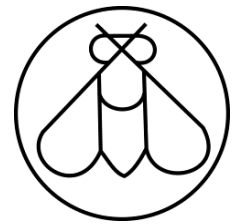


# ROSTRUM

NEWSLETTER OF THE ENTOMOLOGICAL SOCIETY OF SOUTHERN AFRICA



No. 97

December 2018



## NEWS FROM THE EDITOR

This issue of *Rostrum* is the final one before the festive season and before we embark on the New Year and what I hope will be a successful 2019 for us all. Some of the highlights of this issue include a report back from one of our conference travel award winners, Kelby English; an exciting popular article contribution from Amy Liu and Charlene Scheepers dealing with life in the undergrowth; some news from a forensic entomology group at UCT. We also pay tribute to Prof. Maureen Coetzee and her exceptional career; and we announce our Young Entomologist Essay Prize winner for 2018. We have had very few entries for the Photography competition to date, so encourage all members to try their hand at macrophotography and give the competition a go. In the first issue for 2019, we will introduce the new essay topics and be continuing the photographic competition. If there are any suggestions from members for essay topics or any new content for the newsletter, please do make contact with me early next year. Until then, I wish you all a festive, restful break with loved ones and look forward to communicating with you again in 2019.

Dr Candice Lyons

*Rostrum* Editor

[LyonsC@arc.agric.za](mailto:LyonsC@arc.agric.za)

## MESSAGE FROM THE PRESIDENT

I am sure that 2018 has been a busy year for all members of the ESSA. This is also the case for the ESSA Executive Committee, with 2018 representing a year of change in its composition and the beginning of new initiatives.

The vacant position of ESSA Secretary following the resignation of Dr Barry Blair has been filled by Prof. Riann Christian (UNISA). Barry's contribution as ESSA Secretary has been invaluable, and on behalf of the ESSA I wish to thank him for his dedication to the role. He will remain as *African Entomology* Editor. I also thank Riann for volunteering her time to take on this important role and look forward to working with her.

Since the beginning of 2018, Dr Candice-Lee Lyons (ARC-PPRI) has been doing a great job as *Rostrum* Editor. She is assisted by co-editors Dr Shuné Oliver (National Institute for Communicable Diseases) and Dr James Harrison (University of the Witwatersrand) to solicit and edit content for the newsletter. The issues prepared by the new team, including this one, have included some fascinating articles and commentaries on a wide range of entomological topics. I trust that they will continue to keep us informed of news of interest to the ESSA community into the future. I encourage all ESSA members to contribute to *Rostrum* by sending news articles to Candice, or offering to write articles on a topic of interest.

A new role of ESSA Publicity and Communications Officer has been created and is filled by Dr Charlene Janion-Scheepers (Iziko Museums of South Africa). The portfolio of the Publicity and Communications Officer includes maintaining the ESSA Facebook page (@TheEntomologicalSocietyofSouthernAfrica), maintaining a new ESSA Twitter account (@entsocsa), keeping the ESSA website updated, and writing media releases or popular articles about interesting research published in *African Entomology* or the activities of the ESSA. She will work closely with the ESSA Student Representative and Student Committee to assist with creation of content for the ESSA Facebook page and Twitter account. If you use either social media platform, please Like or Follow us so that you can be kept informed of the activities of the ESSA and help us reach a wider audience.

Charlene, the ESSA Treasurer, Anthony King, and our Administrative Officer, Fanie Vermaak, are leading a project to build a new website to improve our online presence. The new ESSA website, designed and hosted by ScienceDesign, will have a more modern design, be more easily updated with current information, and be more secure than the current one. The URL for the website will remain the same.

I also encourage you to participate in the new ESSA Insect Photography Competition. This competition, initiated by Candice this year, will ensure that there is a supply of excellent

photographs for the front cover of *Rostrum* into the future. We also aim to display entries at the 2019 ESSA Scientific Congress in Umhlanga, KwaZulu-Natal, in July 2019.

In 2018 we also initiated the ESSA Young Entomologists' Travel Grants scheme. This is a competitive scheme that was established to support young ESSA members based in southern Africa to (i) present research results at international scientific meetings or workshops with entomological relevance, or (ii) gain valuable entomological skills and experience by visiting an international research group. By doing so, the ESSA hopes to support the development of professional entomologists, and to broaden the range of skills and global relevance of research undertaken in southern Africa. This year we were able to support four out of five applicants, of which three (Mr Kevin Malod, University of Pretoria; Dr Olabimpe Okosun, University of Pretoria; and Mr Honest Machekano, Botswana International University of Science and Technology) claimed the awarded amount. In addition to the Young Entomologists' Essay Prize, we hope this initiative will attract and retain young entomologists based in southern Africa as members of the ESSA.

I would like to conclude by encouraging you to renew your ESSA membership for 2019. Invoices have been sent to members, but if you have not yet received yours, please contact Fanie Vermaak for a replacement. In addition to the other benefits of being an ESSA member, I hope that all of the initiatives outlined above demonstrate the value of continuing to be involved with the society. The ESSA Executive Committee aim to continue to increase the relevance of the society for entomologists working in southern Africa, and we are always happy to receive suggestions on how we can continue to improve.

I wish you all an enjoyable summer break, and look forward to interacting with you in 2019.

Dr Chris Weldon  
ESSA President

Department of Zoology and Entomology  
University of Pretoria

[cwweldon@zoology.up.ac.za](mailto:cwweldon@zoology.up.ac.za)

## Discovering the “giants” under our feet

Collembola, or springtails, are primitive wingless invertebrates (Apterygotes), and are amongst the most abundant and widespread terrestrial organisms in the world. They occur from the Antarctic to the Arctic, from coastal areas to the highest mountain peaks. The oldest fossil of Collembola (*Rhyniella praecursor*) is about 400 million years old, which is also the oldest insect fossil known to date<sup>1</sup>. Most springtails have two obvious characteristics in common, which distinguishes them from other insects. First, they have a spring, or furca, which allows them to jump and escape predators in a fraction of a second. Some species that live deep in the soil have lost the use of their furcas, so it has become vestigial or even absent. Second, they have a ventral tube, which is important in water balance and is sometimes used for self-righting. Springtails mainly breathe through their skin, which is hydrophobic, thus they are often found floating on water, but are not purely aquatic. Thus, being prone to dissection, they are more commonly found during the rainy season, or in the dry season near water or in irrigated areas. Despite this, current research has found that some species in the fynbos appear to be more desiccation resistant than previously thought and are most abundant during the Mediterranean summer.

Springtails feed almost exclusively on decaying plant matter, but some eat plant material, while others prey on microorganisms (e.g. nematodes, fungi, rotifers or slime mould)<sup>2,3</sup>, which in some instances help to control the plant fungal diseases and promote healthy plant growth. They are extremely important in providing plants with nutrients, by breaking down leaf litter and influencing the soil structure either directly or indirectly<sup>4</sup>. However, despite their high abundance and importance in nutrient recycling, springtails are one of the most overlooked invertebrate groups, which is mainly due to limited taxonomic knowledge and their small body size (usually 2 – 4 mm).

### Collembola of South Africa

Almost 9,000 springtail species have been described globally ([www.collembola.org](http://www.collembola.org)), but, as for other invertebrate groups, this number is expected to increase substantially as new species are discovered and described from under-sampled regions. Currently, 124 species representing 61 genera from 17 families have been recorded from the literature in South Africa, of which 64% are endemic species<sup>5</sup>. However, due to intense sampling, systematic work and DNA barcoding projects since 2008, the number of recorded species has doubled, which includes many new species to science<sup>6</sup>. Among these new discoveries, a major highlight thus far includes the first record of the genus *Triacanthella* in Africa, more specifically in a cave of Table Mountain National Park, which displays a very interesting biogeographic pattern, and is the focus of ongoing molecular and morphological work<sup>7</sup>. Recently, another remarkable finding is the wealth of endemic species richness (ca. 100 species) in the genus *Seira*, especially in the Cape Floristic Region. More than half of these species are previously unknown to us, and most of them have a very

narrow distribution. One of the most unusual characteristics of this genus is the ability to exploit not only cool and humid habitats, but also dry and hot habitats that are generally not preferred or occupied by springtails.



Examples of species from the genus *Seira* from the Western Cape, South Africa, (right: *Seira rykei*; left: undescribed *Seira* sp.)

Although Collembola are prone to desiccation, some species have been easily introduced with plants, soil or other organic materials, while eggs can also withstand and survive adverse conditions. Thus, several introduced Collembola are also found in South Africa, which consists of about 20% of the total number of species<sup>5</sup>. However, the impact of these introduced species on the native fauna are not fully understood. Due to the large number of undescribed species, the use of DNA barcoding has played a large role in the identification of especially introduced species<sup>8</sup>. To date the barcoding project *Collembola of South Africa* has over 2,500 sequences available ([www.boldsystems.org](http://www.boldsystems.org)), and these will increase substantially during the next few years.



Examples of some introduced Collembola found in South Africa, (right: *Isotomurus maculatus*; left: *Neanura muscorum*)

### Current and future work in South Africa

While this group's rich diversity in South Africa is still being revealed and taxonomic knowledge is growing<sup>9</sup>, Collembola have been increasingly used in ecological and physiological studies<sup>7,10,11,12</sup>. More recently, they are also progressively being used as study organisms for

student research, including current projects from Stellenbosch University, the University of the Free State and the University of Cape Town. Given their usefulness as model organisms of ecosystem health and their importance in nutrient recycling, it is important to increase our knowledge about the taxonomy, ecology and general biology of Collembola in South Africa, not only in natural environments, but also in the agricultural sector. Although much remains to be done, an identification key to the Collembola species of South Africa is currently being developed, which may ultimately encourage more work on Collembola in the future.

To find out more about South African Collembola or if you want to contact us for more information, please go to [www.collembola.co.za](http://www.collembola.co.za).

The authors acknowledge support from the DST-NRF Centre of Excellence for Invasion Biology, Stellenbosch University, Iziko South African Museum, Monash University, NRF-Foundational Biodiversity Information Programme (Small Grants), and the National Science Collection Facility ([www.nscf.co.za](http://www.nscf.co.za)).

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## Collection method for springtails



**A.** Soil or leaf litter in Tullgren-Berlese funnel extractions; **B.** beating vegetation; **C.** floatation technique; **D.** active searching under rocks or on the forest floor; **E.** litter sifting. In addition, pitfall traps, litter traps or litterbags can also be successfully used to sample Collembola or other soil fauna.

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Wing Pui Amy Liu is a PhD candidate at Monash University, Melbourne, Australia; and Charlene Janion-Scheepers is a Postdoctoral Research Associate at Iziko South African Museum, Cape Town, South Africa. 

## *RESEARCH AT UCT – News from CapeFORTE Laboratory at UCT*

### *The Status of Forensic Entomology in the Western Cape, South Africa*

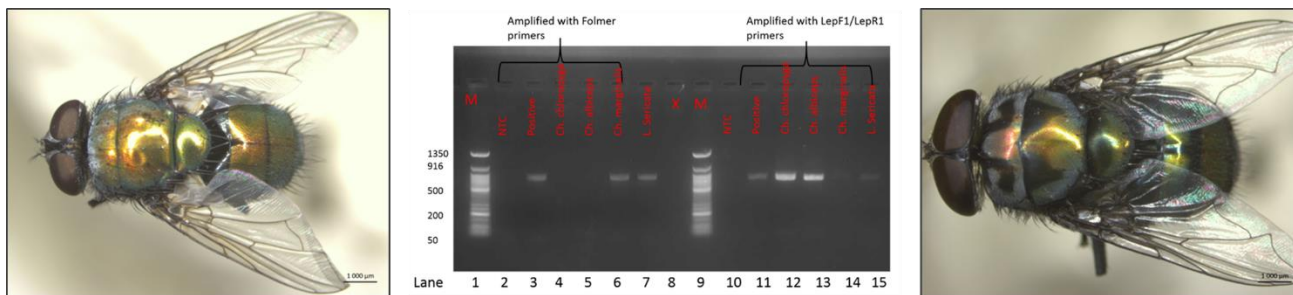
Since Prins (1982) described the morphology of six adult blow-flies and their immature stages, no significant records for forensically significant species have been described for the Western Cape region of South Africa. No forensic entomological research was conducted in the

Western Cape prior to 2012 and the practise of forensic entomology was largely restricted to a limited number of medico-legal death investigations conducted by Forensic Pathology Services (FPS), Department of Health.

CapeFORTE, the newly established Cape Forensic Taphonomy & Entomology Laboratory, offers specialised forensic entomological and taphonomic analysis services to the Western Cape Forensic Pathology Services. CapeFORTE Laboratory was co-founded by Dr Marise Heyns and Devin Finaughty (now Dr Finaughty) in 2015 with a focus on post-mortem interval estimation and is providing valuable information on PMI and the circumstances surrounding death in cases where individuals are in a state of decomposition or the remains skeletonised. They are currently engaged with provincial leadership of FPS to formalise the service, which will make CapeFORTE the first dedicated forensic entomological service provider in the country. CapeFORTE is assisting the WC-FPS in training their scene officers in the management, documentation and collection of FE evidence on death scenes. This includes on-scene training and also curriculum development for a new diploma to be offered to Forensic Pathology Officers through the Cape Peninsula University of Technology.

The teaching of forensic entomology was introduced in the master's programme in Biomedical Forensic Science launched at UCT in 2012 and has resulted in some valuable entomological research on the local blow fly populations. At first the research entailed identification of the blow fly species that are active in land-based environments in the Western Cape and their seasonal distribution, abundance and baseline development rates. Further research included barcoding of species, establishing the effect of climatic conditions, particularly temperature and humidity, entomotoxicology as well as a study conducted to investigate flyspecks or artefacts caused by fly activity on a crime scene. Current research include barcoding, geographical distributions and identification and aging of pupae.

A recent paper entitled "DNA barcoding of forensically important flies in the Western Cape, South Africa" by Tenielle Cooke, Kyle Kulenkampff, Marise Heyns, and Laura Jane Heathfield was recently published in *Genome*, 2018, 61(12): 823-828, <https://doi.org/10.1139/gen-2018-0054>. CapeFORTE is now in the process of developing a strategy around the usefulness and the future of forensic entomology practise not only in this region, but also in the rest of Africa.



**Left to right:** An adult *Chrysomya chloropyga* (Diptera: Calliphoridae) photographed in CapeFORTE's lab; 5% Agarose gel showing amplification of COI with Folmer and Lep primers. Electrophoresis was performed at 100V for one hour. L= ladder, NTC = no template control, +ve= positive control. 1-4 corresponds to *Ch. chloropyga*, *Ch. albiceps*, *Ch. marginalis* and *L. sericata* respectively; an adult *Lucilia sericata* photographed in CapeFORTE's lab.

## AWARDS TO NOTE

**Professor MAUREEN COETZEE, MSc, PhD**

**Fellow of the Royal Society of South Africa, Fellow of the Royal Entomological Society, London, Fellow of the Royal Society of Tropical Medicine & Hygiene**

The South African Medical Research Council, at their recent gala awards ceremony in Cape Town on 30 August 2018, awarded Professor Maureen Coetzee a Platinum medal for outstanding lifetime scientific contributions to health research. These are awarded to South African citizens who have made seminal scientific contributions that affect the health of people, especially those living in developing countries.

Prof Coetzee is a Research Professor in the School of Pathology at the University of the Witwatersrand where she founded the Wits Research Institute for Malaria, and for the past 10 years has held a DST/NRF South African Research Chair in Medical Entomology & Vector Control.

Maureen's research interests in African malaria vector mosquitoes began in 1975 and include biodiversity, biology and insecticide resistance. She has published over 200 scientific papers and book chapters in the past 40 years and received many awards, including a Certificate of Distinction from the Council of the International Congresses of Entomology, USA (2016), Distinguished Woman Scientist of the Year from the Department of Science and Technology (2015), the Elsdon Dew Medal from the Parasitological Society of South Africa (2014) and the John N. Belkin Memorial Award, American Mosquito Control Association, USA (2012). Researchers at the Smithsonian Institution, Washington DC, USA, named a mosquito subgenus after her - *Aedes (Coetzeemyia)* - in 2010. She has recently been appointed to the Malaria Policy Advisory Committee of the World Health Organization. Maureen has supervised a total of 63 post-graduates from 13 African countries in the last 25 years, 65% of them black and 44% women, many of whom have gone on to run their own research programmes or work for the World Health Organization or national malaria control programmes.



Prof. Maureen Coetzee receiving her platinum award for lifetime achievement. 📷

## CONFERENCE REPORT BACK FROM TRAVEL GRANT AWARDEE

Kelby F. English

### XV International Symposium on the Biological Control of Weeds

The XV International Symposium on Biological Control of Weeds, held in Engelberg, Switzerland was my first international conference. I am a PhD student at the University of Cape Town in South Africa currently in my third year. My presentation entitled 'Post-release evaluation of factors influencing establishment discrepancies of a bud-feeding weevil, *Dicomada rufa*: a case study from South Africa' fell under the 'post-release monitoring and evaluation' session which was on the last day of the conference. I found that all of the sessions were important in the community of biological control and that talks in many of the sessions were very interesting and relative to my work. My talk itself seemed to be well received and several researchers and students met with me afterwards to discuss their experiences with similar work to mine and offer me insights into my research. These connections will be very beneficial while I am completing my PhD and also in future. I met delegates from all over the world who are highly respected in the field and I have referenced throughout my time as being a student. I was also able to connect with fellow students

and discuss and compare our research and experiences. There were also several workshop meetings organised and I attended one entitled 'arts and science of native range explorations' organised by delegates from Brisbane, Australia. Over 20 delegates joined in on the meeting and it allowed me insight into the first steps of initiating biocontrol programmes between countries.

In my free time I was fortunate enough to explore the town and visit Lake Trübsee situated at an elevation of 1764 m at the foot of Mount Titlis. The Symposium organisers also offered us the option to attend several Mid-Symposium tours in order to give us an opportunity to explore more of the town and surrounds and I was fortunate enough to attend a hike along the Brunnipfad trail which started at Ristis and then ended at Brunnihütte. Here we were served a traditional meal of macaroni and Swiss-made cheese sauce with potatoes accompanied by an apple sauce. From here we had the option to hike or catch a ski lift back down to Ristis, of which some colleagues and I decided on the latter as we had never been on one. The hike itself offered stunning views of the town and mountains surrounding it, including the Alps. Our guide was also very knowledgeable about the flora and fauna in the area which for us as biologists being in a foreign place, was a lovely bonus. I also later visited the Kloster Engelberg, a Benedictine Monastery which was established in 1120. It was an incredible place to witness and we were treated to a tour as well as an organ concert. This particular pipe organ is the largest in Switzerland and is situated in the most beautiful church on the expansive grounds.

I was fortunate enough to obtain funding from the National Research Foundation of South Africa, and UCT/DEA project running costs and the funding I so generously received from IOBC, without which attendance at this conference would not have been possible. Overall, I had the best experience at my first international conference and can't wait to (hopefully) attend the next ISBCW!

## CONFERENCE REPORT – ICD 9 (International Congress of Dipterology)

### The Vector Control Reference Laboratory attends the 9<sup>th</sup> International Congress of Dipterology

Allison Gilbert, PhD candidate, University of the Witwatersrand

Shüné Oliver, Medical Scientist National Institute for Communicable Diseases and Researcher, University of the Witwatersrand.

The 9<sup>th</sup> International Congress of Dipterology (ICD9) was hosted in Windhoek, Namibia from 25-30 November. This was the first ICD hosted in Africa, after a successful meeting in Potsdam, Germany in 2014. This meeting was also a milestone meeting for two members of the Vector Control Reference Laboratory (VCRL), an entomology laboratory in Johannesburg. For Allison, this was her first international conference, and with nerves aplenty, she presented a portion of studies entitled "Abundance of forensically related flies from greater Johannesburg, South Africa". She was one of three student presenters in a Forensic entomology symposium hosted by

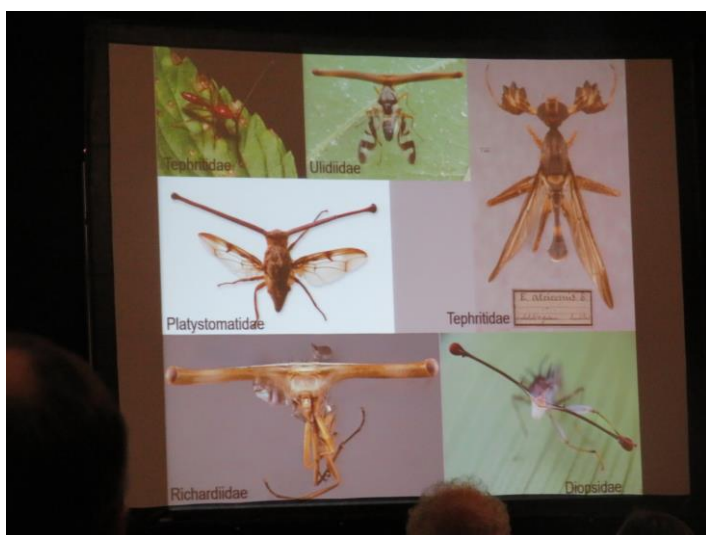
Martin Villet and Kirstin Williams, two South African entomologists and ESSA members. For Shüné, it was the first time convening a symposium. The session, “Vectors of human disease: Biology and environment”, was opened by a keynote presentation by Prof Maureen Coetzee of the Wits Research Institute for Malaria called “The old and the new – African Anophelinae and malaria transmission”.

Hosted at the Safari Hotel Conference centre, this highly sociable conference was notable for two major highlights. The first was the launch of the first two volumes of the Manual of Afrotropical Diptera. This mammoth project was edited and co-ordinated by Ashley Kirk-Spriggs and Bradley Sinclair and is a dichotomous key like none other. Taking full advantage of colour photography these stunning volumes are filled with amazing photographs, many by notable dipterist and insect photographer Stephen Marshall. The manual (available as a PDF at <http://afrotropicalmanual.org/>) will be a mainstay of dipterists for years to come.



The conference was the official launch for the Manual of Afrotropical Diptera.

The second highlight was the outstanding public engagement in the form of public lectures. The quirky and fascinating Dr Mark Bennecke presented the scope of the work he is involved with in talk entitled “How flies and other insects help us to understand and solve crimes”. A self-confessed “down and dirty” scientist, he described some of the cases he has worked on, and how applied research projects of his students have helped to solve various puzzling deaths and crimes in his native Germany. As 2019 is “the year of the fly” Prof Stephen Marshall was due to give a public lecture on the subject. Although he was not able to present due to ill health, a fascinating lecture encompassing his work (and amazing photography was enjoyed by all). Delegates were also treated to a “Year of the Fly”2019 calendar. For those of us who were lucky enough to attend the conference dinner, we were treated to an entertaining talk about dipterological adventures in Africa by Martin Hauser



Amazing photography on display at the public lecture entitled “Bye-bye birdie- hello Year of the Fly”.

The academic programme was fully packed, with 258 oral presentations spanning 23 symposia. Of the 273 delegates, 61 delegates were African, making this congress the ICD most attended by African delegates. The plenary subjects ranged from forensic entomology (Martin Hall: “The research-casework continuum in forensic entomology), Phorid fly diversity (Brian Brown), the phylogeny of the fly tree of life (Brian Weigmann) and diversification in Cecidomyiidae (Netta Dorchin). Of the numerous symposia, the forensic dipterology and Diptera interactions with amphibians were particularly fascinating. We did not know that frogs were subject to that much attack by blood-sucking flies!

The congress was dedicated to the memory of the late Roger Ward Crosskey (1930-2017), famed blackfly expert and author of one of our favourite medical entomology text books (Medical

Insects and Arachnids- R.P. Lane and R.W. Crosskey). A touching retrospective on his life was given by Adrian Pont. Another remarkable dipterist, this time a South African, was also honoured at the conference. A full symposium was dedicated to the Emeritus director of the KwaZulu Natal museum, Dr Jason Londt, and his 40 years of research on Afrotropical Asilidae. He was also elected to the International Council of Dipterology.

The conference was remarkably collegial, with students mixing freely with leaders in the field. Even for those of us who hate academic networking, the openness and friendliness of delegates was noteworthy. The gloves did, however, come off in the highly competitive fly photography competition. Although all the photographs were stunning, ultimately it was Ana Gonçalves (*Anahydrophus cinereus* (Dolichopodidae) feeding on an amphipod) in first place; Stephen Gaimari (Male of *Nothybus longicollis* (Nothybidae) from Sabah, Malaysia) in second place and Nathan Butterworth (*Acridophagus paganicus* (Mythicomyiidae) from Hobart, Australia) in third place. We ran into Nathan and were surprised by two interesting facts. Firstly, his winning picture was snapped on his cell phone (who needs fancy hardware!) and secondly, his picture was the first sighting of the specimen in 100 years...to the very day!

All in all, the conference was a rousing success, with interesting content, a great venue and excellent congress company in a beautiful country. It was truly an event to take pride of place in African academia. A personal highlight for both of us was meeting and socialising with the dynamic Erica McCallister, entomological rock star and author of the delightful “The secret life of flies”. We both look forward to ICDX in California.



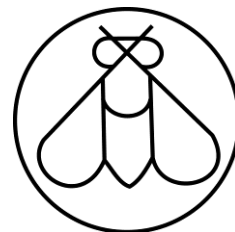
The winning photographs at the fly photography competition.



Medical entomology: The study of bad flies.

## ESSA YOUNG ENTOMOLOGISTS' TRAVEL GRANTS

As part of its aim to promote all aspects of entomology, the Entomological Society of Southern Africa (ESSA) initiated the Young Entomologists' Travel Grants scheme in 2018. The grants are to support young ESSA members from southern Africa to (i) present research results at international scientific meetings or workshops with entomological relevance, or (ii) gain valuable entomological skills and experience by visiting an international research group. By doing so, the ESSA hopes to support the development of professional entomologists, and to broaden the range of skills and global relevance of research undertaken in southern Africa.



Each year, a number of ESSA Young Entomologists' Travel Grants, each to the value of up to R25,000, may be awarded.

### ELIGIBILITY AND CONDITIONS

To be eligible for an ESSA Young Entomologists' Travel Grant, applicants must satisfy ALL of the following criteria:

- Paid student or ordinary member of the ESSA for a minimum of two consecutive calendar years
- Resident and/or registered as a student or postdoctoral associate/fellow in a country within the Southern African Development Community (SADC; i.e., Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe)
- Thirty-five (35) years of age or younger, or within five years of completing a PhD (if older than 35) on the closing date for entries

- Accepted to give an oral presentation at an international conference or workshop outside of the applicant's country of residence and/or received notification of willingness to be hosted by an international researcher

The amount awarded will be determined based on a detailed budget provided by the applicant. Return international economy airfares and accommodation are the only allowable expenses in the budget. Conference registration fees and daily allowances must be paid by the applicant.

Applicants awarded an ESSA Young Entomologists' Travel Grant must submit a two-page report, including appropriate documentary photographs, to the ESSA within one month of their return to their country of residence. The report will be published in *Rostrum*, the newsletter of the ESSA.

## HOW TO APPLY

Applicants must complete the form attached to this notice (or downloaded from the ESSA website), attach the required documents, and provide a cover letter of no more than one page explaining how receipt of an ESSA Young Entomologists' Travel Grant will benefit their development as a professional entomologist and the discipline of entomology in southern Africa.

Applications must be received no less than two months prior to the proposed date of departure.

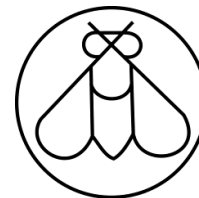
Submit entries to the ESSA President, Dr Chris Weldon, by email: [cwweldon@zoology.up.ac.za](mailto:cwweldon@zoology.up.ac.za)

Applications will be assessed by the ESSA Executive Committee based on the following criteria:

- Fulfilment of all eligibility criteria
- Quoted budget realistic and justified
- Quality and persuasiveness of cover letter

## ENTRY CLOSING DATE

There is no closing date for applications to the ESSA Young Entomologists' Travel Grants scheme. All applications received no less than two months prior to the proposed date of departure will be carefully considered in each calendar year and grants will be awarded based on the availability of funds.



## APPLICATION FORM

## 1. PERSONAL INFORMATION

Title:		Member no.:	
Family name:			
Given names:			
Gender:		Race:	Date of birth:
Residential address:			
City:		Postal code:	
Country:			

## 2. Details of travel

Type of event:			
Name of event or host:			
Destination city:		Destination country:	
Departure date:		Return date:	

## 3. BUDGET

Item	Cost	Justification
Return economy airfare	R	
Accommodation	R	
Total	R	NOTE: Total must not exceed R 25,000

## 4. Acceptance of conditions

By checking the following boxes I agree to the conditions of funding stipulated below:

	I will cover the costs of all conference registration fees and daily allowances.
	I will submit a two-page report, including appropriate documentary photographs, to the ESSA within one month of my return to my country of residence.
	I will return all funds to the ESSA if for any reason I am not able to travel to the international conference or research group as detailed in this application.
Signature:	Date:

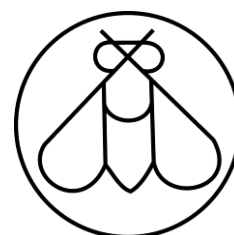
## 5. SUPPORTING DOCUMENTS

In addition to a completed application form, include electronic copies of the following supporting documents:

	Evidence of paid ESSA membership for the current and previous year
	Evidence of residential status or registration as a student or postdoctoral associate/fellow in a country within the Southern African Development Community
	Evidence of date of birth (e.g., passport or identity document)
	Evidence of date of PhD award (if over 35)
	Invitation to present an oral presentation at an international conference or workshop outside of your country of residence and/or notification of willingness to be hosted by an international researcher
	Cover letter of no more than one page explaining how receipt of an ESSA Young Entomologists' Travel Grant will benefit your development as a professional entomologist and the discipline of entomology in southern Africa

### ESSA YOUNG ENTOMOLOGISTS' ESSAY PRIZE 2018

As part of its aim to promote all aspects of entomology, the Entomological Society of Southern Africa (ESSA) initiated the Young Entomologists' Essay Prize in 2014. The prize is to encourage discussion and critical evaluation of entomological issues relevant to Southern Africa by upcoming amateur and professional entomologists.



Essays should be original and thought provoking. Reference to published sources of information should be kept to a minimum but are necessary when claiming a fact or providing evidence and examples. **The essays must be written in English, prepared using a word processor (MS Word submissions only please), and should be between 1250-1500 words in length. Numbered referencing should be used for in-text citations. A list of cited references should be included but does not contribute to the word limit. Articles should be submitted as follows: Surname, Name, Essay Topic number [1, 2, or 3].**

Entrants for the ESSA Young Entomologists' Essay Prize must satisfy **ALL** of the following criteria. Entrants must be:

- Paid student or ordinary members of the ESSA.
- Residents, or registered as a student or postdoctoral associate/fellow, in a country within the Southern African Development Community (SADC; i.e., Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe).
- Thirty-five (35) years of age or younger on the closing date for entries.

Entries will be assessed by the ESSA Executive Committee, who may also call upon other members of the ESSA to contribute to the assessment. Assessment will be based on the following criteria:

- Comprehension of the topic

- Clear placement of the argument within the context of Southern Africa
- Originality of ideas
- Persuasiveness and coherency of the argument
- Appropriate and effective use of facts, evidence or examples
- Grammar and spelling

The winning entrant will receive a certificate and be awarded a cash prize of R2000. The winning essay will be featured in *Rostrum*, the newsletter of the ESSA. Readers of *Rostrum* will be invited to respond to the essay in the following issue.

It is understood that the winning entry contains the views and opinions of the winning entrant. These views and opinions will not necessarily reflect those of the ESSA.

## 2018 ESSAY TOPIC:

The topics for 2018 were as follows: **1. “You’re bugging me - addressing public views and interactions with insects”; 2. “Insects as an alternative... [fill in the gap]”; 3. “Insects: Not as gross as some would have you believe”**

Several entries were received, all of exceptionally high standard, but majority of the executive committee voted for the entry from **Mr Ruben Cruywagen** as the winning entry for 2018. Ruben chose the first essay topic that was on offer for this year. Congratulations to him! We trust you will enjoy his contribution below.

## 2018 ESSAY COMPETITION WINNER – RUBEN CRUYWAGEN

### An Anecdote from a Student of Entomology

Imagine it’s that time of day when you’re a little peckish, but it’s still quite far from lunch time. How does this sound for your midmorning snack: some insect vomit. Wait, I’m not done; insect vomit that was passed from one insect to another to be consumed and vomited to yet another insect, over and over, until it gets thick and gooey. Shall I get you a nice teaspoon of that?

If you’re thinking “*Disgusting!*” I’m afraid to let you know that you’ve probably consumed many mouthfuls of exactly what I’ve just described, namely *honey*. Now, this essay is intended for an entomologist audience, so I’m guessing that a good chunk of you that just read my little hook would have known right away that I was talking about *Apis mellifera*’s wonder product, but it illustrates the point I’m trying to make: people don’t find bees off-putting – not even their regurgitated meals!

It is this fact that always pops up in my mind whenever the topic of insects and insect products as an alternative food source is brought up; a topic inseparable from the problem that most “Westerners” find insects off-putting to some degree. I’ve been a part of several frustrated

conversations regarding the potential of insects to mitigate the world hunger crisis being marred by this gross-factor, which seems to persist despite the valiant (and successful) efforts to make insect products look tasty. Whenever I find myself in one of these discussions, I can't help but think of bees. Why are they – very much insects last time I checked – exempt from the yucky-ness? Why is the vast majority of other insects, like the black soldier fly for example – so extremely apt for turning organic waste into usable protein – considered quite unattractive? (A fact I learnt from asking a good few acquaintances whether they were willing to consume such a creature.)

The obvious possibility is that bees are pretty, what with their whole mustard-zebra colour scheme. However, there are many insects with pleasing exoskeletons that most urbanized people would still rather not touch – the green June beetle comes to mind. My guess is that because bees have such a desirable product, all cultures that could make use of said product simply had to make an exception for them long ago. Whether this behavioural trait is genetic or one that was passed down culturally is a topic all on its own.

Either way, if this theory is true it doesn't help much in our issue of trying to get Western people to warm to the idea of insects as food, since both avenues of acceptance require considerable time to take effect. It seems that the black soldier fly will stay unappetizing for a while at least.

So I asked myself: can we find a species that boasts the bioconversion capabilities of the black soldier fly as well as the rare attraction of the bee? While bee larvae and pupae are apparently fairly good sources of protein, there are no bee species, as far as I know, that are any good at bioconversion. They are not like the black soldier fly that eats almost any organic waste and produces vast amounts of usable larvae [1] – bees are fussy and stick to pollen and nectar.

With bees out, I began going through the insect taxa that I am familiar with, and quickly got this idea: what about butterflies? They too, of course, are happily fluttering right next to the buzzing bees in that highly exclusive realm of insects that are not disgusting to Westerners. With this in mind I, excitedly got to asking my friends and family: "Would you like to eat butterflies?" fully expecting them to be quite keen (yes, I myself was rather open to the idea).

"No."

This was the almost universal answer I received, to my surprise and disappointment. Fascinatingly, however, I discovered with some follow-up questioning that the problem with members of *Rhopalocera* was not that the individuals I had asked found them too gross, but rather that they found them to be *too* pretty. Yes, we've gone from one end of the spectrum to the other folks – can you believe it? An insect I'll remind you! In fact, my mother said she would much rather eat a nasty black soldier fly than a poor, delicate butterfly. Butterflies have no sought-after product like honey to make sense of this extreme fondness, so why are they thought of as borderline holy? The pretty colouration and altogether soft appearance undoubtedly has something to do with it, and the fact that they are quiet, and generally not pests or disease vectors are also probable further reasons, but other than that, I'm at a loss.

Regardless of the reason, I realised, after this butterfly revelation, that some sort of middle ground taxon was needed; not so beautiful that people would refuse to eat it, but still attractive enough to not be off-putting. Naturally, my next instinct was to ask my associates whether the closely related *moths* could be a possible meal. From the cautious answers of “yes” that I generally received, it seems that they fall happily in that middle I was attempting to find; not as beautiful and untouchable as butterflies, not as repulsive as most other insects. So are there any moths appropriate at bioconversion? Well, the well-known silkworm has long been domesticated. However, like the bee, this is for its product – silk – and not for bioconversion capabilities (though the species is consumed by people to an extent) [1]. So far it seems that no moth is known to match the abilities of the black soldier fly, however, moth larvae in the form of mopane worms – *Gonimbrasia belina* – are already being gathered and consumed in great amounts in southern Africa [2], so there is definitely potential. This potential could perhaps be further enhanced by selective breeding and/or genetic modification. As of now, the caterpillars are not farmed, but rather harvested – in vast quantities – from their natural populations [2]. This is primarily because the market that consumes them is mostly very poor and relatively small, and not because they are not farmable.

The idea to domesticate this promising species at large-scale has already been fleshed out by *C-fu Foods*, a US company that produces food products from insect-based proteins. Their founders, the brothers Eli and Lee Cadesky, placed third in the Global Business Challenge, hosted by the Queensland University of Technology, for their business plan to domesticate the mopane worm, process it into more appetizing products, and sell it to both the rural market in South Africa and certain Western markets. They too, unsurprisingly, have considered the issue of getting Westerners to warm up to the practice of entomophagy; they believe insects’ potential and efficiency as a food source will eventually win over public opinion [3].

While this may be the case, I think it will take a fairly long time. From my informal questioning of those around me, I am under the impression that marketing the mopane worm products under the guise of their attractive (but crucially not *butterfly-grade* attractive) adult moth form may be a much faster route to public acceptance of an insect species as a food source – this is possibly the great advantage that the mopane worm has over the other cultivation-appropriate bugs. And who knows, perhaps one creepy crawly species becoming acceptable will open the flood gates for other insect species, like the poor black soldier fly, as food alternatives in Western markets.

From my musings on this hot topic of insect consumption, and some subsequent research, I have come to this cautious prediction: the potential that insects hold as an efficient source of nutrients, combined with the passionate efforts of those who wish to expand the activity, will ensure that the entire world population will eventually be practicing entomophagy. So, get ready to add some more insect to your future diet to go along with the bee vomit!

## Bibliography

1. Van Huis, A. (2013). Potential of insects as food and feed in assuring food security. *Annual Review of Entomology*, 58, 563-583.
2. Stack, J., Dorward, A., Gondo, T., Frost, P., Taylor, F., & Kurebgaseka, N. (2003, May). Mopane worm utilisation and rural livelihoods in Southern Africa. In *International Conference on Rural Livelihoods, Forests and Biodiversity* (pp. 19-23).
3. Matt Hayes, M. (2018). *Ezra Update: An idea with legs*. [online] Ezramagazine.cornell.edu. Available at: <http://ezramagazine.cornell.edu/Update/Dec15/EU.Cfu.Foods.html> [Accessed 28 Oct. 2018].

## BOOK REVIEW - *Centrobolus* size dimorphism breaks Rensch's rule ISBN 978-3-659-83990-0

The present book authored from Mark Cooper aimed to study relative sexual size dimorphism of *Centrobolus* compared with congenetics. Millipedes illustrated reversed sexual size dimorphism (SSD) as females were larger than males and broke the rule as this dimorphism increased with body size. SSD was calculated in many species of the genus *Centrobolus* and illustrated as a regression. "*Centrobolus* size dimorphism breaks Rensch's rule" was published in Scholars' Press, Mauritius, and is 56 pages. It is available through

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[HTTPS://WWW.MOREBOOKS.DE/STORE/GB/BOOK/CENTROBOLUS-SIZE-DIMORPHISM-BREAKS-RENSCH'S-RULE/ISBN/978-3-659-83990-0](https://www.morebooks.de/store/gb/book/centrobolus-size-dimorphism-breaks-rensch's-rule/isbn/978-3-659-83990-0)

## NEW MEMBERS

Welcome to all new members. We trust you are enjoying your membership to the ESSA and hope you will continue to do so into next year. Thank you to all our members for your continued support.

## UPCOMING EVENTS

8-11 July 2019

**ESSA 21 (Entomological Society of Southern Africa)**  
**"Innovative Entomology"**

Umhlanga, Durban

<http://www.turnersconferences.com/conferences/2019/Entomology2019/>



19-24 July 2020

**XXVI International Congress of Entomology**

<http://www.ice2020helsinki.fi>

Helsinki, Finland



**XXVI International**  
**Congress of Entomology**  
HELSINKI, FINLAND, JULY 19-24, 2020

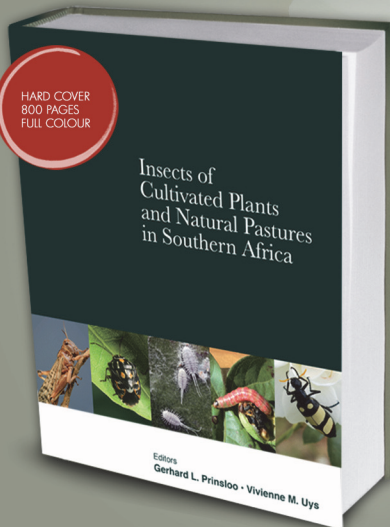
## CONTRIBUTIONS TO *ROSTRUM*

Send all contributions for the next issue of *Rostrum* by email to **Candice Lyons** before **31 March 2019**: [LyonsC@arc.agric.za](mailto:LyonsC@arc.agric.za)





ESSA PRESENTS  
THE BOOK LAUNCH OF



Written by 39 leading entomologists, mostly from South Africa, this book is the most comprehensive account of the phytophagous insects of cultivated plants and natural pastures in southern Africa published to date.

Although the scope of the book covers Botswana, Lesotho, southern Mozambique, Namibia, South Africa, Swaziland and Zimbabwe, it should be equally relevant to most other countries in sub-Saharan Africa, since many of the insects and their associated host plants included in this book also occur elsewhere on the African continent, and further afield.

The book deals with plant-feeding insects that damage field crops, deciduous, subtropical and other fruits, vegetables, plantation trees and ornamental plants, in addition to natural pastures. In all, 75 cultivated plants, or groups of related plants, are dealt with.

To make the information about the insects and their host plants more readily accessible to readers, the arrangement of the text is plant-commodity based; each pest is dealt with according to the plants with which it is associated.

- Full accounts of the 416 most important pests are given, with an additional 277 species of lesser importance being listed, with an indication of the parts of the plant on which they feed or damage.
- Each pest species account includes information on its scientific and common names, origin and distribution, identification, host plant range, damage, natural enemies and management, while key references to the literature are also provided.
- To facilitate identification, 860 high quality full-colour images, depicting adults and immature stages of the pests and their damage symptoms, are provided.
- An extensive glossary of entomological terms is provided to facilitate the use of the book.

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