

GRASSROOTS

Newsletter of the GRASSLAND SOCIETY of SOUTHERN AFRICA

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The 13th Namibian Rangeland Forum

Is spring happening too soon?

“Is die donkie nóg ‘n wonderlike ding?”

3rd Annual Grassland Partners' Forum

Leafhoppers in our grasslands

Research opportunities

Advancing rangeland ecology and pasture management in Africa



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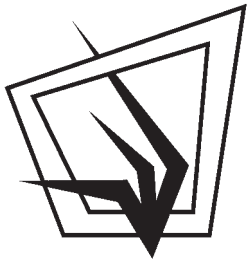


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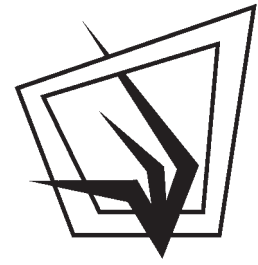
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GRASSROOTS

Editor JULIUS TJELELE



Dear Readers

This is the last issue of the year, and most of you are out in the field at this time of the year. Most probably you might have very little time to read this issue, so take this month's issue home and enjoy interesting articles, informative news and upcoming events. Time is moving fast and therefore I would like to remind everyone especially young scientists and students, to start preparing now for next year's Congress in Kimberley. Once again I would like to encourage young scientists and students to use Grassroots as an opportunity to become good scientists by submitting their articles for publication. Keep them coming.

Leslie Brown, Professional Affairs Committee (PAC) has been working hard for many years to achieve the recognition of Grassland Society of Southern Africa (GSSA) by South African Council for Natural Scientific Professions (SACNASP). Let's celebrate this achievement as GSSA members. I would like to take this opportunity to wish every one of you a happy Christmas and a prosperous New Year.

Julius

GSSA Council

President

MIKE PEEL
MIKEP@ARC.AGRIC.ZA

Immediate Past President

PIETER CONRADIE
PW_CONRADIE@YAHOO.COM

Vice-President

SIKHALAZO DUBE
SDUBE@UFH.AC.ZA

Honorary Secretary

LORAINÉ VAN DEN BERG
LORAINEVDB@NDA.AGRIC.ZA

Honorary Treasurer

JUSTIN DU TOIT
JUSTINDT@NDA.AGRIC.ZA

Scientific Editor

SUSI VETTER
S.VETTER@RU.AC.ZA

Publications Editor

JULIUS TJELELE
JTJELELE@ARC.AGRIC.ZA

Public Relations Officer

TO BE DECIDED

Chairperson of Trust

CHRIS DANNHAUSER
CHRISWEI@VODAMAIL.CO.ZA

PAC Chairperson

LESLIE BROWN
LRBROWN@UNISA.AC.ZA

Additional Member

ERIKA VAN ZYL
ERIKA.VANZYL@KZNDAE.GOV.ZA

Additional Member

IGSHAAN SAMUELS
ISAMUELS@UWC.AC.ZA

Additional Member

COBUS BOTHA
COBUS.BOTHA@DAE.KZNTL.GOV.ZA

Additional Member

ANUSCHKA BARAC
ABARAC@NWPG.GOV.ZA

Additional Member

WAYNE TRUTER
WAYNE.TRUTER@UP.AC.ZA

Administrator

FREYNI DU TOIT
ADMIN@GRASSLAND.ORG.ZA

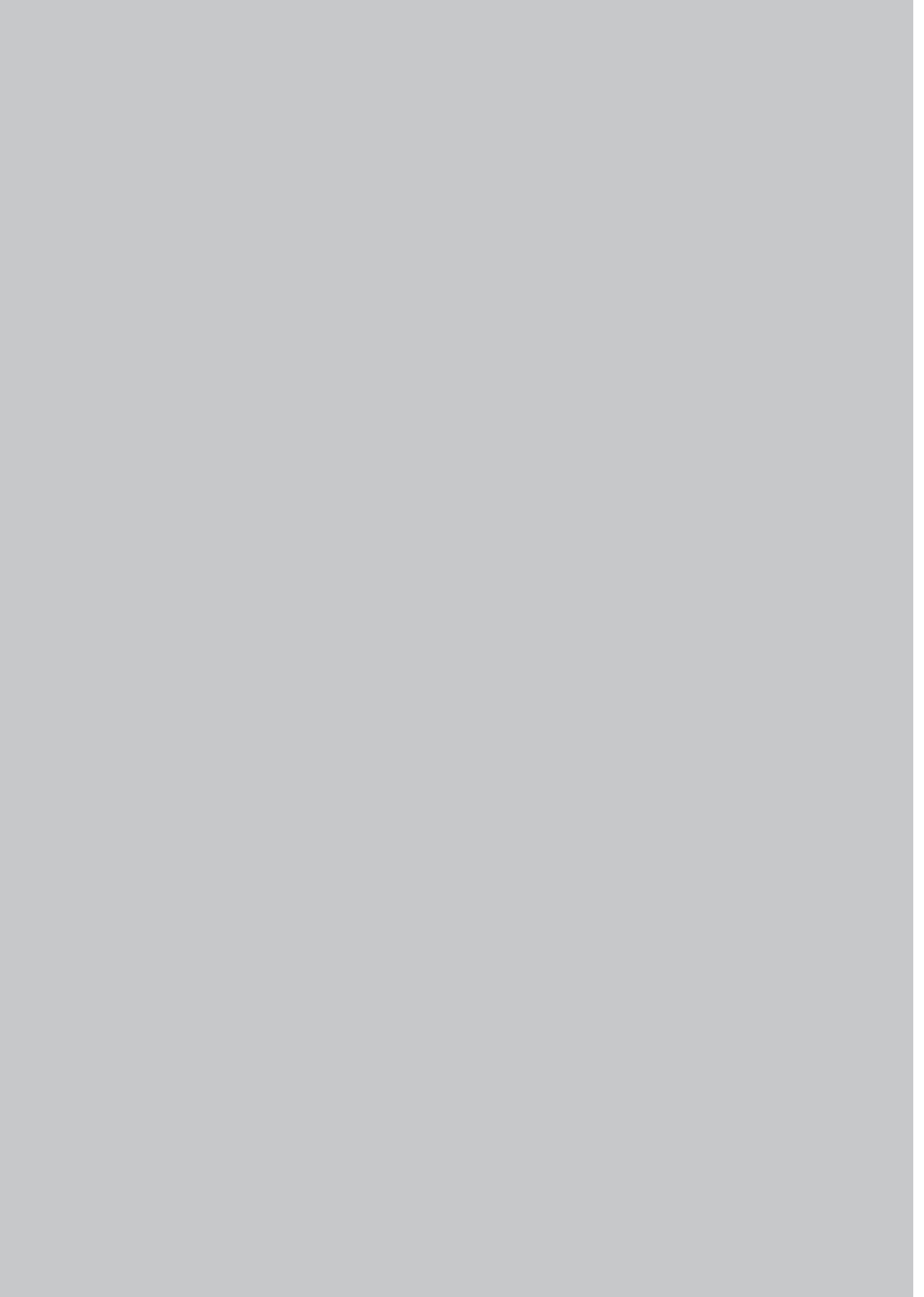
Layout and design

TYRONE O'DEA
TYRONE@STUDIO16.CA

Printed by

CPW
49 LANGALIBALELE ST
PIETERMARITZBURG
CPWART@TELKOMSA.NET

The GRASSLAND SOCIETY of SOUTHERN AFRICA
P.O. Box 41 • Hilton • Pietermaritzburg • 3245 • South Africa
Tel: +27 (49) 842 4335 • Fax: +27 (0)86 622 75 76 • Cell: 083 256 7202
Email: admin@grassland.org.za • <http://www.grassland.org.za>
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News

- 2 Eskom EXPO for young scientists 2009
- 3 Chair of Global Biodiversity Observation Network
- 4 South African Council for Natural Scientific Professions (SACNASP)
- 4 Administration Office moves to Middelburg, Eastern Cape
- 5 Indaba probes sustainability challenges faced by municipalities
- 5 Department of Science of Technology strategy to address global change

Features

- 6 A Framework for Rangeland Monitoring and Management within the arid and semi-arid rangelands of the Eastern and Northern Cape *by Marisa Coetzee*
- 8 The 13th Namibian Rangeland Forum.
by Ibo Zimmermann
- 13 Leafhoppers associated with grasslands of South Africa.
Part I. Grassland Biome endemics *by Michael Stiller*
- 16 Is spring happening too soon? Join the SAEON Ndlovu Node in finding out
by Dave Thompson
- 18 3rd Annual Grassland Partners' Forum South Africa's Grasslands: Your Water Factory
by Alan Short
- 22 "Is die donkie nóg 'n wonderlike ding?" Perceptions from communal farmers in Namaqualand
by Clement F. Cupido and M. Igshaan Samuels

Regulars

- 26 Research opportunities
- 28 Upcoming events
- 27 Council news
- 29 Membership fees

The Grassland Society of Southern Africa is dedicated to the advancement of the science and practice of range ecology and pasture management.

We welcome any contributions to the Grassroots, in the form of news, informative articles, reports, short research notes, scientific papers and letters to the Editor.

Email jtjelele@arc.agric.za or admin@grassland.org.za or fax +27 (0)86 622 75 76

On the cover: The Marula tree, Photo: Dave Thompson

Eskom EXPO for young scientists 2009

ESKOM EXPO FOR YOUNG SCIENTISTS 2009

The Society was represented by eleven judges at seven Regional Expos and the National Final. At the regional level, six projects presented by six scholars received the award. All of these scholars will receive a framed certificate from the Society. The winner at national level received a framed certificate and medal.

The GSSA Award for the Best Ecological Project was judged according to the following criteria:

The project must deal with an ecological issue (rangelands/pastures, rehabilitation, alien and invasive species, game surveys, animal production, etc.) The students must exhibit a clear understanding of the problem. The project must have a sound scientific approach Presentation must be good.

At a regional level, the prize consists of a GSSA certificate for each member of the winning team. At national level, the prize consists of a GSSA certificate and medal for each member of the winning team. If possible, the prize may also include "tickets" to the next GSSA Congress. It is advisable that if this part of the prize is to be awarded, the GSSA specifies (under the special requirements section requested by the organisers) that only Matric and Grade 11 students may be awarded the Grassland Society Award.

Regional Expos

Grahamstown: 20 July 2009

Title: Spekboom - Carbon Reducing Plant
by Claire Shakleton and Kirsten Walker, Grade 9, Diocesan School for Girls.
Judged by James Gambiza, Rhodes University

Durban: 31 July 2009

Title: Who pays the price of pollution?
by Lindokuhle Mkhize (Grade 11) and Truth Mkhize,

Ukusa Senior Secondary School.
Judged by Nicky Findlay, KZN, Agriculture and Environmental Affairs

Bushveld (Nylstroom): 14 August 2009
Title: Eco-Tourism: Focusing on Wildlife
by S Ngoetjana and JS Mpya, Grade 11B, Meetsetshehla Secondary School, Vaalwater.
Judged by Jorrie Jordaan and Erna van Schoor Limpopo Department of Agriculture

Limpopo Department of Agriculture
Bloemfontein: 22 August 2009
No prize awarded
Judged by Hennie Snyman, University of the Free State

Kimberley: 21 August 2009
No prize awarded.
Judged by Hugo Bezuidenhout, SANParks

East London: 21 August 2009
Title: Legumes –Innoculant versus Fertilizer
by Nadine Nowers, Grade 12, Stutterheim High School
Judged by Pieter Conradie, Eastern Cape Department of Agriculture.

Cape Town: 21 August 2009
Title: Diatomite Under Feedlot Condition
by Michael Dugmore, Rondebosch Boys' High School.
Judged by Dawood Hattas, University of Cape Town

Potchefstroom: 22 August 2009
"Hoe om die drakrag van jou plaas te verhoog" (How to Increase the Carrying Capacity of your Farm).
by Brandon Williams Grade 6, Laerskool La Hoff;
Judged by Yolandi Els, North West University.

Chair of global Biodiversity Observation Network

Dr Bob Scholes, one of the driving forces behind the South African Risk and Vulnerability Atlas (SARVA) and Co-Principal Investigator on SARVA's Technical Team, has been appointed the first chair of the newly established steering committee of the Group on Earth Observations' Biodiversity Observation Network (GEO BON).

South Africa is one of the leaders of the Group on Earth Observations (GEO), an international body of 80 countries and about 100 organisations dedicated to improving the flow of information essential for the wise management of the planet. One of the nine GEO focus areas is biodiversity, a term that encompasses the variety of life at all scales - from genes, through species, to ecosystems. According to Scholes, the role of the GEO BON is to help co-ordinate the many partial systems that exist for collecting and disseminating biodiversity data into a coherent whole that delivers the information needed to stem the catastrophic worldwide loss of biodiversity. "We will need to identify gaps in the system, and advocate that they be filled," Scholes explains. "Much of the work involves acting as a broker or translator between researchers who have biodiversity data and decision-makers who need it, and between currently incompatible information systems."

Early products of the GEO BON were demonstrated at the GEO plenary meeting in Washington DC in November 2009. The implementation plans of the eight task groups that have been formed will be ready in April 2010, in time for the meeting of the science advisory body to the Convention on Biological Diversity (CBD), which reports to the crucial CBD Conference of Parties in November 2010. According to Scholes it is anticipated that progress towards reducing the rate of biodiversity loss, a target for 2010, will be disappointing, partly because the information to evaluate progress is so weak.

SARVA newsletter 📧

Mafikeng: 28 August 2009

Title: "Algae as a Source of Bio-fuel"

by Vineeth John, Grade 9, Mafikeng High School

Judged by Anuschka Barac, North West Department of Agriculture.

Lebowakgomo: 22 August 2009

Title: Water Conservation,

by Lyrese Botha, Grade7, Piet Hugo Primary School

Judged by Lesego Bodibe, Limpopo Dept of Agriculture.

Stellenbosch: 28 August 2009

Title: Boere se Perspesie t.ov. indringerplante in die Benede-Olifantsriviervallei (Farmers Perception of Invasive Plants in the Benede-Olifants River Valley)

by Willtino Beukes and Romaine Nutt, Grade 9. Niewoudt Primêre Skool.

Judged by Nelmarie Saayman, University of Stellenbosh.

Northern Gauteng: 5 September 2009

Title: The Magic of Mushrooms

by Olivia Makhafola and Anike Truter, Grade 11. University of Pretoria with Science.

Judged by Leana Nel and Bernice Nell, University of Pretoria.

National Finals: 2 October 2009

Title: Growing Plants with Rubble

by Tanduxolo Nguza and Haneem Schroeder, Cape Academy for Maths, Science and Technology.

Judged by Prof Norman Rethman and Leana Nel 📧

Indaba probes sustainability challenges faced by municipalities

South African Risk and Vulnerability Atlas representatives participated in the two-day Local Government Indaba on Environment hosted by the Department of Environmental Affairs in partnership with the South African Local Government Association. The convening of the Indaba was informed by the important role that municipalities play in the environmental sector and was aimed at creating dialogue between national and local government around the environment.

In keeping with its theme of “Ensuring environmental sustainability through local government action”, the Indaba sought to identify priorities as well as key challenges faced by municipalities in complying with environmental sustainability requirements of existing legislation, policies, strategies and programmes and jointly identify priority areas of action.

Other key objectives of the Indaba included the sharing of best practice experiences on various environmental sector priorities and enhancing the environmental focus in integrated development planning among the three spheres of government.

The six thematic areas addressed during the Indaba were waste services and management, air quality management, climate change, coastal management and conservation, and the sustainable use of biodiversity. One of the major challenges to the implementation of environmental programmes was identified as a lack of capacity, both human and financial, to regulate and manage resource provision and use in order to fulfil the basic rights of South African citizens as outlined by the Constitution.

SARVA newsletter 

Department of Science and Technology strategy to address global change

Imraan Patel, Chief Director - Science and Technology for Economic Impact, told delegates about the Ten Year Innovation Plan that the Department of Science and Technology (DST) adopted in 2008 to propel the country towards a knowledge economy.

The Ten-Year Plan is underpinned by five grand challenges, one of which is Science and Technology for Global Change with an emphasis on climate change. The South African Risk and Vulnerability Atlas (SARVA) have its origin in this Global Change grand challenge.

DST was in the process of finalising one of the main pillars of the Global Change grand challenge - the Ten Year Global Change Research Plan. A summarised version of the Research Plan has just been completed following a long and inclusive consultative process with the South African science community, and with extensive inputs from other sectors of society - government, organised business, and non-governmental and community development organisations.

The Research Plan will not only define key research issues, but will also identify interdisciplinary research questions. One of the objectives is to attract new scientists into the system to ensure a multi-faceted approach to global change issues. For the implementation of the Research Plan an integrated and comprehensive Architecture has been developed clarifying ambitions, mandates, roles and responsibilities of key role players, and their inter-relationships. An interesting feature of the Architecture is the explicit identification of focused interventions that would assist in building stronger links between science and policy.

SARVA newsletter 

South African Council for Natural Scientific Professions (SACNASP)

After various meetings and discussions with South African Council for Natural Scientific Professions (SACNASP), the Grassland Society of Southern Africa has been recognized as a voluntary association. There are currently 26 voluntary associations recognized by SACNASP until 2014. By being recognized the GSSA will be able to nominate persons as members of the SACNASP Council and also be able to put forward recommendations regarding the identification of the type of natural scientific work which may be performed by registered persons. The GSSA via the Professional Affairs Committee (PAC) will now also be able to enter into negotiations with SACNASP on registration issues for its members. It is envisaged that a meeting with the SACNASP Council or representatives will be held early in next year to obtain more clarity on the problems some GSSA members encounter with becoming registered. All GSSA members are therefore invited to e-mail any questions, problems and suggestions they have to Leslie Brown (lrbrown@unisa.ac.za) or Freyni du Toit (info@grassland.org.za) in order to discuss it with the SACNASP Council. 📧

Administration Office moves to Middelburg, Eastern Cape

Together with the du Toit Household, the administrative office of the Society has relocated to Middelburg in the Eastern Cape. The contact telephone is now 049 842 4335 and fax is 086 622 7576. My cell number remains 083 256 7202 and the email and postal addresses are unchanged. Barbara Styan will continue as administrative assistant and will be based in Pietermaritzburg. Apologies for slow responses to emails - I am dealing with the backlog!

AJRFS: No Page Charges for 2010 Volume

NISC have extended their free page charge offer so all submissions by members of the Society for publication in Volume 27 (to be published during 2010) will have FREE page charges.

Submissions to the African Journal of Range and Forage Science.

A dedicated email address has been set up for the journal. Please send all your submissions from now on to journal@grassland.org.za. For more details about the journal, visit the website. 📧

A framework for rangeland monitoring and management within the arid and semi-arid rangelands of the Eastern and Northern Cape

MARISA COETZEE

Grootfontein Agricultural Development Institute, South Africa,
Email: MarisaC@nda.agric.za

Introduction

Sustainable ecological and economical utilisation of rangelands are being hampered by an ignorance with regard to the potential of our natural resources, as well as the lack of quantification of spatial and temporal changes due to interrelated management and climatic impacts. The purpose of the Monitoring Programme is to serve as a comprehensive and integrated framework at a local, eco-regional and Provincial scale, for rangeland monitoring and management within various eco-regions within the Northern Cape and western region of the Eastern Cape. It also includes compiling updated Resource inventories at various Agricultural Development Institutes and Experimental Stations, and linkages to remote sensing technologies.

The broad objectives of the Monitoring framework falls within the Department of Agriculture, Forestry and Fisheries – Grootfontein Agricultural Development Institute's (DAFF-GADI's) core business areas within its service delivery area in the arid and semi-arid rangelands. This includes: Research, Development and Technology transfer; adaptive Research; HE and FET Training; support to Extension Services; Rural Wealth Creation, inter- and intradepartmental skills development, and providing advisory services. It also falls within the following Key areas of technology Development of the National R&D strategy:

1. Sustainable National Resource Development;
2. Geographic Information systems, spatial modeling and scenario planning.

Background

Four Agricultural Development Institutes and Experimental Stations are included within this programme, and are used as training centres, with relevant training material pertaining to veld management and monitoring practices being compiled and transferred to the beneficiaries. However, such training and technology transfer products should be based on sound ecological principles, supported by dynamic and relevant applied and adaptive research within the different eco-regions. Therefore the resource potential of these Development Institutes and Experimental Stations needs to be quantified in relation to the resource potential/degradation of the surrounding environment and land uses.

Failure to quantify, monitor and demonstrate these dynamics, and incorrect extrapolation of resource potential across different land uses and eco-regions, may easily result in research, training and technology transfer products to be “unfortunate experiments” holding serious negative consequence for ecological and economical sustainable resource practices.

Target groups

Target groups include farmers (commercial, communal, emerging), local communities, scientists, managers and extension- and capacity building personnel.

Programme components

Different components will be addressed, including: different land uses impacts; monitoring across different degradation gradients; gathering of dynamic herbaceous production and grazing capacity norms; woody species structure, composition and density norms; soil chemical and physical analyses; selected



Fig. 1. Location of different experimental sites (marked by ovals) within different eco-regions to be addressed within the Monitoring Programme.

biodiversity indices; linkages to remote sensing technologies; contributions to the DAFF-GADI digitised herbarium and linkages to restoration technologies.

Land uses included in the study

The following land uses will be included:

- Communal areas
- Commercial areas
- Conservation-/Protected areas
- Agricultural Development Institutions and Experimental Stations

Experimental location

Different land uses within four core regions will be addressed:

- False Upper Karoo (Middelburg Region, EC)
- Acocks veld type 36 (Acocks 1988)
- Carnarvon Region
- Arid Karoo (Acocks 29) and the Upper Nama Karoo (False Arid Karoo) (Acocks 35) (Acocks 1988)
- Koopmansfontein/Ghaap Plateau Region
- Kalahari Plateau Bushveld (Kalahari Thornveld) (Acocks 16) (Acocks 1988)
- Gordonia Region (including Karakul Experimental Station)
- Shrubby Kalahari Dune Bushveld (Kalahari Thornveld) (Acocks 16) (Acocks 1988)

A total of 72 sub-replicates, of which 18 are clo-

sure plots, representing a degradation gradient (relative poor and relative good extremes) within each eco-region, will be surveyed. Hence, a total of 288 survey sites will be selected across all eco-regions, of which 72 will be exclosure plots.

Methods

Both objective and subjective survey techniques are discussed within the detailed Monitoring Programme for each eco-region, and will be evaluated continuously in collaboration with other experts.

Work procedure

Currently, as part of the first phase, multi-sectoral partners are being identified in order to strengthen capacity, expertise, to prevent duplication and to streamline the management and reporting framework by identifying the most appropriate structures and mechanisms for implementing, monitoring and evaluating the various project outputs within the larger Monitoring Programme. Please feel free to contact us for more details.

Reference

Acocks JPH 1988. Veld types of South Africa. Memoirs of the Botanical Survey of South Africa. No. 57. Government Printer. Pretoria.

The 13th Namibian Rangeland Forum

IBO ZIMMERMANN

Polytechnic of Namibia, Namibia

Email: izimmermann@polytechnic.edu.na

Background

The Namibian Rangeland Forum (NRF) is an unconstituted group, including farmers, extension workers and scientists, with a common interest in the ecologically and economically successful management of Namibia's rangelands. It has met once every year since its inception in 1997. The 13th meeting of the NRF took place on 27-29 October 2009 at the Neudamm campus of the University of Namibia's Faculty of Agriculture and Natural Resources, east of Windhoek. The forum attracted 69 participants and was hosted by the Biodiversity Monitoring Transect Analysis in Africa (BIOTA) programme under the theme "The role of biodiversity in rangeland management and policy". Abstracts and presentations of the forum can be downloaded from the BIOTA website <http://www.biota-africa.org>

Presentations

The keynote address was given by Richard Fynn, from Botswana, on the influence of the scale of grazing on rangeland quality, carrying capacity and herbivore population performance. Richard provided evidence that seasonal migrations of large herbivores and pastoralists often occurred along rainfall and landscape gradients. They also used to move opportunistically over long distances in response to localised rainfall and fires. These seasonal migrations and irregular movements allowed the animals to optimise their nutrition through more and longer availability of green leaves, while subsequently providing sufficient rest for recovery of the repeatedly grazed grasses. The subdivision of land by fencing has greatly restricted the scale at which systems can now operate, thus reducing the carrying capacity and productivity of rangelands, while often leading to land degradation. Richard proposed the re-introduction of transhumance pastoral migrations between wet and dry season grazing areas where unfenced land still exists, such as in north-west Botswana. In situations where land subdivision is irreversible, he pro-

posed cooperation between neighbouring farmers to jointly manage their herds over larger areas, such as the practice of agistment applied by some Australian farmers (McAllister *et al.* 2006).

Andreas Petersen presented results from studies that he (Petersen 2007) and colleagues conducted along the BIOTA transect. Their findings included that: greater heterogeneity of soils supported a greater diversity of plant species; termites created nutrient hotspots at their mounds; and sandy dune soils captured and stored more rainwater than loamy interdune soils. Frank Bockmühl presented interesting evidence that clearing of encroached bushes allowed heavy rain to replenish groundwater and re-activate springs that had dried up decades ago when bushes encroached.

Dave Joubert presented his ongoing research into the dynamics of *Acacia mellifera*, and its implications for the management of bush encroachment. He is testing ideas in his state and transition model for the Highland Savanna (Joubert *et al.* 2008) on the role of browsers, fires and competition with grasses on the establishment of *A. mellifera* seedlings. The presentation by Justus Kauatjirue was on a pilot restoration project that used chopped branches from *A. mellifera* as filters in a gullies and rills of a key fertile valley of the Highland Savanna (Shamathe *et al.* 2008). The perennial grasses are now taking over the filtering function as the branches are rotting, more than two years later. Dagmar Honsbein presented on the influence of thermo-chemical conversion on rangeland condition. Various designs of kilns allow the conversion of encroached bush wood to products more valuable than the more commonly produced charcoal, including wood gas that can provide energy and wood liquids that can be processed into high value chemicals for use as preservatives, fertilisers, pharmaceutical products and bonding agents.

Stephanie Domptail presented results from a part of her study of commercial farms in southern Namibia on the role of bio- and landscape diversity in farming strategies (Domptail et al. in press). Thomas Falk demonstrated a computer farming simulation game that is used for research and as a training tool. It was developed for eastern Namibia based on an eco-hydrological model (Tietjen et al. in press) linked to an agent-based economic model that responds to management decisions by land users. Bertus Kruger presented some of his work with resettled farmers, three of whom signed a memorandum of understanding with each other. The intention is to combine their herds for cooperative rangeland management of a former single commercial farm that had been subdivided for resettlement into units too small for the provision of viable rest.

Lahja Tjilumbu presented results from her research on the influence of patch burning in the Thornbush Savanna. A considerable number of smaller plants died, even in the unburnt controls, probably due to the exceptionally long dry season in which the fires were applied. For most perennial grass species the mortality was higher in the burnt patches. The use of fire after such a premature end to the rainy season may be inappropriate for most rangeland management objectives. Previous patch burning created nutrient hotspots as determined by radish bioassay of soil samples (Zimmermann *et al.* 2008). Ibo Zimmermann presented results from measurements on three farms in eastern Namibia where short-duration grazing is being practiced. There was a higher density of grasses, and occasional higher soil moisture, outside of exclosures. Some management applications of strategic trampling applied by one of the farmers (Zimmermann and Smit 2008) were also presented. Sagaria Muheua used a problem tree to differentiate between symptoms and causes of helminth infestations in sheep. Farmers who successfully raise sheep without the need for toxic anthelmintics tend to apply management closer to the root causes (Zimmermann et al., in press).

Jeanette Swartbooi and Roberth Mukuya, both BIOTA Para-ecologists (Araya *et al.* 2009), gave a presentation on the making of a film about their activities called "Bridging the gap", which was then screened. Leon Lubbe provided background to the develop-

ment of a National Rangeland Policy and Strategy (NRMPS) for Namibia. The latest draft of the document was recently presented to top managers in the Ministry of Agriculture who requested an overhaul, while its presentation at the forum provided the opportunity for further suggestions.

Riaan Dames presented on his controlled fodder flow grazing management strategy and grass-fed beef, which has allowed communal and commercial farmers in South Africa to increase the carrying capacity of their rangeland and fetch higher prices for their cattle. By allowing animals to graze where they wish over the other half of the farm, the animals select the most nutritious plants and keep them in a more nutritious, leafy state. By resting half of a farm for a full year, the perennial grasses receive sufficient rest to regain vigour and grow very fast after they are next grazed, when their increased vigour can support more animals, which will in any case be needed to keep the grass in a more nutritious state. At the start of the rainy season, when allowed to graze on the half of the farm that received rest for a year, the animals will trample down the tall, less nutritious grass, while selecting fresh nutritious leaves that will continue to re-grow quickly, ensuring that the animals too grow fast and produce high quality meat without the need for energy supplements that lower meat quality.

Sebastian Prediger presented results from economic experiments that aim to mimic typical common-pool resource management dilemmas faced by communal farmers. There were substantial differences between farmers in their propensity to cooperate. Those from Namaland in Namibia appeared to play the simulation game more cooperatively than those from Namaqualand in South Africa, presumably due to the greater disruption of communal lifestyle by colonial forces in Namaqualand, where the inhabitants rarely even speak their traditional language of Nama. Stephanie Domptail presented on a bio-economic model that was used to analyse likely responses by sheep farmers in southern Namibia to different ways of applying a land tax. It suggested that the currently applied land tax would not lead to improvements in farming, whereas a system that rewards farmers for good condition of their rangeland would act as an incentive for farmers to improve the management of their rangeland, while providing the same income to



Figure 1: NRF participants review research results at a site burnt one year previously.

the state (Domptail in prep.). The presentation by Angelique Groenewaldt discussed the practicalities of implementing the NRMPS from a legal perspective. None of the existing laws provide direct guidelines on how to deal with the degradation of rangeland. Problems with law enforcement suggest that laws which provide incentives may work more effectively than laws that apply prescriptive prohibitions.

Taimi Kapalanga did not participate in the forum, so her presentation was presented on her behalf. It summarised her desk-top study that reviewed methods of monitoring and assessing land degradation at different scales. The presentation of Hugh Pringle was also presented on his behalf. It highlighted the view of a hierarchical, catchment-based understanding of rangelands. The dynamic edges between veld types provide a better early warning of rangeland changes than the more conventional monitoring of calm sites (Pringle et al. 2006). Incised catchments experience downward spiralling of rain use efficiency and greater

drought vulnerability. This is a pressing, overlooked global issue that is driving bush encroachment as water-ponding surfaces no longer pond effectively.

Workshopping

Axel Rothauge presented principles that had been drawn up by the committee which drafted the NRMPS. He then asked for additional suggestions for repairing the condition and productivity of Namibian rangelands, from which a list was drawn up. Louisa Mupetami facilitated the formation of four groups to workshop issues of policy, institutional structures, ecology and value addition. The recommendations were summarised and submitted to the committee for consideration to be incorporated into the re-drafted NRMPS.

Field visits

Dave Joubert led a field visit on Neudamm to some of his research sites (Figure 1) where he is studying the dynamics of *A. mellifera*. When viewing the



Figure 2: NRF participants inspect a gully system treated with branches of *Acacia mellifera*.

site burnt one week earlier, there was discussion about the need for grazing soon after a fire, to keep the regrowth in a nutritious state. This is contrary to conventional belief that grasses require rest after burning. Provided that the grass had received a long rest during the wet season before the fire, its root reserves should be sufficient to allow it to be repeatedly grazed during the season after the fire. It may only require rest again during the following growing season.

Ibo Zimmermann led a field visit to the Auas-Oanob Conservancy where a pilot restoration site had been treated with branch filters (Figures 2) as described in the presentation by Justus Kauatjirue. When viewing the treated gully system, there was discussion about alternative management options. Animal impact may help to reduce soil capping, and smooth out the steep sides of gullies and increase grass density. A higher density of perennial grasses was evident outside an enclosure erected more than two years earlier. Excessive game animals had been viewed as

contributing to the cause of rangeland degradation in the conservancy because they tended to follow the cattle rotations and feed on grass that should have been rested. However, views were expressed that if longer rest was built into the cattle rotation, then game would only graze the areas recently grazed by cattle, because the grass would grow too tall in areas that had received long rest.

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Leafhoppers associated with grasslands of South Africa.

Part I. Grassland Biome endemics

MICHAEL STILLER

Biosystematics Division, Agricultural Research Council – Plant Protection Research Institute,
Pretoria, South Africa
Email: Stillerm@arc.agric.za

Introduction

This is the first contribution of a two-part series. The first part deals with leafhoppers that only occur in the Grassland Biome of South Africa. The second part will deal with the grass-feeding leafhopper component that is widely distributed throughout Southern Africa and the Afrotropical Region. The aim is to provide some information as well as an aesthetic view of some of these leafhoppers.

Leafhoppers are sap-sucking insects, which feed on grass or shrubs and trees, and occasionally on both Monocotyledons and Dicotyledons. They are found throughout the temperate and tropical regions of the world. Some species have a cosmopolitan distribution, and some are pests or vectors of plant viruses and phytoplasmas. They have an incomplete metamorphosis and have various host associations varying from very wide to very narrow ranges. The distribution of grassland leafhoppers probably depends on host plant availability and condition, and other factors, such as suitable breeding conditions. All species have hind legs modified for jumping, and are covered with hairs that allow them to spread a secretion (brochosomes) over the body that acts as a water repellent and carrier of pheromones.

Some observations emerged after more than 10 years of surveys of leafhoppers in grasslands in South Africa. There is a clear distinction between the species composition of grass-feeding leafhopper species associated with the Grassland Biome and those associated with grass in any other biome, especially the Savanna Biome. Leafhopper species in other biomes have a much wider distribution and

usually have well developed wings. The species restricted to the Grassland Biome often have short fore- and hind wings. Ecologists consider wing development as a function of environmental conditions (Novotny 1994a, 1994b, 1995). In permanent habitats leafhoppers tend to have short wings, and can spend more energy on reproduction. In temporary habitat leafhoppers tend to have long wings, and spend more energy on dispersal. Further reading on these and other ecological considerations is provided in an overview by Biedermann *et al.* 2005.

Some information on species richness of Southern African leafhoppers is provided by Theron (1985) who recorded 350 species. Stiller (2002) listed 200 species in 53 genera from the Fynbos Biome, which is a great underestimation of the actual extent of the fauna. The reason for this underestimation is that very few plant species in families such as Asteraceae, Restionaceae (both 5 genera, about 30 species) and Fabaceae (13 genera, 16 species) were examined. The most recent estimate for the Grassland Biome (Stiller, 2009b) is 20 genera with 110 endemic species, and the Savanna Biome with 40 genera and 200 species.

Methods for collecting leafhoppers

Traditionally a sweepnet is used to collect specimens from plants (Photo 1). However, other trapping methods such as pitfalls, pan traps and the mechanized suction device (DVac™, and various converted home and garden suction machines) facilitate the collection process (Photo 2). Direct observation adds to the sweepnet method. A pooter or aspirator is a sucking device used to collect specimens out of the

net. Passive extraction involves putting the collected sample from the sweepnet or DVac into a box, or any dark container, with a window and attached collecting vial. The vial contains alcohol, or other suitable fluid and the majority of insects make their way to the window, but instead of escaping, are caught in the fluid.

Examples of leafhoppers from the Grassland Biome

The most charismatic leafhoppers belong to the genus *Drakensbergena* (Photo 3 & 4). Their size is considered large, ranging from 4–11mm, and all species are short winged, without hind wings. Eighteen species are known thus far mainly from high altitudes of the Drakensberg, as far as the Wolkberg (Limpopo and Mpumalanga Provinces), with most

species having been recorded from KwaZulu-Natal Province and a few species from the Eastern Cape Province from localities such as the Stormberg. They have occasionally been collected in coastal grassland from localities such as Umtentweni (KwaZulu-Natal) and Mkhambathi (Eastern Cape, Transkei) (Stiller, 2009a). Grasses such as *Festuca* spp and *Merxmullera* spp are the feeding plants of some of these leafhoppers, but most have a wide range of host grasses. The dark colour forms of leafhoppers depicted here were associated with grass flush, and the pale brown form appeared to be more common on moribund grass (Stiller, 2009a).

The genus *Elginus* (Photo 5) was first discovered from the Fynbos Biome in the vicinity of Elgin in the Western Cape Province. A revision by Stiller (2009b) included 24 new species found mainly in the Grassland Biome (15 spp from Grassland, 8 spp in Fynbos, none in both biomes, one species marginally in the Savanna Biome). The species of this genus appear not to be as common as other grassland endemics, but are more widely distributed due to the full development of their fore and hind wings. Grass hosts are better known for species from the Fynbos Biome, because it was easier to sample specific grasses. In the Grassland Biome the high species diversity of grasses has made it difficult to narrow down specific feeding plants or those on which they lay their eggs.





A revision of *Vilargus* will be published soon. It consists of eight species, of which one is abundant and widely distributed in the in the Grassland Biome and occasionally in the Fynbos Biome, and the other species are known from a few records in the Grassland Biome, and found in a wide range of grassland habitats.

Another genus presently under investigation is *Pravistylus*. It is by far the most common endemic of the Grassland Biome, with some species also found in the Fynbos Biome, and occasionally in both biomes. This genus contains 27 species, found in a wide range of grassland habitats. Of the two species with the widest distribution, one was recorded from Malawi and Kenya. These two species depict the greatest degree of full hind and fore-wing development. Most of the other species with narrow distributions have corresponding underdeveloped hind wings.

The undescribed genus is characterised by the four spots on the head. The four specimens are mainly known from KwaZulu-Natal Province, at high altitudes, and often collected on *Merxmuellera* species. However, a long series of specimens from the Mauchsberg Pass in Limpopo Province suggests that the species have a wider distribution, although no species have been found on the Drakensberg in Mpumalanga province.

Basutoia is probably a true grassland endemic with a patchy distribution probably as a result of fire. The limited available data on this genus does not provide enough insight in this regard. *Tzitzikamaia* are also clearly short winged, but still poorly known, and found in the Fynbos and Grassland Biomes, where they possibly feed on forbs in grasslands.

A number of genera and species of which many are still undescribed. They belong to a primitive subfamily of leafhoppers, the Ledrinae. Some are distinctly dicotyledon-feeders, probably feeds as a nymph on roots inside ant or termite colonies.

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Is spring happening too soon?

Join the SAEON Ndlovu Node in finding out

DAVE THOMPSON

National Research Foundation / South African Environmental Organisation Network, Scientific Services, Kruger National Park, South Africa
Email: dave@saeon.ac.za

Everyone in South Africa seems to have noticed that the weather is unusual for this time of year. Depending on where you live and who you're asking, it's hotter, colder, wetter or drier than anyone can remember. So, as spring becomes the new summer the question being asked by researchers at the SAEON Ndlovu Node: is what exactly is going on?

The simple answer is that the global climate is changing, and the heat is definitely on. At a meeting of the Intergovernmental Panel on Climate Change in 2007, experts and officials accepted that climate change is a human-induced reality. Average temperatures world-wide have increased by almost 1°C in the last century and are predicted to rise by another 5°C by 2100.

With this in mind, a more appropriate question might be — how is the natural world responding to a changing climate? Mounting evidence from studies in the northern hemisphere reveals that deciduous trees are leafing, flowers are blooming and migratory birds are arriving one to two weeks earlier than they did 30 years ago. In essence, spring has sprung - but it's all happening just a little too soon.

By monitoring the timing of biological events (termed phenology) in plants and animals locally, the Ndlovu Node is attempting to understand and respond to the impacts of climate change on South Africa's biodiversity.

“As the timing of important events shift, we anticipate problems for the completion of life cycles in certain organisms; the loss of synchrony between interacting species (especially between plants and

their pollinators), resource limitations and changes in the competitive advantage between species,” says Dr. Dave Thompson, Biodiversity Research Manager at the SAEON Ndlovu Node.

Thompson predicts that these problems will have a negative impact on the composition and organisation of the natural world around us. “It is important to realise that the need to understand and manage climate-related changes is much broader than simply wanting to be environmental good Samaritans,” he explains. “Consider for a moment the impact of failed insect pollination on fruit and crop production – it is a potential food disaster.”

One of the biggest challenges that climate-change biologists face in understanding the response of organisms to the environment is that the effect of recent weather events can mask the effect of long-term climate change. The impact of these very different factors on plants and animals can only be separated by analysing large amounts of data recorded over decades and ideally sourced from many different localities. Unfortunately this is exactly the sort of data that is sorely lacking in South Africa.

In order to address this shortfall SAEON is asking for your help in two new citizen science projects – CLIMATE BUDDY and TURNING A NEW LEAF – which complement the BIRD'S EYE VIEW migration monitoring project launched in 2007.

Citizen science projects invite members of the public, from individuals and families to groups such as schools and environmental / conservation bodies, to participate in observing local biological events that are likely indicators of climate change.

“The depth and breadth of data that can be collected by an organised group of enthusiastic volunteers will allow researchers to conduct studies that would have otherwise been logistically impossible,” explains Thompson.



Above: Climate change is likely to impact the timing of leaf drop and new leaf production by this savanna icon - the Marula tree (*Sclercarya birrea*) - in autumn and spring respectively.

Perhaps the best example of the success of the citizen science phenomenon comes from the Nature's Calendar monitoring initiative in the United Kingdom, where nearly two million dates reflecting seasonal changes have been recorded. "That," comments Thompson. "is why every pair of eyes – and every record – counts."

Involvement in a citizen science project invokes a 'feel good' sense of stewardship, raises public awareness of biodiversity issues and instills responsibility towards the environment. It is an ideal opportunity for ordinary citizens – those non-scientists who wish they could do something to help the environment - to make a meaningful contribution.

You don't have to be an expert or have free time on your hands to participate in the monitoring projects

being run by the Ndlovu Node. BIRD'S EYE VIEW simply asks that people be on the lookout for the first arrival of easily recognisable migrant bird species in their area, and then to catalogue the arrival dates with SAEON.

The two projects launched this season focus on the timing of important and conspicuous plant life cycle events and are geared more towards the keen gardener and amateur botanist. CLIMATE BUDDY is concerned with monitoring the opening dates of flower buds in spring, while the TURNING A NEW LEAF project aims to track spring leafing and autumn leaf drop in deciduous trees.

"Being based in Limpopo means that our focus is currently on savannas and grasslands," says Thompson, "but we welcome observations from anybody who is keen to be involved." cont...



Above: The flowering of many plants is tightly regulated by temperature, especially those referred to as geophytes, which include the grass aloe (*Aloe boylei*, top) and tumbleweed (*Boopphone disticha*, below). Climate change may altogether prevent flowering in these species. Photos: Dave Thompson

...continued from page 17

If you would like to receive more information about becoming a citizen scientist and joining SAEON's network of observers, or if you have already been collecting this environmental information, please contact Dr Dave Thompson on +27 (0) 13 735 3534 / 35. Alternatively, queries about specific projects can be directed to birds@saeon.ac.za, flowerbuds@saeon.ac.za or leaves@saeon.ac.za.

Observer registration forms can be downloaded from <http://ndlovu.saeon.ac.za> and returned via email, fax (+27 (0) 13 735 3544) or post (NRF / SAEON Ndlovu Node, Private Bag X1021, Phalaborwa, 1390). 📧

3rd Annual Grassland Partners' Forum South Africa's Grasslands: Your Water Factory

ALAN SHORT

Agricultural Research Council, Animal Production Institute,
Irene, South Africa
Email: Shorta@arc.agric.za

Introduction

Grasslands cover about a third of South Africa's land surface, and are responsible for producing most of the water flowing into the country's rivers and aquifers. The preamble to the Grasslands Partners' Forum stated that "the availability of water is going to be a key constraint to growth and development in South Africa. With virtually all surface waters in South Africa already allocated to users, the adoption of innovative water resource management strategies is urgent to ensure that we are able to meet basic needs and sustain ecosystems and economic growth".

The aim of the third annual Grassland Partners' Forum was to discuss water management and biodiversity management in the Grassland Biome. The Grassland Partners' Forum is hosted by the Grasslands Programme, a national initiative driven by the South African National Biodiversity Institute (SANBI), with which the GSSA has been involved for several years (see previous issues of Grassroots).

The first day of the forum consisted of the standard task team meetings. The Grasslands Pro-

gramme consists of a number of task teams in the areas which have the most impact in grasslands – urban development, agriculture, forestry and mining, as well as a research task team. The task team meetings were open to outsiders, and some new faces were present at the meetings.

Grasslands and water symposium

The main symposium, starting on the second day of the forum, was opened by Dr Tanya Abrahamse, CEO of SANBI, who began by discussing the difficulty of trying to put a real cost to environmental services. She emphasised the importance of collaboration and reminded the audience that experts cannot afford to work in silos.

The chair of the first session, Klaas Mampholo of the Department of Agriculture, Forestry and Fisheries, referred the audience to the mid-term strategic framework adopted by cabinet. Of the ten objectives, two are particularly relevant to the programme and the symposium discussions: growth, and the creation of so-called “green” jobs and sustainable land use.

The keynote speaker, Dr Stanley Liphadzi, CEO of the Water Research Commission, gave an overview of the state of water resources and the capacity to manage them in South Africa. He pointed out that water management must move away from managing only the water, to managing the catchment that provides the water.

Informing policy through science

Prof. Roland Schulze of the University of KwaZulu-Natal then followed with a discussion of future climate scenarios for the country as predicted by various climate models. Many of those scenarios can only be described as terrifying, although at first glance they do not appear unmanageable. Some of the models predict that South Africa’s mean annual temperature will increase by 2°C in the next forty years and up to 5°C in the next century. If these predictions come true they will have devastating effects on our biodiversity and cause tremendous changes in rainfall quantity and distribution. Prof Schulze finished by urging the powers that be to invest in scientific capacity, and urging scientists and policymakers

to engage fully with stakeholders.

Colin Everson of the Council for Scientific and Industrial Research (CSIR) discussed the years of research he and his colleagues conducted in the Drakensberg, at the former Cathedral Peak Forestry Research Station (now part of the Ukuhlamba Drakensberg Park). Over fifty years of detailed ecological and hydrological research was conducted at Cathedral peak and several other research stations, and almost all of those experiments have now been discontinued. The catchment experiments at Cathedral Peak examined the hydrological impacts of various catchment management regimes, including various burning regimes, grazing and afforestation. In general, there was little long-term effect of various regular burning regimes, but fire protection had a significant impact on runoff and soil loss if (or rather when) a fire did get into the catchment. More recently, research on runoff and soil loss in degraded and rehabilitated communal rangelands has been conducted by involving the communities in the monitoring efforts. Dr Everson finished by asking whether the likely increase in the ratio of C4 to C3 plants in montane areas with climate change would result in increased water production.

Mark Gush, also from the CSIR, showed confirmation of the assumption that indigenous trees use less water than the most important species of exotics in South Africa. Interestingly, the water-use efficiency of indigenous trees is lower than exotics, since indigenous trees grow much more slowly than exotics. He asked whether there was a future for indigenous plantations in South Africa. He also requested anybody who knows of other indigenous plantations to contact him, as he was only able to find one plantation of yellowwoods for his research (email: mgush@csir.co.za).

Dr Tony Palmer of the Agricultural Research Council showed the results of the work he has been conducting on relating remotely sensed data, particularly MODIS, to actual herbaceous production and evapotranspiration. Results are mixed, with good relationships in some areas and poor relationships in others. The important question that his work can help to answer is: can we change streamflow by changing grassland management?

Mandy Driver of SANBI and Jeanne Nel of the CSIR showed the remarkable progress that had been made in mapping the so-called National Freshwater Ecosystem Priority Areas. South Africa's freshwater ecosystems are in a "shocking" state, with 80% of the country's rivers degraded. The purpose of the project was to fill the gap between the Water Resource Management Framework, which has a utilitarian bias, and conservation planning strategies, which generally have a terrestrial bias. The Freshwater Ecosystem Priority Areas project will ultimately result in guidelines for water ecosystem management linked to maps, to provide a simple reference for planners, consultants and policymakers making decisions that impact freshwater ecosystems. Several technical products are already available on SANBI's website (www.sanbi.org). One concern raised by a delegate was whether the final product would be continually updated as changes occurred in freshwater ecosystems.

Intervening in communities

Dr Terry Everson of the University of KwaZulu-Natal an account of the work they had done in the Okhombe community in the Drakensberg, where severe erosion and degradation had occurred. They implemented community-based rehabilitation projects to rehabilitate dongas and other erosion sites, as well as a community-based monitoring programme to measure the success of the rehabilitation efforts. Her talk was really inspiring, as a small group of volunteers is still continuing the monitoring programme long after the formal project had finished and funding was stopped. A new Department of Water Affairs project has been initiated in the community to pay community members to rehabilitate dongas, based on a modified version of the Working for Water Model.

One very different and inspiring talk that woke the audience up, both because of the passion of the speaker and the fresh ideas of the subject, was Kate Philip's talk on the second economy. The Second Economy Strategy is an initiative of the Presidency, hosted by the Trade and Industrial Policy Strategies. Despite the name of her programme, the first thing Kate did was blow away the myth that there is such a thing as a "second economy". There is one, inter-

linked, extremely skewed economy, and changes in one portion of the economy affect all other sectors of the economy. Because policymakers tend to view South Africa as having two economies, developed and undeveloped, many strategies are developed to assist one of these "two economies" without how it influences the other economy. For example, poultry programmes in poor rural areas initiated by provincial agriculture departments usually simply have the effect of shutting out existing small-scale poultry producers, who cannot compete with a million-rand government poultry project. Many of Grassroots readers will have first-hand experience of these types of disastrous projects. At the same time, the Industrial Policy Action Plan, astonishingly, does not prioritise employment. The structure of our economy works to create inequality and maintain it, and no matter how entrepreneurial an individual might be, their small business has little chances of success and less chances of growing in the current, highly centralised, economy. The second economy strategy has developed a new community work programme which is very different to other poverty relief programmes such as the Expanded Public Works Programme. Many poverty relief projects work on the principle of creating a large number of short-term jobs, on the assumption that this work will provide cash and skills and empower people. These assumptions are not always met. For example, an informal trader could go off for three months to work on a public works programme, only to return and find that her trading space has been taken.

The Community Works Programme works on the principle of providing permanent, stable, part-time employment for large numbers of people – they only consider projects employing a minimum of a thousand people. The work is two days a week, which provides both the time and stability for beneficiaries to continue with their existing activities and potentially take more risks. The projects are managed centrally but chosen by the local municipality ward council. Projects have been rolled out in about twenty wards, with the aim being to have projects in every municipality in the country.

The Grasslands Programme launched their new book at a cocktail function that evening. The book

“The South African Grasslands Programme: A Partnership for the Future” is beautifully illustrated and describes the history of the Grasslands Programme and some of the results of the project to date.

Discussion

The writer did not attend the second day of the symposium, which consisted of several more talks as well as a visit to a significant peatland. However, some observations on the symposium can still be made.

There were a number of very interesting and relevant talks at the symposium, with some good science presented. However, the symposium programme contained no space at all for any “real world” representatives to talk, with the possible exception of Steve Germisthuizen of Forestry SA on the second day (and Steve is the Chair of the Forestry Task Team for the Grasslands Programme). With the exception of the forestry sector, there was a severe shortage of industry representation at the symposium, and at the Task Team meetings.

The lack of industry representatives can only be described as disturbing. If the Grasslands Programme is to achieve its objectives, then it needs to engage with all stakeholders, and if the stakeholders are not bothering to attend a major event on the Grasslands Programme calendar then it means they have better things to do. In contrast, at the recent fire, forestry and grasslands symposium hosted by the GSSA and the Forestry Task Team of the Grasslands Programme, at least half of the delegates were from industry. Talks by industry representatives made up around half of that programme.

A major part of the discussion at the end of the first day was around getting results out to the people who count – the land users. If the Grasslands Programme is going to be seen to be relevant to those land-users then it will have to start delivering relevant products.

One area where a great deal of exciting potential exists, is in the proposed demonstration areas, where “ideal” farming practices on both commercial and communal farms will be encouraged in order to

demonstrate the economic and ecological benefits of sound agricultural practices. The Wakkerstroom demonstration project is already well advanced. There are many monitoring and research opportunities there, since the demonstration will require detailed measurements in order to work. A successful demonstration project will also have far more impact on land-users’ management systems than lectures or pamphlets, as farmers are more likely to follow the example of peers who lead the way than of academics or extension officers. 📌

“Is die donkie nóg ‘n wonderlike ding?” Perceptions from communal farmers in Namaqualand

CLEMENT F. CUPIDO AND M. IGSHAAN SAMUELS

Agricultural Research Council, Animal Production Institute, c/o Biodiversity and Conservation Biology
Department, University of the Western Cape, Bellville, 7535, South Africa
Email: ccupido@uwc.ac.za, isamuels@uwc.ac.za

Introduction

The first agricultural people of Namaqualand, the Khoekhoen, made their existence through livestock farming and later crop production on the flatter areas of the rangelands. They used domesticated animals such as donkeys to transport their belongings when they moved extensively over the rangeland to exploit seasonal differences in the availability of good forage and water resources for their livestock (Boonzaier *et al.* 1996). Before the introduction of large machinery on farms in South African, donkeys were also utilised as draught power during ploughing and to separate grains from straw after harvesting. The utility of donkeys in agriculture, their ability to deliver with little care under harsh environmental conditions and their amusing characteristics, has dubbed them in a folk song as ‘a wonderful thing’.

The mechanisation of transport and farming implements resulted in donkeys being unused and becoming wild. Herds of wild donkeys were formed and the population increased rapidly even in the harsh environment of Namaqualand. This because donkeys have the capacity to cope with dehydration (Izraely *et al.* 1994), survive on drought-prone and eroded landscapes, graze short vegetation and their non-selective feeding habit (Aganga and Tsopito 1998). Wild donkey population has increased to an extent that recommendations to reduce numbers were reported as early as the mid 1940’s (GUSA 1947). Presently, the Leliefontein communal area still has the highest density of donkeys than the other communal areas in Namaqualand (May 1997).

Recent studies (Vetter 1996, Samuels *et al.* 2008) highlighted some of the problems wild donkeys cause in the communal area. Donkeys were reported to damage infrastructure, crops, food gardens, uproot plants and even injure small stock. This study is an attempt to investigate farmers’ knowledge on the population size and behaviour of wild donkeys and how they perceive the donkey population should be managed.

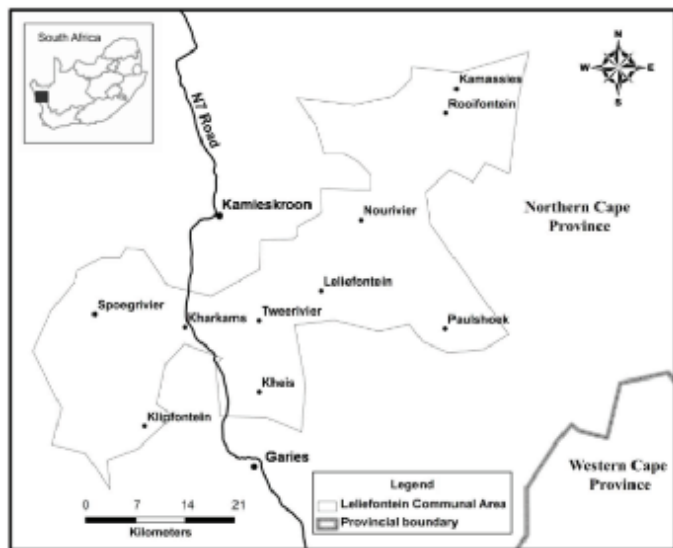
Study area

The Leliefontein communal area is located in Namaqualand in the Northern Cape Province (Figure. 1) and is approximately 192 000 ha in size. The communal area is divided into ten village commons but the boundaries are undefined and unfenced. The communal area is fenced-in by private farms which are exclusively white-owned. The topography varies from 200 m near the coast to 1 400 m above sea level in the uplands. Gneiss inselbergs and steep mountains characterize the upland areas but the terrain flattens out towards the east near Bushmanland. Temperatures could exceed 40°C during summer and drop below freezing point during winter. This winter-rainfall desert region has a mean annual precipitation that varies from 90 mm to 380 mm (South African Weather Service Unpublished data).

The area is located within the Succulent Karoo biome, a biodiversity hotspot of global significance. This biome contains 4 750 plant species of which 35 % are endemic (Cowling and Hilton-Taylor 1994).

Title: "Is die donkie nóg 'n wonderlike ding?" A question in Afrikaans meaning "Is the donkey still such a wonderful thing?"

Figure 1: The location of the Leliefontein communal area in the Northern Cape Province.



Namaqualand, one of four distinct regions in the Succulent Karoo, contains more than 75% of the biome’s plant species (Cowling and Pierce 1999). Vegetation in the communal area comprises of grasslands in the east and a suite of shrublands dominated by succulents in the uplands and near the coast. Fynbos and Renosterveld vegetation also occur in the uplands.

The low household income per month ranks the people of Leliefontein amongst the poorest communities in South Africa (Hoffman *et al.* 2000). This indicate that people cannot afford mechanized transport and croppers still rely on donkeys as oppose to the expensive machinery used on private farms.

Methods

We conducted semi-structured interviews with 15 randomly selected communal farmers from three of the 10 villages. We gathered their perceptions on the population size, feeding preferences and the problems associated with wild donkeys. We also collected farmer’s perceptions as the best and acceptable measures for controlling donkey numbers. Results obtained from respondent’s observation of donkey’s food preferences and recommendations to control donkey numbers were ranked in terms of the

perceived preferences. The respondents’ estimation of food intake by donkeys and cattle was compared by means of a Student t-test.

Results

All respondents acknowledge the significance of donkeys for transport and draught power. However, their perceptions on the population and herd sizes vary. They perceive the population of wild donkeys within the commons to vary from 50 to 3 500 in total. Herd sizes observed by farmers are estimated between four to 80 individuals per group. Results from interviews show that the average estimate of food intake of donkeys is 10.3 times that of small stock whereas the food intake of cattle is estimated at 10.8 times the amount of small stock. Respondents’ estimation of food intake by donkeys and cattle do not differ ($p > 0.05$). However, all respondents indicated that donkeys have a greater impact on rangeland than cattle. Farmers’ perception on donkey food preferences is ranked in Table 1. Farmers listed various management options to control the wild donkey population (Table 2) but most farmers recommend culling as the best option to reduce the donkey numbers on the commons.

Table 1: Communal farmers’ observations of donkeys’ food preferences

Food preference	No. of observations*
No food preference	10
Larger palatable shrubs	8
Dwarf palatable shrubs	7
Palatable grasses	6
Ephemerals	4
Dwarf unpalatable shrubs	3
Succulents	2

*Farmers have listed more than one food preference

Table 2: Management recommendations of farmers to reduce donkey numbers

Recommendation	Count*
Culling wild donkeys	10
Limit and control the number of tame donkeys within the Community	5
Enforce registration of donkey at municipality	4
Sterilize tame donkeys	3
Keep one breeding stallion in the community	3

*Farmers have listed more than one management option

Discussion

The wild donkey population in the Leliefontein communal area has been a problem for several decades and the continual attempts in the past to reduce numerous have not decreased the population size. In 1965, 3786 donkeys were reported on the commons (Samuels, undated) and the current estimation of the number of wild donkeys on the commons is between 2000 and 3000 individuals. This excludes the nearly 1000 registered tame donkeys used by land users (May 1997). According to the average estimation that one donkey is equivalent to approximately 10 small stock units (SSU) indicates that the wild donkey population is the same as the livestock population for the entire communal area. The livestock population varies between 20 000 and 30 000 SSU depending on environmental conditions.

Apart from the documented destructions caused by donkeys, farmers also perceive that donkeys compete directly with small stock and cattle for the limited food. Donkeys in temperate climates graze on average 56% of the day (Lamoot et al. 2005) and 84% of the day in Ghana when the quality of forage is poor (Canacoo and Avornyo 1998). Donkeys could also spend long periods (22 min/h) grazing at night (Lamoot et al. 2005). Since livestock on the commons

is kept in a corral at night, indicates that donkeys could have greater impact on the environment and the livelihoods of the people since forage resources are limited.

Donkeys are perceived to be non-selective feeders thus competing with small stock for the same forage species. Donkeys and small stock are perceived to prefer shrubs such as *Didelta spinosa*, *Rhus incisa*, *Zygophyllum* species. and *Eriocephalus* species. and several palatable grasses. Farmers also indicated that donkeys forage on plants considered to be unpalatable or poisonous to livestock e.g. *Galenia africana*, which suggest they have the ability to significantly transform vegetation composition. Donkeys have the ability to graze very low down to the ground (Aganga and Tsopito 1998) which can be destructive to most shrubs in arid areas. This is because grazing low down could reduce the amount of seed that these species are able to produce.

The majority of farmers are in favour of eradicating wild donkeys. Their attitude is contrary to what was found by Hendricks (2003) in the Richtersveld National Park where pastoralists refrain from harming donkeys because of their biblical significance and the belief that killing a wild donkey will lead to prolonged drought. Culling operations by Cango Wildlife™ game ranchers in collaboration with the community have commenced on an *ad hoc* bases since 2008. These operations too seems to affect the numbers of feral donkey population insignificantly. Catching wild donkeys is not an easy task but when sold to Cango Wildlife™ it provide valuable additional income to these poor communities.

The root of the donkey problem seems to lie with management of animals in the community itself. About 1000 donkeys are only registered annually by approximately 100 donkey owners in the communal area. Donkey owners are only allowed to keep up to eight donkeys as a means of transport and drought power provided that he pays an annual grazing fee to the Kamiesberg municipality. However, seldom if any donkey owner pays their grazing fees and some keep up to 15 donkeys. There is very little control over donkeys and many owners do not acknowl-

edge ownership resulting in the donkeys having free access on the commons. Farmers mentioned that owners only claim ownership when donkeys (including wild donkeys) are to be sold to speculators. The attitudes of 'owners' have resulted in many culling operations being discontinued since the people that assembled the donkeys will often not get the money for their hard work. These conflicts amongst land users for ownership, the little competition from other herbivores and the absence of predators and disease may cause donkey numbers to rise. If donkeys are not managed properly within the community the problem with wild donkeys will persist long into the future.

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International Institute for Applied Systems Analysis (IIASA) - Young Scientist Summer Program (2010)

South Africa has not done so well with our applications for the past two rounds of the Young Scientist Summer Program (YSSP), particularly as prospective candidates did not study the research programme thoroughly enough. Indeed, in 2009 of the 10 South African applicants, none were successful! This has to change. One suggestion would be that prospective candidates discuss their application with their supervisor or a known researcher in the selected area as this would assist in “aligning” your particular interests / your thesis matter with that of the respective IIASA programme.


We would also strongly encourage only those who have already attained a Master’s degree or have already registered for a doctoral degree to consider applying as the international competition is incredibly strong and intense. But if successful, from all accounts, this is a once in a lifetime experience for young researchers.

IIASA’s annual 3-month Young Scientists Summer Program (YSSP) offers research opportunities to talented young researchers whose interests correspond with IIASA’s ongoing research on issues of global environmental, economic and social change. From June through August accepted participants work within the Institute’s Research Program under the guidance of IIASA scientific staff. Candidates already holding a PhD degree (by 18 January 2010) are asked to consider applying to IIASA’s <http://www.iiasa.ac.at/pdocs> Post doc Program. Participants are expected to be resident at IIASA for the entire 3-month period; June through August. Closing date is 18 January 2010

Contact Robert Kriger at rskriger@nrf.ac.za or use the following link: <http://www.iiasa.ac.at/Admin/YSP/register/index.html> for direct access to the online application procedure 

Bursary

Title: Genetic biodiversity of the pan tropical grass Vetiver (*Vetiveria zizaniodes* (L.) Nash).

MSc bursary available for the sum of R45 000.00 for 2010/2011 at North West University, Potchefstroom campus, department of Botany. Interested persons with molecular biology background can contact: Dr. Sandra Barnard at 082 430 1772 or Sandra.barnard@nwu.ac.za 

Call for Application for National Research Foundation Rating

The announcement of the open call for applications for rating is now open. The types of rating applications are as follows:

New application for evaluation - researchers who have never applied for rating in the past or researchers who previously applied for rating, but the application was withdrawn, postponed or returned.

Re- evaluation by invitation - researchers whose rating is current (valid) and who have been invited by the NRF to submit an application for rating.

Re-evaluation - researchers whose ratings have lapsed after five years, or researchers whose application for rating was unsuccessful three or more years ago.

Special re- evaluation

An applicant may apply for special re- evaluation if, since a previous evaluation, he/she has shown such progress that, in the opinion of the relevant authority at the employing institution, the existing rating is quite inconsistent with the applicant's present standing.

The following persons are eligible to apply for evaluation and rating:

- Full-time temporary staff members at SA Higher Education Institution's and SA museums who enjoy the conditions of service that normally also apply to their permanent full- time colleagues
- Postdoctoral fellows who are conducting research in a full- time capacity at SA Higher Education Institution's.
- Persons who are being considered for full-time posts at SA Higher Education Institution's and SA museums (i.e. applications from such persons can be submitted by the Higher Education Institution considering their employment before they are actually employed).

- Persons holding joint appointments between a SA institution and a foreign institution who are actively involved in research capacity building locally. Such persons should be employed by the SA institution in a full- time capacity for a period of at least six months per annum and should spend at least six months per annum in SA.
- Persons holding joint appointments between two institutions within SA (of which at least one appointment should be a formal association with an NRF recognised research institution¹) who are actively involved in research capacity building locally and who are still actively mentoring/training postgraduate students/young research staff. Such persons must indicate which institution is the primary institution, i.e. the institution to which the rating should be linked.
- Retired academics/researchers must meet all criteria bulleted below
- Resident in SA, and
- Formally affiliated to a SA Higher Education Institution (e.g. appointed as an emeritus professor, honorary research associate/professor, supernumerary/contract employee) and whose application for rating is formally supported and endorsed by a SA Higher Education Institution to which he/she is or is anticipating to be affiliated, and
- Active researchers with a distinguished track record in research and postgraduate student supervision, and
- Still actively mentoring/training postgraduate students/young research staff.

The closing date on the NRF Interim system for applicants is 28 February 2010. Applications must be submitted via NRFOnline <http://nrfinterim.nrf.ac.za>. Contact Support Desk at 012 481-4202 or by e-mail: supportdesk@nrf.ac.za

Upcoming events

Botany and Zoology University of Stellenbosch Honours programme

Opportunities to study at Stellenbosch University

Date: 04-24 Jan. 2010; Venue: University of Stellenbosch, Cape Town.

Contact: Prof. JH van Wyk; Tel: 021 808 3222, Email: jhvw@sun.ac.za

2010 Annual meeting of the Society for Range management

07-11 Feb. 2010; Venue: Denver, Colorado, USA;

Contact: Herman Garcia, Email: herman.garcia@co.usda.gov; Website www.rangelands.org/denver2010

30th Annual Conference of the International Association for Impact Assessment

Transition to the Green Economy-Contribution of Impact Assessment

Date: 08-11 April 2010; Venue: Denver, Switzerland; Tel: +1701 2977908; Email: impact@iaia.org

Green Business Africa Summit and Expo 2010

Sustainability in the business environment as well as green corporate social responsibility

Date: 02-04 June 2010; Venue: Nairobi, Kenya;

Contact: Sam Ooko; Tel: +254 20 248 7420; Email: sam@solargrenmedia.com

1st American Conference on "Precision Dairy Management"

Using dairy farm automation and sensor based data to improve productivity, health and welfare of dairy cows

Date: 02 March-05 March 2010; Venue: Toronto (Canada);

Email: info@precisiondairy2010.com

New and resigned members

New members

David Lotter: Themeda Game Farm Services

Ngawo Namukonda: Zambian Wildlife Authority

GSSA: African Journal of Range and Forage Science

To view the abstracts and to find out more about the African Journal of Range and Forage Science, and the Grassland Society of Southern Africa, visit our website, www.grassland.org.za. Did you know that all paid up members of the Grassland Society of Southern Africa will publish their manuscripts in the 2010 volume of the African Journal of Range and Forage Science with NO page charges?

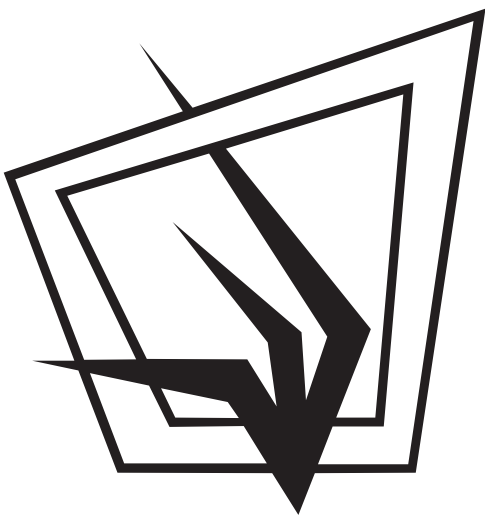
GSSA membership fees

Membership fees are now due for 2010. The fee structure remains as for 2009, with the increase as accepted at the AGM in July 2009. Payment must be made by 31 January 2010. Journal and Grassroots subscriptions for 2010 will only be activated once payment has been received.

Please see the notes below the table for further details or contact Barbara or Freyni if you have any questions.

Description	Cost	Number	Total
Primary membership	R425	1	R425
Journal - online only (discount of R45)	-R50		
Student discount (permitted for 3 years)	-R50		
Grassland Guru (over 65) discount	-R50		
Secondary membership	R75		
Professional Register	R50		
Institute benefits	R380		
Journal postage to other African countries (excl VAT)	R160		
Journal postage to overseas countries (excl VAT)	R280		
Additional Journal - print and online	R295		
Additional Journal - online only	R250		
Additional Grassroots	R85		

1. Primary membership includes one annual subscription to the African Journal of Range and Forage Science (3 issues; print and online) and one annual subscription to the Grassroots (4 issues).
2. Online access to the African Journal of Range and Forage Science includes access to all issues published since 1966, when the first proceedings were published.
3. Secondary membership does not include any publications.
4. The Professional Register fee is payable by all Professional members
5. Institute benefits include a permanent link on the GSSA website to the Institute's website, free classified advertising in the Grassroots, and reduced rates for Grassroots and Congress advertising.
6. VAT is included unless otherwise specified. VAT will not be charged to members outside of South Africa, and so fees will differ slightly from these printed.
7. Banking details: Nedbank Cheque Account 1343011299, Cascades Branch No 134325, Swift Code NED-SZAJJ, or pay by credit card using the form on the website under Subscriptions.



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