

GRASSLAND SOCIETY OF SOUTHERN AFRICA

53rd Annual Congress

Advancing Rangeland Ecology and Pasture Management



22 to 27 July 2018 - ARC Training Centre, Pretoria District

Sunday, 22 July

09:00 to 17:00

09:00-09:40 Registration for Research Skills Workshop

Research Skills Workshop

09:40 Opening and welcome *Clement Cupido*

10:00 Where we end up – choosing a career path *Julius Tjelele*

10:30 The research question *Wayne Twine*

11:00 How to plan and construct a thesis *Abel Ramoelo*

11:30-12:00 MORNING TEA

12:00 Data management – making it easier for you *Victoria Goodall*

12:30 Overcoming the publishing obstacle *Wayne Twine*

13:00-14:00 LUNCH

14:00 Oral presentations: how to effectively give them using PowerPoint *Adrian Shrader*

14:30 Ten tips for designing the perfect poster *Adrian Shrader*

15:00-15:00 AFTERNOON TEA

15:30 Networking, management and collaboration in research institutions
*Ntuthuko Mkhize/
Clement Cupido*

16:30 Practical: Organising and manipulating data in Excel *Justin Du Toit*

Monday, 23 July

08:30 to 19:15

Sicklebush Tour to Bela-Bela departs at 09:00

Research Skills Workshop

08:30 Writing for popular publications *Amelia Genis*

10:00-10:30 MORNING TEA

10:30 Practical: The research question (continued) *Wayne Twine*

11:30 Managing finance and admin in the science world *Freyne Du Toit*

12:00 Practical: Photography in the field *Justin Du Toit*

13:00-14:00 LUNCH

14:00 Sourcing research articles, referencing, and avoiding plagiarism *Denise Nicholson*

15:00-15:30 AFTERNOON TEA

15:30 Smartphones and android apps for fieldwork *Clement Cupido*

16:30 Feedback session

Opening of the 53rd Annual Congress of the Grassland Society of Southern Africa

18:00 Welcome *Julius Tjelele*

Presidential address *Sigrun Ammann*

Corteva AgriScience - solutions for bush encroachment *Jaco Fouche*

Opening address: A long term grazing capacity map for South Africa: used, misused and abused *Paul Avenant*

19:15 MEET AND GREET AT CONGRESS VENUE



22 to 27 July 2018 - ARC Training Centre, Pretoria District

Tuesday, 24 July

08:30 to 19:00

Plenary: Climate Change

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|--------------|--|--------------------------|
| 08:30 | Keynote: Bush encroachment on South Africa's grasslands - is it a form of land degradation? | <i>Barney Kgope</i> |
| 09:15 | Keynote: Practical agricultural approaches to building climate resilience in South African range and pasture systems | <i>Stephanie Midgley</i> |

10:00-10:30 MORNING TEA**Parallel A: Climate Change****Parallel B: Rangeland Stewardship in Communal Farming Landscapes - Innovative Models for Policy and Planning**

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|--------------|---|---------------------------------|-------------------------------|--|------------------------|
| 10:30 | Keynote: Net primary production in South African grasslands: relationship to rainfall, soil type and history | <i>Bob Scholes</i> | 10:30 | Introduction | <i>Mahlodi Tau</i> |
| 11:15 | Effect of simulated drought on annual net primary productivity of semi-arid grassland | <i>Thabo Magandana</i> | 10:35 | Sustainable land management | <i>Lehman Lindeque</i> |
| 11:35 | Plants and soil carbon-nitrogen sequestration and isotope ratios in relation to land management systems and seasons in Mopane savannah, Namibia | <i>Absalom Kahumba</i> | 10:45 | Meat naturally | <i>Nicky McLeod</i> |
| 11:55 | The effect of elevated temperatures on growth and defense of <i>Vachellia sieberiana</i> grown with or without grass | <i>Lusanda Ncisana</i> | 11:00 | Comments from DAFF | <i>Kedibone Chueu</i> |
| 12:15 | Effects of high temperatures on emergence, growth, and forage quality of a perennial sorghum for supplementing dairy cows in semi- | <i>Florence Nherera-Chokuda</i> | 11:05 | Communal livestock management for rehabilitation and livelihood outcomes: progress to date | <i>Helen Fox</i> |
| | | | Facilitated Discussion | | |
| | | | 11:25 | Cynics and believers? | |
| | | | 11:45 | Vision for communal rangelands in South Africa? | |
| | | | 12:05 | What can't we do alone exercise? | |
| | | | 12:25 | Way forward? | |

12:35-13:35 LUNCH**Plenary: Climate Change**

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|--------------|---|---------------------------|
| 13:35 | Keynote: Sustainable livestock production in the era of climate change through targeted interventions | <i>Michiel Scholtz</i> |
| 14:20 | High concentrate feeding level reduces enteric methane emissions of grazing dairy cows | <i>Josef Van Wyngaard</i> |
| 14:40 | Climate smart livestock management and feeding options for small-scale farmers: A review | <i>Unathi Gulwa</i> |
| 15:00 | The provision of shade alleviates heat stress of neonatal lambs but does not benefit growth or survival | <i>Anieka Muller</i> |

15:20-15:50 AFTERNOON TEA**Plenary: Advances in Methodology**

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|--------------|---|--------------------------|
| 15:50 | Measuring carbon and water fluxes in the Albany Thicket, Eastern Cape | <i>Anthony Palmer</i> |
| 16:10 | Multi-spectral, high resolution remote sensing imagery in agricultural management and -sciences | <i>Christiaan Harmse</i> |
| 16:30 | Predicting potential livestock distribution patterns in the communal rangelands of Cala, Eastern Cape, South Africa: A GIS approach | <i>Qawekazi Mkabile</i> |

17:00 ANNUAL GENERAL MEETING OF THE GRASSLAND SOCIETY OF SOUTHERN AFRICA**19:00 BRAAI AT THE GREEN OLIVE RESTAURANT**

GRASSLAND SOCIETY OF SOUTHERN AFRICA

53rd Annual Congress

Advancing Rangeland Ecology and Pasture Management



22 to 27 July 2018 - ARC Training Centre, Pretoria District

Wednesday, 25 July

08:30 to 11:15

Parallel A: Rangeland Ecology and Management

Parallel B: Planted Pastures

08:30	Keynote: Karoo trajectories of change in the Anthropocene	Joh Henschel	08:35	Importance of the southern African members of tribe Phaseoleae (<i>Leguminosae</i>) in pasture development	Letty Masemola
09:15	Understanding the resilience of the Karoo shrub, <i>Nenax microphylla</i> , to water availability and defoliation	Paul Malan	08:55	Community composition and diversity of endophytic fungi associated with <i>Brachiaria</i> grass (<i>Brachiaria</i> spp.) during the dry season in Kenya	Leah Gachao
09:35	Long-term interactions of grazing and rainfall on vegetation composition at Grootfontein in the eastern Karoo	Justin Du Toit	09:15	The effect of planting date on yield and botanical composition of forage herb and grass mixtures	Sigrun Ammann
09:55	The effect of human impact on habitat use of selected large herbivore species in the eastern Kalahari, South Africa	Hanno Kilian	09:35	A new nitrogen fertilisation regime for minimum-tillage kikuyu-ryegrass pasture in the southern Cape	Charné Viljoen
			09:55	The effect of different nitrogen application rates on the dry matter production and botanical composition of kikuyu over-sown with grass-legume mixtures	Janke Van Der Colf

10:15-11:15 MORNING TEA AND POSTER SESSION

Climate Change

Adaptation ranges under future bioclimatic conditions of <i>Indigofera</i> and <i>Lessertia</i> species prioritised for further evaluation as forage crops for water-limited agro-ecosystems	Francuois Müller
Browse plants as a protein source during the dry season in the Eastern Cape Province, South Africa	Siza Mthi

Bush Encroachment

Response of soil aggregate stability on different levels of bush encroachment at Honeydale Farm, Alice in Eastern Cape (Preliminary results)	Tanki Thubela
Evaluating the impact of bush encroachment on soil nutrient content at Sheshegu communal rangeland, Alice, South Africa	Sive Tokozwayo

Advances in Methodology

Performance of ratio-based, soil-adjusted and atmospheric-corrected multispectral vegetation indices in predicting herbaceous above ground biomass in a <i>Colophospermum</i> mopane tree-shrub savanna	Abubeker Hassen
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Feeding Ecology

Bite sizes of goats in relation to condensed tannins, thorns and other plant characteristics	Ngoako Letsoalo
The behaviour and diet selection of extralimital giraffe in the Little Karoo, South Africa	Jamie Paulse

Socio-Ecological Studies

The knowledge and perception of small holder farmers concerning feeding sweet potato vines to goats	Cynthia Fikile Luthuli
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Land Transformation and Rehabilitation

A maize pasture legume intercropping system for the abandoned lands of the Eastern Cape. How much nitrogen is available for the maize crop?	Gideon Jordaan
The effect of an accidental Spring fire on the survival rate of legumes sprayed with herbicide in a rehabilitated old land	Craig Threthewey

Livestock Impacts on Rangelands

Effect of high utilization grazing and controlled selective grazing on veld condition in the Sourish Mixed Bushveld	Marsia Grobler
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Rangeland Ecology and Management

Species composition and diversity in protected areas and adjacent grazing lands in Gauteng Province, South Africa	Moseketsi Mochesane
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Parallel A: Rangeland Ecology and Management

Parallel B: Planted Pastures: Dedicated Poster Session

11:15	Herbaceous and woody vegetation response to land management practices and seasons in Mopane savannah, Namibia	Absalom Kahumba	Evaluation of dry matter yields and production trends of nine cultivars from four tropical grass species	Msawenkosi Fano Msomi
			The relative dry matter yield potential of various early-, medium- and late-flowering forage cereal cultivars	Patrick Rakau
11:35	Tree grass interactions across a toposequence in an African savanna	John Mhlanga	Climatic and edaphic tolerance of southern African species of <i>Indigofera</i> (<i>Leguminosae</i>)	Marike Trytsman
			Oversowing Italian ryegrass (<i>Lolium multiflorum</i> var. Supreme Q) into irrigated kikuyu (<i>Pennisetum clandestinum</i>) for improved timing and quality of fodder production	Donna Berjak
11:55	Relative abundance of palatable and unpalatable herbaceous species on a conservation to communal savannah rangeland gradient	Motlalepula Nchoe	Does seed size, emergence rate and vigour relate to variation in productivity of winter cereals in relation drought in the Mpumalanga Highveld	Norman Modau Magoro
			High atmospheric drought exacerbates the effects of growth under moderate soil water content in Guinea grasses	Solomon Mwendia
12:15	Long term performance of Afrino sheep under different stocking densities within the Upper Karoo shrubland, South Africa	Christiaan Harmse	Effect of fibre content on the <i>in vitro</i> dry matter degradability of feedlot diets	Sanele Jiyana
			Effects of bio-digestate application on <i>Vigna unguiculata</i> and <i>Pennisetum purpureum</i> pastures on lignification rate of stem and leaf carbohydrate and structural protein fractions	Florence Nherera-Chokuda
12:35	Exploring the potential value of grazing lawns in rangeland ecosystems	Gareth Hempson	The impact on wool production yield of grazing Dohne Merino sheep on <i>Bidens pilosa</i> (Black jack) infested pastures in the Highveld	Petros Khoza
			Species composition and biomass production in two communal coastal rangelands of the Eastern Cape Province, South Africa	Sinethemba Matshawule
			Effect of fresh lucerne and concentrate supplementation on milk production of Jersey cows grazing Kikuyu pasture in spring	Portia Mamothaladi Moshidi

12:55-13:55 LUNCH

Plenary: Land Transformation and Rehabilitation

13:55	Can ecosystems recover successfully without human intervention? Degraded vs natural grassland	Nobuhle Mweli
14:15	Working for Water prioritisation plan: Towards a strategy for management of invasive aliens for the Tsitsa River catchment, Eastern Cape	Sukhmani Mantel
14:35	The characteristics of the Matlabas Mire, Limpopo province: Implications for conservation management	Antoinette Bootsma
14:55	Seed mix type and planting method do affect restored grassland diversity	Stuart Demmer
15:15	Seedling growth of different grasses grown on mine soil from a disturbed area watered with solutions of varying salinity (NaCl)	Mziwanda Mangwane
15:35	Effect of vetiver grass competition and soil nutrient status on native grasses	Lindokuhle Xolani Dlamini

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Wednesday, 25 July

15:55 to 18:30

15:55-17:00 Research Proposal Session and Afternoon Tea

An ecological study of <i>Tarchonanthus camphoratus</i> (camphor bush) in the Northern Cape Province of South Africa	Imke Jutta Stehn
Assessing livestock grazing distribution on communal rangelands of Cata and Guquka, Eastern Cape, South Africa	Thantaswa Zondani
Determining the BCS (Body Condition Scoring) of giraffes (<i>Giraffa camelopardalis</i>) in different farming systems	Amaria Janse van Rensburg
Determining the status and development of a conservation plan for giraffe (<i>Giraffa camelopardalis giraffa</i>) in South Africa	Cara-Anne van der Merwe
Drought resistance and recovery of forage legumes in the genera <i>Medicago</i> and <i>Trifolium</i>	Francois Müller
Effect of translocations on the faecal glucocorticoid metabolism levels of <i>Giraffa camelopardalis</i>	Ciska P.J. Scheijen
Exploitation of <i>Seriphium plumosum</i> woody plants and pasture-based feed ingredients for improvement of growth rate, carcass and meat quality of South African Free Range Beef	Motswapo Phoko
Lucerne cultivar evaluations under subtropical conditions	Francois Müller
Management strategies to support sustainable production of lucerne in long-rotation cropping systems	Christoff van der Westhuizen
Objective calculation of a resilience score, using ungulates, plants and soils as indicators	Wesley Black
Mapping pattern and spatial distribution of <i>Seriphium plumosum</i> (Slangbos) invasive species using sentinel 2 imagery in Gauteng province, South Africa	Mduduzi Ndlovu
The diversity-stability debate: Do we know the underlying mechanisms?	Stuart Demmer
The evaluation of bush clearing at Melton LIC, North West province	Ernest Mokua
The use of remote sensing to predict <i>Seriphium plumosum</i> encroachment susceptibility	Nonkwekhwezi Princess Myeki

18:30 PIZZA & QUIZ AT CRAZY BUSHMAN RESTAURANT

Thursday, 26 July

08:00 to 10:00

Parallel A: Feeding Ecology

Parallel B: Feeds and Forage, with a Focus

08:00	The influence of phenology on browse availability for game species in a semi-arid environment of the Northern Cape province	Marnus Smit	Feeds and Forages in the Livestock CGIAR Research Program	Michael Peters
08:20	Leafhoppers associated with grasses and shrubs in South Africa	Michael Stiller	An update on the Global Strategy for the Conservation and Utilisation of Tropical and Subtropical Forage Genetic Resources	Chris Jones

Parallel A: Livestock Impacts on Rangelands

08:40	Distribution and botanical composition of grass species in relation to distance from the fence-line in six communal grazing lands located on three soil types	Ayanda Kwaza	Forage seed systems in eastern Africa: challenges and opportunities	Solomon Mwendia
09:00	Soil chemical and physical status in relation to distance from the fence-line in six semi-arid communal grazing lands and impact of enclosure	Ayanda Kwaza	Farmers' perception on the causes of feed shortage and the fear of cost of establishing leguminous pastures under small-scale farming system	Nobuntu Matyholo-Mapeyi

Parallel A: Bush Encroachment

09:20	Effects of <i>Seriphium plumosum</i> densification on grassland vegetation at Telperion, Mpumalanga, South Africa	Susannah Cleo Patrocinio	Adoption of improved forage legume technologies by communal farmers in Zimbabwe	Shirleen Fungisai Mushapaidze
09:40	Time-series dynamics of the soil seed bank after bush control	Mthunzi Mndela	Value chain analysis of forage seed in smallholder systems of Zimbabwe	Irenie Chakoma

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Thursday, 26 July

10:00 to 18:30

10:00-10:30 MORNING TEA

Parallel A: Fire Ecology

Parallel B: Feeds and Forage, with a Focus on the Forage Seed Value Chain

10:30	Initial investigation of the effects of prescribed burning on the incidence of ticks in a moist savanna community in the Lowveld of South Africa	LD Van Essen	Breeding for late flowering and improved leaf and root yield in fodder radish	Patrick Rakau
10:50	Pyro-hydrological interactions in African savanna soils	Tercia Strydom	<i>Brachiaria</i> grass for livestock feed security in sub-Saharan Africa	Sita Ghimire
11:10	The effect of season, fire and slope position on <i>Seriphium plumosum</i> L. forage quality in South African grassland communities	Hosia Pule	Goat feeds and feeding systems in semi-arid smallholder farming system in Zimbabwe	Takudzwa Charambira

Parallel A: Conservation of Rangelands

11:30	The Gauteng Biodiversity Stewardship Programme	Christina Seegers	Evaluation of dry season fodder supplements on the performance of goats grazed on natural veld in a semi-arid area of Zimbabwe	Tafadzwa Zvakumbirwa
11:50	The Greater Limpopo Transfrontier Conservation Area: implications for multiple land use objectives	Mike Peel	Value chain analysis of goats in Beitbridge district of Zimbabwe	Sikhalazo Dube
12:10	The use of Unmanned Aerial Vehicles in conservation	Debbie Jewitt	Qualitative and quantitative nutritional parameters of different feed sorghum cultivars for ruminants	Inge Neumann
12:30	The development of an alien and invasive taxa list for regulation in South Africa	Moleseng Moshobane		

Parallel A: Primary Production in Rangelands

12:50	Effects of elevated ambient and soil temperature on above-ground productivity of high altitude grassland of South Africa	Thembeke Mvelase	Facilitated discussion led by Session Chair	
13:10	Grass species composition, distribution and biomass production potential in selected communal rangelands in Msukaligwa municipality	Thabile Joyce Mokgakane		

13:30-14:30 LUNCH

14:30 Mid-Congress Practical Sessions and Tours

Soil assessment and analysis	Cobus Botha	Grass and herbaceous species identification	Caroline Mashau
Tree measurements: VOLCALC workshop	Leslie Brown	Veld condition assessments	Tony Swemmer
Herbicide application	Jaco Fouche	Pasture measurement	Sigrun Ammann & Janke van der Colf
Practical parasite control on pastures: Famacha in small stock	Gareth Bath	Ecological Infrastructure tour: Colbyn Wetland	Mahlodi Tau & John Dini

18:30 GALA DINNER AT PUMULANI LODGE



22 to 27 July 2018 - ARC Training Centre, Pretoria District

Friday, 27 July

09:00 to 13:00

Policy and Practice Workshop: Ecological Infrastructure

SESSION OUTCOME: Understanding of the EI concept, its various types and functions and how they relate to the agriculture and rangeland sector, recommendations for policy and practice and research outcomes

09:00	Welcome and introductions	<i>Catherine Hughes</i>
09:10	Introduction to the ecological infrastructure concept and its evolution in South Africa	<i>Mahlodi Tau</i>
09:30	Investing in Ecological Infrastructure: Opportunities to influence agricultural planning and policy	<i>Dan'sile Cindi</i>
09:50	The value of spatial information for the agricultural sector	<i>Paul Avenant</i>
10:10	Supporting social change for improved water stewardship	<i>David Lindley</i>
10:30	Real world policy changes in the agriculture/water context	<i>Richard Meissner</i>
10:50	Introduction to the next session	<i>John Dini</i>
11:00 – 11:30	MORNING TEA	
11:30	Open discussion – coherent recommendations on EI policy and practice and research agenda from the various sectors. Areas of focus going forward.	
12:45	Closure and wrap-up	