



7th Annual Savanna Science Network Meeting

19 - 24 April 2009



Skukuza, Kruger National Park,
Mpumalanga, South Africa

WELCOME TO THE 7TH ANNUAL SAVANNA SCIENCE NETWORK MEETING

The Savanna Science Network Meeting is the most important annual event for the SANParks Scientific Services Department. It provides an opportunity for SANParks to gauge how effective the research programmes are and also to assess the progress in meeting SANParks' objectives towards biodiversity conservation. This meeting is intended to encourage researchers and prospective researchers to share ideas, their research findings and to provide a platform for dialogue between scientists. Scientific Services has a strong team of scientists working in different fields who, together with external scientists, conduct research in many topics including but not restricted to biodiversity monitoring, population studies, fire behaviour, vegetation monitoring and aerial game census techniques. Please visit <http://www.sanparks.org> for more information.

Research in SANParks

Scientific Services provides SANParks with scientific and technical support services to develop and leverage the body of knowledge needed to manage national parks for the conservation and sustainable use of biodiversity. From regional offices based in Kruger (Skukuza & Phalaborwa), Kimberley, Cape Town (Tokai) and Garden Route (Rondevlei and Knysna) we conduct research and monitoring on a spectrum of social-ecological themes together with external scientists from various institutions. Our mandate requires knowledge generation and harvesting, and importantly, integrating this appropriately back into park management. To date 185 active projects are registered in the 14 savanna and arid national parks involving 86 institutions (42 local and 44 international). Please visit <http://www.sanparks.org/parks/kruger/conservation/scientific/research/> for more information.

Skukuza Analytical Lab

The new Analytical Lab in Skukuza is officially open for business. It is fully equipped with standard chemistry lab apparatus and a Smartchem Discrete Chemistry Analyzer (SDCA). The SDCA boasts a wide range of chemical analysis capabilities (namely, acidity, alkalinity, aluminum, ammonia, iron, magnesium, nitrate, calcium, chloride, chlorine, chromium, fluoride, hardness, nitrite, phosphate, phenol, silicate, sulfate, total phosphorus, urea, etc). All registered researchers are welcome to make use of the lab at a daily rate of R50. Please contact Louise Goosen (louiseg@sanparks.org) for more information.



Meals and General Arrangements

Breakfasts and lunches will be served in the Skukuza main restaurant. For entrance into the restaurant, please wear your name tag in a visible position. All dinners will be held at the Skukuza Golf Club, including the Gala dinner sponsored by the Mellon Foundation. All meals and teas are for registered delegates and invited guests only. There will be an information board posted in the Goldfields Auditorium foyer for news / events and updates. Please feel free to post any announcements on this board. Finally, mugs have been provided in your Network Bags, without this mug you will not be able to have tea / coffee during the regularly scheduled tea-breaks.

Mpumalanga Promotions

Mpumalanga Promotions arranged the delegate registration, the accommodation in Skukuza and the meals for the meeting. For further information about this events company, please contact Jackey Deacon on 082 447 1570 or dot@mpu.co.za

**The 8th Annual Savanna Science Network Meeting is scheduled for
7 – 12 March 2010**

SUNDAY 19 APRIL 2009		
TIME	EVENT	DETAILS / VENUE
14:00 to 17:30	Registration	Skukuza Reception
		All delegates are requested to bring an electronic copy of their presentation please. These will be loaded into the correct slot on the programme to prevent any delays to presentations.
19:00	DINNER	Skukuza Golf Club: Registered delegates only



MONDAY 20 APRIL 2009			
CHAIR	TIME	PRESENTER	TITLE
Biggs HC	07:30	Late registration	Goldfields Auditorium
	08:00	Kruger JM	Welcome
	08:05	Dr. H. Magome	Opening
	Implementing Adaptive Management		
	08:25	Freitag S, Biggs HC & Breen C	Organisational learning through adaptive management
	08:40	Gaylard A & Ferreira S	Operationalising the adaptive planning and management process beyond Kruger
	08:55	Ferreira S, Bezuidenhout H et al	Operationalising monitoring strategically according to objectives
	River Health as an Outcome of Management and Ecosystem Processes		
	Flow and Quality as Drivers		
	09:10	Pollard S & du Toit D	What factors constrain compliance with environmental flows? A case study from the transboundary, Lowveld Rivers of southern Africa
	09:40	Viera M & Erasmus BFN	The use of Water Evaluation and Planning System (WEAP) in the Sabie River: towards equitable water management scenarios under climate change and population growth
	09:55	Vlok W & Fouche P	Shingwedzi River - why is it the most polluted river in the KNP?
	10:10	DISCUSSION	
TEA	10:20	TEA	
Rogers KH	Hydrological Processes as Drivers		
	10:50	Cullum C & Rogers KH	Classifying the landscapes of Kruger National Park in terms of drainage network characteristics
	11:05	Levick SR, Asner GP, Rogers KH <i>et al</i>	Landscape hydro-geomorphological insights from termite mound spatial distribution
	11:20	Lorentz SA, Riddell ER, Pretorius JJ <i>et al</i>	Vertical and lateral water dynamics in transects of the Sabie and Letaba River exclosures, Kruger National Park, South Africa
	Biodiversity Outcomes		
	11:35	Kotschy K & Rogers KH	Do reserves protect riparian biodiversity?
	11:50	Tye N & Rogers KH	Influences of stream order on compositional and structural riparian biodiversity
	12:05	Fouche P, Venter J & Vlok W	The use of the "umbrella and indicator species concept" as a tool for conserving aquatic species and processes.
	12:20	Matlala MJ, Bills IR, Kleynhans CJ <i>et al</i>	Poster: Variation within and among <i>Chiloglanis</i> species from the Limpopo River system of the Kruger National Park



Rogers KH	Wetlands		
	12:22	Grundling P , Price JS & Grundling AT	Wetlands of Marakele National Park: understanding the geo-hydrological setting
	12:37	Grootjans AP , Grundling P & Price JP	Rehabilitation of wetlands in the Kruger, Mapungubwe and Marakele National Parks, South Africa: a restoration ecology approach
	12:52	Grundling P , Price JS, & Grundling AT	Poster: The Wetlands of the Mapungubwe National Park: a Regional overview
	12:54	Grundling AT , Price JS, McCarter C <i>et al</i>	Poster: An integrated modeling approach to map wetlands in the Kruger National Park
	12:56	DISCUSSION	
LUNCH	13:10	LUNCH	
Ferreira SM	Vegetation Structure and Composition		
	14:15	Bond WJ	Tree-grass coexistence and the <i>real</i> savanna problem?
	Climate as a Driver of Vegetation Structure		
	14:30	Davis C & Archer ERM	Predicted changes in the savanna ecosystems of South Africa as a result of climate change induced carbon dioxide, temperature, and rainfall anomalies
	14:45	Buitenwerf R & Swemmer AM	Herbaceous community and ecosystem properties of a lowveld savanna respond to climatic variables
	15:00	Stevens N & Swemmer AM	Poster: Mapping the southern boundary of <i>Colophospermum mopane</i> : A baseline from which to detect climate change responses
TEA	15:02	TEA	
Ferreira SM	15:30	Bouchenak-Khelladi Y , Verboom GA, van der Bank M <i>et al</i>	C ₄ savanna biomes origin: from CO ₂ levels to coevolutionary processes
	15:45	Combrink HJ , Delgado-Cartay, MD, Higgins SI	Spatial and seasonal patterns of NDVI along a rainfall gradient in an African savanna
	16:00	Cho M , Mathieu R, Naidoo L <i>et al</i>	Hyperspectral differentiation of savanna tree species at leaf and crown scales
	16:15	DISCUSSION	
DINNER	19:00	GALA DINNER	Gala Dinner at the Skukuza Golf Club: Sponsored by the Mellon Foundation. For registered delegates and invited guests only



TUESDAY 21 APRIL 2008			
CHAIR	TIME	PRESENTER	TITLE
Govender N	Landscape Processes as a Driver of Vegetation Structure		
	08:00	Ekblom A & Gillson L	Hierarchy and scale: testing the role of water, grazing and nitrogen in the savanna landscape of Limpopo National Park (Mozambique)
	08:15	Barbosa ERM, Van Langevelde F, Tomlinson K <i>et al</i>	Effect of water, shade and competition with grass on the germination and seedling early survival of savannas tree seedlings
	08:30	Barichievy C & Rogers KH	Self-organization in savannas: does the data fit the model?
	08:45	Wakeling JL, Bond WJ & Cramer MD	Poster: Are Highveld grasslands treeless because of nutrient limitations on growth?
	08:47	Baade J	Poster: Spatial and temporal variation of reservoir siltation in selected ecozones of the Kruger National Park - A reconnaissance survey
	08:49	DISCUSSION	
	Fire as a Driver of Vegetation Structure		
	09:00	Archibald S, Kirton A, Scholes RJ <i>et al</i>	Revisiting fire-rainfall relationships in Southern Africa
	09:15	Boggs GS, Parr C, Smit I <i>et al</i>	Response of savannas to fire across a rainfall gradient: analysis of landscape pattern and heterogeneity
	09:30	Smit IPJ, Asner GP, Govender N <i>et al</i>	The effect of fire frequency and fire season on woody vegetation structure in an African savanna
	09:45	Trollope WSW, Trollope LA, du Toit J <i>et al</i>	Experiment Burn Plot Trial (EBP's) - Fascinating glimpses covering 47 years of the effects of season and frequency of burning in the four major vegetation landscapes in the Kruger National Park, South Africa
TEA	10:00	TEA	
Govender N	10:30	Higgins SI, Lannas K, Govender N <i>et al</i>	Can resilience to top kill explain long-term shifts in the dominance of different tree species?
	10:45	Swemmer AM	Disentangling the effects of fire and herbivory on trees. Preliminary results from long-term monitoring plots at the South African Wildlife College.
	11:00	Lehmann CER, Prior LD, Williams RJ <i>et al</i>	Spatio-temporal trends in Australian mesic savanna tree cover are driven by landscape disturbance
	11:15	Lawes MJ, Murphy BP & Russell-Smith J	Are the dynamics of the eucalypt and non-eucalypt components of Australian tropical savannas coupled?
	11:30	Pooley S	A non-linear historical perspective on fire research in Kruger
	11:45	DISCUSSION	
LUNCH	12:00	LUNCH	



Herbivores as Drivers of Vegetation Structure			
Kruger L	13:30	Asner GP , Levick SR, Kennedy-Bowdoin T <i>et al</i>	Large-scale effects of herbivore exclusion on vegetation structure in Kruger National Park.
	13:45	Grant CC	Is there reason for concern about the loss of tall trees?
	14:00	Midgley JJ , Moncrieff G & Kruger L	<i>Acacia nigrescens</i> demography inside and outside the roan enclosure.
	14:15	Shannon G, Druce DJ , Page BR <i>et al</i>	Determining the rates of change in the utilisation of large trees by elephants and fire in Kruger National Park
	14:30	Helm CV , Witkowski ETF, Kruger L <i>et al</i>	Mortality and utilisation of <i>Sclerocarya birrea</i> subsp. <i>caffra</i> between 2001 and 2008 in the Kruger National Park, South Africa
TEA	14:45	TEA	
Kruger L	15:15	Moolman L , Page BR & Slotow R	Poster: Elephant browsing across tree height classes and its potential influence on the woody vegetation state in Pilanesberg National Park, South Africa
	15:17	Teren G , Owen-Smith N & Erasmus B	Poster: Structural and compositional change caused by extreme elephant impact in the Linyanti woodland, northern Botswana over 16 years
	15:19	Scogings P	Large herbivore effects on phenolics and nutrients of woody species at the Nkuhlu Enclosures (2005-2008): Considerations of species, rainfall and scale
	15:34	Stam E	Monitoring of growth, recruitment and elephant damage of marula trees inside and outside the Nkuhlu enclosure and the buffalo enclosure near Satara in the Kruger National Park
	15:49	Kiker G , Munoz-Carpena R & Thummalapalli R	A spatial model of elephant, vegetation and fire dynamics for scenario-based adaptive management simulations
	16:04	Scheiter S & Higgins SI	Elephant impacts on the current and future vegetation of savannas: a modelling study
	16:19	van der Waal C, Kool A, Meijer S, Kohi E, de Kroon H, Heitkönig IMA <i>et al</i>	Large herbivores alter semi-arid savanna structure through soil nutrient mediation: lessons from a natural experiment with abandoned kraals
	16:34	DISCUSSION	
DINNER	19:00	DINNER	Skukuza Golf Club: for registered delegates only



WEDNESDAY 22 APRIL 2008

CHAIR	TIME	PRESENTER	TITLE
Kruger JM	Land Use as a Driver		
	08:00	Fisher JT , Erasmus BFN, Witkowski ETF <i>et al</i>	Three-dimensional woody vegetation structure across different land-uses in a semi-arid savanna
	08:15	Coetzer KL , Erasmus BFN & Witkowski ETF	Thirteen years of land cover change in the Kruger to Canyon Biosphere Reserve: spatial implications for conservation planning
	08:30	Matsika R , Twine W & Erasmus BFN	Poster: People and the lowveld landscape: modeling the impact of firewood harvesting on communal savanna woodlands in Bushbuckridge, South Africa
	08:32	Wessels KJ , Mathieu R, Asner GP <i>et al</i>	Impact of land use on tree canopy height distributions as measured by Lidar
	08:47	Ramuelo A , Cho M, Mathieu R <i>et al</i>	Exploring various spectral indices for grass biomass estimations along a land use gradient
	09:02	Mathieu R , Wessels KJ, Main R <i>et al</i>	Impact of land use on herbaceous ground cover as estimated from CAO imagery
	09:17	Masubelele ML , Hoffman MT & Gambiza J	Poster: Vegetation change (1961-2009) along an aridity gradient in the eastern Karoo and southern Free State grasslands ecotone: The effect of drought and land use on cover and species composition
	09:19	DISCUSSION	
	Management Options		
	09:30	Matchett KJ , Kirkman KP, Morris CD <i>et al</i>	Intermittent piospheres: patchiness, pattern and precipitation
	09:45	Farmer H	Poster: Rapid artificial waterpoint assessment to inform management decisions regarding closure
	09:47	Els Y & Kellner K	The implementation of selected technologies to enhance the restoration of indigenous tree species in the deforested riparian areas in the Mapungubwe National Park, South Africa
	10:02	Spear D , Foxcroft LC & McGeoch MA	Poster: Testing an indicator of alien species status and management in National Parks in South Africa
	10:04	DISCUSSION	
TEA	10:20	TEA	



THURSDAY 23 APRIL 2008			
CHAIR	TIME	PRESENTER	TITLE
Vickers K	Biodiversity Outcomes of Vegetation Structure Changes		
	08:00	Parr CL & Bond WJ	Woody thickening in savannas: implications for biodiversity
	08:15	Murwira A, Skidmore AK, Toxopeus B et al	Spatial partitioning of wildlife species in the Kruger National Park savanna landscape as a function of spatial heterogeneity of vegetation cover
	08:30	Kohi EM, de Boer F, Prins H et al	The influence of elephants feeding on microhabitat selection of herbivores: An experimental approach
	08:45	Davies AB, van Rensberg BJ & Parr CL	Fire and termites in a southern African savanna
	09:00	Reynolds BN, Janse van Rensburg B & Parr CL	The effects of long-term burning regimes on savanna spider assemblages
	09:15	Deacon AR, Bezuidenhout H, Daemane E et al	Evaluating strategic objectives through the predictive inventory of small vertebrates
	09:30	Sithole H, Parr CL, Andersen AN et al	Indirect effects of mammalian herbivore exclusion on ant assemblages
TEA	09:45	TEA	
Hofmeyr M	10:15	Zambatis G	What a wonderful world
	10:30	Mawdsley JR & Sithole H	Poster: Diversity and abundance of insect visitors to flowers of trees and shrubs in a Southern African savanna
	10:32	Siebert F, Eckhardt HC & Siebert SJ	Poster: Vegetation and flora of the Letaba exclosures, Kruger National Park
	10:34	Bigwood T	The geomorphic impacts of african elephants (<i>Loxodonta africana</i>) on Tembe Elephant Park
	10:49	DISCUSSION	
Smit IPJ	Techniques Used to Evaluate Vegetation Structure		
	11:00	Wu J, Van Aardt JAN, Asner GP et al	Waveform Lidar data for the assessment of woody and herbaceous biomass at the site-level: Current approaches and research status
	11:15	Colgan MS, Asner GP & Levick SR	Estimating woody biomass in Kruger National Park using Airborne Remote Sensing
	11:30	Naidoo L, Mathieu R, Cho M et al	Spectral discrimination of bush encroaching species at canopy level using CAO hyperspectral data
	11:45	Delgado-Cartay MD & Higgins SI	Spectral properties of savanna vegetation: Assessing spatial and temporal variability and the potential for mapping fire risk in the Gran Sabana, Venezuela



Smit IPJ	Techniques used to Evaluate Vegetation Structure		
	12:00	Schmullius CH , Annegarn H, Paradzay C <i>et al</i>	Poster: The SARvanna Project: SAR mapping of vegetation structure in the African savanna
	12:02	Parrini F & Erasmus BFN	Poster: Spatial and temporal heterogeneity of phenology patterns in Kruger National Park, South Africa: climate or landscape variability?
	12:04	Gillson L	Poster: Isotopic signatures across stable and unstable vegetation boundaries in Hluhluwe-iMfolozi Park, South Africa
	12:06	DISCUSSION	
LUNCH	12:20	LUNCH	
Hofmeyr M	Disease as a Driver of Herbivore Distribution		
	13:45	Van Schalkwyk OL , Buss P, De Klerk LM <i>et al</i>	Prevalence of bovine tuberculosis among the buffaloes (<i>Syncerus caffer</i>) of the northern Kruger National Park
	14:00	Uys P & van Helden PD	The effect of BTB on predator numbers in KNP: a predictive population model
	14:15	Michel AL , Coetzee ML, Keet DF <i>et al</i>	Molecular typing reveals important clues on the transmission of <i>Mycobacterium bovis</i> to and among free-ranging African wildlife species
	14:30	Abu Samra N , Thompson P, Woods P <i>et al</i>	Poster: The epidemiology of <i>Cryptosporidium</i> at the wildlife - livestock and human interface in the western boundary of the Kruger National Park
	14:32	Kanapeckas KL , Cameron EZ, Ezenwa VO <i>et al</i>	Poster: Haemoparasites infecting African buffalo (<i>Syncerus caffer</i>) in Kruger National Park, South Africa
	14:34	DISCUSSION	
TEA	14:50	TEA	
Govender D	Predation as a Driver of Herbivore Distribution		
	15:20	Tambling CJ , Cameron EZ & du Toit JT	Lion predation in the Satara region
	15:35	Swanepoel L , Dalerum F & Somers M	Poster: Using digital camera traps to investigate leopard populations in the Waterberg Biosphere, Limpopo, South Africa
	15:37	Maputla NW & Ferreira SM	Calibrating camera-based biased mark-recapture sampling designs to survey leopard populations
	15:52	Tambling CJ , Kerley GIH, Hayward M <i>et al</i>	Poster: Rapid response to predators: buffalo and lion in Addo Elephant National Park
15:54	DISCUSSION		
DINNER	19:00	DINNER	Skukuza Golf Club: for registered delegates only

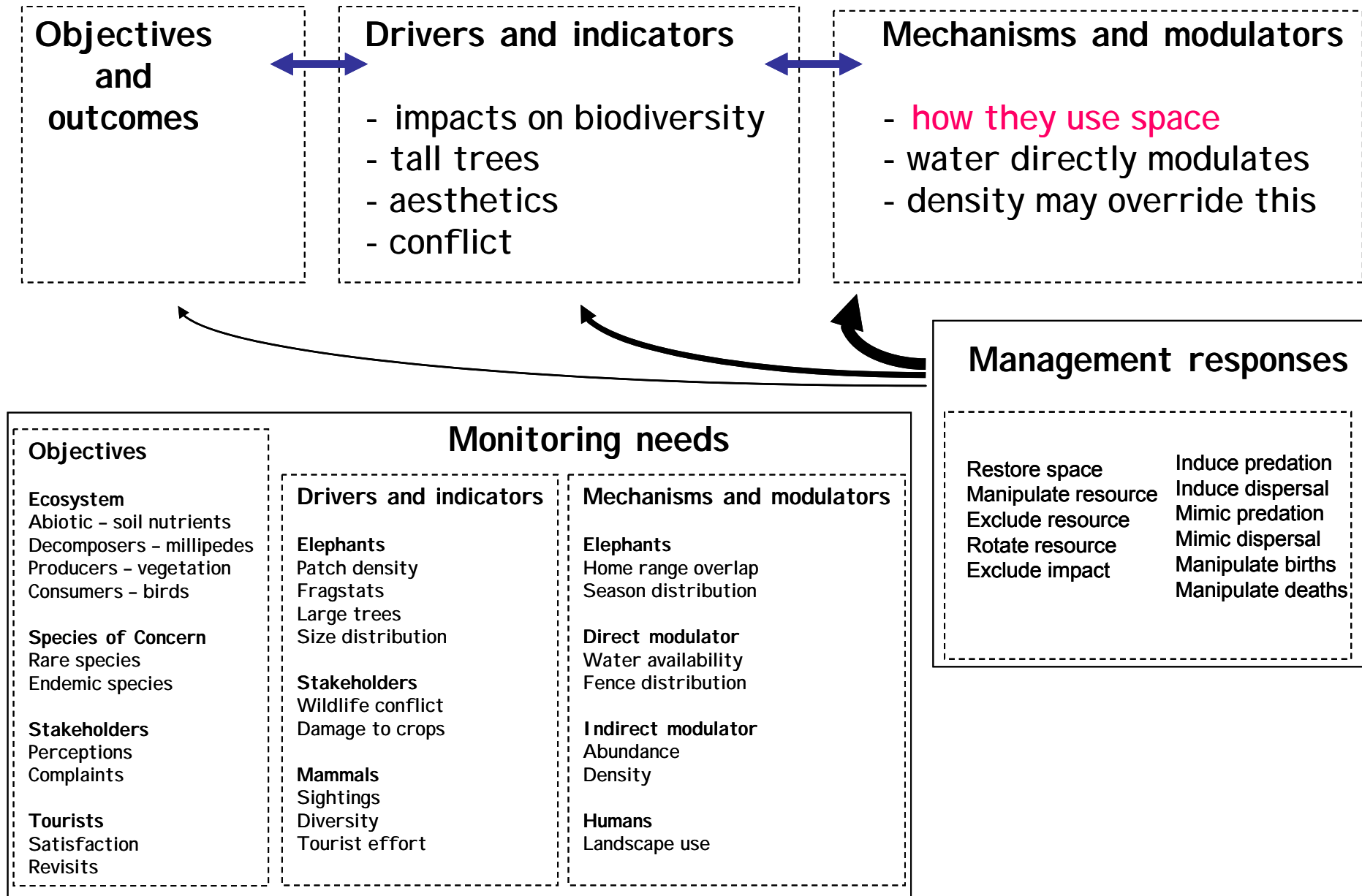


FRIDAY 24 APRIL 2008

CHAIR	TIME	PRESENTER	TITLE
<i>Nutrients as a Driver of Herbivore Populations and Distributions</i>			
Grant R	08:00	Pretorius Y, de Boer F, Coughenour M <i>et al</i>	Large herbivore responses to nutrient heterogeneity in an African savanna
	08:15	Chirima GJ & Owen-Smith N	Biotic vs. abiotic determinants of the local distribution of a low-density larger herbivore species in the Kruger National Park
	08:30	Seydack AHW, Grant CC & Vermeulen WJ	Multifactor perspectives on the population performance of rare antelope species in the Kruger National Park: the potential role of fire
	08:45	Van Rooyen J, Webb EC, Grant CC <i>et al</i>	Effects of the nutrient status of the habitat in the wet and dry season on the nutrient status of roan antelope <i>Hippotragus equinus</i> populations in the Kruger National Park and Vaalbos National Park, South Africa
	09:00	Owen-Smith N	Indicators of nutritional stress from GPS tracking of sable movements in Kruger National Park
	09:15	Le Roux L & Owen-Smith N	Habitat dependence by sable antelope in the Kruger National Park: Factors determining foraging area suitability
	09:30	Macandza VA & Owen-Smith N	Faecal nutritional indicators and the population status of sable antelope
	09:45	Bodasing T, Duffy KJ & Page BR	Movements and habitat preferences of African elephants, in response to rainfall variation
	10:00	Henley SR & Henley MD	Poster: Evidence in support of an east-west range differentiation in the Kruger National Park elephant population
	10:02	DISCUSSION	
TEA	10:20	TEA	
<i>Management Options</i>			
Gaylard A	10:50	Fynn R	A theoretical framework for managing wildlife systems
	11:05	Ferreira SM	The way forward with elephants
	11:20	Druce HC, Mackey RL & Slotow R	Immunocontraception: short term effects on behavioural assays and contribution to elephant management in a small, enclosed reserve
	11:35	Ganswindt A & Münscher S	Poster: Non-invasive assessment of adrenocortical activity as an endocrine response to stress in African elephants (<i>Loxodonta africana</i>)
	11:37	Ferguson KJ	Fence Interface Research and Monitoring in the Kruger National Park
	11:52	Foxcroft LC, Richardson DM, Pyšek P <i>et al</i>	Keeping unwanted neighbours out: protected area boundaries as barriers to alien plant invasions



SANParks' generic approach to making explicit linkages from park desired state to management response options



SANParks uses a linkage framework that links Park objectives and outcomes, drivers and indicators of change, mechanisms and modulators of such change. The linkages describe best available understanding and/or jointly derived mental models of such linkages. Effective management responses should focus on the modulators of and mechanisms of change which result in diverse information requirements.

THANK YOU

The Andrew W. Mellon Foundation

The Andrew W. Mellon Foundation has been a generous supporter of SANParks Scientific Services for many years. Supporting projects like the Kruger River / Savanna Boundary and the Junior Scientist Programmes. This year the Foundation has kindly sponsored the meeting venue, the cost of printing the programme, venue marques and the Gala Dinner. The Andrew W. Mellon Foundation philosophy is, “to build, strengthen and sustain institutions and their core capacities, rather than be a source for narrowly defined projects. As such, they develop thoughtful, long term collaborations with grant recipients and invest sufficient funds for extended period to accomplish the purpose at hand and achieve meaningful results”. Please visit <http://www.mellon.org> for more information.

TreeBOL – DNA Barcoding – University of Johannesburg

The TreeBOL African campaign aims to establish a network of African scientists and institutions working in the field of DNA barcoding assisting them with capacity building and promoting the sharing of information and expertise. If you want to be part of this initiative or have any suggestions and comments please contact either Michelle van der Bank (mvdbank@uj.ac.za) or Olivier Maurin (olive.maurin@gmail.com). Thank you to TreeBOL for sponsoring the Network Bags again this year. Please visit <http://www.uj.ac.za/botany/> for more information.

SAEON

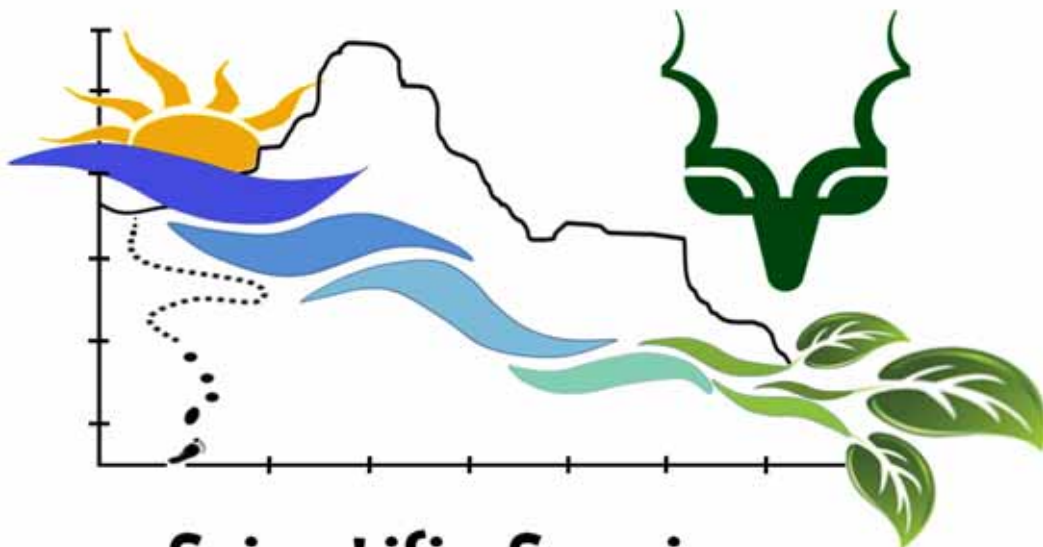
SAEON is a research facility that establishes and maintains nodes (environmental observatories, field stations or sites) linked by an information management network to serve as research and education platforms for long-term studies of ecosystems that will provide for incremental advances in our understanding of ecosystems and our ability to detect, predict and react to environmental change. Thank you to SAEON for sponsoring a venue marquee. Please visit <http://www.saeon.ac.za/> for more information.

Photo Credits - Dr. Andrew Deacon and Sandra Mac Fadyen



“If we knew what we were doing it wouldn't be research.”

Albert Einstein (1879-1955)



Scientific Services
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