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SABIO
SOUTH AFRICAN
BEE INDUSTRY
ORGANISATION

**REPORT FROM
APIMONDIA 2019
MONTREAL**

CHAIR'S REPORT

**SCUTELLATA
QUEENS CONTROL
CAPENSIS**

**NEW EDITORIAL
BOARD**



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Cover Image: "Unique Vandalism by a Lightning Strike"
Taken By: Frans Labuschagne



SABIO is the official representative of the bee industry of South Africa. Its mission is to "represent and promote the interests of all persons involved in the beekeeping industry in South Africa in order to establish, support and develop an economically viable and sustainable apicultural sector and ensure the environmental security of the honey bee".

Editorial



The beginning of the new decade brings with it the last issue of the SABJ (aka The South African Beekeeper) for 2019 and reverts back to the original name for reasons of continuity and branding. This final issue of the previous decade has been prepared by the new editorial team that consists of Hannelie Human, Tlou Masehela, Christian Pirk and Robin Crewe. The new team is committed to bringing you a journal that is interesting and addresses the issues that are of importance to the South African Beekeeping community. This includes the beekeepers and the broader community that is dependent on pollination services and the development of livelihoods based on bee products. We will source material both locally and from the international beekeeping community so that the local industry is familiar with developments on a global scale.

We believe that even in the era of Google Groups, Facebook and Twitter there is still a place for the SABJ which provides a trusted source of information to SABIO members and also provides a long term archive for the material that is published. Long term archives can be mined for information that may be intriguing and relevant in the future. Certainly, the archives of the SABJ provide a useful source of information on the development and growth of beekeeping in southern Africa.

The current edition contains significant information about APIMONDIA 2019 that was held in Montreal in September. The bad news is that the African bid to host Apimondia 2023 was not successful despite the best efforts of the Ethiopian delegation that did a first rate job. The good news is that the bid came to the attention of the African Union that has now decided to support the development of beekeeping and pollination services on the African continent in the interests of economic development and food security. The fact that the bid was not successful has also focused attention on the need to prepare a bid for APIMONDIA 2027 that is well resourced and carefully prepared.

In the context of the capensis problem this issue highlights the results of a recently completed Ph.D. study that shows that scutellata queens are able to regulate reproduction by the capensis social parasite, but that queenless colonies are at the mercy of capensis clones.

The new SABIO board is now in office and we would like to welcome them to their new leadership roles, while thanking the outgoing members of the board and the chair, Mike Miles, for the wonderful work that they did for the organisation.

The new editorial team looks forward to a constructive engagement with our beekeeping community and urges those who wish to submit material to journal to do so via the email address: SABJeditor@gmail.com.

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From the Chairman's Desk

NEW YEAR'S COMMUNIQUE

1 January 2020 – a new month, a new year, a new decade!

I would like to start this new year's communique by quoting from SABIO's mission statement, "to represent and promote the interests of all persons involved in the beekeeping industry in South Africa in order to establish, support and develop an economically viable and sustainable apicultural sector and ensure the environmental security of the honeybee".

To me, this is as relevant as when this statement was formulated almost two decades ago and I shall together with the Board members and your support strive to fulfil this mission to set the foundation for this month, this year and this decade.



The beekeeping world was shocked when almost 40% of honey entered for the World Beekeeping Awards at the 46th International Apimondia Congress in Toronto, Canada was disqualified due to non-compliance to legislation. This global statistic was a wake-up call to the beekeeping fraternity where honey adulteration or honey fraud lingered between the fifth to the third most common food fraud incidences on a global scale. Honey fraud includes all deception, not only the well-known adulteration, but also misrepresentation, counterfeiting and grey market imports. It prompted action by Apimondia, the international beekeeping body, to issue its second statement on Honey Fraud (simultaneously released in English and Chinese) and to lift the standards for judging honey. The entrants in all honey categories had been subjected to external laboratory analysis using ISO 17025 accredited laboratories to test for honey purity, contamination with residues, and some traditional honey quality parameters.

Although this action was widely welcomed, the number of disqualifications, including that of the world's highest priced Manuka Honey, raised questions on the level of harmonization of honey regulations in different countries, from the definition of honey to its quality and purity characteristics.

South Africa is most certainly not left-out of this debate. Incidences such as the publicly uncovering of fraudulent activities by Carte Blanche during 2018 have not been forgotten by the public. SABIO is still receiving complaints of fake honey from the general public. This vote of no-confidence by honey consumers is further fuelled by opinion in the food industry which rank fake honey as the most commonly food fraud activity in South Africa.

Just as Apimondia had to raise its actions and voice against fake honey, SABIO, as the South African industry body has no alternative but to speak out and implement some actions and strategies to combat honey fraud. I have and still believe that the regulatory framework is in place. We just need to live these. And yes, there are some amendments that have been agreed since the promulgation of the South African Honey Standard Regulations, R835 of 2000 but these have been published mostly as Directives. It is perhaps now the time not only to review these, but also to amend the applicable regulations.

Honey fraud is a major risk to the food retail industry and the scrupulous behaviour of one individual will put the whole beekeeping industry at risk. To combat this, the beekeeping industry is forced on a path of self-regulation.

With these views I wish you, your family and your business a prosperous 2020.



46th APIMONDIA Congress, Montreal 2019

‘African Apiculture Platform Participation Report’



Introduction

This report highlights the participation of the African delegates to the 46th APIMONDIA Congress under the theme ‘Beekeeping together within Agriculture’. The trip to attend the congress in Montreal was organized by Apitrade Africa and sponsored by the African Union – Interafrican Bureau for Animal Resources (AU-IBAR). The delegation that initially was supposed to be composed of 20 people only saw 9 people making it to Canada due to visa constraint. The delegation was led by Professor Ahmed EL-Sawalhy, AU-IBAR director. Other delegates included, Mrs. Catherine Oduor, Mrs. Stella Simiyu, Ms. Jacqueline Gowe, Mrs. Lestina Nhlema, Mr. Stephen Kagio, Prof. Robin Crewe, Mr. Dickson Biryomumaisho, Mr. Christian Nawej Kabongo.

The AAP takes this opportunity to thank Prof. Ahmed El Sawalhy and the entire AU-IBAR team for their efforts in insuring that Africa is represented in the APIMONDIA 2019 Montreal Congress. According to many delegates, this year congress was regarded as one of the most difficult one to attend due to the visa conditions. This saw good number of countries such

as Syria and Nigeria seeing their delegates being refused visas. Thus, for those who made it, it could not have been possible without the help of the entire AU-IBAR team led by Dr. Sarah Ossiya.

Despite the visa constraint, the congress was such a great experience. The event was well arranged and it saw the participations of all value chain players, from equipment providers, manufacturers, honey and bee product buyers, laboratories, researchers, development partners among others. Beside the Apiexpo; different workshops were organised during the 5 days – a vast range of topics were discussed from bee health to bee products marketing. Among other activities on the program, the Apimondia executive through the African Regional commission (ARC) gave also an important place to the African continent by designating a 2 hours session called “Africa Round Table. Different topics and presenters discussed topics related to bee health, youth involvement in beekeeping and beezness. AAP also takes this opportunity to thank Mr. David Mukomona, the ARC representative for his efforts and support throughout this great event.

worked hard to ensure that the delegates were all registered to attend the congress, and Africa was well represented and visible during the congress. These efforts yielded a great fruit; Africa Pavilion received the second best award in the category of best stand.

The objectives that the team assigned itself in attending the 46th APIMONDIA congress were:
Lobbying for the conservation of the integrity of Africa's honey bee genetic resources
Lobbying on the review of global standards on C4 sugars in Tropical honeys

State the importance of pollination services towards attainment of African Union's Agenda 2063 and the SDG's

Africa Open for Beesness

This report presents the key moment of the congress as experienced by the African delegates.

African Pavilion and B2B



The African Pavilion was a great success. Our heartfelt thanks goes to the Apitrade team in large and to Mr. Kisenyi in particular for the job well done. The Africa Pavilion won the silver medal for a large stand.

African was well represented by a large delegation of current and potential exporters from Ethiopia, Nigeria, South Africa, Tanzania, Uganda, Zimbabwe, and Zambia to mention these few. Many contacts were made; the delegates are here encouraged to continue the discussions that they have started and keep all the relevant institutions updated on their progress.

African Round Table

Despite the challenge in terms of program in which the Africa Round Table was given the slot on the last day and around lunchtime, the event was well attended. It took place on Thursday September 12th from 13h00 to 15h00 under the coordination of ARC and the facilitation of Dr. Nicola Bradbear of Bees for Development. The round table received presentations from different key players from around Africa:

- The outgoing president of APIMONDIA welcomed the participants and emphasised in his remark the important role of the continent of Africa in the Apiculture industry. He also acknowledge the fact that the African Regional Commissioner as the most hard working commissioner in the executive team.
- Mr. David Mukomona, the African Regional Commissioner President welcomed the participants and guests to the African round table. He also invited the audience to read the ARC annual activity report.
- The event was graced by His Excellency Mr. Mizengo Pinda, former Prime Minister of The United Republic of Tanzania. In his key remarks, H.E. Mr. Pinda being himself a beekeeper emphasised on the importance of beekeeping as a tool for economic development of the African continent. He called for the political leaders and

youth to embrace apiculture because of its potential.

- Prof. Ahmed El-Sawalhy, AU-IBAR Director, in his speech, conveyed greetings and message from Her Excellency Josefa Leonel Corres Sacko, Commissioner Rural Economy and Agriculture at the African Union Commission. Her Excellency who is well known for her passion and deep commitment to advocate for the elevation and increased support to Africa's apiculture sector could not make due to other important commitment. Prof. El-Sawalhy highlighted the theme of the 46th APIMONDIA congress – 'Beekeeping together within agriculture' as being very much in line with the goals and aspirations of the African Union Agenda 2063 and the Malabo Declaration on Accelerated Agricultural Growth and Transformation for shared Prosperity and Improved Livelihoods. He called for Africa to draw on the beehive products and untapped potential of harnessing pollination services. He also informed the audience that in 2013 with the funding from the European Union, AU-IBAR in partnership with the International Center for Insect Physiology and Ecology (ICIPE) launched the first continent wide initiative on Bee Health with a purpose to improve bee products and pollination services in Africa. This project facilitated the establishment or strengthening of over 35 National Apiculture Platforms and a continental umbrella multi-stakeholder Africa Apiculture Platform which have been key to improving the policy and institutional environment and enhancing coordination and advocacy.

Prof. EL-Sawalhy also launched 'The Inaugural Report on the Status of Apiculture in Africa 2019: Opportunities and Strategies for Development of the Sector'. The report outlines the current status of the Apiculture sector at national, regional and continental levels. The report draws on input from 35 Country Reports and 51 Country Profiles that were submitted by

Ministries in charge of apiculture. Prof. El-Sawalhy invited the participants to collect the copy of the report at the end of the round table.

The round table saw the intervention of other delegates:

- Prof. Robin Crewe made the presentation on pollination services and bee health in Africa
- The Ethiopian government thanked the African delegates for their support to the Ethiopian bid to host the 48th APIMONDIA 2023 in Ethiopia and invited the delegates to make it to the closing and voting ceremony.
- The youth from Tanzania and Nigeria made a presentation on their activities under the ARC initiative. This initiative saw the establishment of bee-village in Tanzania being run by the youth.
- The AAP president, Mr. Christian Naweji Kabongo, speaking on Africa Open for Beesness invited the rest of the world to come and do business with Africa. He pointed out the fact that while there has been the illusion around the dark colour of African honey not being of good quality, in the recent years there has been an increase on demand of the African dark honey in the UK market. He also called the African continent to move from just mere projects to real business. There is great opportunity in apiculture as business.

Africa Apiculture Concerns

The African apiculture concerns were well presented on different platforms during the congress,

- During the General assembly on September 9th attended, Mr. Kabongo (AAP chairman) pointed out the concerns of the African producers on false positive reading in certain tests such as C4, Betafructofurinosidase and gamma amylase being experienced by

most of the African exporter on the African honeys. It is of common knowledge that none of the laboratories testing these honeys have the profile on African honeys. This point was well taken and as a result the APIMONDIA executives informed the General Assembly that a request has been made to the ARC president to consult and invite the experts from Africa to be part of the on-going work on the integrity and quality of honey in the world. Mr. Biryomumaisho (TUNADO director) also during his intervention asked the APIMONDIA executive committee to increase the effort in ensuring that Apiculture sector concerns are well voiced and considered in other international platforms such as UN, FAO and WTO.

- Prof. Crewe during his presentation on World Honey Production came back to the uniqueness of the African honey. He explained the biodiversity that Africa has which gives the continent the unique position to offer to the world natural and organic honey.
- Furthermore the African delegates made impact in different meetings and visits during the congress.

APIMONDIA 2023 – Ethiopia Bidding

The Ethiopian team was led by the Ethiopian Agriculture Minister; and her colleague from Trade and Industry. The team made the presentation during the general assembly on Monday; a reception was also organized by the team to cement the campaign. Unfortunately Chile won by 15 votes. One of the reasons why Ethiopia lost is contributed by the fact that most of the African countries have no membership in APIMONDIA. If one can imagine a scenario in which even ¾ of the African countries were members of APIMONDIA, such will be beneficial to the continent when it comes to decision-making during the congress.

Recommendations and suggestions

- There is a need for the continent to conjure more effort in the promotion of the sector. The fact that few delegates made it to the APIMONDIA demonstrate the fact that there is still a lot that needs to be done.
- There is a need for AAP, ARC, ApiTrade Africa and AU-IBAR to meet and work together to promote the Apiculture sector in Africa
- AAP and ARC to work with AU-IBAR on getting more African countries and AAP registered as members of APIMONDIA
- The preparation for APIMONDIA 2027 bid to start being prepared now
- The preparation for APIMONDIA RUSSIA 2021 to start being prepared now to give enough time to the preparation committee to ensure that all delegates make it.



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Dr Jeff Pettis elected as the new President of Apimondia



Dr. Jeff Pettis has been elected President of Apimondia by the delegates of the Federation Members of APIMONDIA For a four-year period. Jeff served as President of the Apimondia Scientific Commission for Bee Health from September 2015 to September 2019. He comes from a farm-

ing background and fell in love with honey bees while taking a course in Beekeeping at the University of Georgia, Athens, USA. He completed MS and PhD degrees in Entomology while researching parasitic mites of honey bees. He worked for the U.S. Department of Agriculture as a research scientist for over 20 years and now consults on bee health globally since leaving the USDA.

He has been a beekeeper for over 35 years and now manages 75 hives with his youngest son Kevin in Salisbury, Maryland USA. He continues to work on queen health, parasitic mites and pollinator health. In his acceptance speech in Montreal he outlined his vision for Apimondia in three words: Communication, Diversity and Respect. He sees increased communication as vital to the growth of Apimondia, a need to capture the diversity of beekeepers and the different bees that are managed globally and finally, that we work to respect the bees.



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INDUSTRY REPORT

South-African macadamia industry committed to preserving bee populations

Dr Elrea Strydom (Macadamias South Africa)

The decline in bee colonies around the world has brought the sustainable and responsible production of agricultural crops to the forefront. The establishment of large monocultures and the associated loss in biodiversity coupled with the use of pesticides has placed bee populations under pressure. In recent years the South-African macadamia industry has focussed on the fact that it is not only in its best interest to preserve bee populations for its own profitability, but also that all stakeholders in agriculture have a social responsibility to protect bees to ensure food security in the long term.

Macadamia growers in South Africa rely on bees to pollinate approximately 40 000 ha of macadamias in order to guarantee good nut set and high yields. The industry is expanding by approximately 6 000 ha per year, and pollination hives are in short supply. Macadamias South Africa (SAMAC) hosted three Bee Forum meetings in Mpumalanga, KwaZulu-Natal and Limpopo to provide growers with more information on the dangers of neonicotinoid pesticides, the importance of an integrated pest management system and practical tips to safeguard bees in orchards. The meetings were well attended by growers, beekeepers and other interested parties, with more than 250 people in attendance at the three meetings. SAMAC has also initiated two research projects focussed on pollination and bee health. A project headed by Mike Allsopp at the Agricultural Research Council addresses the pollination activity of honeybees in macadamia orchards, hive closure structures to protect bees during pesticide applications, pesticide impact measures and the role of cross-pollination in yields. The contribution of honeybee pollination to crop yields and the evaluation of the floral rewards of different macadamia cultivars will be investigated by Dr Hannelie Human in 2020.

The information days and new research projects were only the first step on the road to growers, beekeepers, chemical companies and all other stakeholders working together to ensure the health and prosperity of bees in macadamia orchards.



Dr Schalk Schoeman of the Agricultural Research Council discussing the importance of following an integrated approach to pest management.



Dr Hannelie Human warns growers on the negative physiological effects neonicotinoid insecticides have on bees.



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Apiculture SA Email Discussion Group

Moderator: Dean Lennox * Cape Town, Western Cape
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Interdisciplinary Bees. Bringing together the sciences and humanities

By: Anja Buttstedt & Solvejg Nitzke



Interdisciplinary Bees (#interdisciplinarybees) is the title of a nascent project started by the molecular biologist, Anja Buttstedt, and literary and cultural scholar, Solvejg Nitzke. Both of them are currently working at the Technische Universität Dresden, Germany, through an initiative that encourages excellent researchers from all fields to tackle projects, which transcend disciplinary boundaries. Discussing our different projects, we quickly discovered more similarities in our work than we would have thought possible. Buttstedt's work on royal jelly proteins (Buttstedt et al., 2016, 2018) includes extensive research into historical bee research and the ways in which both science and society make sense of how bees raise queens. This includes reviewing research by scientists like Martin Lindauer (1918-2008) who was exceptional not only for his many discoveries (Seeley, 2008), but also for his research focus and writing style. Singling out individual bees to follow their life histories, Lindauer's tendency to describe both the experimental set-up and the results rather than simply presenting them (Lindauer, 1952, 1955), is often overlooked in scientific readings of his work.

Nitzke's research in literary and cultural studies focuses on the practice of producing, legitimizing and presenting knowledge through narrative devices. That is, while the 'narrative aspects' of scientific writing are often overlooked by scientists due to a lack of attention to material beyond the actual data and, sometimes, indeed a lack of attention to writing as an instrument with multiple effects. Nitzke's work suggests that these aspects of writing greatly influence the way in which honey bees are perceived in science as well as by society.

Since antiquity, the study of bees has crossed systematic and disciplinary boundaries. Honey bees, in particular, have fascinated philosophers, naturalists and poets alike (Aristotle, ~350 BCE; Pliny the Elder, 77; Virgil, 29). This is attributed to the longstanding relationship between honey bees and humans stretching back to the emergence of

humans as a species. Rock paintings depicting persons collecting honey from bee nests are found across the native range of honey bees, e.g. in Spain, India and South Africa (Dams & Dams, 1977; Mathpal, 1984; Pager, 1973) and the earliest evidence that humans deliberately used bee products dates back to ~38,000 BCE (KwaZulu-Natal, South Africa) (d'Errico et al., 2012).

The progressive specialization of modern science not only produces remarkable insights into bee biology but also erects communication hurdles. This creates the impression that every discipline has its own language to describe bees but that, in fact, each produces its own concepts and model of bee behaviour and natural history. Thus, a joint, interdisciplinary reading and review of bee science promises to lead to insights regarding both, the study of these social insects and their cultural significance and the roles scientific and other kinds of writing play in the formation of nature-culture-relationships. While a common critique of these intersections of social and natural sciences as well as the intermingling of institutional and public discourses is a demand for stricter separation, we believe the opposite to be true. To understand how and why (scientific) facts about bees turn into public understanding and vice versa, we need to establish a continuous exchange in order to question our own assumptions and biases.

A first step in initiating this project was the convening of an interdisciplinary symposium 'On Bees and Humans. A Love Affair between Nature and Culture', which took place in Dresden at the Technische Universität and at the Deutsches

Hygiene-Museum. The goal was to bring current scholarly and scientific research together with work in the humanities and arts into dialogue about 'their' bees. Acknowledging the shared history of humans and honey bees as well as the parallel efforts of scientific and cultural (academic and artistic) work on bees, the idea was to provide a forum for presentations that transcended the focus of talks and discussions both in terms of time and intended audience.

Fabio Manfredini (Royal Holloway University of London, UK) opened the symposium with a discussion of the way in which bees communicate distance and direction of resources with the waggle dance (von Frisch, 1923). Building on Karl von Frisch's seminal work, Manfredini explored the capacity of bees to find and advertise food sources under different conditions, thus, at least implicitly, challenging notions of intelligence and communication as exclusively human traits. Countering Manfredini, Eline Tabak (Bristol University, UK) emphasised in her presentation 'A (Mono)culture of Bees' that despite of a total of approximately 20,000 bee species worldwide (Michener, 2007), contemporary literature and media focused almost exclusively on a single species – the western honey bee *Apis mellifera* – establishing what Tabak called a 'narrative monoculture', that threatens to divert attention from the loss of insect species on a much larger scale, which is especially troublesome if one considers that a novel like Maia Lunde's *The History of Bees* (norw. 2015) sets out to achieve the opposite. Anthropomorphising the honey bee is, as the subsequent discussion showed, not an exclusive device of non-scientific texts. The opposite is true. Using words such as 'dance floor' when describing the areas on the comb where bees dance, suggests that scientific language is not as objective as it claims to be. Although in using these terms Manfredini and others adhere to scientific conventions, the confrontation with Tabak's analysis of cultural imagination prompted a fruitful discussion about the impossibility of confining words only to their scientific meaning. This might not be something that is desirable, as it is the flexibility and versatility of terms like 'waggle dance' that facilitates science communication. On the other hand, as Tabak readily acknowledged, even while criticising the single-focused conception of insect decline, the actual diversity of bees and other insect species, as well as the complexity of honey bee behaviour is startling, when one shifts ones focus for narrative texts and fiction.

The next pairing, Brock Harpur (Purdue University, IN, USA) and Dalial Freitak (Karl-Franzens-Universität Graz, Austria) continued the reflection on human-bee-relationships in relation to communication/awareness and the protection of bee

colonies. Harpur presented a talk that he often uses to present bee research and raise awareness of bee diversity to students and an interested public. Pointing out common misconceptions (all bees are striped, live in colonies etc.), he introduced solitary bee species (e.g. the ivy bee *Colletes hederæ*, the carpenter bee *Xylocopa violacea* and the leafcutter bee *Megachile rotundata*) and brought them together with bee art. In Harpur's conception, the appreciation of bees and bee diversity is key in protecting bees, as he demonstrated by using examples of people being afraid of bees because they do not know they will not harm them. Information/education and appreciation must go hand in hand with efforts to protect biodiversity and, Harpur stresses, are part of a scientist's job. Dalial Freitak (Karl-Franzens-Universität Graz, Austria) approached the protection of bees from another angle. She presented her research on how immunity against specific diseases, e.g., American Foulbrood, can be transferred in honey bees from queens to their offspring (Salmela et al., 2015). Based on this, a vaccine was developed (Salmela & Freitak, 2018) that promises to help prevent massive outbreaks of honey bee diseases in the future. Her talk not only provided insight into the possibility of the vaccine but also told the story of how this idea was conceived. In concert with Harpur, Freitak demonstrated the inevitable and – as the participants agreed – desirable messiness at the edges of the scientific progress. Neither the conception of ideas, nor the communication of results can be separated from contingent factors nor can they be understood without historical and cultural contexts. In conclusion, Anja Buttstedt and Solvejg Nitzke demonstrated, how the reading of Lindauer's paper on the division of labor in a bee hive can lead to "Two kinds of Bee" and how these can brought into dialogue in a larger 'interdisciplinarybees'-project.

This thread was taken up by the evening event in Dresden's Hygiene-Museum. Provocatively questioning the myth of the efficient hive and the industrious bee, Christian Pirk (University of Pretoria, South Africa) and Prof. Dr. Niels Werber (Universität Siegen, Germany) looked at "the dark side of the hive" (cf. Moritz, Crewe 2018). Drawing on his work on ant societies and their cultural exploitation (Werber 2013), Werber showed how the bee hive served as an analogy for a 'naturally functioning collective for nearly every ideology. But while the racist and fascist interpretations of bee behavior may be the most immediately unsettling examples, Werber cautioned against taking more 'progressive' analogies (e.g. "honey bee democracy" Seeley 2010) lightly, since the superimposition of human systems on animal collectives may be highly problematic.

Noting that he was tempted to question his own terminology, Christian Pirk presented those aspects of bee behaviour that are not considered suitable as models of human behaviour, much less child behaviour (as attempted in, for example, Waldemar Bonsel's children's book *Biene Maja*, 1912). Not only did he provide – from a literary critic's point of view – much more interesting bee narratives than are commonly told, e.g. the killing of possible competitors by the queen bee, Pirk demonstrated how false conceptions of bee societies and behaviour lead to fatal interventions by humans threatening not only habitats but precarious ecological relationships.

The great interest in both symposium and evening events by academic as well as non-academic audiences and the enlightening talks and discussion encourages the authors to further pursue this interdisciplinary-bees-project. Goals of the project are: 1. to provide opportunities for exchange (such as the 2019-symposium) between humanities scholars and scientists, 2. To attempt joint readings of existing research and 3. attempt collaborations in order to reveal blind spots and go beyond 'training' and 'transfer' in bridging the gap between knowledge cultures in and outside the academic world.

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FUNDING CONFERENCES

SOUTH AFRICA NATIONAL CONVENTION BUREAU: A SUPPORT MECHANISM FOR CONFERENCES IN SOUTH AFRICA

Merryl Fairfoot

MIC Sales Manager, South African Tourism

Three years ago, the South Africa National Convention Bureau (SANCB) received a Bid Support fund allocation from National Treasury with the mandate to secure International and Regional African conferences for South Africa. The aim of the Bid Support fund is to provide some budget relief and bid lobbying support when National Associations are bidding against competing destinations.

Given that South Africa is a long-haul destination, delegate numbers for conferences are often low due to time and budget constraints. This is particularly true for delegates travelling from Europe and North America. These difficulties can impact on the financial success of conferences hosted in Africa, making International Associations reticent to award a bid to South Africa. The Bid Support fund aims to minimise this challenge when competing internationally; and ensure that South Africa remains a competitive and attractive destination for Association conferences. Naturally, budget relief means just that, and is not intended to bankroll a conference which must still be feasible and successful financially for the host Association.

A challenge encountered by the SANCB in its endeavours to encourage National Associations to throw their hat into the international arena, is that many are not familiar with the bidding process, or simply do not have capacity in terms of finances and manpower. Associations by their nature, are usually run by volunteers who (as in the case of SABIO), are passionate and enthusiastic about making a difference; but without the required financial support, get derailed in their efforts to achieve bigger things for the Association.

And so, the idea was born, that if South Africa as a destination is to grow international and regional African conferences, then there is a need to capacitate the

National Associations bidding for these events. With this in mind, the SANCB ran a series of consultative workshops beginning in February at Meetings Africa 2019 with selected National Associations to find out what their challenges are and to unpack criteria for support of National Association conferences in order to get the National bodies "bid fit".

SABIO played a significant role in these workshops, giving valuable input into the challenges faced in hosting National Becons and building capacity within the Association in order to put up their hands to bid for and host Regional African and International Beekeeping conferences.

In September 2019, SABIO Board members, Adriaan du Toit, Jaco Wolfaardt, and Hannelie Human attended the launch of the National Association Bid Support fund in Rosebank. In a nutshell, three future national Beacon's will potentially qualify for financial Bid support provided that SABIO is willing to bid for an International and Regional conference. Part of the criteria is that two out of the three Becons should be hosted in secondary cities or provinces, as was the case with the 2019 Beacon hosted this year at Zebula in Limpopo.

These criteria fulfil the SANCB objective to encourage the spread of business events outside of major cities, and in turn assists SABIO in encouraging new membership and transformation within its structures; ensuring that SABIO is truly representative of all beekeepers in South Africa, new and experienced, emerging and established.

It is not an easy task that lies ahead, but the SANCB is encouraged by the enthusiasm and commitment of the SABIO Board as we embark on the "road to 2027" to secure the International Apimondia Congress for South Africa.

We are excited to partner with SABIO as we embark on this new adventure together!



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*** Cooking demonstrations**

*** Children's entertainment and family fun**

*** Pollination symposium * Local honey and honey products**



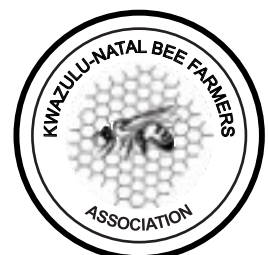
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CONTACTS FOR BEEKEEPING

Mr Riaan van Zyl and Mr Kobus Kemp are the persons who beekeepers should contact if they have any suspicion about bee diseases or the presence thereof such as AFB and the Capensis clones.

They can also be contacted regarding legislation concerning honey labelling and the standards of import requirements of honey.

They do not provide advice on beekeeping practises, but will if possible direct persons with enquiries to the correct or experienced sources.

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RESEARCH ARTICLE

Do scutellata queens influence the mandibular gland pheromones of the A. m. capensis clone workers and their ability to lay eggs?

**Mumoki F. N., Pirk C. W. W., Yusuf A. A. and Crewe R. M.
University of Pretoria, South Africa**

Organisation in social insect colonies is a complex affair! Colonies range in size from as few as five individuals as is the case in the ant *Ponera pennsylvanica* (Geraghty et al., 2007) to millions of individuals as in the case of army ants (Kronauer et al., 2007) with the honey bee (*Apis mellifera*) colonies intermediate in size (up to 80 000 workers) (Lee and Winston, 1987). A distinctive feature of honey bee colonies is reproductive division of labour where the role of producing the next generation is left to the reproductively dominant individual- the queen- who mates with drones and lays the overwhelming majority of eggs in the colony (Winston, 1987). In contrast, the responsibility of general colony maintenance and seeing to the nutrition of the reproductive individuals and the brood is left to workers, whose tasks are regulated through age polytheism modulated by the queen through her chemical secretions (Hoover et al., 2003; Pankiw et al., 1998; Slessor et al., 2005). The workers are characteristically reproductively sterile, although, they can, in the absence of the queen, activate their ovaries and lay unfertilized eggs which emerge as drones through arrhenotokous parthenogenesis (Crozier, 1975). Egg laying by *A. mellifera* workers is common in cases such as queen loss, with the latency period (time period between queen-loss and egg laying by workers) varying widely among the different *A. mellifera* subspecies (Plettner et al., 1993). These varying reproductive capacities are seen in the two subspecies of *A. mellifera* found in South Africa; *A. m. capensis* ('the Cape honey bee') and *A. m. scutellata* ('the Savannah honey bee')(Hepburn and Radloff, 1998; Moritz and Crewe, 2018), with the Cape honey bee having a latency period that is 3-4 days shorter than that of the Savannah honey bee (Ruttner and Hesse, 1981).

In addition to a brief latency period, the Cape honey bee workers possess the ability to give rise to female offspring without the need for fertilization (Onions, 1912), through the process of thelytokous parthenogenesis (Verma and Ruttner, 1983), unlike the arrhenotokous workers of other *A. mellifera* subspecies where unfertilised eggs emerge as drones. Further still, a specific lineage of *A. m. capensis* workers through a short-sighted evolutionary process evolved into reproductive parasites, capable of seeking-out and infesting susceptible host colonies, activating their ovaries and laying eggs, even in the presence of host queens (Moritz and Crewe, 2018;

Moritz et al., 2008). These laying *A. m. capensis* workers are not only able to activate their ovaries and lay diploid unfertilised eggs, they also produce multi-sourced chemical communication messages that are similar in profile to those of honey bee queens (Okosun et al., 2017). The queen-like chemical signals are pheromones produced by the mandibular (Crewe and Velthuis, 1980; Hepburn and Crewe, 1991; Mumoki et al., 2018; Mumoki et al., 2019; Zheng et al., 2010) tergal (Okosun et al., 2015) and Dufour's glands (Sole et al., 2002).

Recently, we set out to describe the mandibular gland profiles of parasitic *A. m. capensis* workers and their reproductive potential that were collected from infested *A. m. scutellata* host colonies either with a queen (queenright colonies) or without a queen (queenless colonies). Their reproductive potential was determined by measuring the degree of ovary activation using a five-point scale (Hess, 1942), resulting in classification of individuals into inactivated (Stage I and II), intermediate (Stage III) and activated ovaries (Stage IV and V). Gas chromatography as described by (Zheng et al., 2010) was used measure the mandibular gland extracts from one half of the parasitic worker's

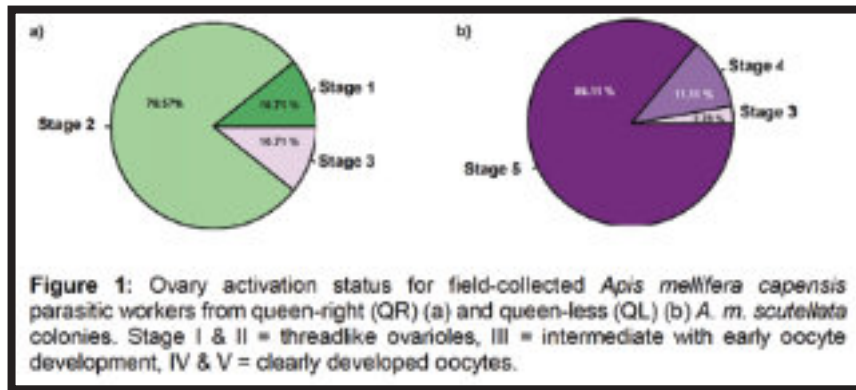
heads. Total RNA was isolated from the remaining half-head, followed by cDNA synthesis and quantitative PCR to assess the relative abundance of the enzymes responsible for the caste-selective biosynthesis of the honey bee mandibular gland pheromone.

The results showed that parasitic workers collected from parasite-infested colonies with queens (queenright colonies) had predominantly undeveloped ovaries and expressed mandibular gland pheromones characteristic of worker while parasitic workers collected from the infested colonies where the queen was absent (queenless colonies) had fullyactivated ovaries and also secreted queen pheromones from their mandibular glands. An examination of the relative abundance of the enzymes involved in the biosynthesis of mandibular gland fatty acids revealed that the parasitic workers from queenright colonies had a high relative abundance of enzymes known to cooccur in workers. The reverse was true for parasitic workers from queenless colonies which had a higher relative abundance of enzymes typically found in the mandibular glands of queens.

Overall, this study shows that for an *A. m. capensis* clone worker to become a reproductive parasite in is not independent of the social conditions in which she finds herself (see Fig. 1), and that just as with the host workers, the queen regulates the reproductive ability of these parasitic workers. So *A. m. scutellata* queens are not powerless in the confrontation with *capensis* clones.

Figure originally published in the following journal:

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PAPERS OF INTEREST

The honey badger in South Africa: biology and conservation

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Abstract

The honey badger (*Mellivora capensis*) is an intriguing animal with very particular behavioral characteristics, however, but the knowledge of this, "the most fearless animal in the world", is incomprehensive. In the following review, we have focused on its behaviour and status in South Africa. Considering that there have been several problems in sustaining the population, mainly related to ongoing threats from agriculture, we have outlined the aspects of the honey badger biology relevant for implementing optimal conservation efforts. Consequently, the conservation status and strategies have been described and discussed, using the available but limited literature. We concluded that the present conservation efforts and solutions have been successfully implemented in South Africa, the badger-friendly products are now a reality and readily available in South Africa. However, the long-lasting effect of present conservation strategies on the honey badger sustainability needs to be evaluated in the future. The conservations measures carried out in South Africa can be a good example for preserving the population globally

Keywords: honey badger, nutrition, reproduction, behavior, beekeepers, conservation
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Importation of Honey: Statistics 2018

SABIO has started to compile the importation statistics in relation to honey a bit more thoroughly again and we feel that this information should be made available to our members to keep everyone up to date regarding the state of honey imports

The quantity of honey imported into South Africa in 2018 was the highest that we have recorded, a massive 4480 tons (Fig. 1). 2018 was a dry year which definitely had an effect on local production and hence may have stimulated importation. China has recently been the main country of origin but the fact that Zambian honey can be imported duty free definitely made them a bigger player in our market. There were a couple of months when honey was not imported from Zambia (see Table 1) since samples were found that tested positive for AFB – see the effect in February, March and July 2018. August is usually the month with the highest

level of imports as not a lot of local honey gets produced in winter and the consumption is higher than other times of the year. Assuming South Africa produces about 1500-1800 tons annually and we imported about 4100 tons in 2018, this may not translate into consumption of 5700 tons annually. Honey that is imported is sometimes re-exported as South African honey unfortunately. On some local websites you can order 250 tons or more of South African Acacia honey to be exported to any country and advertised as of local origin. Given the estimates of local honey production and the figures for honey imports, it appears unlikely that these quantities of acacia honey would be available for export. The figure for the importation of molasses from Zambia in 2018 was 1879 tons, and we believe that some darker honey from Africa may be imported as molasses.

TABLE 1: Importation of honey into South Africa by country in kilograms

	Zambia	Zimbabwe	Congo	Mozambique	Angola	China	Italy	Uruguay
Jan	1742973	649,5						1743622,5
Feb								
March								
April	87970,5	15	1,5		396			88377
May	21255	7,5		120				21382,5
June	179588	15						179603
July						165660		165660
August	61504,5					565889	256648,5	127632
Sept						194670	27090	221760
Oct	582117,5							582117,5
Nov	73836							73836
Dec						389682		389682
	2756042,5	22,5	0	120	396	1324161	277738,5	127632
								4480912,5

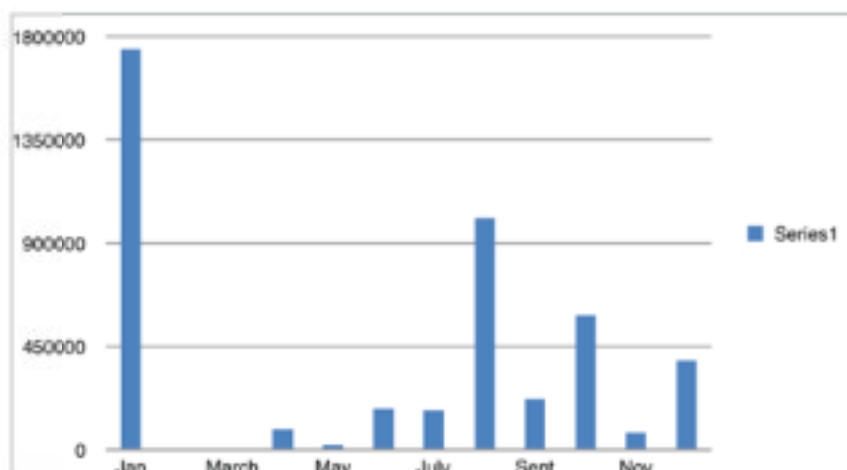


FIGURE 1: Monthly importation of honey in kg into South Africa 2018

Separating fact from fiction

Bee Myths: *Don't Believe Everything You Hear!*

When it comes to the subject of bees, there is plenty of information that is instantly available with the touch of a few keystrokes – but much of it is unreliable. So, how do you separate fact from fiction?

The health of honey bees and other pollinators and their importance to our food supply has been the subject of countless news articles, television reports and social media blogs over the past few years. Many of these have focused on the use of crop protection products as a driving factor in the alleged reduction of bee populations worldwide. But is it even true that bees are in danger of extinction, or that modern farming practices are a principal cause?

We live in a world of increasing complexity, in which conversations are often conducted in tweets of 280 characters or less, so it's little wonder why people demand simple answers to difficult issues. Predicting how living things, such as bees, react to their environment, does not lend itself to easy answers but that shouldn't stop us from searching.

Everyone knows you shouldn't believe everything you read or hear. Separating fact from fiction is the first step toward increasing our understanding of complex biological systems and is essential if we are to make meaningful decisions that will improve our quality of life, protect our food supply and ensure the preservation of our natural world. Let's take time to fully explore some common beliefs about bees and how knowing the facts can provide greater insights on how we can protect them and protect our food.

“For every complex problem there is an answer that is clear, simple, and wrong.”

H. L. Mencken, American twentieth-century journalist, satirist and social critic

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