



Issue 47

PARSA

Newsletter

I welcome you to the first PARSA newsletter for 2024. This issue is comprised of two beautiful research projects from the Stellenbosch University by Alyssa Little and Inge Raubenheimer both supervised by Prof Sonja Mathee. A conference feedback by Iva Přikrylová & Marliese Truter from University of Limpopo and North-West University, respectively and lastly the student section by Faith Nkosi on the importance of mentorship in higher learning institute.

On page ten we notify the PARSA members of the upcoming 2024 PARSA conference.



MISS LITTLE (MSC)
STELLENBOSCH
UNIVERSITY



MISS RAUBENHEIMER (MSC)
STELLENBOSCH
UNIVERSITY



52ND ANNUAL PARSA
CONFERENCE

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PRESIDENT

Dear PARSA Member

We have swiftly approached the midpoint of this year, and I find myself wondering where the months have gone. It feels like just yesterday we were setting our New Year's resolutions and planning for the year ahead. Yet, here we are, halfway through the year, with so much to reflect upon and look forward to.

The committee has already met twice this year and the council members have been working on new ideas for this year as well as organising last year's successes. Our new Code of Conduct and the updated Constitution have been instituted and are available on the website, as well as all of the 2023 prize winners. We are also currently in the process of registering PARSA as a Non-Profit Organisation and hope to have good news about that at the AGM.

Please remember that the society decided to increase its membership fees to R200 a year, with a R100 joining fee. These fees have not been increased in decades and we hope the extra money will benefit the society and its members for years to come. Invoices have been sent to all members and we encourage all to make sure their fees are paid in order to benefit from the society awards and conference discounts.

I look forward to seeing you in October and listening to all the wonderful work that has been done by our members. Until then, I wish you all the best in your academic endeavours and look forward to celebrating our successes together!

Warm regards,
Prof Kerry Hadfield Malherbe
PARSA President

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PROF KERRY MALHERBE

We received numerous nominations for the prestigious PARSA medals and are eagerly anticipating the announcement of the winners at the annual conference. **This year the conference will be held at the Villa Paradiso Country Manor in Hartbeespoort, Gauteng, from 6 - 8 October 2024** and we are so excited to see you all there. The theme for the conference is **"Stronger Together: Advancing Parasitology with Collaboration"** so we encourage all members to share their collaborative parasitology work, invite their collaborators, and engage in conversations at the conference to create new collaborations with other participants. Registration and abstract submission are already open, and the first announcement has been shared. Please see the conference website if you would like more information, including key dates and deadlines: <https://savetcon.co.za/parsa2024>

52nd Annual PARSA Conference

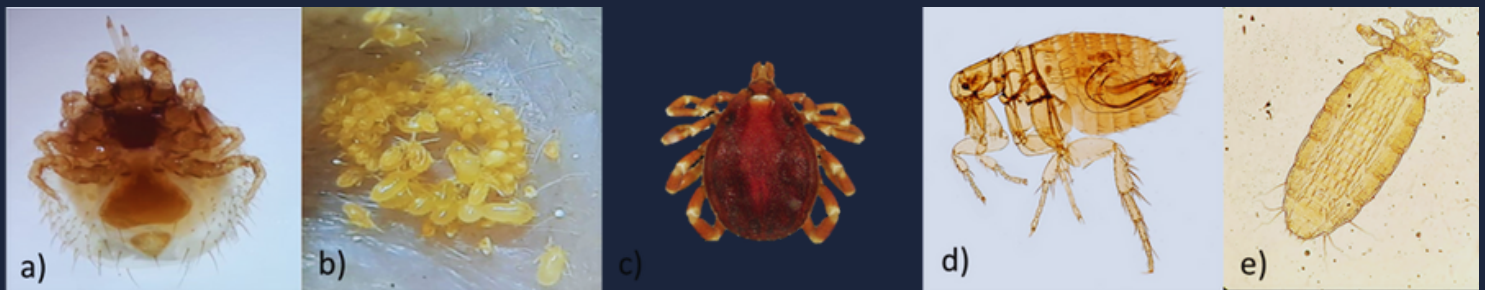
**Stronger Together:
Advancing Parasitology
with Collaboration**

Updating parasite-host associations for two cryptic rodent species (*Mastomys natalensis* and *M. coucha*) in South Africa

In South Africa, for many years the genus *Mastomys* was monotypic and represented by *M. natalensis*. However, the taxonomic status of the genus was revised in the late 1970's and it is currently represented by two cryptic rodents, *M. natalensis* and *M. coucha*. The two species largely overlap in the north-eastern Grassland and Savanna biomes of South Africa. In addition, both species are prolific breeders and can occur commensally with humans. Current information on parasite-host associations is limited to historic monographs that are biased to *M. natalensis* with little information for *M. coucha*. Further, given the cryptic nature of the two rodent species and their large, but not complete, geographic overlap it is possible that the information in the monographs for *M. natalensis* is incorrect.



By Alyssa Little
Stellenbosch University

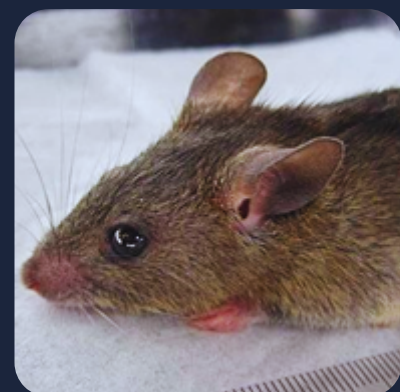


Ectoparasites removed from *Mastomys* spp. individuals; a) mesostigmatan mite, b) chiggers, c) tick, d) flea, e) louse.

Part of my study focused on recording the ectoparasite diversity on the two rodent species at a local sale in the north-eastern Savanna. The project was part of a large collaborative multi-institutional study conducted across a human-wildlife/domestic animal interface located in Mpumalanga, South Africa. The Mnisi OneHealth platform comprises of several rural villages bordered by large, fenced nature reserves. Rodents were trapped in three habitat types (village, agriculture and natural) using Sherman type live traps and mainly in spring in 2014, 2015, 2019 and 2020. Given the cryptic nature of the two rodents they were molecularly typed at University of Pretoria. A total of 375 *M. natalensis* and 215 *M. coucha* were trapped and examined for ectoparasites.

From the trapping data it appears that the two rodent species only overlapped in the agricultural habitat, with *M. natalensis* seemingly preferring the village and agricultural habitat and *M. coucha* preferring the natural and agricultural habitat types.

In total 45 ectoparasite species (represented by 29 genera) from 4 taxonomic groups (fleas, lice, mites, and ticks) were recorded on both rodent species. It is interesting to note that the two rodent species only shared ~50% of the epifauna species. This is possibly due to the fact that the two rodent species mainly overlapped in the agricultural habitat type. *Mastomys natalensis* harboured several *Rattus*-specific ectoparasite species which were absent from *M. coucha*. This is possibly related to the fact that *Rattus* co-occurred with *M. natalensis* in the villages. As expected, the study yielded several new parasite records for *M. coucha*.



Updating parasite-host associations for two cryptic rodent species (*Mastomys natalensis* and *M. coucha*) in South Africa

Throughout my MSc journey, I enjoyed learning parasite taxonomy and molecular analysis which was also applied in my thesis. In particular, the field and lab work, allowed me to apply my theoretical knowledge, formulate concepts and broaden my understanding of rodent parasites. Further, going through the writing process of my thesis and presenting my work, allowed me to step outside of my comfort zone, which was tough at first. From the comprehensive process of writing my thesis, the statistical analysis was challenging, which ranged from selecting the most appropriate analysis to interpreting my data. However, overcoming this challenge was truly rewarding and enhanced my skillset.



By **Alyssa Little**
Stellenbosch University

‘For students doing similar projects, I suggest grabbing every opportunity that comes your way, whether it is presenting at a research day or enrolling for additional courses. This boosts your confidence and exposes you to people that have a different perspective to your research field’

Lastly, building a multidisciplinary collaborative network is important in science, and it is always fun meeting new people. I eagerly await my MSc graduation in March 2024 at Stellenbosch University. After which I plan to continue my research journey with a PhD in the field of rodent parasites and evolution.



Ectoparasites removed from *Mastomys* spp. individuals; a) mesostigmatan mite, b) chiggers, c) tick, d) flea, e) louse.

Updating the ecto- and helminth parasite diversity of Smith's Bush squirrel (*Paraxerus cepapi cepapi*)



By Inge Raubenheimer
Stellenbosch University

Paraxerus cepapi cepapi is currently one of nine subspecies of semi-arboreal tree squirrels recognized within the *Paraxerus cepapi* species complex. More commonly known as Smith's Bush squirrel and endemic to Sub-Saharan Africa, the subspecies is frequently observed in the north and north-eastern regions of South Africa as well as in areas in Namibia, southern Botswana and Zimbabwe where they inhabit regions dominated by mopane as the hollowed trunks and branches of older mopane trees provide ideal nesting and breeding areas.

The squirrel is considered to be relatively abundant in protected areas and is therefore listed as 'Least Concern' in the IUCN Red List. However, habitat loss is a possibility as a result of fragmentation and over harvesting of fuelwood. Furthermore, their destructive nature in human settlements, such as destroying the thatched roofs and electrical wiring of houses, have farmers and lodge/reserve managers implementing preventative measures that could further lead to population reduction.

Differentiation among the nine subspecies is primarily based on minor variations in pelage colour. However, this classification has not been confirmed genetically. What's more, very little information is available about the parasites (ecto- and helminth parasites) that are associated with all subspecies of *P. cepapi* but specifically with, *P. c. cepapi*. A single study conducted in the 1970s merely identified the ectoparasites but provided no quantitative data.

In order to address this lack of information in South Africa, my study aims to provide quantitative data on the ecto- and -helminth parasite diversity associated with *P. c. cepapi* in South Africa. The study is conducted under the supervision of Prof Sonja Matthee (Department of Conservation Ecology and Entomology) and Prof Conrad Matthee (Department of Botany and Zoology) at Stellenbosch University and in collaboration with Dr Jeanette Wentzel (Department of Veterinary Tropical Diseases, Hans Hoheisen Wildlife Research Station, and the Wildlife unit) at the University of Pretoria.

Information pertaining to the collection such as, locality, collection date and host information (sex, size and reproductive stage) were recorded. All ectoparasites were removed and the gastrointestinal tract (stomach, small intestine, caecum, and colon) examined for helminth parasites. Parasites were mounted using standard methods, identified, and counted.

From the 93 hosts that have been examined thus far, four ectoparasite groups (lice, ticks, fleas and mites) as well as two helminth groups (nematodes and cestodes) have been identified. Lice were the most prevalent (>80%) ectoparasite taxon with three identified putative species (*Johnsonpthirus heliosciuri*, *Werneckia paraxeri*, and *Enderleinellus heliosciuri*) of which only two of the three (*Johnsonpthirus heliosciuri* and *Werneckia paraxeri*) were previously recorded on *P. c. cepapi* in South Africa. Furthermore, on-host micro-habitat differentiation were noted for the three louse species. Chiggers (larval stage of trombiculid mites) occurred on >50% of the squirrels and were primarily recorded in the ears.

What's more, ticks occurred on >40% of squirrels and were more common on squirrels that were collected from natural vegetation as opposed to human settlements. In total, less than five individuals of both fleas and mites were recorded. The chigger, tick, mite and flea species must still be identified.

As for the helminth parasites, two species of nematodes were identified from 78 host individuals. Nematodes were the most prevalent (>90%) helminth taxon with two identified putative species (*Syphacia paraxeri* and *Strongyloides robustus*).

Updating the ecto- and helminth parasite diversity of Smith's Bush squirrel (*Paraxerus cepapi cepapi*)

From the results above, it is clear that *P. c. cepapi* in South Africa hosts a fairly rich diversity of parasites of which several species have not been recorded on/in this host species and or squirrels in Africa before. Future work will include a comparative phylogeographic study between the three louse species and the host. It is predicted that this approach will provide better insight into the evolutionary history of *P. c. cepapi* in South Africa.



By Inge Raubenheimer
Stellenbosch University



Figure 1: *Paraxerus cepapi cepapi*
Photo credit: Sonja Matthee



Figure 2: *Johnsonpthirus heliosciuri* female



Figure 3: *Enderleinellus heliosciuri* female



Figure 4: *Werneckia paraxeri* female

9TH INTERNATIONAL SYMPOSIUM ON MONOGENEA

IVA PŘIKRYLOVÁ & MARLIESE TRUTER

The **International Symposium on Monogenea** is a conference where every four years the specialist in the field meet, present, and discuss the most recent findings of their research. The 9th edition was hosted by the **Helminthological Society of India and the University of Lucknow from 8-11 October in Lucknow, India**. South Africa was well represented counting eight presenters from three institutions, the University of Limpopo (UL): **Prof W. Luus-Powel, Dr I. Přikrylová, Dr W. Smit, Dr N. Rindoria; the North-West University (NWU): Prof L. du Preez, Dr M. Truter, Mr. W. Landman; and the University of Johannesburg (UJ): Miss M. Maduenyane.**

This symposium was attended by 60 delegates from 18 countries and honors a group of parasitic flatworms that parasitise a wide range of aquatic hosts including amphibians, caecilians, fishes, mammals and terrapins. The scientific program consisted of 51 oral presentations (including three plenary talks and 7 keynote talks) and 31 poster presentations.

Among the several talks and poster sessions on taxonomy, diversity, immunology, treatment against monogenetic infection, the effect of substitution feeding and use of life cycle to inform control measures the future of the Monogenea was also discussed. The latter highlighted the non-monophyly of the class, the utilisation of co-phylogenies and novel bioinformatic tools in analyses of large genetic datasets and the continued importance of taxonomy without which any novel genetic analyses cannot be regarded the only basis of species classification and validation. The material available in the parasitic worm collection of the Natural History Museum (London) was also presented with specific attention on the Monogenea, type and holotype material and top donors across the globe.

The delegates representing South Africa significantly contributed to the scientific program of the symposium as main presenters or as a part of collaborative projects. **Two keynote talks were delivered, namely by Prof L. du Preez and Dr I. Přikrylová**, and an additional 11 oral talks and four posters were presented by South African delegates.



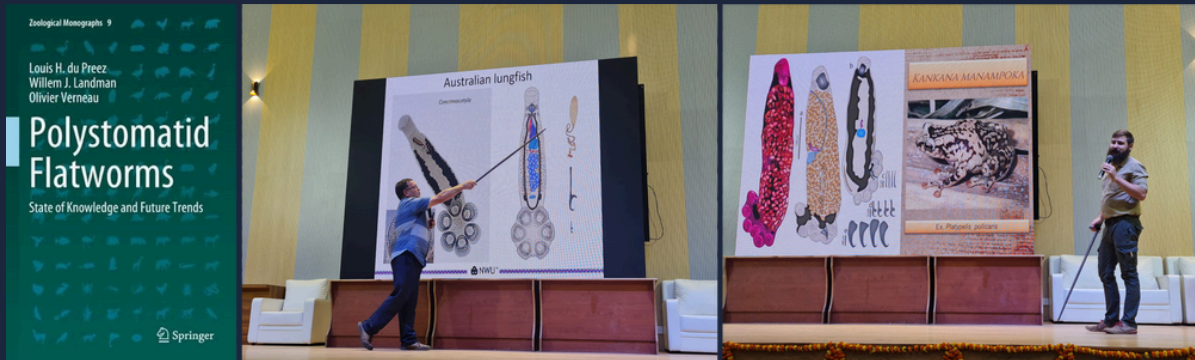
A PhD candidate from UJ, Miss M. Maduenyane, won the first prize in the oral student presentations.

In addition to the conference proceedings several academic and social highlights formed part of the program. The first was the announcement of the release of the first comprehensive book **"Polystomatid Flatworms"** (authors **Prof Louis du Preez and Willie Landman**) which provides all the information available on the life histories, diversity, distribution and knowledge on this fascinating group of flatworms to date.

Other highlights of the symposium included the beautiful inaugural ceremony, gala dinner, cultural evening, and mid-conference outing to the Red Fort and Taj Mahal (UNESCO sites). Each event greeted us with the kindness of our hosts, rich culture, and cuisine.

9TH INTERNATIONAL SYMPOSIUM ON MONOGENEA

IVA PŘIKRYLOVÁ & MARLIESE TRUTER



Prof Louis du Preez and Willie Landman showcasing their incredible work on polystomes.



North-West University delegates with Dr Amit Tripathi, secretary of the 9th ISM



Inaugural ceremony and some of the local cuisine.



IMPORTANCE OF MENTORSHIP

FAITH NKOSI (PARSA STUDENTS' REP)

WHY DO YOU NEED A MENTOR?

The education landscape is constantly evolving due to factors such as technological advancements, job market demands, emerging trends, and globalization. Mentorship programs are crucial for fostering personal and academic growth, guiding students through challenges, and preparing them for the complexities of the real world. Organizations like Parasitological Society of Southern Africa (PARSA) can shape the future by recognizing the value of mentorship and investing resources to ensure students have access to supportive relationships.

Mentors, are often faculty members or post-doctoral fellows/alumni. They offer valuable insights, guidance, and encouragement to mentees, helping them make informed decisions and pursue their aspirations confidently. Both mentors and mentees benefit from these roles, as mentors can hone leadership and interpersonal skills, while mentees benefit from personalized support tailored to their unique circumstances.

Student mentorship programs also enhance academic performance and personal development, as they create spaces where individuals feel heard and supported. This sense of belonging enhances student retention rates and contributes to a vibrant campus culture.

In an era of rapid change and increasing complexity, student mentorship programs serve as beacons of support, guidance, and empowerment for the next generation of leaders, innovators, and change makers. By investing in mentorship initiatives, educational institutions enrich the student experience and cultivate communities where individuals thrive academically, professionally, and personally.

By Faith Nkosi - PARSA student's representative
faith.nkosi@up.ac.za.

52nd Annual PARSA Conference

Stronger Together: Advancing Parasitology with Collaboration

6-8 October 2024 | Villa Paradiso, Hartbeespoortdam

<https://savetcon.co.za/parsa2024/>



Get the abstract
ready

PARSA 2024!

KINDLY NOTE IMPORTANT DATES

- **JUNE 14** – Abstract Submission Opens
- **JUNE 14** – Registration Opens
- **JULY 31** – Abstract Submission Closes
- **AUGUST 08** – Abstract Acceptance Notices
- **AUGUST 19** – Early Registration Closes
- **SEPTEMBER 19** -Regular Registration Closes
- **OCTOBER 1** – Late Registration Closes

[LINK TO SAVETCON](#)



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