

Xerophytica 2014 - Plants for our Future | Congress

Zim Aloe Chick



The Xerophytica Congress, held by the Aloe, Cactus & Succulent Society of Zimbabwe, in June 2014, boasted a remarkable attendance of over 85 attendees on the 1st day, and over 90 fascinated delegates attending on the final day. The selection of presentations were numerous, unique, inspirational and incredibly varied, here is a taster for those who missed out and a reminder for those who attended:

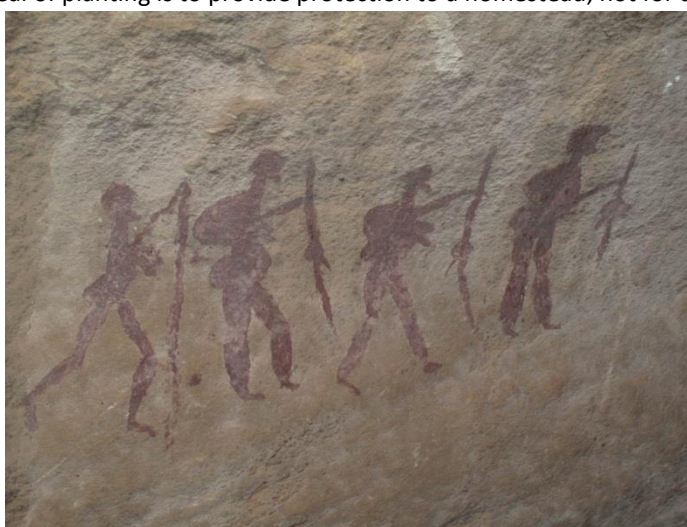
XEROPHYTICA CONGRESS DAY 1 : PRESENTATIONS

Neil Crouch from the University of Kwazulu-Natal, on “Signature Succulents of the Zulu”.

Neil Crouch, youthful and knowledgeable, kicked off the conference, with a fascinating presentation. He commenced with pictures of ancient rock art in Lesotho where clearly plants were utilised (most likely as hallucinogens.) It was captivating hearing about the medicinal hotspots in Southern Africa, the history of “muthis” and medicinal vs. magical definitions of plants. There is very little repackaging of products in those cultures and on occasion, a slight sense of shame from the modern Zulus in using traditional “muthis”. Interesting also, was to consider the relation of the shape of a plant to its believed properties eg. plants that look like an ear may be used to cure earache. From the magical aspect, cycads (*encephalartos*) are often put in the way to stop Tokoloshe from following a specific path and a great deal of planting is to provide protection to a homestead, not for aesthetic value.

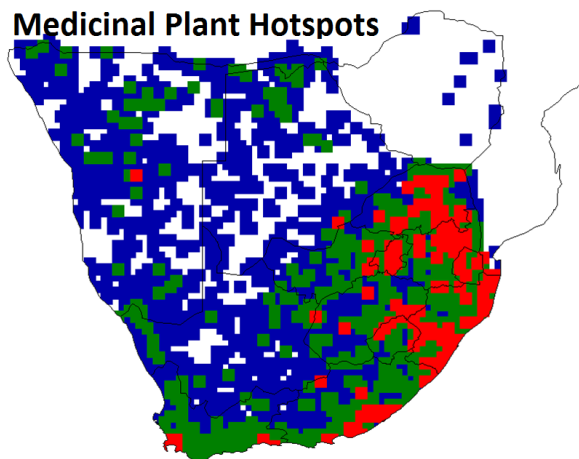


Neil Crouch



Where does it all start?

Medicinal Plant Hotspots



Medicinal Plant Hotspots



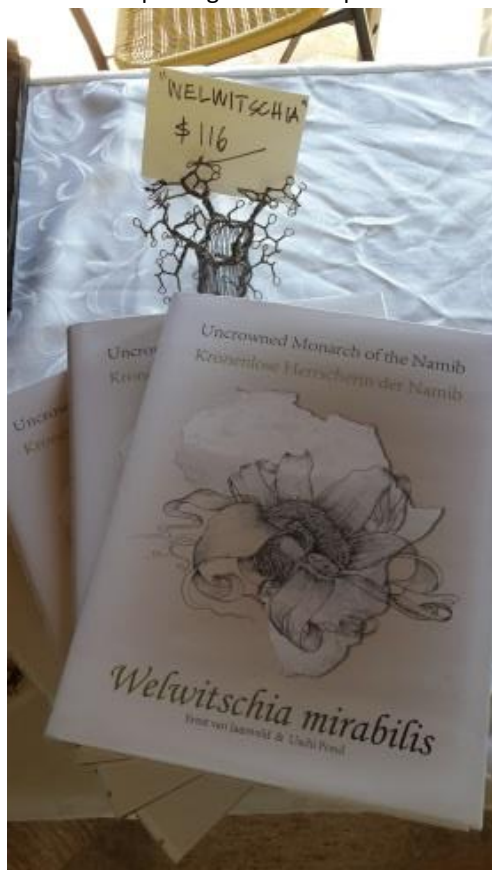
Medicinal plants for sale at one of the many markets



A Zulu protective charm : *ugebeleweni*

Ernst van Jaarsveld presenting “*Welwitschia mirabilis* – streamlined living fossil of the Namib Desert”

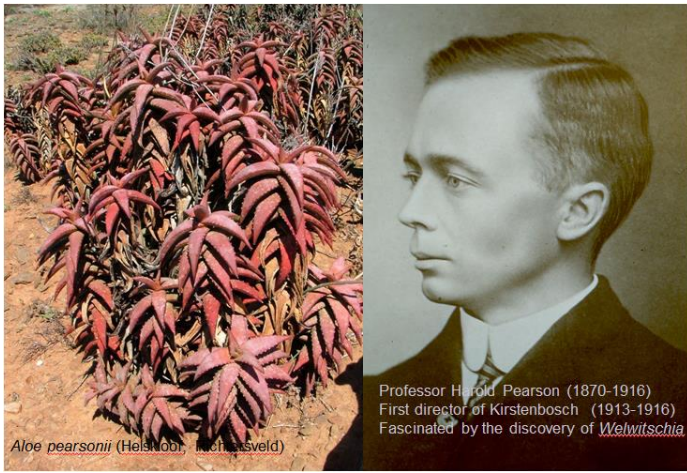
As a taster, Ernst showed us magnificent photos of the new ‘Boomslang’ walkway at Kirstenbosch Botanical Gardens, then ‘wow’ed us with photos of his canoeing trips, collecting seed for the Millenium Seedbank, and his recent trip to Namibia. The diversity of plant-life was enthralling. His topic for the Congress, focussed on *Welwitschia*: named “the platypus of the plant kingdom” by Friedrich Welwitsch in 1859. Harold Pearson, the first director of Kirstenbosch, was fascinated by *Welwitschia*. There are 2 sub-species: one in Angola and one in Nambia. In Afrikaans it is called the ‘afkopboom’. There have been fossils found in N. Brazil, over 150m years ago when Africa and S. America were still together – it is a true relic of the past! It only has ONE PAIR of leaves and it retains these two leaves like a conveyer belt and grows to great age, but with very slow growth. The simplistic growth can be considered a prime reason for its survival. Germination is rapid – only 3 days and it grows a very long tap root. It definitely relies heavily on fog within a desert environment, and can grow 15cm per year. It has visible growth rings and a corky bark. It is a ground hugger in a cool climate and is loved by chameleons and insects. Inspirational in Ernst’s presentation, was how he incorporated a real-life adventure of both our predecessors and his own, in discovery and research of plants. What an enormous, and deeply gentle character imparting his vivid experience and knowledge.



Uncrowned Monarch of the Namib : *Welwitschia mirabilis*



Ernst van Jaarsveld



Aloe pearsonii and Prof Harold Pearson



Welwitschia Mirabilis Streamlined Desert Wonder

Len Newton, one of the authors of Aloes – the Definitive Guide (Kew), flew in from Kenya and talked about “Succulent Plant Discoveries in East Africa – Past, Present and Future.”

Len, started off with “the Past”: the inland expedition by John Speke and James Grant. Several explorers were murdered during their expeditions. Colonisation began in 1888 in East Africa (Kenya, Tanzania and Uganda.) Uganda was regarded as the pearl of Africa and a railway was built from 1895, reaching Nairobi in 1899. Considering that the first motorcar arrived in Kenya only in 1918, before that, it must be admired that plants were all collected by WALKING! Moving on to “the Present”: Len gave a very simple and obvious explanation that discoveries are really only from 3 ways at present: they are 1. incidental or 2. from unexplored areas or 3. from analysis of variability. We were most intrigued to learn the extent of colour variation among species and that this does not denote a new species. There are still some aloe species with material at Kew that are not yet identified! Discoveries are ongoing, with new aloes being described and named continually by experts. Len then showed us some magnificent photos of plants that he has discovered and named. Moving on to “the Future”: the reality is that there are less and less new species to be found, and the key to discovery in the future, is to go to areas not much explored. Len truly is a distinguished and veteran expert.



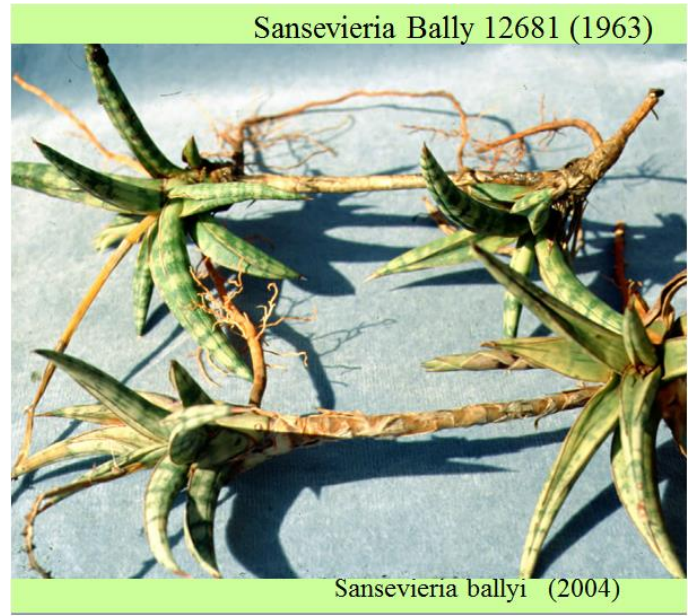
Len Newton



Peter Bally



"The Past" and "the Present" : exploration and discovery



Sansevieria Bally 12681 (1963)

Sansevieria ballyi (2004)

Sansevieria ballyi

On to the acclaimed writer of "Aloes of South Africa", and many other Medicinal Plant books,
Ben-Erik van Wyk who presented on "The Commercial Potential of Southern African Succulents in the Herbal Medicine Industry"

Ben-Erik, spoke on the diversity of plants, and the importance of ethno-botanic perspective (ie. safety.) Interestingly, the first ethno-botanic survey was completed by Simon van der Stel in his diary in 1685. We are finding precious cultural information that is directing us to more information on plants and their uses. The Kamiesberg and Cederberg are areas that are drivers of knowledge, due to their bossie-doctors and their isolation. The obvious step is then commercialisation, and the need to develop agriculture to ensure sustainable harvesting. *Aloe vera* trades \$110b per year (3rd only to petroleum and coffee!) Trading in stolen goods is always profitable, hence the need to ensure responsible harvesting and a uniformity and standardisation in the herbal growth of medicine. Important are crop development and product development. *Aloe ferox* is one of the great commercial plants in South Africa and there is a history attached to aloes from years and years ago (Ernst v Jaarsveld has located a quiver tree rock painting in the Brandberg and a famous painting in Aliwal North.) Aloe research is huge! *Aloe* has 2 products – the bitters (bitter exudate from aloin cells) and the gel (white juice, which is not bitter.) Quantities of the product are critical, as a tiny match-head amount of the bitter can be a serious laxative. *Aloe* has been traditionally, sustainably harvested since 1761, and modern uses include functional foods and drinks. Forever Living (*aloe* products) had a turnover of \$2.1b in 2004. Baobabs are on the list of potential commercial plants, and there is investigation into *Hoodia/Gaap*, for weight loss, however it is not practical to eat/drink, gives you nausea and must be chewed, therefore can not be taken as a tablet! There is a very strong movement to use *sceletium* as an extract for anti-anxiety, anti-depression and cognitive flexibility. There are intellectual property rights issues to be considered at every corner, and proof of efficacy and safety, and marketing and branding are vital. Ben-Erik touched us as an inimitable gentleman, a practiced scholar and a giant in his contributions to botanical science.



Simon van der Stel's diary of 1685, pages 867 en 868

Pelargonium antidysentericum
rooirabassam, heyntame,
heijntame, t'name, aree

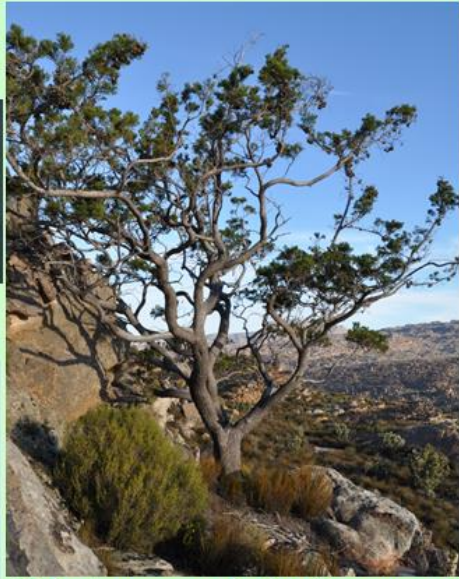


867 117
 Een soort van Geranium met een soets en eetbaer
 wortel, en die halven by d'grigriquaas seer getrockt,
 oock aan verscheids plaatsen gevonden Van d'
 Namaquaas. heijntame, en d'grigriquaas
 aree genaamt. den 13. 9^{br}. gevonden

A kind of *Geranium* with a sweet and edible root and therefore much favoured by the inhabitants. Found in several places, and called *Heijntame* by the Namaquaas and *Aree* by the Grigriquaas. Found on the 13th September.

PART 1. ETHNOBOTANICAL SURVEYS

Cederberg



Cederberg: named after the rare and endemic cedar tree
(*Widdringtonia cedarbergensis*)

The Cederberg, a wealth of knowledge

Tom McCoy presented "Aloes of Arabia"

Tom McCoy focussed on the most fantastic photographs and stories behind the *aloes* of Saudi Arabia, Yemen and Oman. (Several of which, have been described by Tom.) The Aloes of Arabia have some amazing characteristics, particularly differing from those we are used to seeing in Zimbabwe. Several have the most velvety, fuzzy flowers (aloe woodii and a. tormentosa as examples.) And these *aloes* also have various diverse colour forms. Tom indulged us with some basic Latin, which explained some of the naming conventions far better for mere novices. 'ensis' denotes from where, hence *aloe inyangensis*, an "i" after a word denotes naming after a person, hence *aloe christianii*, etc. The stark landscape and dissimilar culture and locality were intensely illustrated in some of the most fascinating photographs and oratory of *aloes* available. We are honoured and enormously excited that Tom, along with Darrel Plowes and Obety Baptista, found and described a new Zimbabwean Aloe, *Aloe haroniensis* during their post-Congress trip around the country. (Be sure to take the time to read Tom's personal account of this, in this issue of Ingens.) Tom generously shared his vibrant personality and passionate expertise, alongside a wealth of experiences, with all those lucky to spend time with him.



Tom McCoy



Aloes of Arabia



Close-up of *Aloe woodii* inflorescence with its densely tomentose flowers being visited by a honey bee



A flowering specimen of *Aloe woodii* in the highlands of the Kingdom of Saudi Arabia



The rare and endangered *Aloe sheilae* blooming beneath the Arabian Dragon Tree, *Dracaena serrulata* in the Kingdom of Saudi Arabia

Andy Roberts, on “Botanical Photography Techniques”

Andy Roberts, a local Zimbabwean expert, was up next and carefully went through all the technical photography aspects of aperture, etc. He delved also into the important storage factors like naming your photos correctly, storing and backing them up properly. His descriptions with suggestions on lighting greatly interested the audience, with some very useful hints on taking photos of plants in dark corners (he suggests that you always have a t-shirt or white material with you, with which to back or surround the object, to get as much reflected light in on the subject as possible.) He was also completely approving about the process of photo-shopping and improving photos with auto-correct, cropping to get the right focal points, and altering the original picture in order to improve the final photograph. Andy’s varied selection of photos was quite mind-boggling and the different topic, carefully presented in detail, kept everyone’s attention for the notorious afternoon session!



Using cropping to improve the picture of *Aloe arborescence* using a single focal point



Using photoshop, autocorrect and the correct lighting for an improved photograph

Mark Hyde, presenting on “The Succulent Flora of Zimbabwe”

Mark, is a serious tree expert, an overall flora expert in Zim, Zambia and Mozambique, and has set up 3 fantastic interlinked flora websites for the posting of photos and information on indigenous plants and plants in habitat. His Zim website www.zimbabweflora.co.zw is an exceptional site and they are quick to identify and upload photos of new and old plants alike. (Similarly the sites for Zambia and Mozambique.) Zimbabwe Flora and the Tree Society of Zimbabwe’s facebook presence is very large and active, with “friends” posting pictures of plants seen in and around Zimbabwe, some requesting identifications and others for pure enjoyment, virtually daily. Mark, generous, gentle and jovial, shared with us, the most extensive range of Succulents in Zimbabwe, from the online Flora of Zimbabwe site, which was a feast for the eyes.



Mark Hyde



Portulaca rhodesiana

(http://zimbabweflora.co.zw/speciesdata/image-display.php?species_id=123230&image_id=6)



Mark Hyde with attentive delegates and presenters in the audience



Pterodiscus ngamicus

(http://zimbabweflora.co.zw/speciesdata/image-display.php?species_id=123230&image_id=6)

XEROPHYTICA CONGRESS DAY 2 : PRESENTATIONS

Ralph Stutchbury premiered his latest film on the Baobab “The Upside Down Tree”

Ralph, a superb wildlife film maker and photographer, based in Harare, premiered his latest film on the Baobab, *Adansonia digitata*. The film was a triumph and had everyone glued to the screen, witnessing the magnificence of the Baobab trees that were part of the landscape in which he grew up. Ralph’s selection of music and voice-overs are notable and professionally compiled, and the photography is out of this world. Ralph spends a great deal of time travelling to get just the right extraordinary shots and material, and there is no doubt that this film has decades of footage supporting it. Ralph, a perfectionist and voyager at heart, also had his magnificent, partnering book, “Baobab”, available for sale at the Congress.



Ralph Stutchbury



Adansonia digitata



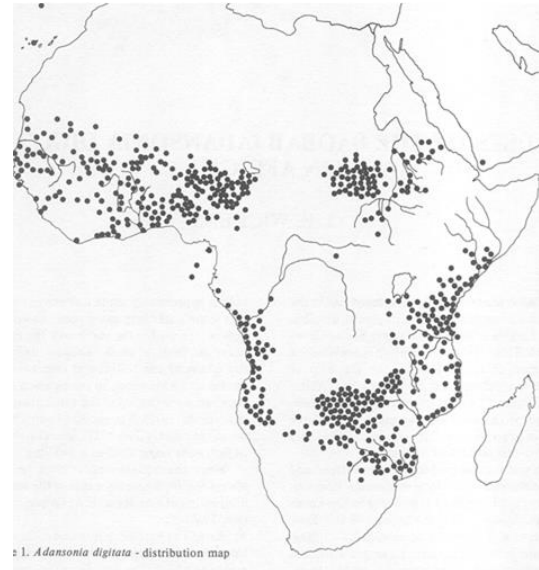
Flower detail of the Baobab



Ralph Stutchbury presenting "The Upside Down Tree"

Gus le Breton's ventures and "Baobab – Dryland Crop for the Future"

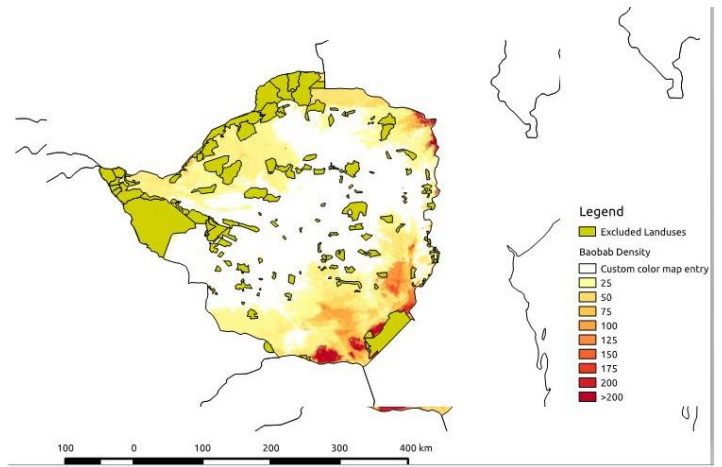
Gus, a self-confessed, studious Rock Star, is a commercial Baobab producer, who is taking many of the opportunities of marketing and selling baobab, with his main setup here in Zimbabwe. He advocates that every part of the baobab is used and through sustainable harvesting – the fibrous bark for rope and baskets, leaves as a vegetable, fruit is consumed in multiple ways, seeds to make oil and a coffee substitute and for medicinal uses (anti-pyretic, anti-diarrhoea.) The products that they are making include jams, chilli sauces, baobab gin, fruit juice, nectar, powder-bags (these are apparently very fashionable in Europe – added into smoothies!), baobab and onion chips and as a cosmetic oil...! The Body Shop uses Baobab in one of their balms and lotions. Interestingly, the potential commercial value is in the region of \$11m per annum. There are over 5 million trees in Zimbabwe, of which 3.5m are in communal lands. Oddly, the baobab populations are healthy and it must be noted that they are essentially healthier in communal lands than in National Parks land because of the destructive impact of wild animals in the latter.



Adansonia digitata : distribution map



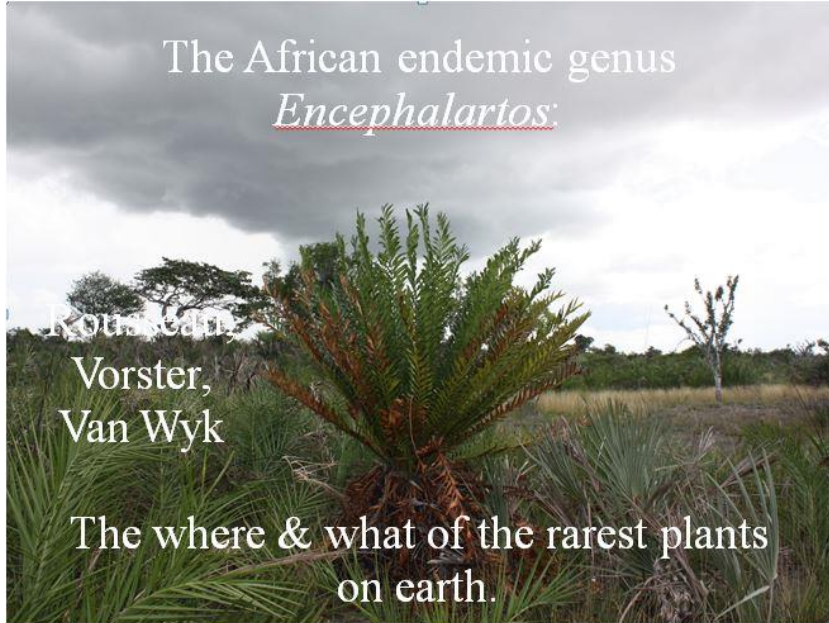
Baobab pods, harvested



Baobab distribution in Zimbabwe

Philip Rousseau from Stellenbosch University, presented on “The African Endemic Genus *Encephalartos*”

Boyish and with an infectious adoration of *encephalartos*, Philip Rousseau pointed out that cycads have a few uses: as a food source during famine (the stems are fermented and ground into flour), they have serious magical properties and there is enormous horticultural appeal to cycads. There are ecologically 3 growth forms – arborescent (treelike), acualescent (stems underground) and emergent. Cycads tend to grow on cliffs and in difficult to get to places, so that there is no competition. Cycads are divided up into Clades and Sub-Clades. As a very simple deduction: Clade A has very hairy cones, thin leaflets and grassland habitats. Clade B are all arborescent and green leafed. In the Eastern Cape there has been the most incredible natural hybridisation from ancient times and from reintroduction. Clade C have underground, subterranean stems, are frilled and can be part of a blue-leafed group. One of the most beautiful blue-leafed cycads is a Zimbabwean cycad, *Encephalartos munchii*. Philip’s favourite cycad is the *Encephalartos ferox*! The photos of cycads, their leaflets and cones were absolutely amazing and elucidated as to why Philip has landed up being so specialised in this field.



The African endemic genus : *Encephalartos*



Philip Rousseau



Encephalartos



The horticultural appeal of *Encephalartos*

Prof Piet Vorster’s presentation of “Hybridisation in Cycads”

Piet Vorster took to the podium and shared his venerable worship of cycads. He has been a doctor and professor for years, and many a student has studied under his great care. Just watching and listening to him was enthralling, as he has clearly gone beyond the simple learning and exploration of the *Mariscus*, *Pelargonium*, *Amaryllidaceae* and *Encephalartos* worlds, specialising in pushing the hybridisation boundaries of cycads to their extremes. Piet believes very strongly in hybrids, due to their hybrid vigour, the opportunity to create a desired size, shape and colour, the production of spectacular plants, and of course, creating hybrids “just for fun”! Some species will not hybridise and he has done so much research and testing, that he’s confident that those he has noted will not hybridise, will never do so! Every tiny detail of the plants showed intense interest to Piet – as he swooned, with his wonderful Afrikaans accent, at the “attractive spines” of one or the “arresting colour” of another.



Piet Vorster



ENCEPHALARTOS HORRIDUS x
E. TRANSVENOSUS

Encephalartos Horridus x Encephalartos Transvenosus



ENCEPHALARTOS
WHITELOCKII x E. MUNCHII
leaves photo [Holzman](#)

Encephalartos Whitelockii x Encephalartos munchii (leaves photo Holzman)

Rolf Bekker, presenting “What’s in a name? A perspective from the Genus, *Euphorbia*”

Day 2, after lunch, and the room looked very quiet! Not for long, as Rolf Bekker started the afternoon off with an exceptional joke! Nobody dared switch off as they knew they might miss out on some fun intertwined with a wonderful presentation on euphorbia. There are over 2000 species of *euphorbia* – all possessing an irritating milky latex. They come in all shapes and sizes but all have the same inflorescence and capsular fruits. He has just finished harvesting, curating and digitising the “Larry Leach Collection” at the University of Limpopo. *Euphorbias* originated in the old world and moved into the new world. There are an incredible number of euphorbias in the Eastern Cape. On our Eastern Highlands trip, after all Rolf’s enthusiasm, we managed to see a selection of exciting and different *euphorbia* that I doubt we would have been looking out for otherwise. The plants are extremely toxic and Rolf suggested it as a great cure to a mother-in-law! Conservation of *Euphorbia* is something that must be monitored and enforced as colonies are being destroyed in mining / road projects, and many other activities. Rolf, an effervescent and engaging personality, is currently working on a “Field Guide on the Succulent Euphorbias of Southern Africa” (should you have any photographic material or be eager to help obtain photos of *euphorbia* in Zimbabwe or Mozambique, do get in touch with Rolf.)



Rolf Bekker

The genus *Euphorbia*

- 2,000 species, worldwide, mostly Old World
- Highly variable vegetative structures, with a relatively conserved basic inflorescence structure (the cyathium)
- Ca. 300 species in southern Africa



Euphorbia punicea
(Caribbean)

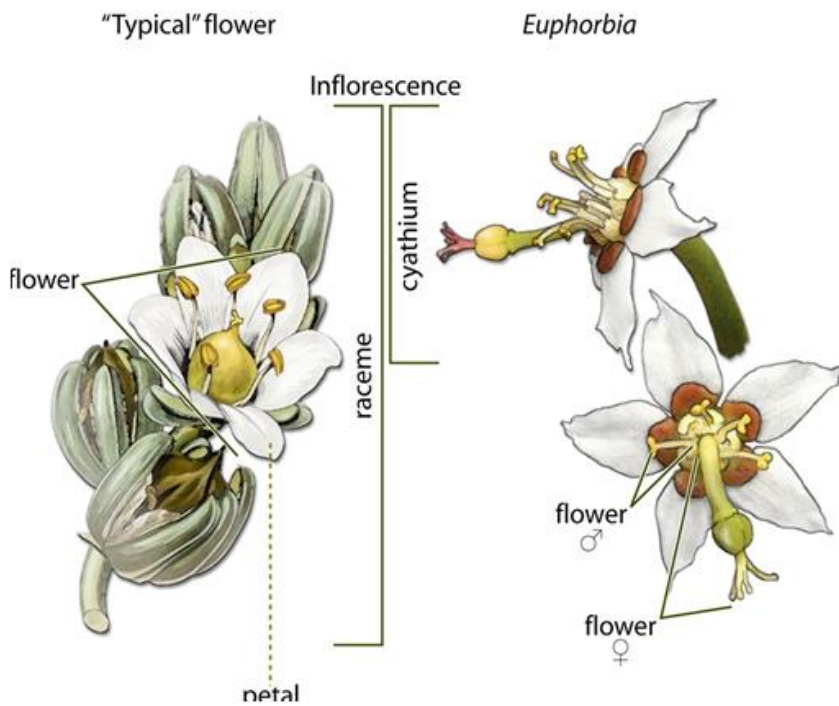


Euphorbia obesa
(South Africa)



Euphorbia (Pedilanthus) tithymaloides
(Mexico)

Euphorbia genus (photos courtesy of Paul Berry and Ricarda Riina)



Flower / Cyathia Structure (picture courtesy of Kandice Elliot)

Andrew Hankey presented on “Mexico – a brief encounter”

After such a vital talk by Rolf, our next presenter had his job cut out – this Andrew, from Walter Sisulu Botanical Gardens, handled with ease, by raising concern that he had initially believed that he was the funniest presenter, and now that position had been taken, he would have no choice, but to introduce himself as the “most handsome speaker”! Andrew shared his brief encounter with Mexico with delight, comedy and erudition: there are over 6000 species of desert plants with great diversity across the Central Plateau and 2 deserts (Chihuahu Desert and Sonoran Deserts.) One of Andrew’s missions during his trip to Mexico, was to see *Agave victoria-reginae* ‘in habitat’. While running through an enthralling set of photographs, he captured the friendliness, great food, roadside stalls and colours while detailing an intense enjoyment of travelling great distances around Mexico. He elaborated on how the *Coryphantha* flower buds are harvested and pickled and served with salsa, and the extent to which the *Platyacanthus* can reach with a height of 3m and girth of 1.5m. On the mud flats, amazing *Ariocarpus* grow extremely slowly and survive in completely dry conditions in the hot months, and then, when the rivers flood, they survive under water for ages.



Andrew Hankey



Agave victoria-reginae



Andrew's "brief encounter"

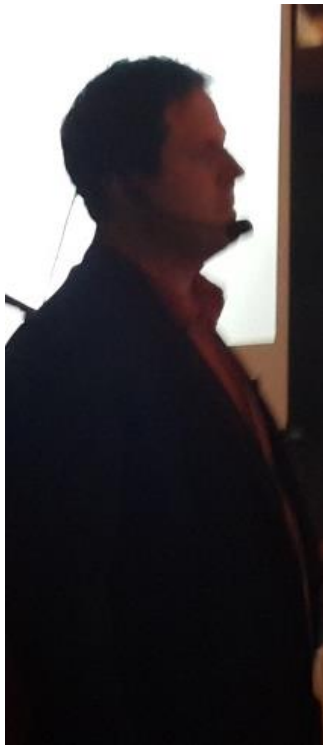


Ferocactus wislizeni

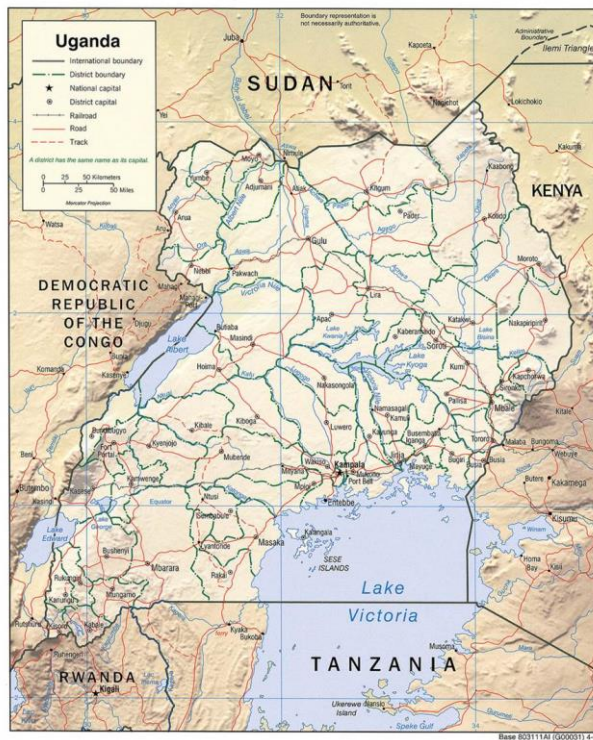
Tom Cole presented on "The Aloes of Uganda"

Tom, an agroecology and drought-management advisor (and 5-times World Frisbee champion) enlarged on the magnificent aloes of Uganda. Uganda has 23 species of *Aloe*, which Tom illustrated with fantastic photographs and details, their locations and his explorations in seeing them. His passion for each of the Ugandan species was palpable! It was really enlightening to see how completely different these aloes are to the ones we know in southern Africa, and how they seem to fit into their own set of visual rules. Aloes that got my attention were *Aloe mubendiensis* which is endemic to Uganda, W of Mubende; *Aloe schweinfurthii*, with its purple-grey leaves when stressed; *Aloe canarina* with purple-grey leaves and delicate yellow or red racemes. Another beauty is *Aloe tororoana* from the Mbale district, with milky green leaves and coral-red flowers. There are a number of aloes that Tom Cole and a colleague, Tom Forest (who also attended the Congress) have located, which are new and have been described, or are in the process of being 'described'. One of which, I have in my garden, so Tom, I wait in great anticipation as to what its name is going to

be! Tom, a humanitarian with a deep link with communal Africa, is tirelessly working on a “Fieldguide to the Aloes of Uganda”, which he doubts will be out soon!



Tom Cole



Uganda



Aloe volkensii ssp multicaulis



Aloe schweinfurthii



Aloe cheranganiensis

Buhle Francis presented “Opuntia fulgida: The Demon Invader in the Savannah”

The final presentation of the day was presented by Buhle, lecturer and expert from the Institute of Development Studies at the National University of Science and Technology in Bulawayo. Buhle, who has just been awarded the Best Research Paper in Africa, alerted us of *Cylindropuntia*, a Mexican plant that came to South Africa late in 1948 as an ornament. It grows on drought stricken areas and adapts easily on poor soils with low rainfall, and grows up to 2m. It was declared invasive in Zimbabwe in 2008. It has been called “the jumping collar” or “the magnet” and is rampant in the SW of Zimbabwe. It is disastrous in terms of its effect on biodiversity and abundance of indigenous trees, it alters soil nutrients and kills animals, hereby impacting on the socio-economic livelihood of villagers. The solutions are to mechanically remove it or use bio-agents as chemicals are not feasible in terms of their impact. The solution appears simply to be: Burn, Cut and Bury.

