

TIME	TITLE	AUTHOR/S
Opening of the 4th Annual Meeting of the Thicket Forum		
08:30-08:40	<i>Welcome & Opening</i>	Gillian K McGregor
08:40-09:30	<i>Keynote Address: Scorched: South Africa's changing climate</i>	Leonie S Joubert
09:30-10:30	<i>Question and Answer Session & Announcements</i>	Leonie S Joubert and Gillian K McGregor
PLATFORM SESSION: Livelihoods in the Thicket (Session Chair: Abigail I Kamineth)		
10:45-11:05	Voices from the forest: the interdependence of biological and cultural diversity	Michelle Cocks and Tony Dold
11:05-11:25	Conserving our Thicket: the Africulture Model	Philip L Crous
11:25-11:45	<i>Discussion</i>	<i>Facilitated by session chair, Abigail I Kamineth</i>
PLATFORM SESSION: Conservation, Rehabilitation and Stewardship of Thicket (Session Chair: Andrew T Knight)		
11:45-11:55	Growing plants and people: Working for Woodlands Restoration Nursery - Project Overview	Victoria L Wilman
11:55-12:10	Carbon stocks in the subtropical thickets of Baviaanskloof	Mike Powell, Anthony J Mills and Charlie M Shackleton
12:10-12:25	Overview of Thicket rehabilitation	Ayanda Sigwela
12:25-13:00	<i>Discussion</i>	<i>Facilitated by session chair, Andrew T Knight</i>
PLATFORM SESSION: Current and Proposed Research in the Thicket (Session Chair: Pieter W Conradie)		
14:00-14:20	Phylogeographic studies in southern African Thicket: <i>Schotia</i>	Syd Ramdhani, Michelle Behenna, Richard M Cowling and Nigel P Barker
14:20-14:40	Preliminary observations on the control of bush encroachment in the Coastal Thornveld of the Eastern Cape	Simphiwe P Nobatyi and Mfundo Macanda
14:40-15:00	Sharing the labour force through effective negotiations – insights in the pollination of aloes	Christo Botes, Steve Johnson and Richard M Cowling
15:00-15:20	The significance of flavonoid variation in <i>Portulacaria afra</i> (spekboom)	Bertie (A) M Ras
15:20-15:30	<i>Discussion</i>	<i>Facilitated by session chair, Pieter W Conradie</i>
POSTER SESSION: Thicket Forum (Session Chair: Lynn Phillips)		
15:45-15:55	Engaging civil society in Nelson Mandela Bay Municipality's conservation action	Abigail I Kamineth, Morgan Griffiths and Howard Bulkin
15:55-16:05	Livestock in municipal commonage: what is really happening in the Makana Local Municipality?	Nick A Davenport and James Gambiza
16:05-16:15	An investigation of the effects of thicket removal at a site in Sundays River Valley	Lauren van der Merwe and Gillian K McGregor
16:15-16:25	Seed germination and seedling survival in coastal Thicket: initial results	Clayton R Weatherall-Thomas and Eileen E Campbell
16:25-16:35	The extent of public green space and alien species in ten small towns of the Thicket Biome, South Africa	Matthew McConnachie, Charlie M Shackleton and Gillian K McGregor
16:35-16:45	<i>Discussion</i>	<i>Facilitated by session chair, Lynn Phillips</i>



KEYNOTE ADDRESS IV

SCORCHED: SOUTH AFRICA'S CHANGING CLIMATE

Leonie S Joubert

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Leonie Joubert is a freelance science journalist and author, specialising in climate change, biodiversity, natural history, agriculture and energy.

Her book, *Scorched: South Africa's changing climate*, recently earned an Honorary Award from the 2007 Sunday Times Alan Paton Non-Fiction judges. The book is the first to give a uniquely South African perspective on climate change. It takes a vivid journey through the country's mesmerising landscapes as climate change sets in, giving powerful local colour to a global problem. It ponders the morality of the changes humankind has wrought, and considers the future of life as we know it. *Scorched* has been described as "a wonderful, stimulating read" by *Getaway* travel writer Don Pinnock, "mostly because of Leonie's puckish, metaphoric and often poetic style of writing". Duncan Butchart of *WildWatch* remarked that *Scorched* is engaging and quirky. "Meticulous in its research, the information (in *Scorched*) is presented in a refreshing and surprisingly humorous style – better, even, than Tim Flannery (author of *The Weather Makers*) or Al Gore." See www.scorched.co.za.

As a freelance journalist, Leonie has been published in the Sunday Independent, Sunday Argus, Sunday Tribune, African Decisions, Africa Geographic, Getaway, Progress, EarthYear, Farmers Weekly, Engineering News, Cape Times, SA4x4, Xplore and the Mail & Guardian, amongst others. She contributed to the 2007 John Platter Wine Guide and in 2005 co-authored the new Environmental Management Plan (EMP) for the Prince Edward Islands Special Nature Reserve. She writes a regular science column for Wine News for which she earned a Merit Award in the SAB Environmental Journalists of the Year Awards 2006, Print Media category, "in recognition of an outstanding contribution to the field of environmental journalism". Leonie has a Bachelor of Journalism and Media Studies from Rhodes University and a Masters in Journalism from Stellenbosch University. She has also been appointed to 2007 Ruth First Fellow.

Livelihoods in the Thicket

SESSION CHAIR: ABIGAIL I KAMINETH

Platform Presentations & Discussion

VOICES FROM THE FOREST: THE INTERDEPENDENCE OF BIOLOGICAL AND CULTURAL DIVERSITY

Michelle Cocks^{1*} and Tony Dold²

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During the past decade the relationship between biodiversity and human diversity has received increased attention and more recently this has extended to include the diversity of languages. This has resulted in the identification of what the Declaration of Belem (1988) calls an 'inextricable link' between biological and cultural diversity. The term bio-cultural diversity has been introduced as a concept denoting this link. Although the term is being used increasingly, there has been little critical reflection on what the term precisely refers to. It is argued that the concept is particularly used with reference to 'indigenous traditional' people, but that there is scope for extending the concept within the bio-cultural discourse. In order to demonstrate how the concept could be used beyond the realm of 'indigenous traditional' people, the concept of culture is reviewed. This is followed by a discussion of what constitutes cultural values of the natural environment. It is concluded that the concept of culture and knowledge must be



understood as involving a dynamic process of trans-cultural exchange and constant re-articulations of tradition resulting in the persistence of certain cultural practices and use of languages. This re-conceptualization ultimately reveals that the cultural value of wild resources is also applicable to non-indigenous traditional communities.

CONSERVING OUR THICKET: THE AFRICULTURE MODEL

Philip L Crous

Umthathi Training Project Trust, Africulture Centre, 21 West Street, Grahamstown, 6139, South Africa,
email: philip@umthathi.co.za

1. Introduction to the Umthathi Africulture Project
 - Historical overview of Umthathi Training Project Trust
 - The identified need to develop the Africulture Project
2. The Africulture Project
 - Goals and objectives
 - Programme outline
 - Traditional Medicine and the role of the Traditional Healers
 - Project Partners and Support
 - Development of the Africulture Centre in Grahamstown:
 - The site
 - Production Nursery
 - Training facilities
 - Biome gardens
 - Eco-Tourism
 - Sustainability of Centre
3. Current Status of the Project
 - Development plan
 - Site development
 - Architects
 - Steering Committee
 - Cultivation Training
 - Fundraising
 - Support of Traditional Healers



Conservation, Rehabilitation and Stewardship of Thicket

SESSION CHAIR: ANDREW T KNIGHT

Platform Presentations & Discussion

GROWING PLANTS AND PEOPLE

Victoria L Wilman

Gamtoos Irrigation Board, Working for Woodlands, Kouga Restoration Nursery Project, PO Box 23, Patensie, 6335, South Africa, email victoria@connectedcat.com

This presentation introduces the new Working for Woodlands Restoration Nursery Project. It will tell the story of the project, beginning with its history, its small beginnings within the Thicket Rehabilitation Project, following its progress as it grew to become a project on its own. We will look at where we are now, the vision for the future, and the process that will be followed to turn it into a living, breathing environment for growing plants and people. We will embark on a virtual tour of the restoration nursery discussing the vision, goals and plans for the future along the way.

Vision for the Future

The Restoration Nursery was originally set up to propagate plants for the subtropical thicket project. Since then, it has been expanded to fulfil the plant material needs of a suit of restoration projects within the Eastern Cape Restoration Program. These include:

- Eastern Cape Working for Water Restoration –Joubertina, Kouga, Albany, Katberg & Hogsback.
- Sub-Tropical Thicket Restoration Project
- World Wildlife Fund – Riparian Restoration - Kouga catchment
- Cape St Francis Thatch Restoration Project
- Matawani Forest Rehabilitation Project
- Working for Wetlands – Eastern Cape

The nursery project is central to the restoration objectives of these partner projects and its primary aim is to fulfil their plant needs while becoming a centre of botanical and horticultural knowledge in the Eastern Cape, providing services and expertise to partner projects and other interested parties.

Specific objectives

- The project aims to fulfil the plant material needs of the partner projects and expand on the diversity of species currently being propagated.
- To become a centre of botanical knowledge and horticultural expertise servicing the Eastern Cape Restoration Programme and other interested parties.
- To monitor the costs of plant production from propagation to distribution.
- To initiate and document propagation and other trials aimed at establishing propagation and growing protocols based on a balance between the most cost effective and successful methods.
- To conduct field/nursery trials on behalf of partner projects to investigate restoration methods and to solve problems encountered in field planting.
- To create an ideal environment for the development of SMME's , building the capacity of contractors and their teams in the field of horticulture, landscaping and restoration.
- To develop the nursery into an aesthetically pleasing educational environment similar to a botanical garden, with a view to showcasing the project.



Virtual Tour

We will tour the nursery, following the process from collection of seeds and cuttings - to field planting back at the rehabilitation site. The following processes will be discussed: Collection of material, propagation from seed and cuttings, seed treatments, pricking out, potting and hardening off, growing on, distribution and field planting.

CARBON STOCKS IN THE SUBTROPICAL THICKETS OF BAVIAANSKLOOF

Mike Powell*, Anthony J Mills and Charlie M Shackleton

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Vast areas of the recently revised Albany Thicket Biome have been degraded. Much of the degradation has been in the semi-arid thickets (formerly known as spekboomveld), principally effected through unsustainable livestock practices. It has been well established that the semi-arid thickets exhibit very poor resilience to degradation, and active restoration is required to return the lost natural capital and resuscitate optimal levels of ecosystem services. It has been proposed that restoration can be effected via the planting of spekboom (*Portulacaria afra*) and other woody species, which could simultaneously qualify for carbon credits thereby precipitating a new rural economy for the Eastern Cape. In 2004, the Department of Water Affairs and Forestry commissioned a pilot project in the Baviaanskloof Megareserve to assess the viability of such an initiative. In order to qualify for carbon credits in the formal and informal sectors, accurate baselines (carbon pools) were required for both degraded and intact vegetation. In the Baviaanskloof Megareserve intact subtropical thicket landscape carbon pools approximate those from other studies conducted in the same vegetation (>200 t C ha⁻¹). The potential financial gains, made from the differential in carbon pools (intact vs. degraded habitat) are considerable – indicating positive initial results for carbon trading in the degraded thickets of the Eastern Cape. The findings for the baseline carbon stocks will be presented.

Current and Proposed Research in the Thicket

SESSION CHAIR: PIETER W CONRADIE

Platform Presentations & Discussion

PHYLOGEOGRAPHIC STUDIES IN SOUTHERN AFRICAN THICKET: SCHOTIA

Syd Ramdhani^{1*}, Michelle Behenna², Richard M Cowling¹ and Nigel P Barker²

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The genus *Schotia* consists of four species. The genus has a southern African distribution, and ranges from southern Zimbabwe and Mozambique to South Africa and Namibia. *Schotia* has a notable presence in the Thicket Biome, and could potentially be an important indicator of Thicket biogeography. It has been proposed as one of the “early” or “original” thicket taxa, and the genus has affinities with other taxa from similar biomes across the world. The aim of this study was firstly to use DNA sequence data to study inter-specific phylogenetic relationships and secondly to relate the results obtained to Thicket biogeography. Preliminary results show that, where represented by multiple samples, species of *Schotia* species are non-monophyletic. Most of the clades did not reveal geographic patterns or structure. These results maybe due to hybridization and/or incomplete lineage sorting, and could also suggest that the species in the genus could be of comparatively recent evolutionary origin. However, our sampling is still incomplete, as we have not sampled species across their entire geographical ranges. *Schotia* may thus comprise recent species (some capable of hybridization) that have evolved in thicket refugia, and more exhaustive sampling may allow us to locate these refugia.



**PRELIMINARY OBSERVATIONS ON THE CONTROL OF BUSH ENCROACHMENT IN THE
COASTAL THORNVELD OF THE EASTERN CAPE**

Simphiwe P Nobatyi* and Mfundo Macanda

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Bush encroachment is recognized as the major factor that causes reduction in animal production off grasslands and savanna regions worldwide. Mechanical and chemical methods of controlling bush encroachment have been recommended in the past and later proved to be economically unsustainable. The objective of this study is to develop burning guidelines and effective strategies of controlling bush encroachment in the Coastal Thornveld of the Eastern Cape using goats and fire during winter and summer seasons. The experiment is conducted at Bathurst experimental farm. Woody component on the trial site was initially rolled over by Bosvark machine in 2001, five years before the application of treatments and first winter fire in August 2005 and first summer fire in February 2006. Treatments of the experiment include the following; Winter Fire, Summer Fire, Goats & Winter Fire, Goats & Summer Fire, Goats and Control and these treatments are replicated twice. Observations from a four year data set (2003-2006) have shown that, burning this veld type during the growing season encourages seed germination and seedling growth especially from *Acacia karroo* trees. The latter was not observed during the winter burnings however, physiognomic characteristics of woody plants such as height and canopy diameter were reduced by fire in both seasons. These results were observed from a single burn and the trial is still in progress.

**SHARING THE LABOUR FORCE THROUGH EFFECTIVE NEGOTIATIONS – INSIGHTS IN THE
POLLINATION OF ALOES**

Christo Botes^{1,2*}, Steve Johnson² and Richard M Cowling¹

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Genetic compatibility among the aloes results in seemingly widespread hybridization among co-occurring species. This has made it difficult to explain how aloes co-exist without the ultimate loss of species, given that they flower simultaneously and are mostly bird-pollinated. We investigated the pre-pollination mechanism that would allow co-occurring species to maintain species boundaries. We found that within a succulent thicket community, aloes partition the fauna of flower-visiting birds. *Aloe* species with small amounts of concentrated nectar in long corolla tubes were pollinated by long-billed sunbirds. These species co-flowered with species with large amounts of dilute nectar in short corolla tubes which were pollinated by short-billed, generalist nectarivores. *Aloe* species which share pollinators tend to have divergent flowering times and differences in pollen placement on birds. Without these isolating barriers, genetic dissolution of co-occurring *Aloe* species would be likely.

THE SIGNIFICANCE OF FLAVONOID VARIATION IN *PORTULACARIA AFRA* (SPEKBOOM)

Bertie (A) M Ras

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An investigation of the flavonoid composition of *Portulacaria afra* revealed a characteristic presence or absence of a specific flavonol-glycoside in the plants. This characteristic was included as a treatment in an investigation of the influence of defoliation on the phenolic levels of *P. afra* to determine if there was any relation between the ability to produce phenolic compounds as a chemical defense mechanism and the presence or absence of the flavonoid. The relation with plant productivity in terms of leaf density was also investigated. The results indicate that *P. afra* plants without the flavonoid exhibit a stronger immediate response to defoliation in terms of phenolic production than plants with the flavonoid. The leaf density before defoliation of these plants was lower than that of plants with the flavonoid but responded to browsing by a marked



increase in leaf density. The biochemical and physical differences associated with the presence/absence of the flavonoid may indicate the existence of two distinct varieties of *P. afra*.

Thicket Forum General

SESSION CHAIR: LYNN PHILLIPS

Poster Presentations

ENGAGING CIVIL SOCIETY IN NELSON MANDELA BAY MUNICIPALITY'S CONSERVATION ACTION

Abigail I Kamineth^{1*}, Morgan Griffiths² and Howard Bulkin³

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Conservation projects can be best served through partnerships, that commit public and private sectors to working together to conserve biodiversity for future generations.

To realise the implementation vision of the Nelson Mandela Metropolitan Open Space System (NM MOSS) Conservation Programme, the Nelson Mandela Bay Municipality (NMBM) has set out to engage civil society (Wildlife and Environment Society of South Africa (WESSA) and the Baakens Valley Preservation Trust (BVPT)), in conservation action at two of the NMBM's most important NM MOSS implementation sites. These include the Baakens Valley area and the greater Van Stadens River Gorge corridor.

Two partnership projects have been developed in collaboration with WESSA and the BVPT as part of the implementation phase of the NM MOSS Conservation Programme. Seed funding has been granted to these two projects from the CEPF, through the C.A.P.E. Programme. They are known as the *Baakens Valley Recovery Plan* and the *Van Stadens River Stewardship Programme*, which will focus strongly on;

- securing stewardship agreements and incentives for the Van Stadens River Corridor (VSRC);
- establishing public-private partnerships and enhancing community involvement in these two areas;
- identifying conservation initiatives that will restore the Baakens Valley as a community conservation and recreation site.
- and strengthening institutional capacity of the partner organisations

LIVESTOCK IN MUNICIPAL COMMONAGE: WHAT IS REALLY HAPPENING IN THE MAKANA LOCAL MUNICIPALITY?

Nick A Davenport^{} and James Gambiza**

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The new ANC government announced after 1994 that municipal commonage would be a pillar of their land reform programme. The Department of Land Affairs acquired new commonage to complement the existing 'old' commonages. The aim of old commonage was to supplement incomes of poor urban residents through the subsistence user system whereas new commonage was intended as a 'stepping stone' for emergent farmers. The study investigated differences between the old and new commonage users as well as how farmers perceived the Makana Local Municipality's capacity in managing the commonage. The results showed that local institutions were weak, rules were not transparent and farmers were not satisfied with local government in terms of commonage management. There were no differences between old and new commonage farmers in terms of livestock owners' characteristics and mean annual net benefits. There were also no differences in the age of commonage users. Furthermore, there was no association



between the type of commonage and level of education. The mean annual net direct-use value of livestock on old commonage was R6308 compared with R9707 on new commonage. Although new commonage farmers' income was slightly larger, the annual productive output on old commonage was slightly higher; R473 ha⁻¹ compared to R134 ha⁻¹ on new commonages. We suggest that new land policy legislation is needed in which poverty as well as the legal arrangements between all stakeholders are clearly defined. Furthermore, national departments need to be more involved with local municipalities so as to increase local management capacity.

AN INVESTIGATION OF THE EFFECTS OF THICKET REMOVAL AT A SITE IN SUNDAYS RIVER VALLEY

Lauren van der Merwe*# and Gillian K McGregor

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It is widely acknowledged that most of Earth's ecosystems are being rapidly transformed though various detrimental human and herbivore actions. Degradation within the Thicket biome in South Africa has only recently been recognised as problematic. At the same time, new insights into the value of this much neglected biome (such as its role in carbon sequestration) have brought the significance of this biome to the fore. Despite this new 'prominence', thicket vegetation continues to be altered and degraded through fuelwood harvesting, clearing for cultivation or other development, medicinal plant use and overgrazing.

The aim of this investigation was to determine some of the effects of the removal of thicket vegetation at a site in the Sundays River Valley, in the Eastern Cape. Three sites representing different levels of 'intactness' of the vegetation, described as sparse, moderate and pristine were identified and surveyed. A Landscape Function Analysis approach which allows for an estimation of a landscapes capability based on how it functions as a bio-chemical system (Rezaei, Arzani and Tongway, 2006) was used. This method focuses on the level of biodiversity and soil characteristics as a means of evaluating the condition of a site. Data gathered from each site gave indices of landscape organization and soil surface condition which were processed using a spreadsheet function for LFA developed by Tongway and Hindley, (2003). The results showed that the intact, pristine cover site has much higher indices of stability, infiltration and nutrient cycling in comparison with the other two sites. The pristine site displayed a higher level of biodiversity, greater canopy cover and greater cryptogam cover as well as litter cover increasing all three indices. The nutrient cycling index showed the widest range of data across all three sites and the stability index range was the least.

In conclusion, the study showed that a site with intact thicket vegetation is a functional bio-chemical system whereas degraded thicket is dysfunctional. The results highlight the fact that to maximise the benefits (goods and services) provided by this unique biome, the vegetation should be kept intact.

SEED GERMINATION AND SEEDLING SURVIVAL IN COASTAL THICKET: INITIAL RESULTS

Clayton R Weatherall-Thomas*# and Eileen E Campbell

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Thicket is a stable vegetation that regenerates mainly through vegetative means. Although fruit and seed production is generally abundant, seedlings of the dominant woody species are rare. This may be due to an absence of a soil seed bank, germination failure, or the inability for seedlings to survive present environmental conditions. The aim of this study is to contribute towards discovering why there is a scarcity of seedlings in Thicket. Nine study sites were selected using the three coastal vegetation types (Mesic Succulent Thicket, Mesic Kaffrarian Thicket, Xeric Kaffrarian Thicket) identified by Everard's (1987) classification of Thicket. This system was chosen as Everard (1987) used multivariate analysis (MVA) to identify his vegetation types, providing differential species for each one. Plant species composition and environmental parameters were recorded. Soil samples were collected from three environments: outside the canopy, at the edge of the bushclump and under the canopy. The seedling emergence method will be used to identify the soil seed bank. Germination trials will be done using the differential species of the stated



vegetation types, as well as a number of others. Seedlings of these species will be exposed to different light, drought and defoliation treatments. Preliminary results will be presented.

**THE EXTENT OF PUBLIC GREEN SPACE AND ALIEN SPECIES IN TEN SMALL TOWNS OF
THE THICKET BIOME, SOUTH AFRICA**

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Urban areas in developing countries will accommodate nearly 90% of the projected world population increase between 1995 and 2030. Despite this few studies, especially in smaller towns, have been carried out on urban green space areas in the developing world. This paper reports upon a study making a first step in this regard, in which the extent and state of urban green spaces within ten small towns in the Eastern Cape (South Africa) are reported, the objectives of which was to measure the current size and state (in terms of woody plant cover) of public green space. We then sought patterns across the 10 towns between green space attributes, such as area, density, mean size and proportion of alien or indigenous, with socio-economic attributes of the towns. The area and state of current public green space varied markedly between the towns, with the poorer towns faring the worst. Lower income levels were significantly negatively correlated with the area and quality of public green space. Despite this, human population density and per capita green space were the best predictors of the proportion and mean area of public green space present in the towns. The proportion of town green space and the per capita green space were the best predictors of changes in woody plant composition and density.

