web builders vs. wanderers) respond differently to fires in the sclerophyllous fynbos. We determine also the effect of rockiness as refuge for these guilds and whether it influences their post-fire recovery. There were three site categories of time-since-last fire: 3 months, 1 year, and 7 years. We found that fire caused a decline in spider richness and abundance, with the 3-month category supporting the lowest. In sites that were burned within 1 year, abundance of wanderers was as high as in sites that had 7 years to recover, whereas species richness and abundance of web builders in sites that were burned 1 year ago were as low as in recently burned sites. However, assemblages of wanderers differed among categories, while no differences were observed for web builders, highlighting that wanderers took longer time to recover than web builders. Species richness and abundance of both guilds were not affected by different levels of rockiness. However, rockiness is important in shaping assemblages of wanderers. The results emphasize that the assemblages of greatest conservation concern with increased fire frequencies are wanderers and are candidate surrogates for monitoring post-fire recovery. These results highlight the need to allow fynbos vegetation to recover fully between fire intervals and draws attention to the dangers of frequent unplanned fires.

PARTICIPANTS

Colloquia:
Held every 2-3 years in Africa

- 1986 –1st meeting of the Research Group for the Study of African Arachnida (RGSAA), Pretoria, South Africa.
- 1988 – 2nd meeting of the RGSAA, Swakopmund, Namibia.
- 1990 – 3rd meeting of the RGSAA, Pietermaritzburg, South Africa,
- 1993 – 4th meeting of the RGSAA, Cape Town South Africa.
- 1996 – 5th African Arachnological Society Colloquium, (AFRAS) Klein Kariba, South Africa,
- 1999 – 6th AFRAS Colloquium, Swakopmund, Namibia.
- 2002 – 7th AFRAS Colloquium, Durban, South Africa.
- 2005 – 8th AFRAS Colloquium, Buffelspoort Free State
- 2008 -9Lajuma in the Zoutpansberg.
- 2011 -10 rhemardo Rhemardo, near Naboomspruit
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2014 –11 **Amanzi Private Game Reserve.**