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# ROSTRUM

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Cover image: Cape lappet Moth - *Eutricha capensis*
Photo by Willem Bezuidenhout

## IN THIS ISSUE

# News from the Editor

Congratulations to the winner of the YEEP 2025 competition as well as all the entrants for their outstanding contributions.

Congratulations to everyone on surviving 2025!

It was a challenging year for us all, notably the academic sector is reeling from the effects of funding cuts that range from inconvenient to catastrophic. However, we are a resilient community, and this was well discussed by two entrants for the Young Entomologists' Essay Prize. One of the two topics for the year was "The future of entomology: How can entomologists adapt to limited funding". Another challenge we generally faced was the explosive rise of Artificial Intelligence tools. Educators are faced with having to adjust to a teaching environment that is changing so fast that traditional pedagogies are rapidly becoming obsolete. The second essay topic for the competition was "AI in entomology: how can we use this technology in industry and academia?". We therefore congratulate Bridget O' Connor from Stellenbosch University on winning the YEEP competition for 2025. We also thank the other entrants for their thoughtful contributions.

A positive from the year was the sheer quality of outstanding entrants for the photography competition. The December winner was particularly difficult to choose, but it is wonderful to see the talent in our society. We strongly encourage continued submissions for this competition; it is much appreciated. We would like to congratulate the winners of photography competition for 2025: April: Terence Bellingan (Albany Museum); August: Perryn Richardson (Stellenbosch University); December: Willem Bezuidenhout (Private).

Please remember that we welcome contributions to *Rostrum* all year round!

Shüné Oliver
*Rostrum* Editor
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# ALERT: Invasive Storage Beetle – *Prostephanus truncatus*

**What is it?**

*Prostephanus truncatus*, also known as the Larger Grain Borer, is an invasive beetle originally from Central and South America. It has been detected in South Africa, particularly near the Mozambique–South Africa–Zimbabwe border.

**Why should we be concerned?**

This beetle is a serious agricultural and economic threat. It attacks and destroys stored food crops and dry wood, causing major losses.

**What does it damage?**

Maize and cassava (main hosts), wheat, rice, sorghum, pulses, potatoes, sweet potatoes, yam chips, groundnuts, cocoa beans, and other dry food products, dry wood and timber products.

**How does it spread?**

Transported unintentionally through infested maize, cassava, and dry firewood.

Natural dispersal occurs via flight, with distances of up to 25km.

Movement through commercial trade and household transport.

**Impacts**

Severe food loss in storage (up to 90–100% infestation in dried cassava and yam chips). Damage to timber and wood products. Displaces other storage pests such as the maize weevil. Threatens food security and the economy.

**Where is it found?**

Recorded in multiple African countries, including South Africa, Mozambique, Namibia, Zimbabwe, Ghana, Kenya, Uganda, Zambia and others.

**Legal status**

In South Africa, *P. truncatus* is listed as a Category 1a invasive species under the National Environmental Management: Biodiversity Act (NEMBA).

It must be reported and controlled.

**What can you do?**

Ø Inspect maize, cassava, and firewood before transport

Ø Report suspicious infestations to local agricultural or environmental authorities

Ø Avoid moving infested crop material or firewood

Ø Store grains properly and monitor regularly

**Signs of Infestation**

Holes in grains or wood, dust-like powder near stored maize or wood, weak, crumbling grain.

Presence of tiny brown beetles.

**Protect South Africa's food and forests**

Your awareness and action can help stop the spread of this destructive invasive species.

If you suspect an infestation, report it immediately to:

South African National Biodiversity Institute

Dr M.C Moshobane m.moshobane@sanbi.org.za

# Report on Attendance at 17th International Conference on Aquatic Plants (ISAP 17th )

**Tafara Frank Bute**

Centre for Biological Control, Rhodes University


My presentation addressed three key components: (i) degraded water quality in the East Rand, Gauteng, South Africa; (ii) hyperaccumulation of heavy metals by water hyacinth; and (iii) gut dysbiosis and metabolic functional shifts in the gut microbiome of *Megamelus scutellaris* feeding on heavy-metal- contaminated water hyacinth.

The findings highlighted the severity of environmental pollution caused by acid mine drainage (AMD) in the East Rand mining basin and showed how this affects the fitness of biological-control agents. Water hyacinth is an invasive aquatic plant responsible for significant socio-economic impacts, including reduced dissolved oxygen leading to biodiversity loss, and limited navigation that affects tourism and boat movement.

The presentation was received with positive feedback from attendees, who noted that they were unaware of the dual challenges South Africa faces: AMD pollution and widespread water hyacinth infestations. In total I attended 80 presentations, including two keynote addresses.

**Networking / Collaboration**

I was the only African representative at the conference, which hosted approximately 151 PhD candidates and postdoctoral researchers from across the globe according to a survey presented on the final day. This placed me in a strategic position to share an African perspective, particularly the work we do at the Centre for Biological Control, Rhodes University, Makhanda. I also had the opportunity to reconnect with former colleagues from the Centre for Biological Control: Chad Keates, Megan Reid (Aquatic and Wetland Plant Science Lab, University of Florida), and Antonella Petruzella (Leibniz Institute of Freshwater Ecology and Inland Fisheries).

Furthermore, as the conference proceeded, I had opportunities to meet other colleagues in attendance during coffee breaks and lunch, we had fruitful conversations. Amine, a PhD student in Germany, Chinese Universities representatives, Hungary, and the Netherlands.

From left to right: Tafara Frank Bute, Megan Reid, Antonella Petruzella, and Chad Keates.


Amine Mohamed Mahdjoub (left) is a PhD candidate at the Leibniz Institute of Freshwater Ecology and Inland Fisheries. His project focuses on stress ecology, specifically the physiological and morphological responses of aquatic plants to multiple stressors, under the supervision of Sabine Hilt.


PhD students and their supervisors representing various academic institutions across Asia.

From left to right: Sándor Szabó, Tafara Frank Bute and Gergo Koleszar.

From left to right: Laurenz Piet, Jesse Beyer, Tafara Frank Bute.

I also had the opportunity to interact and network with several researchers from diverse institutions. These included: Madison Self, Sebastian Palmieri, and Jennifer Bishop from the University of Florida U.S.A.; Roel Lammerant from the Tvärminne Zoological Station, Faculty of Biological and Environmental Sciences, University of Helsinki, Hanko, Finland; and Abha Panda from the Department of Fisheries, Wildlife, and Conservation Biology, University of Minnesota, St. Paul, Minnesota, U.S.A.

**Field Trip – River Sado Freshwater and Coastal Vegetation**

This fieldtrip combined ecological and cultural highlights in the downstream area of the Sado River basin, located south of Lisbon. The area is protected under the Natura 2000 Network (ZPE Açude da Murta PTZPE0012and ZPE Estuáriodo Sado PTZPE0011) under the Birds Directive; ZEC Comporta/Costa da Galé PTCON0034 under the Habitats Directive) and includes one Ramsar site (7PT007 Estuário do Sado).

We began our field trip by crossing the 25th of April Bridge over the Tagus River. The itinerary included visiting representative spots of the tidal marsh vegetation communities dominated by halophyte plants (e.g., *Sarcocornia* spp., *Spartina* spp.), the freshwater wetland forests dominated by hygrophilous plants (e.g., *Salix atrocinerea*, *Thelypteris palustris*), and dune communities rich in several endemicspecies (e.g., *Juniperus navicularis*, *Thymus capitellatus*, *Armeria rouyana*).

During the journey we visited the Palaphytic port (Fig. 6), a traditional port constructed with wood that allows access to and storage of fishermen’s tools in the tidal marsh area for bivalve farming such as clams and oysters. Some of the remaining traditional marsh houses with vegetal roof covers were made from *Scirpus lacustris*/*Schoenoplectus lacustris*.

Receiving instructions from on how to navigate our field tour from Maria Rita Minciardi (wearing red trousers), from ENEA Centro Ricerche, Saluggia, Vercelli, Italy.

River Sado freshwater wetland forests tour.

With Prof. Elisabeth Maria Gross, Aquatic Ecology, Ecophysiology and Ecotoxicology, Université de Lorraine, France

**Takeaways from the conference**

International conferences are vital for exposure. In my view, attending the 17th ISAP was an invaluable experience, particularly in creating academic networks, which are the basis for collaboration and professional growth. Being the only African in such platforms made me realise that we need to be present in these spaces to amplify our voices on global platforms, get recognised for the wonderful work we do and our contributions to knowledge.

The Early-Career Macrophyte Researchers (ECRs) survey conducted during the conference included 151 respondents, most of whom were PhD students (44%) and postdoctoral researchers (23%), primarily aged 26–35 years. Key challenges identified among this group included lack of job security, limited funding, publication pressure, and difficulties maintaining work-life balance. Respondents also highlighted the need for mentorship, training opportunities, collaboration, and information exchange. In my view, these findings reflect challenges similar to those faced by early-career researchers in Africa, indicating that such issues are shared globally rather than being region-specific. However, I am grateful that ESSA is actively working to alleviate some of these challenges for young entomologists like myself, by providing travel grants to international conferences.

**Acknowledgments**

I acknowledge the unwavering support I got from my supervisor Prof. Julie Coetzee during the planning of this trip, which made everything happen flawlessly. Lastly, I would like to sincerely thank ESSA for funding my participation in this conference, which enabled me to present my work, get exposure, expand my professional network, and gain knowledge.

# MSc report back: The effect of larval exposure to plastic pollution on the major malaria vector, *Anopheles arabiensis* Patton (Diptera: Culicidae).

**Shristi Misser**

University of the Witwatersrand

Malaria is the most widely reported vector-borne disease, with the vast majority of cases and deaths occurring in Africa. In 2022, the World Health Organization reported that 94% of malaria cases (233 million) and 95% of malaria deaths (580,000) happened in the African region. This data underscores the ongoing public health challenges posed by malaria, particularly in the context of the global health crises (World Health Organization, 2023). Sub-Saharan Africa faces the highest burden of malaria, mainly because the most effective mosquitoes for spreading malaria are found in this region (Sinka *et al*., 2010). The *Anopheles gambiae* complex is especially important in Africa. This complex includes several major malaria vectors such as *An. gambiae, An. coluzzii*, and *An. arabiensis* (Gillies and Coetzee, 1987). *Anopheles arabiensis* is particularly significant in South Africa due to its very flexible behaviour. This species has variable feeding and resting behaviour, making them difficult to control. Its breeding sites are usually small, shallow, sunlit pools of clear water, but it can also adapt to different environmental and geographic conditions (Sinka *et al*., 2010). Studies have shown that *An. arabiensis* can live and develop in many different environments, including polluted waters ( (Gunathilaka and Karunaraj, 2015).

Human activities such as urbanisation, industrialisation, farming, and mining have led to environmental pollution, contaminating water bodies. Mosquitoes spend their early life stages in these waters; therefore, pollution directly affects them. Changes in landscapes due to rapid urban growth have altered mosquito breeding sites, and studies in Nigeria and Kenya show that some mosquitoes can now breed in polluted waters (Awolola *et al*., 2007; Mwangangi *et al*., 2006). This adaptation has been linked breeding in polluted habitats to increased resistance to insecticides in these mosquito species (Kabula *et al*., 2011; Jones *et al*., 2012; Antonio-Nkondjio *et al*., 2015). It is believed that exposure to pollutants is one factor selecting for insecticide resistance. Understanding and reducing these pressures is crucial for successful mosquito control, as these changes often involve complex genetic and molecular adaptations.

Examples of polluted breeding sites in Mpumalanga, South Africa. Picture: Kayla Noeth

One of the major pollutants globally that poses a significant environmental issue is plastic pollution. Plastics break down very slowly and accumulate in the environment, especially in water. Plastics fragment smaller than 5 mm are called microplastics (Bouwman *et al*., 2018). Microplastics (MPs) are a major concern due to the fact that smaller particles are more likely to accumulate within living organisms and can also attract other harmful pollutants, such as chemicals and heavy metals. Additionally, plastics often contain additives that can leach into the environment, like phthalic acid and bisphenol A (BPA). Microplastics are common urban pollutants. Aquatic invertebrates can ingest and transfer microplastics. The ingestion of MPs has been shown to have adverse effects on feeding, growth, reproduction and overall survival of these invertebrates (Cole *et al*., 2013). Larval microplastic exposure has been examined in mosquitoes. For example, studies have found microplastics in the adult guts and salivary glands of various mosquito species such as *Culex pipiens* (Al-Jaibachi *et al*., 2019) and *Aedes aegypti* (Gopinath *et al*., 2022). However, little is known about the impact of MPs on the biology and development of malaria vectors. This research gap encompasses critical aspects of mosquito biology.

Therefore, to address this knowledge gap, this study aimed to characterise the effects of larval exposure to plastic and its additives on both insecticide-selected/resistant (SENN DDT) and unselected/susceptible (SENN) laboratory strains of *An. arabiensis*. To do this, *An. arabiensis* larvae were exposed to four different plastic pollutants. The first pollutant was artificially degraded disposable nappies to represent complex plastics found within larval breeding sites (Schenck *et al*., 2023, 2024). Two plastic additives were used. BPA was used as a representative of a plastic additive, and phthalic acid was used as a representative of a common plasticiser that leaches into the environment. Lastly, three different sizes of commercially available fluorescently labelled latex beads were used to represent the size of MPs. The three sizes consisted of 0.5 μm, 1 μm and 2 μm fluorescently labelled latex beads.

When mosquito larvae were exposed to plastics, we saw different effects depending on the strain. The SENN strain, which has not been selected for insecticide resistance, was more affected. SENN larvae took longer to develop, and the adults lived longer. By contrast, the SENN DDT strain, which was continuously selected to be resistant to insecticides, was less affected by the plastics. Ingestion of plastic particles from nappies and beads seemed to slow down larval development in the SENN strain, probably because the plastic affected their nutrition. When it came to the plastic additives, they actually sped up development in SENN larvae but slowed it down in SENN DDT larvae. This could be another sign that insecticide resistance comes with trade-offs, or "fitness costs". Both mosquito strains became more tolerant to the insecticide deltamethrin after being exposed to plastics, especially the chemical additives.

We also examined the effect of plastic exposure on the midgut microbiota of the insecticide-selected and unselected strains of *An. arabiensis*. The mosquito gut is home to a variety of naturally occurring bacteria (Mizushima et al., 2023), which play important roles in their development (Coon et al., 2014, 2020), survival, reproduction (Jayakrishnan et al., 2018) and ability to transmit diseases (Bäckhed et al., 2005; Round et al., 2011). The composition of this gut microbiota is influenced by the environment where mosquito larvae grow, such as the quality of the water (Strand, 2018). Pollutants in the water could therefore change the gut bacteria and potentially affect the mosquito's biology. Our study assessed the effects of representative MP particles (latex beads), plastic additives (BPA, phthalic acid), and degraded plastics (disposable nappies) on two laboratory strains of *An. arabiensis* of different insecticide-resistant profiles.

Plastic exposure changed the gut bacteria found in both mosquito strains. For the unselected SENN strain, treatments with nappy fragments and microplastic beads led to an increase in both the number and variety of bacterial species. In the insecticide-selected SENN DDT strain, the effects were more mixed. Larval exposure to the nappy fragments mainly increased the range of bacteria present, while BPA increased overall diversity. Larval plastic exposure increased the overall variety of gut bacteria in both strains. This suggests that the presence of insecticide resistance does not strongly affect how plastic exposure changes gut bacteria diversity. This might be due to the MP and plastic fragments, such as those from disposable nappies, which provide surfaces for different bacteria to grow, increasing the number and types of bacteria present. Additives like BPA, which do not dissolve well in water, may also act as extra surfaces for bacteria to grow when ingested by the larvae.

Additionally, when larvae were exposed to plastics, especially nappy treatments, there was an increase in bacteria capable of breaking down plastics and pesticides. Notably, exposure to plastics increased the presence of *Elizabethkingia*, a bacterial genus known to hinder malaria parasite development within mosquitoes. Other bacteria that help protect against malaria, such as *Asaia*, showed only minor changes. Therefore, it is still unclear whether these shifts would affect malaria transmission, and this needs further study. Plastic treatments also resulted in more bacteria associated with inflammation, which could potentially impact the mosquito's immune system and its ability to fight off malaria parasites. Additionally, the nappy-treated SENN DDT mosquitoes contained both *Wolbachia* and *Asaia*, which are two types of bacteria with strong anti-malaria properties that could be useful for biological mosquito control. However, this finding is unusual as *Anopheles* mosquitoes are typically not natural hosts to *Wolbachia*. Additionally, finding both *Asaia* and *Wolbachia* bacteria together in the same group of mosquitoes is rare. Usually, *Asaia* makes it difficult for Wolbachia to become established, since they both compete to live in the same tissue of the mosquito. Despite this, having both types of bacteria present could be beneficial for mosquito control, since each bacterium can affect how well the mosquitoes can transmit malaria. However, more research is needed to confirm their effects.

Overall, the findings show that exposure to plastics and their additives during the larval stage can alter the gut bacteria of adult mosquitoes, and that whether mosquitoes are insecticide-resistant or not influences which bacteria become more common. Plastic exposure also increases bacteria that can degrade pollutants and those linked to inflammation, which could have wider impacts for mosquito biology and disease spread.

Finally, we traced the fate of microplastic particulates of three different sizes on fourth instar larvae and emergent adults of the insecticide-selected and unselected strains of *An. arabiensis*. The third instar larvae of SENN and SENN DDT were exposed to the three different sizes of commercially available latex beads. The larvae were fed a standardised amount of food, and the presence of the latex beads was then examined in fourth instar larvae as well as the adult midgut, salivary glands and reproductive tissue using a fluorescent microscope. *An. arabiensis* larvae can ingest small MPs, specifically beads the size of 0.5 μm and 1 μm, which were detected in both larvae and emergent adults. Notably, MPs were found within reproductive tissues, suggesting the potential for downstream and transgenerational effects. It should be noted that although the salivary glands were dissected, we were unable to detect the presence of any of the MP beads.


Detection of fluorescent latex beads in SENN and SENN DDT. A) SENN fourth instar larvae ingestion of 0.5 µm latex beads. B) SENN DDT fourth instar larvae ingestion of 0.5 µm latex beads.
C) Detection of 1 µm latex beads in adult SENN DDT testes (left) and ovaries (right).

Overall, this study assessed the effects of larval exposure to plastics and associated additives on the malaria vector *An. arabiensis*, focusing on differences between insecticide-selected (SENN DDT) and unselected (SENN) laboratory strains. The two strains used in this study allowed for the consideration of plastic effects on mosquitoes of different insecticide-resistant profiles, which, to the best of our knowledge, has never been done before. A major finding in this study is the differential response of two distinct strains of *An. arabiensis* to plastics exposure. The two strains reacted differently to plastic pollution due to their varying insecticide resistance profiles. Mosquitoes that have been selected to be resistant to insecticides seem to cope better with the challenges posed by plastics in their environment. This means that the mosquitoes selected for insecticide resistance were less affected by plastic exposure, while the unselected or susceptible ones struggled more, highlighting clear differences in how each strain responds to plastic pollution.

Therefore, how mosquito populations respond to plastic pollution depends a lot on whether they are resistant to insecticides. This means that the effects of plastic pollution on the wild populations will differ based on the types of mosquitoes living in an area. For example, in places where mosquitoes are not fully resistant to insecticides, like those found in South Africa (Munhenga *et al*., 2022), they may react to plastic pollution in the same way as the SENN strain in our study. However, in regions such as West Africa, where mosquitoes are more likely to be resistant to insecticides (Antonio-Nkondjio *et al*., 2011, 2015; Kabula *et al*., 2011), their response to plastic pollution could be more similar to the insecticide-resistant SENN DDT strain. In short, the background resistance of local mosquito populations plays a big role in determining how they are affected by plastics in their environment.

In conclusion, this study serves as an initial step in exploring the impact of larval plastic exposure on *An. arabiensis*. The findings show that plastics and the chemicals they contain can change how mosquitoes develop, but how much they are affected depends on the existing insecticide resistance profile. Mosquitoes that are already resistant to insecticides seem to cope better with the challenges posed by plastic exposure, while those without resistance struggle more. Additionally, different types of plastics and additives can cause various changes, such as altering the bacteria in the mosquito's gut and even changing how their genes work, which could be passed on to their offspring. Notably, some of these genetic changes are more pronounced when mosquitoes are exposed to complex plastics, like those found in disposable nappies, highlighting the need to investigate the long-term effects of these pollutants.

Because the impact of plastics varies depending on the type of mosquito and the type of plastic, more research is needed, especially into other common plastics and in wild mosquito populations. Understanding these differences is crucial for figuring out how pollution might influence mosquito populations and the spread of diseases like malaria in different parts of the world. Ultimately, these results highlight the importance of studying plastic pollution's effects locally and regionally, as the consequences for mosquito biology and disease transmission could differ greatly depending on where and how mosquitoes have adapted to their environment. Overall, this study shows how pollution, mosquito biology, and disease prevention are all connected, and emphasises why we need to tackle pollution as a serious and urgent challenge for society.

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# Optimising *Agrotis segetum* (Lepidoptera: Noctuidae) pheromone lure and trap type for monitoring in maize

**Taryn-Maie Kuhn and Natasha Bouwer**

University of the Witwatersrand

**Abstract**

The Common cutworm (*Agrotis segetum*) remains a sporadic but destructive pest in maize, making effective monitoring essential for timely management. Insect Science evaluated pheromone lure loading rates (1x vs. 10x) and trap types across South African maize fields to optimise monitoring strategies. Findings showed that pheromone lures consistently attracted male moths, significantly outperforming controls, while increased pheromone loading did not enhance capture rates.

Delta and funnel traps performed comparably, offering flexibility for practical deployment. These results confirm that standard lure concentrations and either trap design provide reliable, cost-effective tools for monitoring *A. segetum* populations.

## Research Summary

### Optimising pheromone lures for monitoring the common cutworm in maize

The Common cutworm (CCW), *Agrotis segetum*, also known as the Turnip moth, is a small insect with a disproportionately large impact on agriculture. While populations are often scattered and sporadic, sudden outbreaks can devastate maize seedlings - cutting stems, boring into young plants, and destroying stands before crops have a chance to establish. This makes early detection and monitoring critical for effective pest management.

Insect Science undertook trials to answer a key question: can pheromone-based monitoring tools be refined to better track *A. segetum* in South African maize fields? By mimicking the female moth's sex pheromone, synthetic lures offer a species-specific, sustainable way to monitor moth populations and guide control strategies.

### The study

Over the 2022/2023 and 2024/2025 growing seasons, trials were conducted in maize fields across North West and Limpopo Provinces. Researchers compared pheromone lures loaded at two concentrations (standard 1x and elevated 10x) and tested two trap types: Delta Traps (YDT) and Bucket Funnel Traps (YBFT). Weekly captures were recorded over 12 to 14 weeks to assess effectiveness.

**The results**

Across all sites, pheromone lures significantly outperformed controls, confirming their reliability as a monitoring tool. Yet, results revealed some surprising nuances:

- Site 1 (North West): Over 1,800 moths were captured, with the 10x lure performing best (392 moths total).

- Site 2 (North West): Nearly 900 moths were caught, but here the 1x lure outshone all others, with 250 moths captured.

- Site 3 (Limpopo): Populations were lower (184 moths total), and no significant differences emerged between treatments.

Interestingly, increasing pheromone concentration from 1x to 10x did not consistently boost captures. This tolerance to lure loading echoes findings in other Lepidoptera studies. As for trap type, Delta Traps and Bucket Funnel Traps performed similarly, allowing for flexibility in terms of cost and operational considerations.

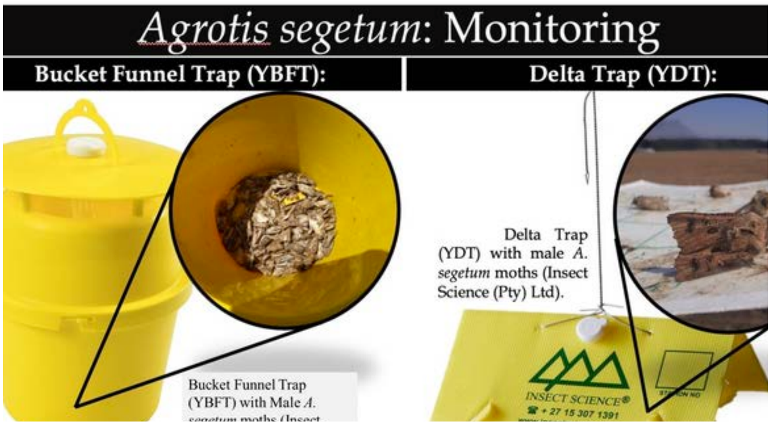
In conclusion

The research confirms that pheromone lures are effective for monitoring *A. segetum* in maize, providing an essential tool for integrated pest management. However, more pheromone is not always better - standard loading rates perform just as well as higher ones. Likewise, either Delta or funnel traps can be deployed confidently, providing growers with options to match their management needs and budgets.

By fine-tuning these monitoring tools, Insect Science's work supports more precise and sustainable crop protection, helping farmers anticipate outbreaks before they inflict serious losses.

Female *A. segetum* adult moth.

Male *A. segetum* adult moth




Monitoring system from Insect Science.

Taryn Maie: Insect Science

# Mzansi Insect of the Year is here!

For many people, insects can seem harmful or scary. But the truth is we would not be able to survive without them. They provide us with many ecosystem services, for free! However, insects may be in trouble. Many global studies have highlighted that insect numbers are declining due to several factors such as pesticides and land habitat degradation, and this may have cascading impacts on whole ecosystems and on humans.

Mzansi Insect of the Year aims to raise awareness about the importance and diversity of insects in southern Africa, and steps we can take to protect them.

**Please** go and nominate your favourite insect using this form:

MZANSI INSECT OF THE YEAR NOMINATION

Details needed: Species name, justification for nomination (500 words of less), picture (to be used with permission). This will be open for about three months.
Only species that are present in South Africa can be nominated. Anyone can nominate their favourite insect to be considered *Insect of the Year 2025!*
Entries are limited to two nominations per person.

# ESSA Competitions and prizes

# 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 will be published in *Rostrum*, the newsletter of the ESSA.

**HOW TO APPLY**

Applicants must complete the application form here, 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 Charlene Janion-Scheepers, by email:

charlene.janion-scheepers@uct.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.

# ESSA Competitions and prizes

## ROSTRUM PHOTOGRAPHIC COMPETITION

This is the first announcement of the 2026 photographic competition. Entries are to be sent to Shüné Oliver (shuneo@nicd.ac.za), and the entries will be judged by the *Rostrum* editorial committee as well as the ESSA executive committee and ESSA members. Three overall winners will be chosen, and each will be featured on a *Rostrum* cover. Each winner will receive a cash prize of R1000. Entrants are open all year round. By entering this competition, photographers automatically give permission to the ESSA to use their images in *Rostrum*, Neither the ESSA, nor *Rostrum* will use the image for financial gain and the image remains the property of the photographer. Please include your full name and organisational affiliation within the email body. A brief description of the subject matter of the image(s) should also be supplied, including insect identity where possible, to explain how they address the competition theme. Please save each submitted entry as follows: First name Surname_photo name, e.g., Jane Smith_ honey bee1.jpeg

Picture: Willem Bezuidenhout: Stalk eyed fly

# ESSA Young Entomologists' ESSAY PRIZE

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.

In each year that the prize is made available, an essay topic on a current issue facing the entomological
profession in southern Africa will be set. 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 and should be between 1000-1250 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.

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

- Paid-up 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 and 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. Only one prize will be made in each year that it is available.

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.

There are two topics for 2025 were: "**AI in entomology: how can we use this technology in industry and academia?**" and "**The future of entomology: How can entomologists adapt to limited funding**". You have the option of submitting an entry for either of these topics. In this essay, we encourage engagement in a manner that would be of interest to the broader entomological community.

# Young Entomologists’ Essay Prize Winner 2025

## Chat, write me a good title for an academic essay on the role of AI in industrial and academic entomology.

**Bridget O’Connor**
**Stellenbosch University**

The term Artificial Intelligence, or AI, has become somewhat watered down in the present-day lexicon through its increasingly frequent use. The AI tools which the average person encounters in daily life generally perform menial or silly tasks (“can you create a picture of a sausage dog dressed as the queen?”) which adds to the unserious attitude many now have towards AI. However, it was not long ago when the mention of Artificial Intelligence would evoke feelings of unease or visions of humanoid drones taking over the earth.

As of today, there is no true definition of AI [1]. Interpretations differ across fields of study and the range of technologies that can be considered “AI” is vast. The broadest and most generous umbrella definition for AI would be the ability for a machine to make decisions [1]. Within this umbrella, most AI-tools we use today would be further classified under the (still broad) category Machine Learning. Tools such as ChatGPT (Generative Pre-trained Transformer) or the image generator Midjourney require training upon petabytes (1000 terabytes) of data scraped from the internet without consent from original artists, authors and creators [2]. These tools are not “thinking”, but stringing words together in the most likely order based on patterns observed in data fed to them. They are subject to “hallucinations” and can only provide answers based on the content they have been trained on and how (and by whom) they have been programmed.

Currently, society’s relationship with AI might be described as sitting at the peak of the Gartner Hype Cycle [3, 4]. This rather simplistic, yet popular, graph was produced by the American business and technology think tank Gartner. It describes society’s attitude towards emerging technologies throughout time. Expectations for their usefulness start low, steadily increase to a peak of “inflated expectations” then again decline to a low at the “trough of disillusionment”. From this trough, expectations slowly rise again on the “slope of enlightenment” until the “plateau of productivity” is reached. Despite disputed scientific support behind this description [5, 6], nor the fact that it does not represent a cyclical nature at all, the fact that expectations for AI are currently relatively high, but possibly unrealistic, is quite accurate.

The use of AI in academic spaces is often a controversial topic. Large language models like ChatGPT have created distrust between students and lecturers regarding the authenticity of written work and assignments. However, this problem is pervasive across all levels of academia, from undergraduate students trying to write module-passing essays to senior professors submitting AI-generated content as part of a manuscript publication [7]. Tools and policies are being crafted to combat this, but at the same rate, AI-generated content continues to improve. Next to these drawbacks however, AI also stands as a useful companion to research, most certainly applicable in the field of entomology. Machine Learning algorithms are commonly used for image identification and the processing of vast amounts of video and picture data [8]. This not only saves valuable time but also eliminates bias in scoring and grading visual data. Coding has become especially streamlined, with built in assistants such as Microsoft's Copilot able to do much of the heavy lifting for ecologists and natural scientists not necessarily well-versed in coding languages. On social media platforms like Instagram, academic "influencers" on the pulse of technological advances keep master's and doctoral students updated on the latest note-collecting apps and AI tools that summarise pages upon pages of PDFs in one go. Google's research tool, NotebookLM can transform complex scientific publications into five-minute summaries or 30-minute conversational podcasts that sound eerily human. What is apparent is that AI in academia is pointedly aiming to speed up the research process and cut time in tedious and laborious tasks. While many of these applications are useful, they also might encourage an increased efficiency that could burn-out already tired researchers driven by the need to publish or perish. Furthermore, handing off tasks such as reading literature or coding statistical analyses to an automated assistant can be detrimental to the comprehension and deep-thinking required to ask novel questions and produce high-quality science.

Compared to academia, AI applications may not differ very much in entomological industries such as agriculture, public health, food and environmental management. Data collection, analysis and reporting is promised to be seamlessly sped up through AI-assisted technologies. In well-developed countries these applications may be combined with robotics which can also complete manual tasks such as large-scale surveillance (for example drones) and self-driving vehicles [9].

In Southern Africa, applications such as these may still be further out, but the potential for job losses as AI technology develops in the workplace is poignant [10]. While the implementation of smart loggers and AI analyses improves efficiency, this can also close out the job market for many specialists and labourers who depend on work within the entomological industry for their living. Therefore, in countries like South Africa where unemployment is already high [11], government and professionals should carefully consider the rewards as well as the very real risks that come with AI, and its inevitable advancements.

Many of us have not missed the subtle (or not so subtle) changes which have popped up on our phones, laptops, tablets and other screens recently as tech giants such as Meta (Facebook), X (Twitter) and Google (still Google!) race each other to provide users with AI search functions, chat robots and assistants. While most industries and sectors of society that wish to remain relevant further into the 21st century are adopting AI-powered technologies, entomologists should be questioning the extent to which they should embrace AI in academic and professional spaces. The disdain that many people have for AI is rooted in several valid issues: privacy violations, environmental destruction, the loss of jobs and critical thinking skills. Some have even gone as far as to add the extension "Slop Evader" [12] to their web browsers which filters internet search results to those generated on or before the 29th of November 2022, when ChatGPT was first launched as a global phenomenon. Ultimately however, Pandora's box has been opened. Entomologists should be willing to stay updated on the latest advancements in AI technology, utilise it responsibly, but remain cautiously sceptical. After all, we are yet to see if AI can fulfil the high expectations we have for it, or if it will soon fall into the forecasted trough of disillusionment.

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# New ESSA members

We would like to welcome new members to the society:

Xolile Magosa - Agricultural Research Council
Mahlodi Manyasha - Malaria Institute, Department of Health
Indiphile Ginya - Rhodes University
Bridget O'Connor - Stellenbosch University

Picture: Willem Bezuidenhoudt

# Upcoming events

## International Congress of Dipterology

Since 1986, these Congresses have been held every four years in different locations around the world as a means of sharing research and enhancing communication among dipterists on an international scale. For nearly 40 years, these Congresses have been expertly accomplished by the Organizing Committees of each one, under the authority given by the ICD Council, an organization whose purpose is to provide continuity and direction for International Congresses of Dipterology. On 8 May 2025, the Council officially merged with the Dipterists Society, following the unanimous votes of both organizations, so from here on the Council operates as an Executive Committee of the Dipterists Society. This was a long time coming, as the first proposals for the formation of an international society of dipterology which included the Council were made in the 2008 Council meeting, so this merger represents the culmination of this idea.

The next ICD is the 11th (ICD XI), to be held from 10–16 July 2027 at the Westin Hotel in Zagreb, Croatia.

More information will be posted here in the near future!

To stay informed about International Congresses of Dipterology, please join the Dipterists mailing list server, which is the list server for the Dipterists Society.

# Upcoming events


On behalf of the Organizing Committee of the XIII European Congress of Entomology, the French Entomological Society and the Praesidium for European Entomology, it is our great pleasure to welcome you to Tours, France, in the heart of the Loire Valley, from June 29 to July 3, 2026.
Following the long and successful tradition of previous ECE meetings – from the inaugural congress in Reading in 1978 to the vibrant gathering in Heraklion in 2023 – ECE 2026 continues to bring together the international entomological community to share knowledge, foster collaboration, and inspire future research.

Today, as the world faces profound ecological and sociological challenges, the role of insects has never been more vital – or more fascinating. Insects and their associated micro-organisms are recognized as key allies in addressing a wide range of interconnected societal issues. They provide essential ecosystem services – such as pollination, pest regulation, nutrient cycling, and soil enhancement – and increasingly contribute to sustainable food production, organic waste recycling, and the development of bio-based innovations. At the same time, they remind us of the delicate balance between benefits and risks: while some insects act as pests, vectors of disease, or invasive species, others offer powerful, nature-based solutions to foster ecosystem resilience, improve human, animal or plant health, and support the transition toward a more sustainable future.

ECE2026
TOURS • FRANCE

ECE 2026 is the ideal forum for exploring this duality and the infinite diversity of insect species, evolutionary strategies, and insect-human interactions. With a rich program of plenary and keynote lectures, symposia, and poster sessions, our goal is to stimulate interdisciplinary dialogue – from fundamental science to applied innovation, from the molecular scale to global policy, and from biodiversity conservation to sustainable development.

And what better place to have these conversations than Tours? Nestled between the Loire River and an even more irresistible river of local wine, Tours offers the perfect place to explore the French art de vivre. Expect brilliant discussions by day, and equally brilliant wines and cheeses by night. Our historic city, surrounded by the stunning Loire Valley châteaux, invites you to slow down, taste, reflect, and perhaps even fall in love – with entomology all over again.
We are committed to making ECE 2026 a memorable and high-quality experience, full of engaging science, new connections, and yes – a bit of gastronomic inspiration. After all, where else can you attend a congress on insects, then toast to them with a glass of sparkling Vouvray?
We look forward to welcoming you warmly to Tours in 2026.

Bienvenue à Tours!

On behalf of the Organizing Committee,

https://www.ece2026.org/
https://www.ece2026.org/important-dates
https://www.ece2026.org/fees-and-deadlines

# ICE 2028

17th–21st JULY 2028

CAPE TOWN

ENTOMOLOGY FOR A BETTER FUTURE

Website: www.ice2028.com

**Featured social media:**

Website: https://www.lepsocafrica.org/

TikTok: Entomology Abby (@entomologyabby)

**Contributions to Rostrum**

Send all contributions for the next issue of Rostrum by email to Shüné Oliver before **1 April 2026:** Shuneo@nicd.ac.za or contact the editor for details about the next issue.