A tall, spiky plant, possibly a species of agave or yucca, stands prominently in the foreground. The plant has a thick, textured trunk covered in dried, curled leaves, and a crown of sharp, dark spines. The background features a clear blue sky with scattered white clouds, and a desert landscape with low-lying vegetation and distant mountains.

Environmental Science

Newsletter

December 2009

Thoughts as a new HoD

By: Professor Fred Ellery

Just over 2 years ago I resigned from UKZN with a plan to spend the rest of my life consulting. Within 2 months the post at Rhodes was advertised. Against all odds I felt it worthwhile applying for the post in Environmental Science at Rhodes. We moved to Grahamstown in March 2008. It was undoubtedly the very best thing that we have done as a family of 4 - but, it hasn't always been easy! Our kids have changed schools and have now settled VERY happily! The Eastern Cape is undoubtedly the very best-kept secret with respect to quality of life that one could hope for - especially with respect to the environment! Within an hour-or-two of Grahamstown are some of the most incredible landscapes and ecosystems.

My family and I have thus undergone huge transitions over the last 2 years with a move from a very cosy life in Durban. One of the transitions that I have had to face has been the sudden appointment as HoD of Environmental Science. There are some things in life that one does by choice, others are not so. I am a teacher at heart and love enthusing students about seeing the world in new ways - always curious and never accepting things at face value. Administration has never been a strength.

BUT, life works in strange and wonderful ways, because the first 5 months as HoD have been a steep learning curve, and there has been some pain - there is a lot of paper that comes across one's desk and not all of it is exciting. There seem endless requests to act as referees, provide references, motivate for personal promotions, motivate for student and staff recognition, seek funding for temporary lecturers and budget planning, appoint examiners, collate marks, - the list

goes on and on. Importantly, MOST of these things are a pleasure and not a pain, because there is little in life that is more rewarding than seeing people fairly treated and rewarded for hard work! Ours is a stimulating and vibrant Department with many exciting opportunities and areas for growth.

It is incredible to be a part of a Department experiencing rapid growth in undergraduate interest and postgraduate opportunities. Ours is an exceptional staff - from Kathy Cassidy who is ALWAYS willing to contribute beyond the call of duty, Zelda who is a pillar of strength and support and who turns her hand at getting important things done in an instant, to academic colleagues in James and Sheona, who have strengths that I GREATLY admire and work and achieve far beyond what an HoD could hope for, and to a mentor whose huge boots I could not hope to fill (not that I want to wear slip-slops). We have an excellent cohort of Postgraduate students and our Undergraduate and Honours students are out of the very top-drawer! Working at Rhodes and being HoD are indeed "dreams come true".

"Where to"?? is a question I am often asked! Who would want to change the brand and achievements of this Department? The jingle that branded Toyota for many years comes to mind "Everything keeps going right - Enviros". It is not that things will stay the same, but it is important to capitalise on the strengths of the Department and build them further where necessary. However, its also important to hope that new people bring new strengths, new possibilities, new ways of doing things. This is particularly true in a small Department such as ours. So, things may change, but slowly - I have very quickly grasped the Eastern Cape philosophy of "What's the rush?".

Tools for Wetland Assessment Course - September 2009

By: Kathy Cassidy

Wetlands provide a range of goods and services that contribute to human well-being, including:

- supporting services such as biogeochemical cycling and water quality enhancement,
- provisioning services such as food supply, fibre for

production of household utensils and freshwater supply

- regulating services such as climate regulation, streamflow regulation and flood attenuation
- cultural services such as education and tourism.

Recognition that different wetlands differ in the extent to which they provide these ecosystem services means that individual wetlands need to be assessed if we are to value them appropriately. The tool WET-EcoServices



Artificial channel through a wetland at Ngciyo Reserve.



is designed to assess the extent to which individual wetlands provide different ecosystem services, and it does this in a semi-quantitative way.

Despite the values provided by wetlands in the landscape, they are being damaged and destroyed nationally. The tool WET-Health allows one to assess the health of a wetland for purposes of appropriate management, conservation and sustainable use - once again in a semi-quantitative way.

Use of these tools needs to be considered within a legal and institutional context, and in order to effectively promote sustainable development, wetlands need to be thoroughly delineated. Given the need to promote sustainable wetland use within the context of sustainable development, the Tools for Wetland Assessment course focuses on the use of key tools that can be used by practitioners, developers, consultants, decision-makers and managers.

The course included a field trip to the Ngciyo Marsh Wetland Reserve, where the tools were applied. The wetland provides a range of ecosystem services to a high level, including phosphate trapping, nitrate trapping, flood attenuation, streamflow enhancement, sediment trapping and biodiversity maintenance. Furthermore, the wetland was found to be in a good state of health in respect of wetland hydrology, geomorphology and vegetation.

The course was evaluated by participants and it was unanimously considered to be of value to all the participants. It is hoped that the course will be streamlined and improved so that it can be run again in April 2010.



Prof Ellery demonstrating how to measure slope with a dumpy level and staff



Lil Haigh & Japie Buckle demonstrating the use of an auger to obtain soil samples



Bennie & the Ticks!



White Rhino in the Reserve

CBNRM - 'Getting the Building Blocks in Place' - The Rhodes University Community-Based Natural Resource Management Course

By: Lawrence Sisitka

The Department of Environmental Science (DES), in collaboration with the Rhodes Environmental Education and Sustainability Unit (RUEESU) ran the ninth annual CBNRM course in the last week in August this year. In keeping with tradition, a new theme and focus was chosen for this year's course. In response to a clearly identified need in the field for foundational understanding of the CBNRM concept and processes, this year's course was promoted as an 'entry level' course, under the title 'Getting the Building Blocks in Place'. Also in keeping with tradition, there was an immense range of experience among the participants from the SADC region, with some almost totally new to the field and others with many years of experience. The contexts in which the 32 participants worked were also extremely varied: from Metropolitan areas, to protected areas on communal lands, to government departments, and included a delegation from the Botswana Tourism Board working on community-based tourism initiatives. A wide range of presenters also contributed to the course, with Charlie and Sheona Shackleton, James Gambiza and Jocelyn Fearon from the DES, Soul Shava and Lawrence Sisitka representing the RUEESU, Martheanne Finemore and Morgan Griffiths from WESSA in Port Elizabeth, Chris Masara from Zimbabwe (doing his Masters with the RUEESU), and Mazwi Mkhulisi from Eastern Cape Parks all making major contributions. Topics covered by the presenters included:



'CBNRM course participants choosing gifts at the Umthathi nursery in Extension 7'

- seeking a working definition of CBNRM;
- foundations of CBNRM;
- looking at different resources and benefits;
- exploring the challenges to and expectations of people involved in CBNRM;
- natural resource management and monitoring;

- legal and policy frameworks for CBNRM;
- partnerships, planning and processes, participatory learning;
- case studies of CBNRM and conflict management.

As usual, more time could have been spent on each of these topics, but overall everyone seemed very pleased with what had been covered. Zelda Odendaal held the whole course together in terms of logistics and administration.

For the field trip it was decided to look at urban



'Dr James Gambiza in full flow on the CBNRM course field visit to the northern commonage'

CBNRM with a focus on the very different management approaches of the Grahamstown northern and southern commonages. For this we drew on local expertise from Nic Davenport (completed his Masters at the DES in 2008), Nick James (from the Oldenbergia Conservancy), and Ndumiso Nongwe (Environmental Manager in Makana Municipality). James Gambiza, who has studied the northern commonage in particular, also provided valuable input. The trip also included a visit to the Umthathi Africulture Centre with Michelle Griffith and a hearty Xhosa lunch at the Umthathi nursery in Extension 7.

Above: 'CBNRM course participants choosing gifts at the Umthathi nursery in Extension 7'

The most memorable feature of this course was the open and confident manner in which the majority of Participants' engaged with all the discussions. There was a tremendous richness of debate on all issues, with considerable differences in perspectives emerging out of the different experiences and contexts from which people had come. In particular, the visit to the southern commonage provoked some fairly heated discussions. Approximately half of the participants completed a post-course assignment with the aim of gaining a Rhodes Certificate of Achievement.

For those of us who had been involved with the course from the very beginning, this particular one stood out as being the most positive and engaging, with a sense of a genuine network of CBNRM professionals developing through the week. The course will continue to be an annual event, with collaborative input from the DES and RUEESU.



Above: 'CBNRM course participants at the Gavin Reilly Post-graduate Village'

Department of Environmental Science represented at the Kruger Bioregion Planning Workshop

PhD student Gladman Thondhlana recently attended a workshop in Mpumalanga. Below he reports about his experiences at the Kruger National Park Bioregion Planning Workshop held from the 21st to 24th October 2009.

The main aim for the Bioregion planning workshop was to demonstrate potential for conservation and development to take place in a multiple-use landscape by developing and managing a system of areas outside protected areas that represents the biodiversity, landscapes, and associated heritage assets of South Africa for the sustainable use and benefit of all. The workshop highlighted the possibility of using economic incentives to encourage conservation in Bioregions in South Africa, premised on the now widely-held view that biodiversity conservation ought to take place inside and outside protected areas. What made the workshop unique and exciting was a combination of presentations on practical policy implementation and game viewing. In short it was a relaxed but very valuable and practical workshop.

The first night was spent at Pretorius camp in the park, where participants had the opportunity to view game along the way to the camp. Our next destination from Pretorius was Skukuza camp where the first Workshop took place. Participants came from different institutions including academia (Rhodes, UCT, Stellenbosch and UP), research institutions (CSIR), parastatals (SANParks), government (local Mbombela municipality) and the private sector (Kruger To Canyons [K2C] stakeholders). Students from various universities presented their work on 22 October within the bioregion planning framework. This was an opportunity for students and resource persons to network and share ideas. A presentation by SANParks officials on the Kruger To Canyon (K2C) initiative followed highlighting a general background to the project. The K2C project stretches from Kruger National Park through Bushbuckridge to the Canyons near Hoedspruit. It was designated as a Biosphere Reserve under UNESCO to preserve the integrity of the conservation areas and improve the livelihoods of the

different people who live within its borders through different initiatives such as hydro-power, tourism ventures among other things.

The second workshop took place out of the park on 23 October. There was a presentation by various stakeholders on the K2C programme, a practical conservation and development bioregion project. One such conservation and development project already in the feasibility stage is a community hydro-power station that is earmarked to benefit the local people. Economic incentives, such as Payment for Ecosystem Services (PES) is one economic tool that could be used to encourage people upstream to minimise water extraction, so that there will be enough water downstream for the hydro-power project. However, the main challenge is to involve and satisfy different actors with different interests such as state conservation, private conservation, commercial agriculture, former homeland type dense settlement areas and subsistence agriculture.

The last point of call was at Wits Rural Facility where Dr. Wayne Twine presented on "Ecosystem services and rural livelihoods in the central lowveld" to give a picture of the value of natural resources to local communities relative to other livelihood sources. Different research areas were highlighted as important for any bioregion initiative to succeed including: bio-cultural protocols and indigenous Knowledge Systems; contribution of ecosystem services to livelihoods relative to other livelihood sources; potential for economic Incentives especially Payment for Ecosystem Services (PES) to induce good conservation behaviour; indirect drivers of environmental change and ecosystem services (e.g. demographics and socio-economic); the consequences of changes in ecosystem services for human well-being (e.g. food security, livelihood security and climate change and its livelihood impacts). The workshop was viewed by participants as the necessary foundation for new understanding for possible future conservation and development projects in heterogeneous societies and landscapes.

Acknowledgements:

Thanks to the University of Cape Town's Environmental Policy Research Unit (EPRU) in the School of Economics for funding the Workshop and all student participants.

Changing Purple to Green: Environmental Science third-year projects get Dr. Badat's attention

By: Zukiswa Kota

The third year Environmental Science students presented the findings of their year-long research into the University's carbon footprint and survey of knowledge, attitudes and behavior relating to topics of environmental awareness and energy efficiency. Present at these presentations were a number of invited decision-making, academic and support staff including Dr. Badat (Vice Chancellor), Professor Peter Clayton

(Deputy-Vice Chancellor (Research)), Mr. Mark Hazell (Manager of Grounds and Gardens), Mr. Les Reynolds (Director of Estates Division), Dr. John McNeill and Dr. Vivian De Klerk (Dean of Students).

Newly appointed Head of Department, Professor Fred Ellery welcomed the guests and chaired the well-attended set of presentations, which had been designed to provide students with an opportunity to do research that might happen in the workplace. The presentations were succinct at a maximum of 5 minutes each, with 3 presentations on the carbon footprint and 3 on the knowledge, attitudes and practices of the Rhodes University community. The presentations were articulate and well received, with two major suggestions being that Rhodes University should consider

establishing a “green fund” to mitigate environmental impacts of future developments, and that there should be a “green flag” award to the residence that most successfully limits and/or mitigates environmental impacts. Comments and questions fielded by the diverse audience, and answers that were generally well articulated and supported, reflected the widespread interest in, and the depth of the research done.

Following the presentations, the discussion veered towards issues of affordability and fundraising where the greening of Rhodes University is concerned. The third year students provided several further suggestions for the use of, amongst other things, double-sided printers, geyser blankets and electricity and water meters in residences. It was highlighted that while the benefits of energy efficiency are bountiful, the initial investment poses a challenge to the University.

Since then, at the recent inaugural “Rhodes University Environmental Awards”, Dr. Badat complimented the Environmental Science student presentations, and proposed the establishment of a ‘green fund’ through which the University might finance various projects to meaningfully contribute to making the University more sustainable. Creating energy efficient infrastructure, at current costs, would require an estimated R 25 million as Rhodes continues to expand. The Vice

Chancellor has said that there is potential value in challenging individual Divisions, Departments and Halls of Residence of the University, to support the ‘green fund’, and several businesses have been approached to match University funding. These are exciting developments, the most significant of which is that ideas proposed by students are being taken forward at an institutional level.



Third Year students taking a well-deserved break outside the Environmental Science Department

Of Agroforesters and Nobel Laureates: The 2nd World Conference on Agroforestry

At the 2nd World Congress of Agroforestry held in Nairobi, Kenya (23rd- 28th August 2009), there was a palpable ‘buzz’ in the air. Masters student Zukiswa Kota repreents. This also happens to be the headquarters of the United Nations Environment Programme (UNEP) sented the Department at the congress and shared her experiences of her honours research project entitled ‘Harnessing Local Ecological Knowledge to Identify Priority Plant Species for the Restoration of Albany Thicket in the Eastern Cape, South Africa’. More than 1 300 scientists, policy makers, farmers, students and practitioners assembled at the World Agroforestry



World Agroforestry Centre shares its headquarters with the United Nations Complex in Nairobi, Kenya (pic: Zukiswa Kota)

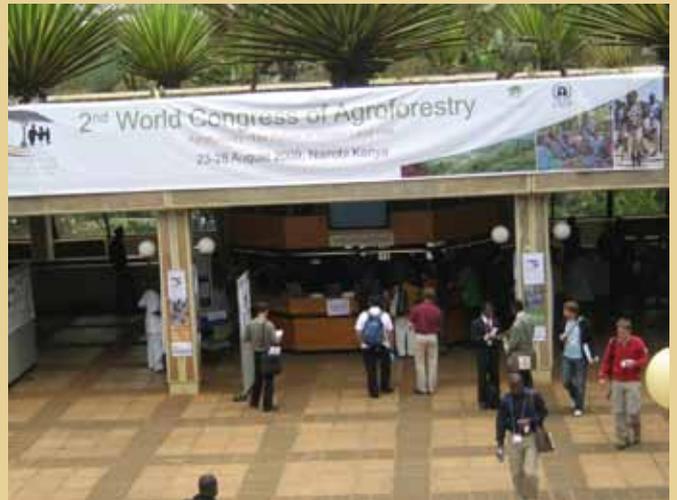


Centre headquart). Congress information packs were presented in eco-friendly hessian bags along with handmade cutlery from the wood of the “already-felled” African olive tree (*Olea europaea* subs. *africana*), lotion made from the seed of the sheanut tree (*Vitellaria paradoxa*) and toothpaste of the babool tree (*Acacia nilotica*). The products are examples of the uses of agroforestry species and income generation by farmers and craftspeople in Kenya. The Director General of the World Agroforestry Centre, Dennis Garrity spoke about the real benefits to people’s livelihoods and the natural environment of agroforestry. Launched in 1978, the World Agroforestry Centre, aims to promote the use of science and agroforestry to meet the targets of the Millennium Development goals globally. Agroforestry research bridges disciplines such as hydrology, agriculture, anthropology, environmental science, politics, zoology and botany. The practice of agroforestry involves the integration of trees into productive or agricultural landscapes. These are seen in landscapes as diverse as babassu agroforestry in Brazil, oak agroforestry in Tunisia, silvopastoral systems in Germany and Satoyama systems in Japan.

Nobel Laureate and founder of the Green Belt Movement Wangari Maathai’s keynote opening address touched on various ongoing national and international environmental initiatives. One such project is the

Billion Tree Campaign which has the target of planting six billion trees by 2015- one for each person in the world. By August 2009, the 4 billion tree mark had been reached. Ending off her speech with a tale she said "...some of you will have heard me tell this story before...if you have, you are going to hear it again!" to a roar of laughter. The story of a humming bird trying to put out a forest fire one drop at a time emphasized the importance of persistence through the most difficult of times. Having been imprisoned and beaten for her convictions, there is no better voice to carry that message than Maathai. Ongoing coverage of environmentally related topics on Kenyan television is testament to the growing strength of the message. In a television interview, Maathai acknowledge her many awards: "...maybe they (awarding institutions) think-let us give that Wangari an award (so that) her voice can be bigger". Other keynote speakers included Howard Shapiro (Mars Incorporated), RK Pachauri (Nobel Laureate and Chair of the Intergovernmental Panel on Climate Change), Achim Steiner (Executive Director, UNEP) and Richard Leakey (Chairman of Wildlife Direct).

Numerous technical sessions were held covering the three principle themes of the congress: 'Food Security and Livelihoods', 'Conservation and Rehabilitation of Natural Resources' and 'Policy Issues'. Commencing the final day of formal proceedings, Dr. Angela Cropper, Deputy Executive Director of the United Nations Environment Programme (UNEP) highlighted the importance of marrying science and research with constructive policy making as a means of realizing the objective of agroforestry in all countries. According to one of the organizers, delegates at the conference represented about 97 countries. South African



Delegates taking a break during a break at the 2nd World Congress for Agroforestry

representation at the conference was mainly affiliated to projects at universities such as Stellenbosch and the University of KwaZulu Natal (UKZN). Dr. Mike Underwood (UKZN) put to rest the 'misconception' held by many that there agrogorestry does not exist in Kwazulu Natalv "... agroforestry exists (in Kwazulu Natal peri-urban areas)...they just don't know where to look". During a technical session presentation, Dr. Underwood spoke of the role of woodlots and agroforestry in supporting the livelihoods of people living in peri-urban Durban. Perhaps the only negative of the congress was the fact that the "buzz" was not enhanced by sampling of world-famous Kenyan coffee during tea-breaks. Zuki is hugely grateful for the amazing opportunity afforded her by the World Centre for Agrogorestry for their generous sponsorship and to Dr. Sheona Shackleton for her support.

PROFILE: Amanda Gosling



BSc Botany and Environmental Science (Rhodes)
 BSc (Hons) Biodiversity and Conservation (Rhodes)
 MSc by Thesis in Environmental Science
 Supervisor: James Gambiza
 Co-Supervisors and Project Team Members:
 Charlie Shackleton
 Michelle Cocks
 Tony Dold

I was brought up on a large mixed farm in Zambia where I discovered a passion for the outdoors. I often brought injured animals home to nurse back to health these varied from a doormouse, to wild rabbits, duikers, a tiny vervet monkey, shrews, bats, doves etc. My childhood thus influenced my future interests. I went to high school in Harare, Zimbabwe for four years and then finished my secondary education at Kingswood College here in Grahamstown. This is my fifth year at Rhodes University throughout which I concentrated on the biological sciences. Despite this being my seventh year in Grahamstown I still love it!



< Dense Wild Coast Forest
Traditional Hut with Woodpile >
Local people who rely on the forest to sustain their livelihoods. v



DES Alumnus

Shafick Hoosein (Rhodes 2001-2008) recently took up the post of Assistant Director of the Environment at the Gauteng Department of Agriculture, Conservation and Environment (soon to be the Department of Agriculture and Rural Development) in Tshwane, Gauteng. Shafick will also be pursuing a Phd. Congratulations and 'bon chance' to Shafick from all DES staff and students.

Field Work Photos: Environmental Science 2008, 2009



Left: A triumphant Kathy Cassidy! The photo was taken during the construction of the bird perches at her site on a private game farm on the Southwell road, 10 mins outside Port Alfred. Photo: Rod Bradfield

Kathy's honours project is entitled Understanding the role of frugivorous birds in aiding rehabilitation of thicket and how this can be facilitated by management intervention.

Below & Below Left: Kagiso Mangwale's research project entails much adventure in the forests of the wild coast! According to Kagiso- his field work has been fun-filled -"every field trip is synonymous with these two words: survivor series.... If adventure is what one goes for, exploring the wild coast forests is bound to pump up one's adrenalin level and the fun never stops"





Above: Listening to the farmers in the Baviaanskloof
Photo: Japie Buckle (Working for Wetlands)



Right: Assessing River Health, Grahamstown, ENV 202 2008
Photo: Professor Fred Ellery



Right: Getting to know wetlands in the Oyster Bay headland
bypass dunefield
Photo: Professor Fred Ellery

Above: Sleeping puppies and (below) curious kids in Pikoli.
The photos were taken during the course of honours field-
work in Pikoli, 50 km outside Grahamstown, 2008.



The End-of Year Environmental Science Party at Honey Kop

By: Zukiswa Kota

The end-of-year party, largely the brain child of one Lara Crous was simply fantastic. Lara's family generously opened the gates to their amazing farm and lodge 'just outside Grahamstown'. Honey kop exceeded all our expectations and was the best possible way to reflect on the year gone by and relax with staff and students in the department. With descending darkness, the braai area seemed to come alive- helped along by the seductively lit swimming pool nearby. Playful jeers went the way of a game of pool lost to Kathy Cassidy by a certain Head of Department. Sorry, Fred.

I can think of no better way to 'wrap up' yet another exciting academic year in the Department of Environmental Science!



Dr. Sheona Shackleton and Mrs. Karen Ellery in the haze of the braai!



Cheers to the Crous' (far left corner) for a splendid venue and evening!



Kathy - Showing how it's done.



Hardy succulent in the Baviaanskloof



Spekboom in flower