

# The pollinator information network newsletter



December 2, 2023. Vol. 6, Issue 2

## Welcome to the second issue of volume 6 of the *Pollinator Information Network Newsletter*

The *Pollinator Information Network Newsletter* is one of the projected outputs of the “Diversity of Pollinating Diptera of the Afrotropical Region” project, a project funded by the Belgian Development Cooperation through the framework agreement with the Royal Museum for Central Africa. The first phase of the project will end this year but the project will continue for another five years. More on this in the forthcoming issues of the *Newsletter*!

In this issue you will find a report on our fifth training course on the taxonomy and systematics of Afrotropical Diptera which took place in October 2023 at the Sokoine University of Agriculture in Morogoro, Tanzania. Further, you can read a report on a field trip to Ndumo Reserve (South Africa) by Genevieve Theron and John Midgley of the KwaZulu-Natal Museum, and a report on the Conservation Symposium at the Wild Coast Sun, South Africa that took place in November and in which John Midgley participated. We also put Jarmaine Magoai and Kelvin Kemei in the spotlight! Jarmaine is a research assistant at the National Museum, Bloemfontein in South Africa, and Kelvin is a research fellow at the National Museums of Kenya, Nairobi in Kenya. Both have participated at our last training course. Also in the spotlight: Viren Thupsie. Viren is a DIPoDIP student at the University of KwaZulu-Natal who recently obtained his Masters in Science degree with a study on the pollination ecology of *Erica caffrorum* in the Drakensberg Mountains of South Africa. Congratulations Viren! Finally, you will find the first announcement for the 12th International Symposium on Syrphidae in this issue. The symposium will be held in the Czech Republic in September 2024.

We invite everyone interested to submit relevant information for the Newsletter, including summaries of your own research and projects on pollination biology – or publications that you want to see highlighted, relevant literature, upcoming conferences and symposia, possibilities for cooperation and grant applications related to plant-pollinator networks, etc., before the 15th of December 2023.

Enjoy reading!  
the DIPoDIP team

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You want more updates on the DIPoDIP project ?  
follow us on Facebook!



<https://www.facebook.com/pollinatingdiptera/>



# Training course in taxonomy and systematics of African pollinating flies

Morogoro, Tanzania 16–28 October 2023

Already our fifth training course on the taxonomy and systematics of African pollinating Diptera! After successful meetings in Kenya (2017), Tanzania, (2019, 2021) and South Africa (2022), we were back at the Pest Management Centre (SPMC) of the Sokoine University of Morogoro in Tanzania!

The objective of our group trainings are to ensure, for the sake of the African scientists or the persons confronted with the problem, a basic training on the identification and ecology of African Diptera. The training consists of ex-cathedra courses on morphology, classification, identification, identification methods, collection methods, and conservation methods of Diptera, with a focus on the target families Syrphidae, Nemestrinidae and Calliphoridae *sensu lato*. Practical exercises were used to comment on, and test, the topics presented in the courses. At the end of the training each participant received a certificate of attendance.

This year's 12 participants came from eight different African countries:

- Stéphnaie Beaudeliane Kengni (Cameroon)
- Jarmaine Magoai (South Africa)
- Jenipher Tairo (Tanzania)
- Simon Muhayimana (Rwanda)
- Melanie de Morney (South Africa)
- Antoine Irakiza (Burundi)
- Happy Leonard (Tanzania)
- Donath Nkuriyikimana (Rwanda)
- Kelvin Kemei (Kenya)
- Arlène Ingabire (Burundi)
- Tanatswa Gara (Zimbabwe)
- Tewodros Mulugeta (Ethiopia)



Group picture of this year's training. Back row from left to right: Sija Kabota (lecturer), John Midgley (lecturer), Simon Muhayimana, Emerensiana S. Kajuna (secretary), Arlène Ingabire, Tewodros Mulugeta, Ashley Kirk-Spriggs (lecturer), Stéphanie Kengni, Jarmaine Magoai, Melanie de Morney, Christopher Sabuni (local organizer), Upenda Richard (lab assistant), Kelvin Kemei. Front row from left to right: Antoine Irakiza, Tanatswa Gara, Kurt Jordaens (lecturer), Prof. Alleni Malisa (Director SPMC), Ramadhana Majubwa (local promotor AGROVEV project), Happy Leonard, Donath Nkuriyikimana, Jenipher Tairo © J. Muro



During the weekend, we made a nice walk to "Morning Site" in the Uluguru Mountains, where local people grow lots of fruits and vegetables. Sija managed (after some struggle with the local weeds) to get us some fresh cucumber (left). At the end of the walk we had some fruits and a nice cooling down at the waterfalls. © K. Jordaens

**Our next training will take place in South Africa in 2025**  
**Read our Newsletters or have a look at our website or facebook page to stay updated !**



# One does not simply walk into the Nyamithi: A fieldtrip into Ndumo

Genevieve Theron & John Midgley

Right after the dry season, with plenty of water around and the cicada song at full volume, John Midgley, Genevieve Theron and Marc Hoffmann visited the Ndumo Game Reserve. The trip had the very ambitious goal of trying to capture the first-ever physical specimen of *Marleyimyia xylocopae* Marshall & Evenhuis, 2015. While it was a rather eventful trip, there was unfortunately no *Marleyimyia* to be had.

After a long drive and a quick stop at Ongoye forest, we put up the first baited trap near the campsite. The traps were baited with well-aged prawns, in the hopes of catching some interesting syrphids in the canopy. recent collecting in central Africa with this bait had turned up interesting syrphids, so we were interested in if it would work in South Africa or not. The next trap went up a particularly tall fever tree just below the bird hide near the Nyamithi Pan. Not too near of course, given the number of crocodiles around! The height of the tree resulted in some fun and games to try and get the top rope over the uppermost branches. The last trap we put up along the narrow path near Red Cliffs, towards the fig forest. The path where we put the trap up was quite overgrown and thus when we spotted fresh signs of Buffalo, we turned tail and carried on sampling elsewhere.

On this field trip, days were longer than most, as the bombyliids we were after and the asilids that Marc works on tend to be most active during the heat of the day.

During these long days, we managed to visit a number of different sites within the reserve with different habitats and vegetation types. Some of these vegetation types included Makatini Clay Thicket, Subtropical Salt Pan and Lowveld Riverine Forest. The diverse habitat around Nyamithi Pan proved to be the most productive area of the trip, although this may just be down to the weather not always playing ball.

In addition to taking the traps down on the last day, we hand-collected, changed a tyre, and enjoyed a good sunset. Our traps ended up being less fruitful than we had hoped but gave us plenty of insight into what we could do better next time. And while we didn't manage to catch any *Marleyimyia*, we still had a reasonably successful trip, with other valuable specimens collected for a phylogenetic project on Bombyliidae of the world and really good behavioural observations of ovipositing Microdontinae. Marc also had a remarkably successful time, collecting about 35 species of robber flies.



View at Red Cliffs picnic site on the South Africa-Mozambique border (top). John retrieving the trap near the Nyamithi Pan (bottom) © G. Theron



# Wild times at The Conservation Symposium 2023

John Midgley

Scientists are often criticized for operating in their own siloes, where they focus on projects of interest without seeing the big picture of how things fit together. In an attempt to break this, one of the goals of the DIPoDIP project is to engage with conservation agencies and other partners to enhance fly conservation. With this goal in mind, some of the progress made by the DIPoDIP partners and stakeholders was presented at the annual Conservation Symposium (TCS) at the Wild Coast Sun, South Africa in November this year.

While the researchers directly involved in the DIPoDIP project are mostly taxonomists, we work with various stakeholders, including conservation professionals at the South African National Biodiversity Institute (SANBI) to make the taxonomic research accessible to conservation practitioners.

Past presentations at TCS included research by DIPoDIP PhD student Bonolo Mosime on the potential distribution of *Syrirta* species and how they may be affected by climate change. This year, John Midgley presented on the ongoing efforts to red list Afrotropical hover flies. While these flies are well known and often seen by members of the public, some species are rare and data is hard to come by. John's talk focused on the vast disparity between the Extent of occurrence (total range) and the Area of occupancy (occupied habitats with the range) for three species of *Mesembrius*. While many larger animals are known from thousands of records, some *Mesembrius* occur from South Africa to Senegal, yet have been encountered fewer than ten times, presenting a real challenge for red listing.



The spectacular Wild Coast sun (above) was the setting for the Conservation Symposium 2023. The organizers (below) kept the conference running smoothly throughout. Images reused with permission.



Small sample sizes make for strange distribution maps, making accurate red list assessments challenging. In this case, the distribution of *Mesembrius ingratulus* is mapped across Africa, but it is based on only seven confirmed specimens! © J. Midgley

Using the probable localities in the known range is one way to overcome this problem, but more realistically an increase in the data is needed. From 2024, the DIPoDIP project will train iNaturalist users to take better images of flies to add to the available dataset, with the hope that more information can be added and the species reassessed in the near future.



A *Mesembrius* female, one of the genera that is being added to the red listing project. It is hoped that these species will be considered in future conservation planning. [reproduced from Jordaens *et al.* (2021), Zookeys 1046: 1-146. Full article: <https://zookeys.pensoft.net/article/57052/>]

## Spotlight: Research Assistant Jarmaine Magoai - National Museum, Bloemfontein

Jarmaine Magoai

Meet Jarmaine Magoai, a vibrant research assistant in the Terrestrial Invertebrates Department of the National Museum, Bloemfontein, South Africa, whose daily duties revolve around insect collections. Jarmaine holds a B.Sc. Degree in Entomology and has always wanted to gain more insight into the biodiversity of insects, their role in nature and how they are grouped and identified.

Her work entails:

- Processing entomological specimens generated through fieldwork.
- Databasing specimen record data, including the addition of incoming material.
- Providing assistance with research, fieldwork, and professional services (e.g., loans, workshops, etc.).
- Managing general departmental administration."

Her dedication, hard work and passion for museum collections led her to put more effort into understanding collections, attending courses, workshops and training sessions to expand her knowledge in the field of Entomology. This commitment continues to provide invaluable support to her research department, and she hopes to undertake projects of her own as she advances in her studies.



Jarmaine collecting water snipe flies (family Athericidae) in the Western and Eastern Cape 7-14 December 2022). © S. Adam



Part of the curated Diptera collection at the National Museum Bloemfontein in South Africa © B.S. Muller



Jarmaine (left) identifying Diptera during the 5th training course on the Taxonomy and Systematics of African Pollinating Flies, Morogoro 2023 © S.A. Kabota



# Spotlight: Research Fellow Kelvin Kemei - National Museums of Kenya, Nairobi

Kelvin Kemei

Meet Kelvin Kemei of the National Museums of Kenya (NMK, Nairobi, Kenya). He holds a Bachelor Degree of Science in Wildlife Enterprise and Management from Egerton University. He is currently engaged in a JRS Biodiversity Foundation funded project as a research fellow and a data clerk and his main task is the digitization of specimens of NMK's Invertebrate Zoology Section.

In addition, Kelvin provides education services in which he is privileged to share his knowledge. On a regular basis, NMK receives requests from academic institutions to teach biology students on the diversity of insects, and on how to collect and preserve these. With the knowledge Kelvin gained from the entomology training course, he has now taught students from two institutions, *i.e.*, 13 students from JFC Munene College of Health Sciences and 35 students from Friends Kaimosi University. These students are now aware of various insect collection methods and have participated at practical demonstrations on setting up Malaise traps. The teaching ends with a tour in the insect collection of the NMK.



Kelvin collecting Diptera during the 5th training course on the Taxonomy and Systematics of Pollinating Flies, Morogoro 2023. © K. Jordaens



Kelvin in the National Museums of Kenya collections with a biology student who is explaining a poster on invertebrate diversity in Kenya © NMK



Kelvin demonstrating the use of insect traps to biology students at the National Museums of Kenya. © NMK



# Spotlight: Master in Science Viren Thupsie - University of KwaZulu-Natal - Pietermaritzburg

## Viren Thupsie

Meet Viren Thupsie, a recently graduated MSc student on the DIPoDIP project at the University of KwaZulu-Natal, Pietermaritzburg (South Africa).

Pollinator communities typically vary across elevation gradients. In particular, the contribution of bee pollination typically declines at higher elevations in favour of other pollinators, such as birds, butterflies and flies. *Erica caffrorum* occurs at high-elevation sites in the South African Drakensberg Mountains and has floral traits suggestive of pollination by short-tongued insects. Most *Erica* species with similar floral traits studied to date occur in the Cape Floristic Region at low elevations and are pollinated by honey bees. I present a case study of pollination in *Erica caffrorum*, including characterization of the breeding and pollination system, quantification of the associated floral traits, and experimental determination of the significance of flower colour and scent for pollinator attraction.

Hand-pollination experiments confirmed that similar to most *Erica* species, *E. caffrorum* is self-incompatible. At five study sites, between 1800 and 2500 meters above sea level, pollinator observations revealed that most visitors were not honey bees but Diptera, which were identified into morphospecies and identifications verified using DNA barcoding.



Mountain heath or *Erica caffrorum* (picture: taken from iNaturalist: observation 10803592 © juddkirkel)



Viren at Witsieshoek, one of his study sites in the Drakensberg Mountains (South Africa)



Viren participated at the 4th training on the taxonomy of Afrotropical Diptera in 2022 in South Africa © K.Jordaens

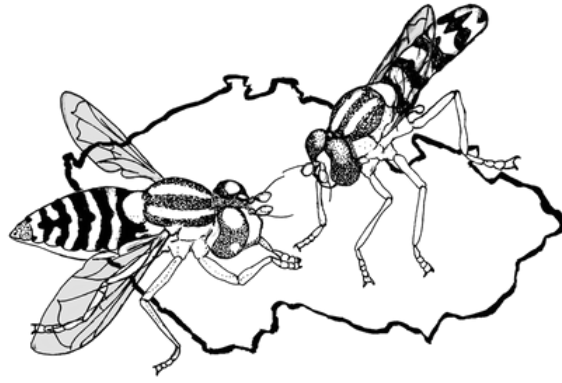


Viren at one of his study sites in the Drakensberg (South Africa)

Assessment of pollinator importance based on pollen loads and visitation frequency identified Muscidae, Rhiniidae and Scathophagidae as the most important pollinators. Analysis of floral scent using GC-MS indicated that benzaldehyde and 2-methyl butanoic acid dominated the odour bouquet across all populations. In bioassays, a significant preference for white colour in the presence of scent was found for flies across all three experimental sites and for other visitors at one of two sites, but no other consistent preferences for colour or scent alone were detected. A combination of acid and benzaldehyde attracted significantly more flies than the unscented control. A similar pattern was observed for acid alone but not for benzaldehyde. This study provides novel evidence for short-tongued fly pollination in an *Erica* species, mediated through a combination of floral scent and colour. The similarity in traits between *E. caffrorum* and several other distantly related plant species in the high-elevation ecosystems of the Drakensberg mountains suggests that the pollination of scented, small, white flowers by short-tongued flies found here likely represents a more widespread pollination system whose importance in southern African mountain regions is currently underestimated.

Viren Thupsie recently obtained his MSc degree from the University of KwaZulu-Natal (UKZN, South Africa). He was supervised by Prof. Timotheus van der Niet and Dr. Ruth Cozien from the University of KwaZulu-Natal and Dr. Kurt Jordaens of the Royal Museum for Central Africa (RMCA, Belgium).





**12<sup>th</sup> International Symposium on Syrphidae**  
Průhonice, Czech Republic  
2–7 September 2024

Dear Fellow Syrphidologists,

it is a great pleasure to invite you to 12th International Symposium on Syrphidae (ISS12). The Symposium will take place in Průhonice near Prague (Czech Republic), in Průhonice Castle, with accommodation in Hotel Floret, located in the immediate vicinity of the castle.

The symposium will start on 2nd September 2024 (Monday) in the evening and will end on 7th September 2024 (Saturday) in the morning. The preliminary schedule is following:

Arrival:	2nd September 2024
Symposium:	3-5 September 2024
Field excursion:	6 September 2024
Departure:	7 September 2024

If you are interested in attending the symposium, please, let us know via Registration of interest form. Please, fill in the form during the next month (until 20th December 2023) to receive further information about the ISS12. After filling in the form, we will inform you by e-mail about news regarding the symposium, including registration instructions, fees, and abstract submission.

For more information, you can also visit our website: <https://web.natur.cuni.cz/zoologie/syrphidae/>.

If you have any questions, feel free to contact us on **Syrphidae12@gmail.com**

We are looking forward to meeting you all in the Czech Republic!

On behalf of the local Organising Committee,  
Jiří Hadrava, Klára Daňková, Antonín Hlaváček, Jakub Štenc, Helena Pijálková, Tadeáš Ryšan, Michael Mikát,  
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## About the DIPoDIP and DIPoDIP2 projects

The “Diversity of pollinating Diptera in South African biodiversity hotspots” project (DIPoDIP) is a five year project (2019-2023) financed by the Belgian Directorate-general Development Cooperation and Humanitarian Aid through a framework agreement with KMMA. It is a collaboration between the University of KwaZulu-Natal (UKZN), the KwaZulu-Natal Museum (KZNM), Stellenbosch University (SU), the South African National Biodiversity Institute (SANBI), and the Royal Museum for Central Africa (click on the logos for more information). It will be continued as the “Diversity of pollinating Diptera in Afrotropical biodiversity hotspots” (DIPoDIP2) project in the following five years (2024-2028) and will have additional partners from Burundi and Rwanda. Read more on the project in the forthcoming *PINDIP Newsletters* and on our Facebook page!  
<https://www.facebook.com/pollinatingdiptera/>

