



DES WELCOMES DR RUWANZA

Dr. Sheunesu Ruwanza is a young ecologist and conservationist whose research focus is on restoration ecology and management of degraded ecosystems. He will start as a senior lecturer in DES on the 1st July 2018. Previously, he has worked as a senior lecturer at the University of Venda and a post-doctoral fellow at Rhodes University. He holds a Ph.D. in Botany and MSc in Conservation Ecology from Stellenbosch University (graduated in 2012 and 2009, respectively). Prior to that, he graduated with an MSc in Environmental Policy and Planning and a BSc Honours in Geography from University of Zimbabwe. He is a Y2 National Research Foundation (NRF) rated scientist and a DST-NRF Centre of Excellence for Invasion Biology (CIB) core team member.

His research career started with work in environmental policy and planning, where he researched on the socio-economic contribution of urban agriculture to city dwellers in Zimbabwe. To develop a deeper understanding of environmental policy and planning, he embarked on a research project aimed to ex-

amine the impact of land resettlement on vegetation cover and wildlife habitat in Zimbabwe. In 2007, he relocated to South Africa and joined the South African National Biodiversity Institute (SANBI), where his career in ecology started. His ecological restoration projects looked at old agricultural fields and riparian system restoration. The above-mentioned projects were funded by BIOTA Southern Africa Phase III and CIB, in collaboration with Working for Water (WfW). Results of the river restoration project have contributed to the development of alien clearing guidelines by WfW. Besides the above-mentioned research projects, Dr. Ruwanza has also examined alien plant responses to climate change and soil nutrient enrichment. After six years of conducting research in the field of ecological restoration, he decided to grow his understanding of plant ecology by researching on ecological changes caused by Non-timber forest products (NTFPs) harvesting. The above-mentioned research work was done in collaboration with NRF-SARCHI chair in Interdisciplinary



Science in Land and Natural Resource Use for Sustainable Livelihoods at Rhodes University. At a policy level, he has worked on mainstreaming environmental issues in Integrated Development Plans (IDPs) and development of Invasive Species Control Plans. Recently, he has been awarded an NRF-Thuthuka grant to examine social and ecological effects of *Lantana camara* invasion in Vhembe Biosphere, Limpopo Province of South Africa.

His broader future vision is to make progress in research and teaching in the field of ecology. His specific research aims are to carry out impactful projects in ecological systems, producing results that positively improve people's lives as well as contributing to environmental conservation. He believes that research should change local people's lives. Besides publishing and communicating his research in scientific journals, he also intends to train young South Africans and graduate more students.

GLADMAN AWARDED NRF RATING



Explain what this rating is? As an integral part of the National Research Fund's (NRF) goal of building a globally competitive science system in South Africa, the NRF rating system benchmarks the quality of South African researchers against the rest of the world. The rating process considers an individual researcher's recent research outputs and impact as perceived by international peer reviewers. The rating system encourages researchers to publish high quality outputs in high impact journals or outlets. Ideally, rated researchers as supervisors are expected to impart cutting-edge research skills to the next generation of researchers (mostly postgraduate students).

NRF ratings are based predominantly on the quality and impact of research outputs over the past eight years, as evaluated by local and international peers. The rating system identifies researchers who are leaders in their

fields and recognises the production of high quality research outputs. My NRF Rating category Y1) is awarded to, "A young researcher (less than 40 years and within 5 years from PhD at the time of application) who is recognised by all or the overriding majority of reviewers as having the potential to establish him/herself as a researcher of considerable international standing on the basis of the quality and impact of his/her recent research outputs".

What does this rating mean to you?

Since the rating is an external and independent validation of my research efforts, I consider it as affirmation of years of hard work.

What inspires you to keep raising the bar? Research is addictive! Jokes aside.



For me, the opportunity to make intellectual contribution is a key motivator. I have always wanted to excel in all the areas of my life within and beyond the academic remit. Further, the bar in the Department of Environmental Science is always high – which keeps me on track, aiming higher and higher every time.

ESTHER'S JOURNEY TO CAIRNS

By Esther Amoako (PhD student)

When I was a little child growing up, Australia was one of my dream countries. A few years back when I had aspirations to pursue a PhD, I still followed my childhood dream by spending more time on applications for Australian scholarships but that eluded me when I was awarded the Organisation for Women in Science in Developing Countries Scholarship to study at Rhodes University, South Africa.

You can imagine my joy when my abstract was accepted for a themed presentation at the Fourteenth International Conference on Environment, Cultural and Economic Sustainability at the Cairns Institute, James Cook University, Queensland, Australia. I hurriedly completed the online visa application in October, 2017 towards the conference in January 17-19 2018. I however, had a

nightmare when the visa was approved on the afternoon of 17th of January 2018, the day of the conference amidst stressful moments of travelling to Johannesburg and to the Australian embassy in Pretoria. Yoo! my dream of visiting Australia was nearly thwarted. Thanks to my supervisor who encouraged me to press on.

Hmmm, I finally arrived in Australia the night before the last day of the conference. Fortunately, my presentation was scheduled for the last day of the conference. It was the only study from West Africa. I was glad to have given a West African touch to the conference. I received very useful comments from other researchers on my topic: the impact anthropogenic fires of savannas/parklands and particularly the examples from Australia



and New Zealand where the use of fire is a common practice amongst the Aborigines of Maori respectively.

The weather in Cairns was not too different from that of Grahamstown: it rained almost all the days that I was there.

I took the opportunity to visit a former lecturer whose wife happened to be my mates during my master's study at the Kwame Nkrumah University of Science and Technology (KNUST), Ghana.

The journey to the Cairns was like a Marathon, I am glad I made it.

8TH INTERNATIONAL YOUNG WATER PROFESSIONALS CONFERENCE



By Chenai Murata (PhD student)

I attended the 8th International Young Water Professionals Conference, together with a group of fellow students from the Institute for Water Research [from Rhodes] in December 2017. This was an international gathering that attracted participants from more than 50 universities from around the globe including the Southern African region, the Americas and Europe. Adding to this university compliment were various institutions that participate in water related fields such as water governance and delivery services including municipalities. The conference was about sharing research knowledge in the water field and finding solutions to both ongoing and impending water shortages and their allied challenging effects. I presented the following work co-authored with former colleagues *Murata, C, Perry & Denison J (in press) Dynamics of water access and allocation among competing needs within the home-stead: Quantifying Multiple Water Uses in the Rural Eastern Cape.* Conference organisers arranged a lucky prize ruffle for all participants, in which

the winner would bag a R40 000 funding to study for a course in Public Private Partnership (PPP) at Nepad Business Foundation in Sandton. This is what I won. I need to make it clear that although my paper was well received, what I got was a lucky prize; not best paper. I was announced as the winner of the lucky prize. I attended the course in February and I will write the exams at a date to be announced, likely in April. I found the course to be very helpful especially for people who have an eye for public service positions [which I fondly do], including municipal and national department offices. In short the PPP course prepares delegates (students) with cutting-edge intelligence for effective participation in the public-private service procurement space. Among others, the PPP course teaches about how to screen projects, how to procure private sector services, and how to handle private-public partnership relations in a project.



“The PPP course prepares delegates (students) with cutting-edge intelligence for effective participation in the public-private service procurement space. Among others, the PPP course teaches about how to screen projects, how to procure private sector services, and how to handle private-public partnership relations in a project.”

2018 GRADUATION

This year’s graduation saw two PhD candidates being conferred with their degrees (Jessica Cockburn and Mashoko Stephen Grey) and four Masters students: Nwabisa Mjoli, Jan Coetzee, Haydn Brooks and Aidan Gouws. In addition, most of our 15 honours students, who received their undergraduate degrees were also in attendance at our departmental graduation tea.



GRADUATION 2018



NEW POSTDOC: ELANDRIE DAVOREN



I grew up in Randfontein, Gauteng and completed both my undergraduate and post graduate studies at the North-West University in Potchefstroom. I majored in Botany and Zoology, and went on to do both my master's and doctorate in urban plant ecology. My PhD was completed under the supervision of Profs. Sarel Cilliers and Stefan Siebert from the Unit for Environmental Sciences and Management. Growing up in an urban area made me curious as to the underlying patterns and processes driving ecosystems in these environments. Moreover, I always felt that I wanted to make a difference in the lives of ordinary people. Doing urban ecology and specifically focusing on human-environment interactions allows me to do just that.

The aim of my doctorate thesis was to collect and

compare information on the flora present in the domestic gardens of five different settlements across northern South Africa. I wanted to determine if the garden management practices and socioeconomic status of householders influenced the plant species richness and diversity of their gardens. I found that in most of the settlements, the floristic diversity increased as the frequency and intensity of management practices increased and that species richness increased from a low to high SES.

In my free time I like to read sci-fi and fantasy novels, watch movies (that are not about zombies), braai with friends and family and exploring my artistic side (I am currently learning to draw). I came to Rhodes for the opportunity to continue in my field of study with the added bonus of being surrounded by beautiful mountains which is much better than being surrounded by mines.



Growing up in an urban area made me curious as to the underlying patterns and processes driving ecosystems in these environments.





DAVE SCOTT: FLYING HIGH WITH DRONES

Dave Scott completed his honours degree in the department in 2012. He then did an MSc in the field of geomorphology through the Geography dept, which is where he first got involved with UAVs (drones). The topic of my research-based dissertation was “Active layer processes and landforms in Western Dronning Maud Land, Antarctica”. Due to the nature of the research being in such a unique and remote area of the world, it soon became obvious that a system was needed in order to collect valuable aerial data which could then be analysed back in South Africa.

With the help of an RPA expert, we designed and built an autonomous multi-rotor, which could withstand the harsh temperatures and conditions of Antarctica. The system was able to collect high quality photographs for the 2- and 3-dimensional digital reconstruction of the areas of interest. This allowed for the post-field work desktop analysis of the land, which proved to be an indisputably beneficial tool in the aid of this scientific research.

Since completing his MSc in 2014, he has dedicated all his time into designing, building and utilizing UAVs to collect aerial

images and create 3-dimensional models of land and buildings. There is a huge amount of valuable information you can obtain from a 3D model and GIS systems. He now serves

a wide range of clients such as engineers, architects, farmers, environmental companies, construction companies and many more. This is only the beginning and the future seems bright for Dave and his company, Caelum Technologies.

Caelum Technologies (Pty) Ltd: Professional Drone Solutions, was started in early 2015, and has been operating within the Eastern and Western Cape. The Caelum Tech team have a passion for the natural environment, technology and remote sensing. The multifaceted company is driven to perform in a variety of fields, namely: GIS and analytics, precision agriculture techniques, land surveying, forestry, videography, 3D building modelling and much more.

The primary goal of Caelum Tech is to provide a high level of accuracy and to ensure validity of the data we provide. Over the last few years we have made strategic alliances with NPOs, NGOs and Universities. Our clients and alliances are growing and we welcome new ideas. One of the hot topics today is plastic pollution and how it is affecting our natural environment, particularly the dramatic impact on

marine life. We have recently partnered with Sustainable Seas Trust, the African Marine Waste Network, the Royal Norwegian Embassy and Nelson Mandela University to provide a proof of concept document on multi-tiered monitoring systems.

The company’s most recent projects include: autonomous counting of vegetation in the forestry and pineapple industries; NDVI vegetation analysis—generation of vineyard vigor maps to illustrate variance within a vineyard; mapping backdrops for architectural modelling, and assisting farmers with stock theft issues.

Visit their website to find out more about this exciting company:

www.caelumtech.co.za



HONOURS 2018 FIELDTRIP



By Matthew Ford

In any Environmental Science Undergraduate lecture there is one phrase that always seems to be repeated, “in Macubeni.....”. While now we were there, in Macubeni and it was nothing like what had been described to us. The 2018 Honours field trip was without a doubt both a highlight of the year so far and at the same time a prime example of how the new honours students were going to be thrown into the deep end of academic life.

Arriving at the Environmental Science Department on the morning of the departure made me understand that the Honours

phase of our lives was both exciting and humbling because we had repeatedly heard that one’s Honours year was simultaneously the most rewarding and challenging year of study. None the less sixteen fresh faced students boarded two quantum taxis with a variety of staff and PhD students and headed into the South African interior.

Our destination was the middle of nowhere, or more specifically the Macubeni communal area located in the Chris Hani district of the Eastern Cape roughly one hours drive away from the town of Lady Frere. The journey may have been long, but the scenery was out of this

were as simple as allowing ourselves to start to develop working relations with each other and our supervisors. Other goals we wanted to achieve were slightly more complex, introductions to various field work techniques such as the line point intercept method,



class were now officially classified as old by Rhodes standards because nobody who is young, hip and cool would ever be looking forward to “work” in the way we were. Finally we had the opportunity to experience real academic life, no longer undergraduate students simply there to get a degree but members of the Department with every intention of contributing towards building knowledge. The realisation that this field trip was the beginning of the next challenging

world and when we were not ogling out of the window, time was spent catching up with stories from the preceding vacation. In what felt like no time at all we had arrived at our accommodation just outside of Queenstown. After unpacking all the equipment and food, as well as the customary battle for the best beds, it was time for the welcome speeches and field trip instructions. There were several objectives which we wanted to achieve on the field trip, some of which

exposure to possible honours projects along with discussions concerning them with the various accompanying supervisors, as well as being given time to learn from each of the accompanying staff members about their areas of expertise and advice they could offer us.

The first full day of the field trip was used up through learning a few field working techniques, the theory behind them and then putting them into practice in the veld surrounding our accommodation. Integrating theory with practical application was to be a reoccurring theme during the field trip which was a marked yet welcome change of simply sitting in a lecture theatre and being a knowledge sponge. Going out into the

We understood that we were now officially classified as “old” by Rhodes standards, because nobody who is young, hip and cool would ever be looking forward to “work” in the way we were

HONOURS FIELDTRIP CONTD..



have not been as prepared as we thought we would be to finally see many of the foundational concepts we had been taught in practice but being able to visualise the issues before us and how they fitted into the landscape really increased our overall understanding of the course work we had been exposed to previously.

and supervisors who were accompanying us.

The last day of the field trip was spent exploring. We had time off to venture around our accommodation, exploring the veld and local dam before bussing off to Stutterheim for the afternoon where we enjoyed a slow hike through the forest before having lunch in town. Without a doubt the experiences we received while on our trip were positive and everybody who came along thoroughly enjoyed themselves. The introduction to Departmental and Honours life was most welcome, and although we were left in no doubt that the year lying ahead was going to be challenging, we also understood that we had the support required to make a success of it.

field to enact what we were being shown, or in some cases even having impromptu mini-lectures when appropriate places were discovered while in the field really aided in firstly bridging gaps between our knowledge gained through literature and how it was translated into real world scenarios and secondly improved our overall understanding of some of the foundational concepts we had been exposed to during undergraduate level.

The second and third days of the 2018 Honours Field trip were spent in Macubeni itself. This meant having to wake up early, which is not easy when your body is accustomed to still being at home on vacation and traveling for two hours deep into the mountainous interior of the Eastern Cape. A large proportion of our Under-Graduate work was in some way involved with the Macubeni area or was paired with it to provide practical examples so there was much excitement to finally see for ourselves all which we had heard. The literature, case studies and presentations which we had been given could never have really prepared us adequately for experiencing Macubeni from the ground. Many of the issues we had learnt about during Under-Graduate lectures which had seemed to be far off and vague concepts at the time were now a lot more real. We may

While spending time in Macubeni we were given opportunities to interact with community members and to learn about some of the issues which they were facing as well as how the Department of Environmental Science was implementing programmes to aid in rectifying these issues. Informal interview sessions were held with a couple of livestock owners where the class had the opportunity to ask questions about land management practices being employed, this tied into many of the Land Degradation modules we were exposed to in previous years. Interviewing a community member whom had been supplied with a biogas digester in a previous project gave the class the opportunity to understand how projects at the community level can impact on peoples' livelihoods and that benefits we might dismiss can actually be very important to the people who actually need it. Speaking to the community also allowed us to be aware that projects being implemented are not always as successful as their design suggests and that problems can arise from multiple directions, for a number of us this lesson could prove vital when designing and implementing our own research projects. Other highlights include visiting a community project aiming to grow and sell chickens and experiencing the location with the various PHD students



Inclusive chicken farm in Macubeni

Design & Layout: Kathy Cassidy

Contributors & photo credits: Elandrie Davoren, Sheunesu Ruwanza, Kathy Cassidy, Liam Wright. Esther Amoako; Chenai Murata, Dave Scott, Matthew Ford