



Student council News Letter

MARCH 2012

*Reflecting on the 38th SAAB conference:
from a students point of view.*



SAAB 2012 Conference
University of Pretoria



Inspired by the Western region: See pages 6-7





Sarah Stanton

SAAB Student Council President 2012

I have been a student at the University of Pretoria since 2007. At the start of my degree I wanted to be a veterinarian and the highly competitive course was the reason I attended Pretoria University. During my second year I started to really open my eyes to the many different science fields that were available to me. It dawned on me that my high school teachers had kept me in the dark about the many different career opportunities that the science world held. Something also happened; I started to see plants in a totally different light, these things that I had always taken for granted were actually very interesting and smart. I realized that plants are the solution to our drug and beauty worries. The compounds they hold have the possibility to cure our people and there is barely enough researchers conducting these very important experiments. With this in mind I knew what I wanted to do with my life and in 2009 I completed my degree in Plant Science.

At the beginning of 2010 I started my honours in Medicinal Plant Science under the supervision of Professor Marion Meyer in the department of Plant Science. The Medicinal Plant Science degree included courses in ethnobotany, biotechnology, microbiology and pharmacokinetics. My project was to determine if the endophytes or the plant *Pachystigma pygmaeum* produced the toxin Pavetamine. This was very exciting because this plant was known to cause the sickness Gousiekte which affects domestic ruminants in Southern Africa and with my research it could possibly help stop the death of so many livestock in our country. My honours project results were presented at the 37th annual SAAB conference in Grahamstown in 2010. That was my first SAAB conference and I enjoyed it extensively. It was amazing to meet the authors of the journal articles I had been reading and hear their knowledgeable take on things. It was also very amusing to see how much the botanists of South Africa could party, every night at the Rat and Parrot.

In 2011 I started my Masters degree again under the supervision of Professor Meyer. I also gained a co-supervisor, Professor Teresa Coutinho who is in the department of Microbiology and FABI research. My honours project was extended to incorporate more poisonous plants of the same genus. My MSc degree will also focus on many new aims such as reasons why the plants undergo seasonal toxicity fluctuations, and this was done by using electron microscopy. Due to my work on the electron microscopes I was able to go to the 49th annual Microscopy Society of Southern Africa conference last year. This was a tremendous experience for me and I was captivated by the research that is being done by these professionals in all different kind of fields.

The 38th annual SAAB conference this year was a huge success and a great enjoyment. This conference also coincided with the opening of the new Plant Sciences Complex at the University of Pretoria. The new building allows all the Plant Science disciplines to be under the same roof which has not been the case for a very long time. It was so nice to meet up with the same people from the last SAAB conference and hear how their projects are developing. It was also lovely to meet new students just starting their post-grad career. During the student rumble I was nominated and then elected as the new student president for 2012. I hope to accomplish greater interactions between students from different universities. The students are the future of this society and bonds made now will last forever. This will make for a stronger council and hopefully collaborations with peers and supervisors. Another focus point this year will be to generate a small income for the student council and with this money hopefully we can attract more students to come to the 39th SAAB conference.

Sarah Stanton



Vice President of the SAAB Student council 2012

Profile and educational backgrounds

I am from Ile-Ife, Osun State, Nigeria and I have been a resident in South Africa since 2009. I obtained my first degree, B.Sc. (Hons) in Botany from Obafemi Awolowo University, Ile-Ife, Nigeria. In 2009, I came to South Africa to pursue a postgraduate study and was awarded an MSc (*summa cum laude*) in ethnobotany by the University of KwaZulu-Natal (UKZN) in 2010. Thereafter, I have been studying towards a PhD degree in Plant Molecular Biology and Physiology under the supervision of Prof Johannes van Staden and co-supervision of Prof Jeffrey F. Finnie and Dr Michael W. Bairu at the Research Centre for Plant Growth and Development, UKZN. Besides being a student member of the South African Association of Botany, I also hold membership of the American Society of Plant Biologists and American Chemical Society.

Research interests

My interest lies on the application of plant biotechnology in the production and conservation of medicinal plants and food crops. For my PhD project, I am assessing the role of *meta*-topolins (a new group of cytokinins) on the physiology and genetic stability of tissue-cultured banana. The study involves the tissue culture, hormone physiology and molecular biology of 'Williams' bananas. As a result of the rich plant biodiversity in South Africa and importance of traditional medicine as well as the expertise acquired during my MSc study, I am also involved in the pharmacological and phytochemical studies of traditional medicinal plants as well as the isolation of active compounds.

My personal view on SAAB conference

I have been a regular attendee of SAAB for the past three years. The experience and knowledge acquired during the annual congress is unlimited. It gives student researchers the opportunity to meet with various established and renowned botanists from all over South Africa as well as invited international speakers. Frankly speaking, I don't know of any other local conference with the gathering of numerous experts on the diverse field that constitute botany. After the stimulating and interesting sessions, I always look forward to the social functions due to the unlimited fun. For any upcoming researcher, the event also creates an avenue to interact and exchange ideas on different aspects of life. Hence, I do encourage my fellow postgraduate students to attend the SAAB annual congress. I am looking forward to seeing an increase in the number of postgraduate students that will be attending the 2013 congress in KZN.

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For more research information, visit my websites:

<http://www.researcherid.com/rid/A-2273-2012>

<http://www.researchgate.net/home.Home.html?ref=home>



Anina Heystek SAAB Student Council Secretary

Growing up in Pretoria, I became familiar with the bushveld. It was only after we moved to the Western Cape and I started studying at Stellenbosch University that I became acquainted with the fynbos biome. I soon discovered how special this habitat is with its fantastic floristic diversity. After finishing my BSc degree in Biodiversity and Ecology I proceeded to do my Honours at Stellenbosch.

The botany and zoology departments at Stellenbosch University merged in 2004, forming one department and providing ideal opportunities to conduct integrated research. Currently there is a diversity of research groups, each focusing on Cape Flora systematics, plant-animal interactions, invasion biology, medicinal plants, plant biotechnology, molecular systematics and phylogeography, sub-Antarctic research and ecotoxicology.

Currently I'm exploring the field of pollination biology since this allows me to combine my interests in plants and birds. Under the guidance of Dr. Anton Pauw (Stellenbosch University) and Dr. Phoebe Barnard (South African National Biodiversity Institute) I investigated the role that pollinators play in structuring *Erica* communities. There are approximately 680 *Erica* species in the fynbos and when several species coexist in a community they often share pollinators. By looking at the community patterns and at how coexisting species affect each others' pollination, we found evidence that competition for pollinators affects community assembly.

I attended the SAAB conference for the first time this year and thoroughly enjoyed it. It was great to meet other students and scientists in my field of study and to see the diversity of interesting presentations. This year I will start my Masters project at Stellenbosch and further explore bird pollination systems and look forward to the next SAAB conference.



STELLENBOSCH

Carina Becker SAAB NMMU student council representative

Spekboom, elephants food, the bacon tree, the miracle plant, "spekie", call it what you like, but *Portulacaria afra*, has been receiving a lot of attention from landowners, botanists, conservationists and even economists..... and now me! J

Spekboom and soil, what on "earth" does sodium have to do with it?

I'm doing my masters through the Nelson Mandela Metropolitan University, (but am based in George, at their satellite campus Saasveld) under the supervision of Prof Richard Cowling & Dr Corli Coetsee. Spekboom is on its way to being hailed the miracle plant and the answer to restoration and economic problems due to its carbon storing ability (storing close to the same amount of carbon as some of the worlds rainforests); and the ease with which it grows. Five years ago Working for Water and the Gamtoos Irrigation Board began a nationwide planting programme, planting hundreds of hectares with spekboom cuttings. However not all have survived and we want to know why. The question of "where" to plant has become one of major importance, and that, my friends is where my research, together with others comes into action. Looking at natural areas of spekboom a trend became apparent, it seems to prefer to grow on slopes, especially north facing, and seems to decrease in numbers with distance down slope, whereby it hardly occurs in bottomland areas and valleys. It's becoming more apparent that it prefers warm steep slopes that are rocky. Preliminary tests and personal observations confirmed an idea that although this plant can grow well in any soil, salinity could be a major controlling factor and that is what I am primarily looking at.

Therefore my research aims to look at what soil factors could be influencing the distribution (and survival) of spekboom. This includes three main aspects, namely running experiments on 240 plants with different levels of salt water; collecting data from intact/ natural areas of where it does and doesn't occur; as well as analysis of some of the restoration plots (in the Baviaanskloof, Addo National Park and near Calitzdorp). So watch this space because I think the research will generate some interesting results!





The Western region



The fynbos is botanist's paradise. The biome is one of 35 biodiversity hotspots world-wide due to its high numbers of endemic plant species. With approximately 6210 endemic species contained in 15 711km², it is not surprising. In fact, the fynbos contains such a unique assembly of plants that it is recognised as a distinct floristic kingdom, namely the Cape Floristic Kingdom. The species diversity in this Mediterranean region is comparable to tropic regions such as Panama, the Philippines, Madagascar and Brazil and the levels of endemism is comparable to islands such as Hawaii and New Zealand.

The three largest plant families in the fynbos (Proteaceae, Ericaceae and Restionaceae) form the defining characters of this vegetation type. A fynbos community thus usually have some woody proteoid species, some ericoid shrubs and some grass-like restioids. *Erica*, *Aspalathus*, *Pelargonium*, *Agathosma* and *Phyllica* are the five largest genera in the fynbos.

The reason for this great diversity is a mystery that's slowly being unravelled. The mountains and soil diversity produces lots of habitat heterogeneity and consequently you can find a whole different suite of species on different slopes of the same mountain. The winter rainfall and dry summers are quite unique climatic conditions. In a way, the biome is also geographically isolated. It is surrounded by oceans on the south and west, semi-desert on the north and an all-year rainfall region on the east. It is thought to also have been an old biome, subject to drastic climate changes. Furthermore, the fire ecology potentially also plays a role. A fynbos community burns approximately every 10-15 years and the plants and animals are adapted to this cycle. The survival strategies of plants include resprouting (often from underground bulbs) and regenerating from seeds, which is achieved by storing seeds in fire proof cones (serotiny) or getting it buried by animals.

What is interesting about this biome is that, unlike in similarly diverse tropical regions, the fauna diversity does not nearly match the floristic diversity. Yet, there are some fascinating symbioses in the region. Seed dispersal mutualisms are one of these. *Leucospermum* seeds attract ants with elaiosomes (edible, oily appendages) on the seeds and some *Leucadendron* seeds are stored underground by rodents.





Another interesting relationship is the one between plants and their fungal symbionts in their roots. This is particularly prevalent in species of Fabaceae and *Erica* and also orchids. There is also a diversity of pollinators, including bees, wasps, flies, beetles, butterflies, moths, birds and rodents. Pollinator specialisation might have also contributed to plant speciations in the fynbos.

The fynbos also contains a number of medicinally important plants. *Lessertia*, *Aspalathus*, *Pelargonium*, *Stachys* and *Salvia* are among the genera with known useful compounds. Medicinal plants represent an important asset to the livelihoods of many people in South Africa. Most people living in rural areas rely more on the traditional leafy vegetables and herbs that grow in the wild for subsistence and these vegetables possess some medicinal properties. Remarkably, in South Africa medicinal plants are not only used for healing of physical illnesses, but also for protection against misfortunes with natural and supernatural causes for cultural ceremonies. Harvesting of these medicinal plants for subsistence is not generally detrimental to the wild populations, however, the shift to commercial harvesting is posing unprecedented extinction threat to the wild populations of medicinal plants. Seventy percent of the plants in the fynbos biome are endemic but worryingly this is one of the world's 25 most threatened hotspots. To mention a few; rooibos, honeybush and buchu are the most commercially marketed plants inhabiting the Cape Floral Kingdom. Adding to the threat of commercialisation, which leads to unsustainable harvesting or overexploitation, is the rising number of infrastructure development in and along the Western Cape coast and, the growing number of alien/invasive species in the fynbos biome. These threats are most likely to have a negative impact on the natural succession of endemic plants, remarkably decreasing plant populations from this region. This calls for intervention from different disciplines of botany to try and save these important plants for future generation.

The fynbos is a botanical treasure and much remains to be discovered and explored. The need to conserve this biome is unquestionable.

By: Sandiswa Figlan and Anina Heystek

Siviyisiwe Situngu, an Honours student at Rhodes University



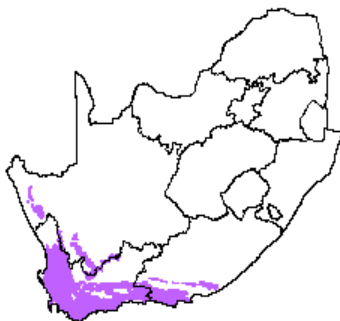
A NEW-COMER AT THE SAAB CONFERENCE

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I completed my Bachelor of Science degree last year and I have just started reading for an Honours degree in Conservation and Biodiversity at Rhodes University's Botany Department. I was captivated by the broad discipline of Botany in my first year at university and from then on I decided to take it as a major alongside Environmental Science.

My Botany project supervisor told me about the South African Association of Botanists (SAAB) Conference and how it would be a great opportunity for me to learn more about what other botanists are busy with and to get more exposure to the world of scientists in general. As a result, I attended the 2012 SAAB Conference, which ran from 15 to 18 of January. At the conference I presented a poster on my third year project, which was on an unknown species of *Thamnochortus* growing at the Sundays River in the Eastern Cape. SAAB Conference was a great experience. The talks gave me insights into what other botanists from different institutions were working on, which has broadened my scope of possible projects for future studies. The program was filled with a range of insightful topics covering the whole spectrum, from ecology to molecular plant science. These topics were very educating and they added an important layer of knowledge to what I already knew. Conversations with fellow students, on the other hand, have given me a picture of which university is busy with what and where to go to pursue my studies in future depending on which project I would be interested in.

The strength of the conference lies in its ability to update one about the latest themes, trends and the hottest topics in the world of science. It presents a platform for botanist to come together and share their findings from studies they are conducting. For students, it provides an opportunity to interact and share their projects with renowned scientists, who give valuable advice and pointers. As a new-comer, I found the conference to be rewarding and a great place to network. I wish that every Botany student would attend the SAAB Conference; the experience it offers is one of a kind and adds extra value to one's qualifications.





RHODES UNIVERSITY
Where leaders learn

John-Rob Pool: The perspective of a Rhodes student

My name is John-Rob Pool and I was a Biodiversity and Conservation honours student in the Departments of Botany and Environmental Science at Rhodes University in 2011. I was a member of the tightly knit Rhodes delegation that went to SAAB this year. Our crew consisted of Professor Roy Lubke, Professor Brad Ripley, Chantal Taylor, Ryan Daniels, Cara-Jayne Thorne and Sivuyisiwe Situngu. I think that we represented our university well and I feel comfortable in saying on behalf of my colleagues that we thoroughly enjoyed the opportunity to be at SAAB 2012.

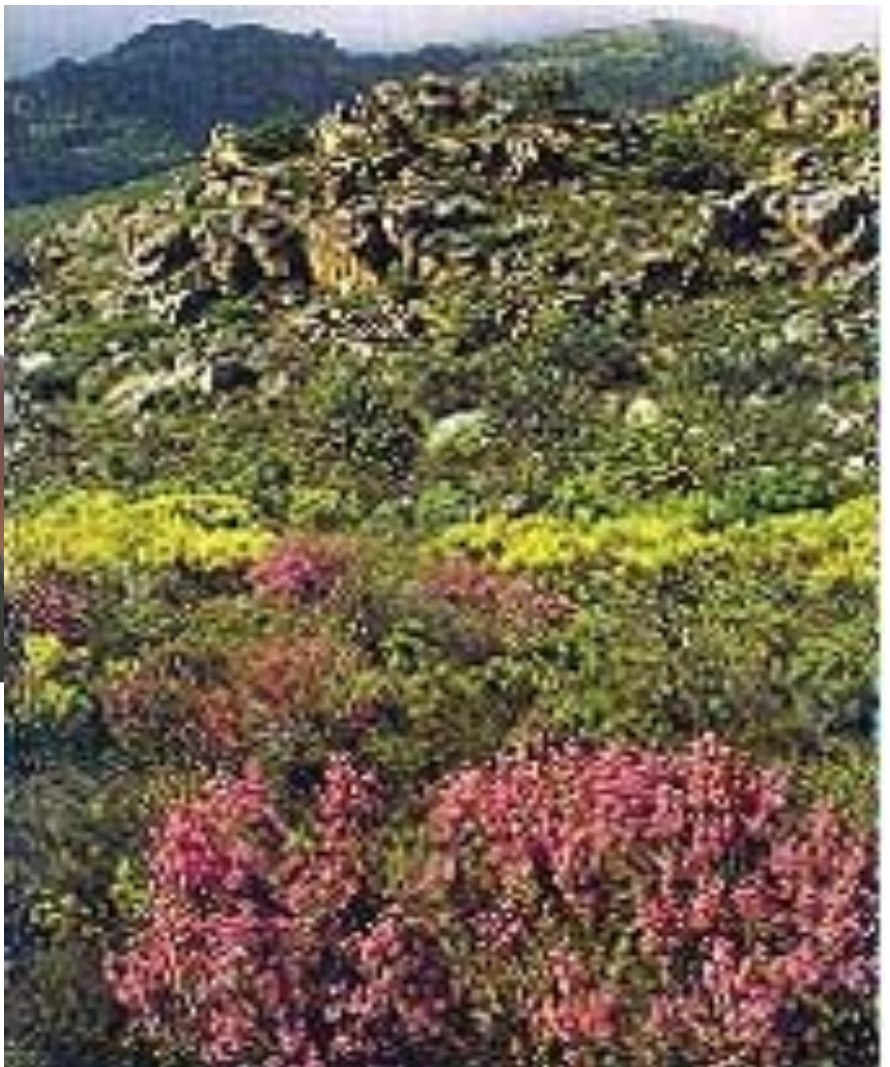
The work that I presented on was my honours research project entitled 'The carbon content of *Portulacaria afra*: implications for restoration and the South African carbon market'. This work was supervised by Professor Brad Ripley of the Department of Botany, and Mike Powell of the Department of Environmental Science at Rhodes University. My project aimed to identify the exact carbon content of *Portulacaria afra*, affectionately known in South Africa as Spekboom. I say 'affectionately known as' because of the literal English translation of the word Spekboom. Spekboom, meaning bacon tree, was used extensively in the Eastern Cape, many decades prior to present day, as pig fodder and therefore as a bacon producer, earning it the title bacon tree, amongst dedicated pig farmers! The results of my project made it all worthwhile and gave me the rewarding feeling that one gets when contributing to the mandate of natural sciences which is to create and disseminate knowledge.

Unfortunately for those who were not present at SAAB 2012 you will just have to wait for the somewhat dubious day that these results are published and made available for all. I must admit that the controversial nature of my results made it quite intimidating to present in front of gurus of plant carbon relations and the Thicket biome such as Professor Richard Cowling of the Nelson Mandela Metropolitan University in Port Elizabeth. I was relieved, however, to have another guru of South African botany, Professor William Bond of the University of Cape Town, help me to try and answer some of my unanswered questions and even argue on my part with some big names, albeit in a social context after the professional proceedings.

The conference was very well organised and due credit needs to be given, once again, to the organising team and the host university. You did a grand job and we all appreciated it! The conference venue was perfect for this congregation and the accommodation for visiting delegates was clean, comfortable and very convenient (I dare say 30 seconds from the conference venue!). As seemed to be a constant, the catering was also very good and I can quite confidently estimate that, personally, two kilograms of mass were accrued during the conference duration!

I really enjoyed being present at the awards that took place on the final night at the gala dinner. I was impressed by the achievements of the recipients and I'm sure it made most, if not all, of the student delegates desire to achieve well and follow their interests. I was really impressed that there are awards for the best student presenters, and I think it is a really good initiative to encourage students to do the best that they can. I am also really grateful of the fact that presenters at a SAAB conference automatically gain membership to SAAB for the following year. This is an excellent opportunity to get students involved and engaged and to get them to feel committed to SAAB, which I'm sure will ensure those continued memberships, and paid subscriptions, into the future.

All in all, as I'm sure anyone can gather, I really enjoyed SAAB 2012. In the future I hope to see the theme of the conference engaged with more, as this can really direct some aspect of the conference and encourage critical discussion around important and hopefully well chosen themes. In our changing and increasingly multidisciplinary world a theme such as that of the 2012 conference, 'plants and society' could not have been more apt. I wish the SAAB Student Council of 2012 good luck and I sincerely hope that they can engage all eligible universities in South Africa to embrace SAAB, the annual conference, and all the ancillary benefits that come with a professional and organised society such as this. I hope that the society itself grows from strength to strength and I look forward to being present and being able to present at another SAAB conference in the future.



Field work highs and lows

Highlight:

Early morning field work, surrounded by thousands of ericas and cheerful sunbirds.

Low point:

Results aren't always what they're expected to be!

Most interesting field work:

The marshy fynbos was one of my favourite field sites; the very dense head-height

Prince of Whales, Erica, Brezellia and Swamp Daisies ensured that crawling, falling and tripping occurred much more frequently than walking.

Anina Heystek

STUDENT NOTEBOOK

By Ashton Ruiters

Taxonomy discovery!

"Here is another
unknownia nonamea"
Marianne Le Roux

Be inspired!

"It is important that students bring a certain ragamuffin bare-foot irreverence to their studies; they are not here to worship what is known but to question it."

Jacob Bronowski
The accent of man (1975)

Wise advice!

"Time waits for no man": advice to all postgrads especially Masters and PhD Students.

Don't wait for the last year/last few months of your programme to start writing up your thesis. Remember: "ideas come and go, but stories stay". So a page per day of whatever idea comes into mind about your project would make 365 pages in your first year, and not necessarily all this will go into a dissertation BUT it would save a lot of stress and anxiety come the writing-up stage in one's timeline. And trust me, I learnt this the HARD way.

Sandiswa Figlan



Our awesome new logo!
Designed by Anina Heystek

Thank you to all the students who worked so hard on the 1st Newsletter of 2012, lets make the next one even better!