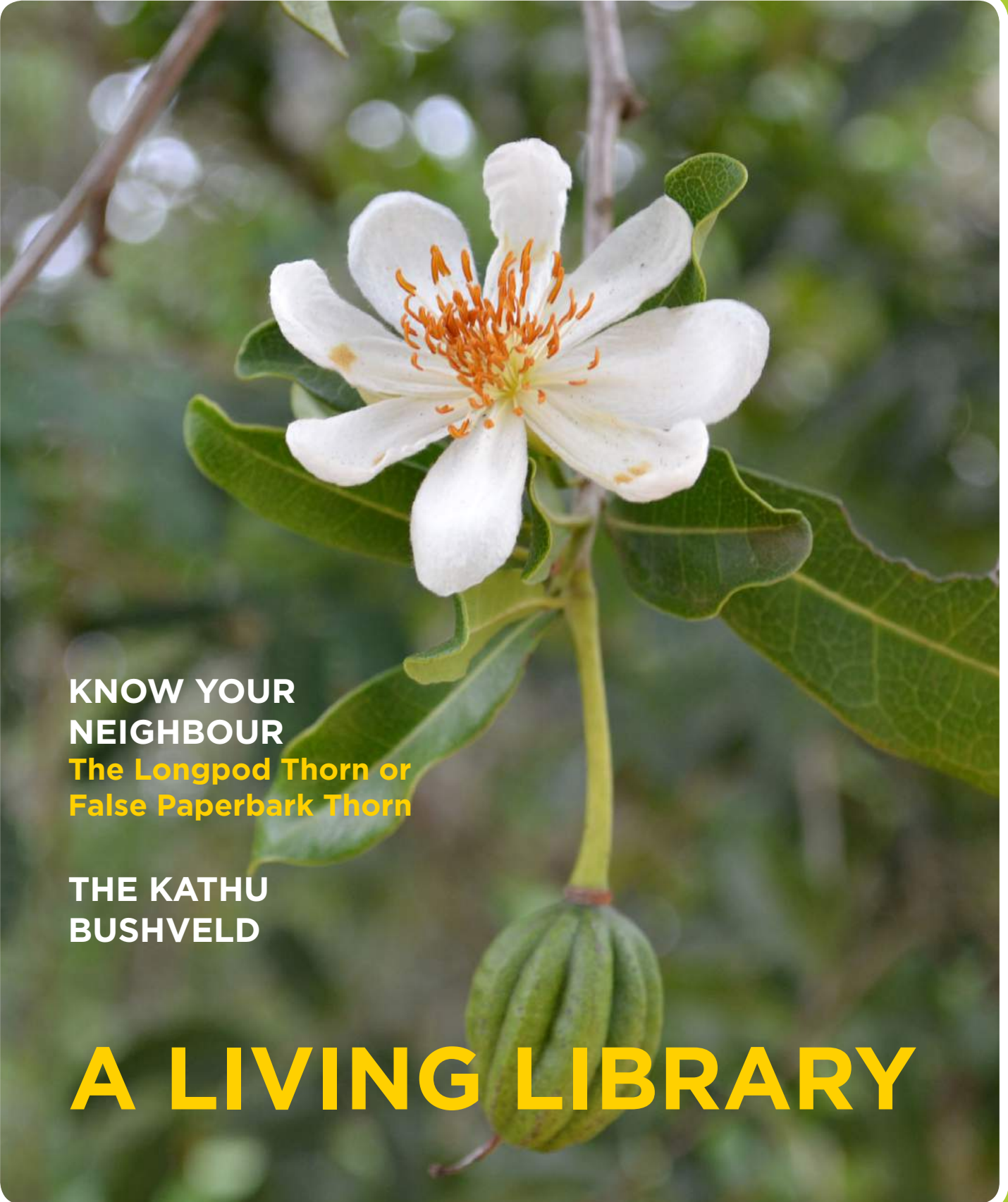




Dendron

Tydskrif van die Dendrologiese Vereniging, die Boomkunde en Bewaringsvereniging van Suid-Afrika
Magazine of the Dendrological Society, the Tree Science and Conservation Society of South Africa

No/Nr: 48 November 2016



**KNOW YOUR
NEIGHBOUR**

**The Longpod Thorn or
False Paperbark Thorn**

**THE KATHU
BUSHVELD**

A LIVING LIBRARY



Sunland baobab. Photo Enrico Liebenberg

**“Wisdom is like a baobab tree;
no one individual can embrace it.”**

Nunya, adidoe, asi metunee o. (Akan and Ewe)

La science est le tronc d'un baobab qu'une seule personne ne peut embrasser (French)

Wisdom is like a baobab tree; no one individual can embrace it. (English)

~ Akan and Ewe (Benin, Ghana and Togo)

Explanation

This Ghanaian proverb which exists in different forms in many African languages can be applied to the vast treasure of African oral literature. As John Mbiti says concerning African proverbs: “One person cannot collect them all, cannot analyse them all, cannot put them all into their context and cannot use them all.” This metaphor also explains that human wisdom is so great that it would be presumptuous and arrogant of a single individual to claim to have mastered it all.

Living in harmony

Naas Grové

Daar is 'n onlosmaaklike band tussen die mens en die natuur. Vir die mens, kan daar nie 'n bestaan sonder die natuur wees nie. As gevolg van sy ondeurdragte optrede, is die balans in die natuur versteur en is die pols van die menslike lewe wisselvallig. Lug en water word besoedel. Riviere is aan die opdroog. Seisoene is deurmekaar, daar is reënsiklusse sonder vasgestelde patrone. As dinge só voortgaan, stuur die mensdom af op 'n monumentale katastrofe.

Way back in the 1870s, an Italian geologist named Antonio Stoppani proposed that people had introduced a new era, which he labelled the *Anthropozoic*. Stoppani's proposal was ignored; other scientists found it unscientific. In September 2016 a British-led Working Group on the *Anthropocene* (WGA) told a geology conference in Cape Town that, in its considered opinion, the *Anthropocene* epoch began in 1950. This was the start of the era of nuclear bomb tests, disposable plastics, the human population boom and when human activities started to have a significant global impact on Earth's geology and ecosystems. The word combines the root "*anthropo*", meaning "human" with the root "*-cene*" the standard suffix for "*epoch*" in geological time.

The diversity of life forms on our planet have over the years developed many different forms of survival techniques. When it comes to plants, whether annual, perennial, herbaceous, woody or succulent the characteristics of the roots, stem and leaves are all adopted to survive the special conditions required for different circumstances. Drought-escaping plants will only grow when there is sufficient moisture available to sustain their life cycle and only the strongest plants will persist during times of water scarcity. Other plants have

the ability to restrict their growth activity to periods when moisture is available and typically will go dormant or die back when conditions are not suitable for new growth. *Xerophytes*, like the resurrection bush (*Myrothamnus flabellifolius*) have undergone many physiological and morphological adaptations to maintain their growth, even in extreme water stress conditions giving the impression that they are dead but still well alive. Continued survival requires adequate food production and this is the reason why the leaves and other parts of the spekboom (*Portulacaria afra*) can slow down the evaporation through transpiration during hot days and at the same time changes its physiological pathway by opening the stoma at night to absorb carbon dioxide.

Daar is nog vele meer ekologiese aanpassings by plante waar te neem soos afgelei kan word in Dr. Francois du Randt se artikel oor die westelike boreale woude wat die noordelike gedeeltes van Noord-Amerika, spesifiek Kanada en Alaska, bedek (bladsy 9).

Southern Africa (includes South Africa, Namibia, Botswana, Swaziland and Lesotho) has the richest temperate flora in the world and encompasses a rich floristic diversity of approximately 24, 000 taxa (species and infraspecific taxa) of 368 families, including more than 10% of the world's vascular plant flora on less than 2.5% of the earth's land surface area. Adjacent to South Africa, in Zimbabwe, the longpod thorn or false paperbark thorn, *Acacia sieberiana* var. *sieberiana* occurs. The two varieties of *A. sieberiana*, namely, var. *woodii* and var. *sieberiana*, differ so significantly that even an amateur could distinguish the one from the other. Read more about the distinction between the two species in Marthinus Steyn's article on the longpod paperbark thorn (page 18).

Olywe is reeds tydens die vroeë Bronstydperk (tweede helfte van die 5de millennium VHT) in gebruik en daar is voldoende geologiese bewyse van die teenwoordigheid van stuifmeelkorrels, sade en hout van die olyf plante uit die era gevind. Vandag is daar meer as 2 000 gekultiveerde variëteite van die olyfboom wat kommersieel verbou word vir vrugte en olie.

Die Platland of Sunland kremetart het onlangs een van sy groot takke verloor en almal het vir 'n lang tyd hul asem opgehou oor die voortbestaan van die boom. Izak van der Merwe berig dat die fungus wat waarskynlik die oorsaak was vir die tak om te breek, gelukkig nie kwaadaardig is nie en behoort die boom gou te herstel.

In die Dendron van November 2015 is daar berig oor die toestand van die kameeldoringbome in die Kathuwoud. In hierdie uitgawe kan daar meer uitgevind word oor die toestand van die kameeldoring populasies, die veldkondisies,

sensiwiteit van die area en algehele bewaringstatus.

'n Antroposentriese vooroordeel weeg swaar op by die oorweging van "harmonie" in die natuur of in menslike sake. Ons het 'n neiging om dit óf te verhef óf af te speel as 'n veronderstelde natuurlike menslike ideaal wat in wese die mens se sentimentele verlange na vrede demonstreer. In teenstelling hiermee is 'n ekologiese siening glad nie 'n sentimentele benadering nie. Dit is 'n stelselsiening dat organismes, bevolkings en habitatte met wetenskaplike insig beskou en ontleed word ten einde dit te verstaan. Wanneer dit 'n stabiele sisteem is kan ons bepaal watter elemente verantwoordelik is vir die ontwinging van die balans in die natuur. Deur ons intelligensie en kennis te gebruik om die natuur beter te verstaan is konstruktief, maar dalk het ons nodig om die menslike natuur beter te verstaan!



Voorwoord..... 3
 Boomgroete..... 6

Tree Stories / Boomstories



Die Boreale Woude Van Die Wêreld..... 9
 >> Know Your Neighbour, The Longpod Thorn Or False Paperbark Thorn..... 18
 Die Olyfboom 23
 A Riverine Giant 29

Fokus / Focus



>> The University Of Pretoria's' Living Library:..... 33
 When A Giant Tree Collapses 39
 >> The Kathu Bushveld..... 42
Senegalia Montis-Salinarum, Newly Endemic Tree Species Of The Soutpansberg.. 50

In Memoriam / Obituary



Jutta von Breitenbach 52
 Cassie Carstens..... 56

BLY IN KONTAK / STAY IN TOUCH

Web: www.dendro.co.za
 Email: secretary@dendron.co.za
 Fax: **086 670 7715**
 Postal: **Postnet 2054, Private Bag 82234, Rustenburg, 0300**



Besoek ons ook op Facebook vir meer interaksie.
Find us on Facebook for more interaction.
www.facebook.com/DendroSA

VOORBLADFOTO / COVER PHOTO

Xylothea kraussiana - African-dogrose / afrikahondsroos
 Foto: **Naas Grové**



EDITOR / REDAKTEUR:

Naas Grové

LANGUAGE EDITING /

TAAL REDIGERING:

Naas Grové

LAYOUT / UITLEG:

www.roomfordesign.co.za

COVER PHOTO:

Naas Grové

PUBLISHER/UITGEWER:

**Dendrological Society of
South Africa**

**Dendrologiese Vereniging
van Suid-Afrika**

ADVERTISING / ADVERTENSIE:

secretary@dendro.co.za

MEMBERSHIP / LIDMAATSKAP:

secretary@dendro.co.za

Machell Kukhard

014 592 0634

ADDRESS / ADRES:

**Honorary Secretary/
Ere-Sekretaris**

**Postnet 2054,
Private Bag/ Privaatsak**

**82234
Rustenburg, 0300**

secretary@dendro.co.za

PHONE / FOON:

+(27) 82 575 4244

FAX / FAKS:

+(27) 86 670 7715

EMAIL / E-POS:

secretary@dendro.co.za

WEB:

www.dendro.co.za

ISSN : 1991-1539

“Do we Fit on the Planet?”

~ Naas Grové ~

Understanding how Small things add up to One Big Demand on our Planet

The accounting is simple: We currently have only one planet that supports life. The surface of the earth is about 125 billion acres (~50,585,705,280 ha). But since some is ice, desert and deep ocean, only about one quarter of it is productive (fishing grounds, forests, grazing land, crop land, etc.). With a world population of about 6.7 billion, this gives us roughly 5 acres (~2.02 ha) per person. That is the budget.

Source: *The Ecological Footprint and the Average American Family*, 2016. Mathis Wackernagel, Global Footprint Network

For more than 40 years, humanity's demand on nature has exceeded what our planet can replenish. We would need the regenerative capacity of 1.5 earths to provide the demand for ecological services we currently use. Everything we consume – from a fresh tomato from the farmer to the plasma TV screen in the living room – originates in material that comes from nature. The ecological footprint tallies all the resources it takes to support a person's or a population's lifestyle.

The simplest way to define ecological footprint would be to call it the impact of human activities measured in terms of the area of biologically productive land and water required to produce the goods consumed and to sequester the waste generated.

“Overshoot” (turning resources into waste faster than waste can be turned back into resources) is possible because we destroy forests and burn fossil fuels into carbon concentrations into the atmosphere. The consequences are diminished natural resource stocks and waste accumulating faster than it can be absorbed or recycled by the forests and the oceans.

How big is South Africa's Ecological Footprint?

The top 10 countries in Africa with the biggest Ecological Footprint per person are: Mauritius, Mauritania, Botswana, South Africa, Egypt, Namibia, Tunisia, Chad, Mali and Gabon. South Africa's footprint is the fourth largest in Africa, following Mauritius, Mauritania and Botswana. South Africa's reliance on fossil fuels, like coal for electricity is its largest contributor to our ecological footprint. These large carbon offsets make up to 55% of our total ecological footprint. Our Ecological Footprint in 2016 is 3.3 per person per global hectare (gha), compared to 2.59 per person / gha in 2014. One global hectare represents the average productivity of all biologically productive areas to produce food, fiber, timber, land and energy we use to live our lives on earth in a given year, measured in hectares. But South Africa's biocapacity to dispose, renew and supply is only 1.2 per person / gha, which leaves us with a biocapacity deficit of -2.2 / gha. So, we are living as if we have an extra planet at our disposal. The problem is there is no Planet B!

Die vraag na volhoubaarheid

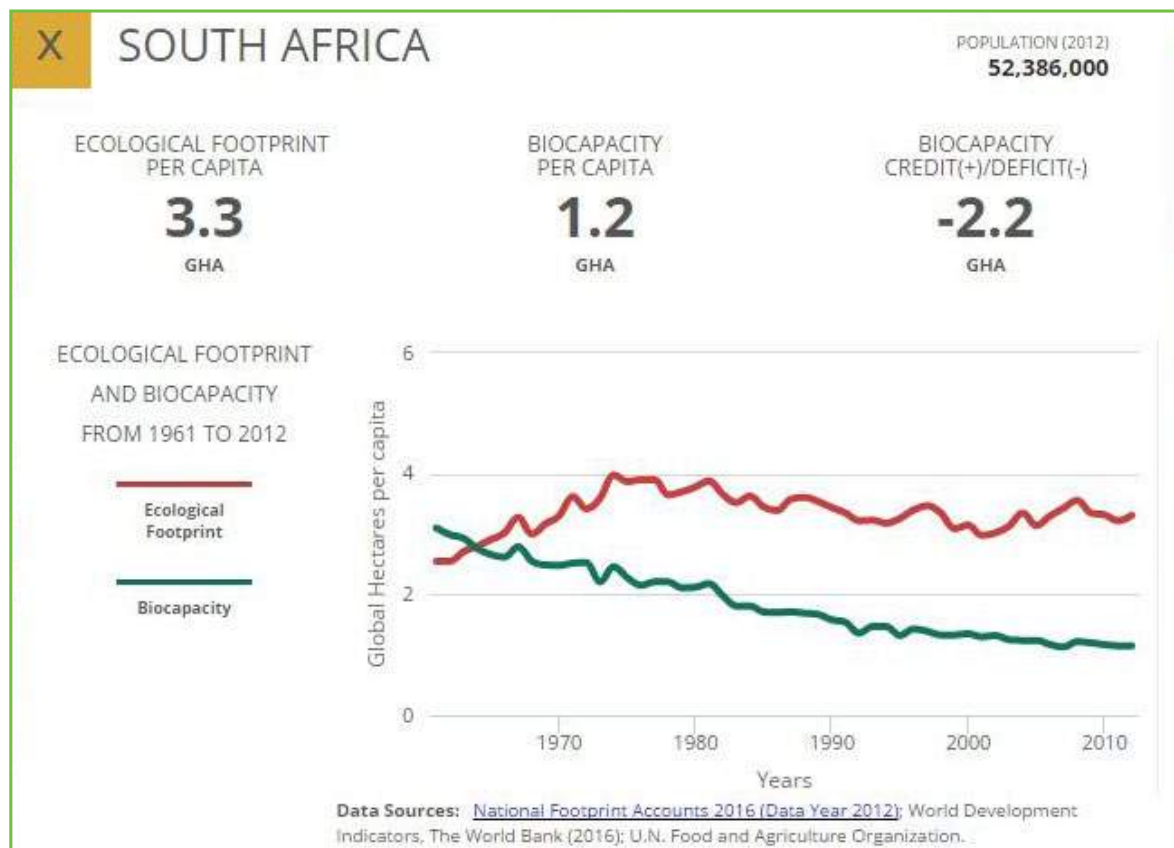
Dit is baie duidelik dat die aarde nie ons huidige lewenstyl kan onderhou nie en dit laat ons met die vraagstuk of daar voldoende natuurlike hulpbronne vir toekomstige geslagte gaan wees? Hierdie is een van die belangrikste omgewingskwessies van vandag. Ons is afhanklik van die natuur vir kos, medisyne, water, energie, suurstof, afvalverwerking en ander lewensbedreigende ondersteuningsdienste. Volhoubaarheid impliseer dat ons nie ons hulpbronne vinniger in afval sal verander as wat die natuur dit kan herwin nie. Die drastiese afname in die welstand van ekologiese stelsels bedreig almal se welstand. Ons kan voortgaan om die aarde se beperkte ‘begroting’ te oorbestede en toelaat dat toekomstige geslagte ons skuld betaal, of ons kan elkeen iets daaromtrent doen.

Beskerming van die omgewing is die derde primêre pilaar van volhoubaarheid. Dit bepaal hoe ons met integriteit ons ekosisteme, luggehalte en natuurlike hulpbronne benut, beskerm en bewaar. Ons almal weet wat om te doen om die omgewing te beskerm, van die oordeelkundige ontginning van natuurlike hulpbronne, die plant van bome tot die herwinning van afvalstowwe en die vermindering van ons elektriese kragverbruik.

Ten slotte, moet ons die konsep dat die natuur sekere regte het erken en dat ons as mense slegs die rentmeesterskap van die wêreld het. Daarom moet ons aan die voerpunt staan van die oplossings vir die globale omgewingskwessies, ter wille van ons eie selfbehoud. Volhoubare lewe beteken om steeds in die noodsaaklike stel behoeftes vir lewe te kan voldoen, sonder om die nageslag te benadeel. Ons het immers nie die aarde by ons ouers geërf nie, maar leen dit by ons kinders!

Naas Grové

President
president@dendro.co.za



boomstories
tree stories

DIE BOREALE WOUDE VAN DIE WÊRELD

Francois du Randt

Ek was baie bevooreg in my lewe om heelwat te kon reis, grootendeels “werkende vakansies”, maar ook gestimuleer deur my intense belangstelling in die natuur, en veral die bome en plante van die natuur. Jare se belangstelling het natuurlik ook my selfverworwe kennis verbreed en dikwels was ek spyt dat ek nie maar meer in my “stokperdjie” gestudeer het as in my beroep nie – maar was ek regtig spyt?

Een van grootste voorregte wat ek gehad het, was ‘n drie jaarlange besoek aan die noordelikste deel van Saskatchewan, Kanada, en ‘n klein nedersetting, bekend as Uranium City. Ek het die laaste florerende jare in hierdie wonderlike Kanadese gemeenskap beleef en omdat die plaaslike hospitaal moes skuif na ‘n ander, minder wonderlike, gemeenskap, het ek ook besluit om terug te keer na ons eie boomryke land.

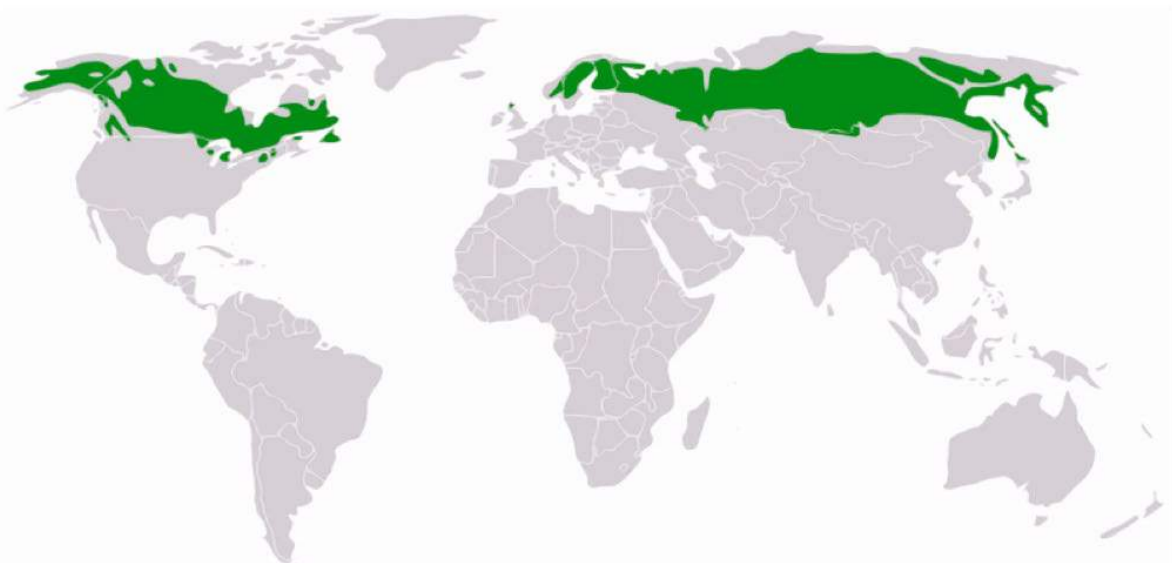
Uranium City het ontstaan weens die ryke goudveld en meegaande radium neerslag. Die eerste ontwikkeling van die goudmynbedryf was deur die Eldorado Goudmyn Maatskappy in 1926, met radium-draende konsentraat as ‘n byproduk. Die hoof Beaverlodge neerslag is eers in 1947 ontdek en uraan verryking het in die absolute geheim voortgegaan vir die gebruik van die Manhattan Projek om die atoomboom te ontwikkel. ‘n Magdom uraanmyne

het ontstaan en daar was ‘n groot vraag na uraan aan die einde van die Tweede Wêreldoorlog. Met die toestroming van eksplorieerders het ‘n floreende gemeenskap ontstaan, bekend as *Uranium City*, “*The Uranium Capital of the World*”, aan die oewers van die pragtige *Lake Athabasca* en hordes ander mere.

In 1981 het Eldorado Nuclear aangekondig dat hulle die laaste myn in die gebied gaan sluit en het die inwoners van 5000 verminder na 800. Hiermee saam het menige besighede, en selfs ‘n nuut-geboude hoërskool gesluit. Met die sluiting van die hospitaal in 2003 het Uranium City verander in ‘n spookdorp!

Die ongelooflike prag van Uranium City het nooit gelê in sy ryke geskiedenis en sy mense nie, maar in ‘n natuurskoon wat jy op bitter min ander plekke in die wêreld sal opspoor. Ek was bevooreg om die redelik klein getal boom- en plantspesies vinnig te leer, en daarmee saam die ongelooflike voëllewe, veral waterliewende trekvoëls. Vinnig het my kennis uitgebrei en het ek geleer wat beteken “boreale woude”!

In wese is die boreale woude sirkumpolêr en word vir alle praktiese redes verdeel in westelike en oostelike boreale woude. Die westelike boreale woude bedek die noordelike gedeeltes van Noord-



Boreale woude (in groen)

Amerika, spesifiek Kanada en Alaska. Die oostelike boreale woude bedek weer die noordelike gedeeltes van Europa en Asië, meer spesifiek Skandinawië, Duitsland, Poland, Rusland en Siberië. Sommige boeke beskryf boreale woude met die term "taiga", maar daar is tog 'n weselike verskil.

In Noord Amerika strek hierdie woude skuins suidooswaarts vanaf Sentraal en Suid-Alaska oor die Northwest Territories, Saskatchewan en noordelike Manitoba. Noord van die boreale woude kry ons die sogenaamde boomlyn ("tree line"), maar die noordelike gedeeltes van hierdie woude is meer tereg beskryfbaar as "taiga", wat eintlik beteken "sticks". Hierdie bome is letterlik kort en verder uitmekaar, en staan soos regop stammetjies. Noord van die "taiga" kry ons die tundra, wat basies boomlose vlaktes, of 'n yswoestyn verteenwoordig. Suid van die boreale woude in Noord Amerika is Aspen Parkland, 'n oorgangsona na die "prairies". Die Noord Amerikaanse boreale woude beslaan meer as 60% van Kanada en Alaska. Uranium City is ongeveer 100 kilometer suid van die tundra, of boomlyn.

Die meeste boomspesies van die westelike boreale woude behoort aan die Gymnospermae, naak-sadiges, of konifere. Vier Gymnospermae is baie prominent, naamlik die Black Spruce (*Picea mariana*),

die White Spruce (*Picea glauca*), die Jack Pine (*Pinus banksiana*) en die struikagtige Common Juniper (*Juniperus communis*).

Die twee "spruces" is redelik maklik om uit te ken, veral in Uranium City se omgewing. Hulle het naaldvormige, enkelvoudige blare, en die blare kom nie in klossies uit soos by die denne nie. Die Jack Pine het klossies van twee blare elk, m.a.w. die blare is in groepies saam gegroeper by een knoop. Die Jack Pine het klein, transvers-hangende konusse. Die Black Spruce het kort blaartjies, 10 tot 15 mm lank, en het klein ovaalvormige konusse, 15 tot 25 mm lank. Die konusse het bros skubbe wat 'n growwe buite rand vorm. Die White Spruce, daarenteen, het langer blaartjies, 25 mm lank, en hierdie blaartjies sit meestal aan die bokant van die takkies. Die ovaalvormige konusse is 25 tot 60 mm lank en het dun skubbe met 'n gladde en ronde rand.

Die Juniper is maklik om uit te ken, en is meestal 'n laaggroeiende struik. Dit laat jou dink aan Suid-Afrika se bergsipres, *Widdringtonia nodiflora*.

Die Angiospermae word verteenwoordig deur 'n hele paar spesies wilgers, almal deel van die Salicaceae familie. 'n Paar spesies is die Bebb Willow (*Salix bebbiana*), die Scouler Willow (*Salix*



Die White Spruce (*Picea glauca*)



Die White Spruce (*Picea glauca*)



Die Black Spruce (*Picea mariana*)



Die Jack Pine (*Pinus banksiana*)



scauleriana), die Pacific Willow (*Salix lasiandra*) en die Sandbar Willow (*Salix exigua*). Die Bebb Willow het dowwe groen, harige blare. Die Scouler Willow het sagte, fyn blaartjies. Al die *Salix* spesies se blare is langwerpig.

Twee populiere kom voor, een *Birch*, en een *Alder*. Die Balsam Poplar (*Populus balsamifera*) het kenmerkende blare en bevat baie taai okselknoppe. Sy blare lyk baie soos die van die Black Cottonwood (*Populus trichocarpa*) wat in Olympic Nasionale Park voorkom. 'n Baie algemene boom is die Quaking Aspen (*Populus tremuloides*) met sy groen-wit stam en ronderige blare. Twee lede van die *Betulaceae*, of Birch familie kom voor, naamlik die *Paper Birch* (*Betula papyrifera*), met sy rooi peule, en die *Thinleaf Alder* (*Alnus tenuifolia*). Hierdie spesies word beskou as breë-blaar boomspeesies.

Heelwat bessiespesies kom voor, maar is meestal struike, of laaggroeiende plante.

Natuurlik kry ons heelwat meer boomspeesies in ander dele van die boreale woude, soos die *Lodgepole Pine* (*Pinus contorta* var. *latifolia*) en die *Balsam Fir* (*Abies balsamea*).

In teenstelling met Kanada kry ons weer die reuse uitgestrekte land van Alaska. Die motto van Alaska is "*North to the Future*". Wat 'n ongelooflike landstreek! 'n Ware wildernisgebied, hoofsaaklik bedek met boreale woude.



Die Balsam Poplar (*Populus balsamifera*)

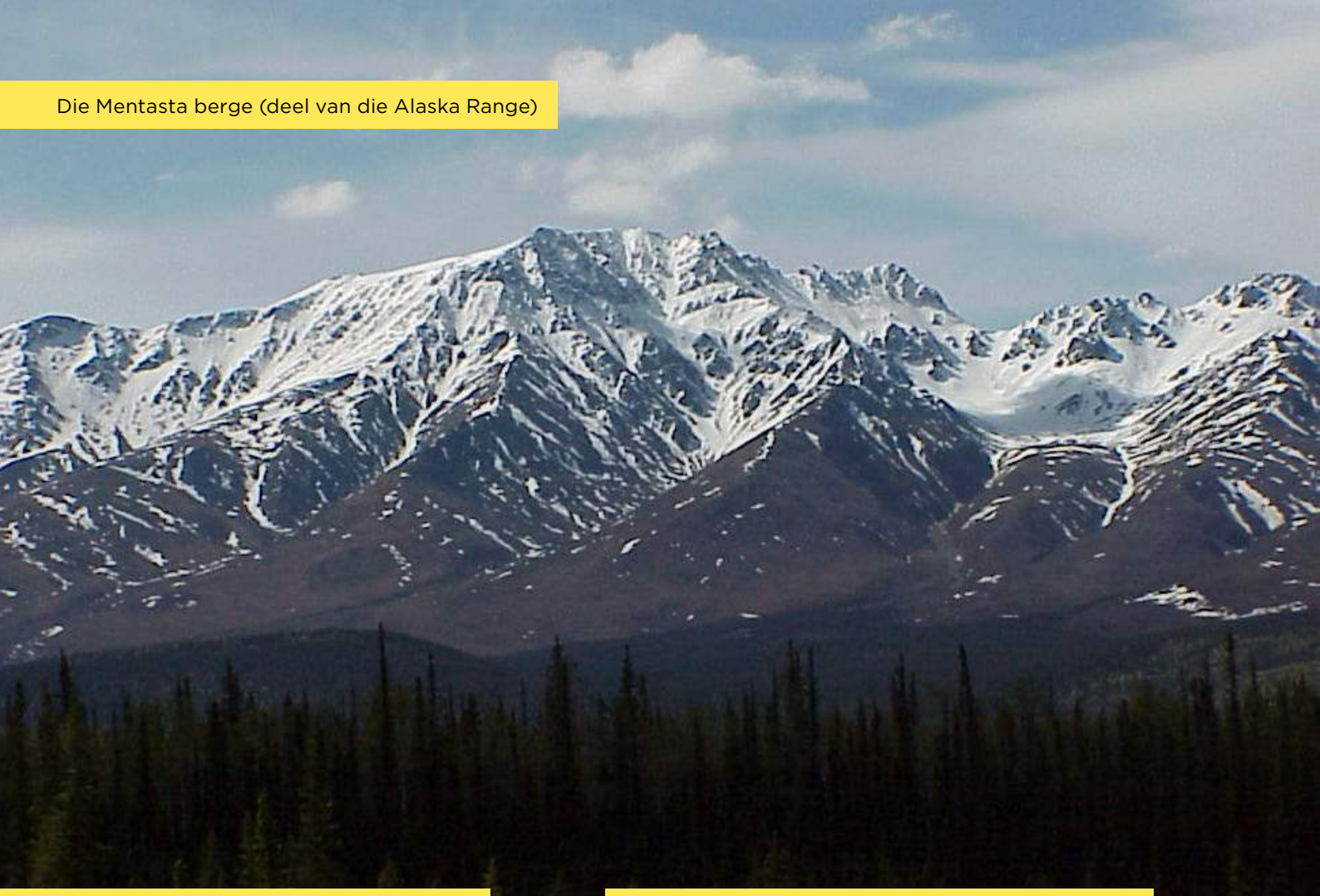


Die Common Juniper (*Juniperus communis*) met vrugte

Die Thinleaf Alder (*Alnus tenuifolia*)



Die Mentasta berge (deel van die Alaska Range)



Die Tamarack of Larch (*Larix laricina*)



Die Paper Birch (*Betula papyrifera*) in sy herfskleure



Die reusagtige sentrale kern van Alaska met sy reuse bergpieke, soos Mount McKinley, vorm die "binneland" van Alaska. Ekologies bestaan dit uit noordelike boreale woude tussen honderde mere, baie soortgelyk aan die Uranium City omgewing en die noordelike gedeeltes van Saskatchewan en North West Territories. Noord van die boreale woude is die area bekend as "The Bush", die tundra van Alaska, met sy onherbergsame en afgeleë Inuit gemeenskappe. Die Brooks bergreeks en die Arktiese vlaktes eindig teen Prudhoe Bay, die rykste olieveld in Alaska.

Die mees noordelikste dorp in Alaska, wat ook die mees noordelikste dorp in die V.S.A is, is Barrow. Dit is geleë aan die Beaufort Sea en Arktiese Oseaan. Barrow is verder noord as die 71° breedtelyn en het ongeveer 65 dae volledige sonskyn in die somer, met natuurlik die teenoorgestelde in die winter.

Suidoos-Alaska en Suidsentraal-Alaska val in die sogenaamde "Ring of Fire and Ice" met sy massiewe vulkane, beide dormant en aktief, en reuse gletsers. Suidoos-Alaska se "panhandle" strek suidwaarts teen die Golf van Alaska na British Columbia, en word bedek deur gematigde reënwoude, nog 'n baie interessante boomhabitat.

Aan die teenoorgestelde kant van ons wonderlike planeet, lê die uitgestrekte oostelike boreale woude, wat die noordelike gedeeltes van Europa, Skandinawië en Siberië bedek. Die klimaat is min of meer dieselfde as in Noord Amerika, maar tog is daar minder boomspesies, waarskynlik weens die groter oseaan-oppervlaktes wat grens aan Noord-Europa.

Daar is 'n groot getal alpyense plantspesies in Noorweë, wat nie warm somers kan hanteer nie en wat die koue winters verkies. Kortliks word die vegetasie sones in Noorweë verdeel in nemorale en boreonemorale ekosones, boreale woude en tundra. Die boreale woude word verdeel in suidelike, sentrale en noordelike boreale woude.

Die nemorale ekosone is meer gematig en bestaan hoofsaaklik uit eikeboomspesies. Die boreonemorale, of hemiboreale, ekosone is 'n mengsel van nemorale en boreale woude. Die grootste sone is derhalwe die boreale woude, aangepas vir die lang en koue winters, met prominente waterbedekte areas en mere. Die mees prominente boomspesies is die *Norway Spruce* (*Picea abies*) en die *Scots Pine* (*Pinus sylvestris*). Ander spesies sluit in *Birch*, *Aspen*, *Rowan*, *Bird Cherry* en *Grey Alder*. Die onderbos is goed ontwikkel.



Magdalenefjord, Spitsbergen

Die boomlyn in Noorweë bestaan hoofsaaklik uit konifere en klein-blaar bladwisselende bome, soos *White Birch* (*Betula pubescens*). Laasgenoemde tipe boomlyn kry ons ook in Ysland en die Kamchatka Skiereiland in Siberië.

Die tundra, ook bekend as die "*Alpine Tundra*", is algemeen in Noorweë en beslaan 32% van die land se oppervlakte, uitgesluit Svalbard (Spitsbergen) en Jan Mayen eilande. Die gedeelte naaste aan die boomlyn bestaan hoofsaaklik uit wilgers, soos *Salix glauca*, *Salix lanata* en *Salix lapponum*, asook *Blueberry*, *Common Juniper* en *Twinflower*. Hierdie gedeeltes is tradisionele somer weidingsgebiede.

Verder noord is meestal net mosse en "*lichens*", met kaal rotse, sneeu en gletsers. Svalbard (Spitsbergen) en Jan Mayen is veral bedek met tundra. Onder die "*permafrost*" kry ons dikwels genoeg vogtigheid vir struikgewasse, soos *Dwarf Birch*, *Cloudberry*, *Svalbard Poppy* en *Harebell*.

Longyearbyen is die 'hoofstad' van Svalbard (Spitsbergen), en ook die wêreld se mees noordelike stad. Dit is effektief die enigste dorp in Svalbard. Dit is gestig deur die Amerikaner, John Longyear, in 1906. Hy het die "*Arctic Coal Company Mining Operations*" begin. Vandag is die myn steeds aktief. Die grond in Longyearbyen is permanent gevries, 10 tot 40 meter diep. Dit staan bekend as "*permafrost*". Al die

geboue is gebou op stilte. Dit is onwettig om 'dood te gaan'. Die begraafplaas het meer as 70 jaar gelede opgehou om nuwe grafte te graawe, omrede die lyke nooit ontbind weens die ysgrond nie.

Daar is ongeveer 3000 ysbere in, en om, Svalbard en dit is verpligtend om 'n geweer te dra as jy buitekant Longyearbyen rondloop. Die son sak permanent op 25 Oktober en kom weer op 8 Maart op. Gedurende hierdie week in Maart met die eerste sonlig vir die jaar, is daar 'n week-lange feesviering, bekend as solfestuka.

Die middernagson, daarenteen, is sigbaar vanaf 19 April tot 23 Augustus en die eilande is bedek met sneeu tussen November en Maart. Die populasie in 2008 was 'n totaal van 2040 persone.

Ny lesund is geleë by 78° 55' Noord, een van die wêreld se mees noordelike jaarlank gemeenskappe. Dit is verder noord as Longyearbyen. Dit was oorspronklik 'n steenkoolmyn gemeenskap, maar het nou 'n hoogs gevorderde Arktiese Navorsingstasie geword. Die arktiese wêreld is absoluut fassinerend.

Verwysings:

- GRACIE, GILL. 1982. The history of Uranium City and District. Lakeland Press Ltd., La Ronge, Saskatchewan.
- WHITE, John, WHITE, Jill, WALTERS, S.M. 2005. Trees. A Field Guide to the trees of Britain and Northern Europe. Oxford University Press, Oxford.
- JOHNSON, D., KERSHAW, L., MACKINNON, A., POJAR, J. 1995. Plants of the Western Boreal Forest & Aspen Parkland. Lone Pine Publishing, Edmonton.

Pinus sylvestris



KNOW YOUR NEIGHBOUR, THE LONGPOD THORN OR FALSE PAPERBARK THORN

Marthinus Steyn

This quite attractive tree with its impressive giant pods, is botanically known as *Acacia sieberiana* var. *sieberiana*, or according to the latest accepted classification, as *Vachellia sieberiana* var. *sieberiana*. In this contribution historical perspectives make it difficult to exclude the designation *Acacia*. The traditional treatment of our tree as a member of a broadly defined *Acacia* is therefore retained for the purpose of this article. The aim of this contribution is to confirm the wider presence of the longpod thorn in southern Africa (Steyn 2007), and the need for it to be taken up in the list of trees native to the Flora of Southern Africa (FSA) region.

From a historical perspective

Discussions concerning the taxonomic status of *Acacia sieberiana* have prevailed sporadically over the years. One might start at the time when there was some confusion about the relationship between *Acacia sieberiana* and *Acacia rehmanniana*. *Acacia rehmanniana* was described as early as 1898 (Keay & Brenan 1950). Roberty in 1948 had the notion that there could be a taxon called *Acacia sieberiana* var. *rehmanniana* which was illegal, as he regarded it as a synonym for *Acacia sieberiana* var. *villosa*, a West African species which was described earlier (1927) and therefore enjoyed priority as the correct name (Keay and Brenan 1950).

Burt Davy described *Acacia sieberiana* var. *woodii* as a taxon in 1922 (Keay & Brenan 1950). Subsequently, four varieties of *Acacia sieberiana* have been recognised, namely var. *villosa*, var. *woodii*, var. *sieberiana* and var. *vermoesonii*. *A. sieberiana* var. *villosa* is considered West African, the other three varieties occur in East and West Africa and further south. *A. sieberiana* var. *sieberiana* is mentioned by Coe & Beentje (1991) with regard to the *Acacia* species of Kenya. Both var. *sieberiana* and var. *woodii* occur in Kenya although distribution patterns for the

two varieties are not given.

Brenan (1959) suggested the following identification key to the varieties of *Acacia sieberiana* occurring in East Africa and further south:

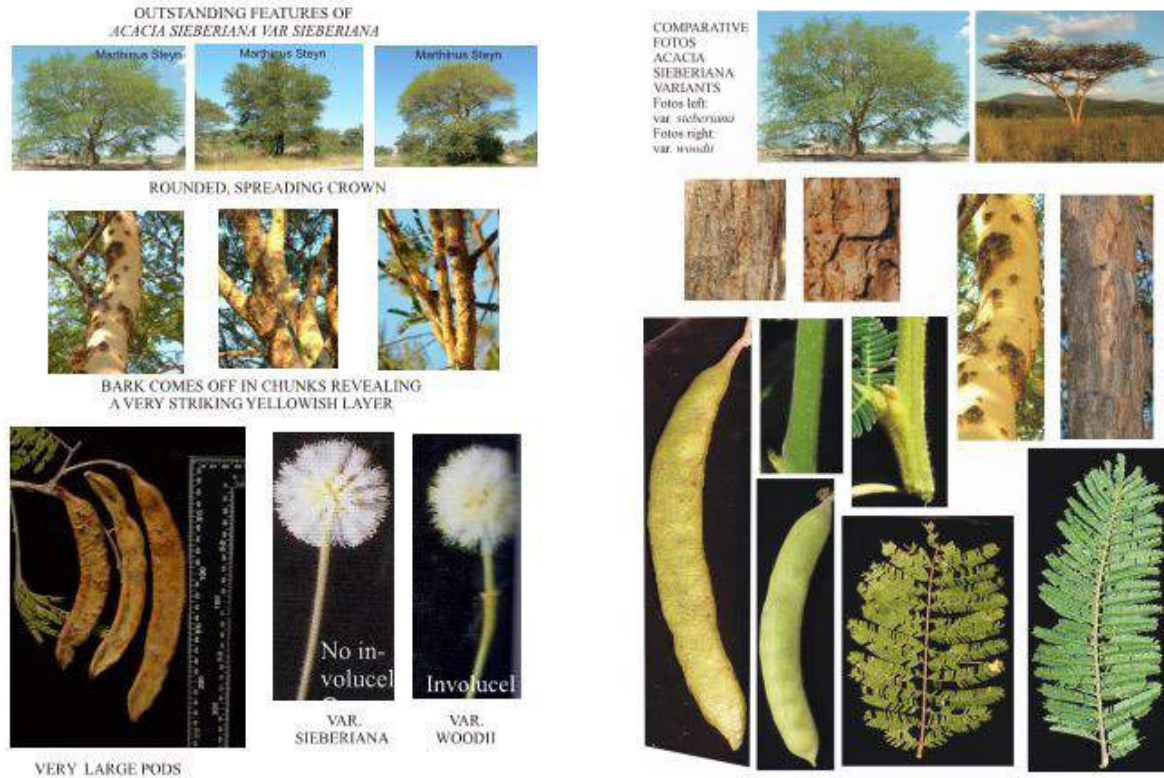
- Young branchlets glabrous or nearly so; branches of crown usually ascending var. *sieberiana*
- Young branchlets ± hairy, usually densely so; branches of crown usually widely-spreading:
- Indumentum of branchlets usually neither markedly golden or villous var. *vermoesonii*
- Indumentum of branchlets normally villous and markedly golden, especially when young var. *woodii*

Acacia sieberiana var. *vermoesonii* was originally collected in the Congo (DRC) by F. Vermoesen. Its very similar growth form with that of var. *woodii* and very slight difference in indumentum has resulted in the re-evaluation of its taxonomic status. Brenan (1959) even made the suggestion that var. *vermoesonii* and var. *woodii* could be the same taxon in that they differ to such an extent from var. *sieberiana* that they might be considered a separate species, namely *Acacia nefasia*. Subsequently var. *vermoesonii* was synonymised with var. *woodii* by Ross (1977), a decision that has been widely accepted. It can therefore be removed from the southern African equation.

From a South African perspective

The paperbark thorn, *Acacia sieberiana* var. *woodii*, is well-known to South African tree enthusiasts. The longpod thorn or false paperbark thorn, *Acacia sieberiana* var. *sieberiana*, may prove to be noteworthy as it occurs in the countries adjacent to South Africa. Hutchinson & Dalziel (1958) refer to it as follows: 'A tree up to 70 ft. high, usually with a rather short, thick bole and wide, spreading, more

Acacia sieberiana var. sieberiana In Southern Africa



The table below will help to compare the two varieties. Accompanying photographs support the data.

DIFFERENCES	VAR. WOODII	VAR. SIEBERIANA
Crown	Widely spreading	Ascending, rounded.
Branchlets	Villous and markedly golden	Glabrous or nearly so
Bark of stem	Pale grey to buff, papery and flaking, becoming less flaky with age.	Brownish, uneven, fragmented, not papery.
Branches	Bark structure persists. Papery.	Bark comes off in chunks to reveal a very striking yellowish layer.
Leaves	<i>Pinnae</i> average 23, leaflets 30. Leaflets about 5.0 mm long, 1.0 mm wide mm. <i>Rachis</i> and <i>rachilla</i> hairy.	<i>Pinnae</i> average 14, leaflets 30. Leaflets about 5.5 mm long, 1.2 mm wide. <i>Rachis</i> with very few hairs.
Pods	Hairy when young, becoming less hairy towards maturity. Up to 150 mm long.	Glabrous, very large, up to 250 mm long.
Inflorescences	Cream coloured, fluffy balls. Involucrel present.	Cream coloured, fluffy balls. Involucrel absent (apical).

or less rounded crown; bark pale greenish-yellow with small grey-brown exfoliating scales; spines long, straight, white; flowers cream or white; fruit brown.'

The two varieties of *A. sieberiana*, namely, var. *woodii* and var. *sieberiana*, differ so significantly that even an amateur could distinguish the one from the other. However, historically the two have often been confused. Some see them as 'forms' of the same variety, others make no distinction between the two, while some negate the occurrence of *Acacia sieberiana* var. *sieberiana* in southern Africa.

South Africa

Acacia sieberiana var. *sieberiana* has not yet been recorded in South Africa. The only known and documented variety is *A. sieberiana* var. *woodii* (Smit 1999).

Zimbabwe

Timberlake et al. (1999) stated that both 'forms' of *Acacia sieberiana* have been recorded in Zimbabwe and that the 'round-topped form with the more yellow bark on the branches' occurs at lower altitudes along large rivers and occasionally in the central watershed. A note is added that 'All southern African populations of *A. sieberiana* have been classified as var. *woodii* (Burt Davy) Keay & Brenan.' *Acacia sieberiana* var. *sieberiana* was photographed by the author in 2007 as per accompanying photographs from a number of specimens that occur on the Beit Bridge – Masvingo road, beyond Ngundu Halt (195 km from the Beit Bridge side). The Flora of Zimbabwe website positively recorded two recent identifications in 2013 (Malilangwe Wildlife Reserve) and in 2014

(Dingangombe near Hwange). The presence of *Vachellia sieberiana* var. *sieberiana* has now been firmly established in Zimbabwe.

Namibia

Acacia sieberiana var. *sieberiana* has not been recognised in Namibia in the past. Palmer & Pitman (1972) referred to the taxon *Acacia sieberiana* (without reference to varieties) as 'with a rounded but usually with a flat spreaded crown.' No mention is made of var. *sieberiana* in Carr (1976), Craven (1999), Germishuizen & Meyer (2003), Curtis & Mannheimer (2005) and Van Wyk et al (2011). Van Wyk & Van Wyk (1997) show *Acacia sieberiana* as a taxon, its distribution covering Namibia, the description clearly favouring var. *woodii*, further stating: 'All material from southern Africa belongs to var. *woodii*.'

A number of herbarium specimens of *Acacia sieberiana* collected in Namibia were assigned to var. *woodii*, despite the fact that they clearly show features of var. *sieberiana*, namely inflorescences without involucels, very long pods, yellowish branches and relatively few pinnae. The logical conclusion is that all *Acacia sieberiana* trees were uncritically assumed to be *Acacia sieberiana* var. *woodii*. Accompanying photos of *Acacia sieberiana* kindly provided by C. Mannheimer and B. Curtis, show the typical ascending, rounded crown of *Acacia sieberiana* var. *sieberiana*. They state that the *Acacia sieberiana* that they came across have the yellow bark and the generally rounded rather than flat crown. The present author has also come across



***Acacia sieberiana* trees in Namibia**

Vachellia sieberiana* (DC.) Kyal. & Boatwr. var. *sieberiana[= *Acacia sieberiana* DC. var. *sieberiana*]

FSA186.9

English:	longpod thorn, false paperbark thorn
Afrikaans:	langpeuldoring
*Herero:	omuhengehenge, omunyere, omuryangava, orupunguya
*Lozi:	mukate, mutubatuba
*Manyo:	muhengeva
*Mbukushu:	mughombe
Sena:	n'ghunga
*Tswana:	more-o-mosetlha
*Wambo:	ehaluveya, muhengeva, omeyele, omuye

*Names in these languages were usually attributed to *Vachellia sieberiana* var. *woodii* (e.g. by Van Wyk *et al.* 2011), but they most probably apply to *V. sieberiana* var. *sieberiana*, as the latter is the exclusive or prevailing variety in those parts of Namibia and Botswana where these languages are spoken. The application of common names hitherto attributed to *V. sieberiana* var. *woodii* in other regional languages spoken in Zimbabwe and Mozambique, should be treated with caution.

similar trees in east-Caprivi. The important point is that *Acacia sieberiana* var. *sieberiana* does occur in Namibia.

Mozambique

In a list of *Acacia* species for Mozambique compiled by the Wageningen Agricultural University in the Netherlands (De Koning 1993), *Acacia sieberiana* is listed as a taxon without reference to any variety.

Coates Palgrave (2002), makes mention of a specimen of *Acacia sieberiana* var. *sieberiana* that was recorded near Beira in Mozambique. Its occurrence in the Gorongosa National Park is mentioned in the Flora of Mozambique website.

Botswana

Setshego & Venter (2003), in their checklist of Botswana trees, list only *Acacia sieberiana* var. *woodii*. Roodt (1998) deals with *Acacia sieberiana* as a species without referring to varieties. She, however states: 'the large pod (more than 20 cm long) distinguishes it from other acacias'. Timberlake (1980) writes about

Acacia sieberiana var. *woodii*: 'A distinctive tree with its yellowish underbark and massive pods' Both Roodt and Timberlake mention properties that are diagnostic of *Acacia sieberiana* var. *sieberiana*. A number of herbarium specimens by kind courtesy of the National Herbarium (PRE), SANBI, Pretoria, labelled *Acacia sieberiana* var. *woodii*, all indicate var. *sieberiana* features, namely inflorescences without involucels and long pods approaching 200 mm. All this point to the presence of *Acacia sieberiana* var. *sieberiana* in Botswana.

Conclusions

For many years the *sieberiana* variety of *Acacia sieberiana* has escaped recognition in southern Africa. *Acacia sieberiana* is often referred to as a taxon with the implication that it is var. *woodii*. Others simply refer to 'forms' of *Acacia sieberiana*, or negate the occurrence of var. *sieberiana* in southern Africa. The breakthrough came in 2002 with its recognition in Mozambique by Meg Coates Palgrave. In 2007 its presence in Zimbabwe was recorded and photographed by the author (Steyn 2007) and its

occurrence by deduction and personal observation in Botswana and in Namibia (mainly the present contribution). The obvious confusion in Botswana and Namibia concerning the different varieties of *Acacia sieberiana* makes one to suspect that all trees in these two countries may well be var. *sieberiana* and that var. *woodii* does not occur there!

Perhaps specimens of *Acacia sieberiana* var. *sieberiana* lurks somewhere near the Limpopo River in the northeastern corner of South Africa, waiting to be discovered.

When called the 'false paperbark thorn' one almost feels that this degrading designation is not appropriate! *Acacia sieberiana* var. *sieberiana* is as distinct as any other *Acacia* species. Apparently, in the world of the trees there appears to be discrimination—not by trees amongst themselves,

but by the humans moving amongst them! Next time when travelling across South Africa's borders watch out for the real—not the false—longpod thorn!

Watch out for the paperbark thorn—it is also very real! A prick on the hand by a spine is often inflammatory after extraction because short hairs are rubbed off and stay behind (personal experience).

Acknowledgements

I am indebted to the very helpful staff of the National Herbarium, Pretoria, in providing scanned images of herbarium collections as well as assisting with other queries and requests. My sincere thanks to Dr. Jacques van Heerden and Prof. Braam van Wyk for their very valuable advice in the structuring of this article and to Me Coleen Mannheimer for her valuable contribution from Namibia.

References

- Brenan, J.P.N. 1959. Leguminosae, subfamily Mimosoideae. In: Hubbard, C.E. & Milne-Redhead, E. (eds), Flora of Tropical East Africa. Crown Agents for the Colonies. London.
- Carr, J.D., 1976. The South African Acacias. Conservation Press, Johannesburg.
- Coates Palgrave, M. 2002. Keith Coates Palgrave Trees of Southern Africa. 3rd edition. Struik Publishers, Cape Town.
- Coe, M. & Beentje, H. 1991. A Field Guide to the Acacias of Kenya. Oxford University Press, New York.
- Craven, P. (ed.) 1999. Checklist of Namibian Plant Species. Southern African Botanical Diversity Network Report No. 7 SABONET, Windhoek, Namibia.
- Curtis, B & Mannheimer, C. 2005. Tree Atlas of Namibia. The National Botanical Research Institute, Windhoek.
- De Koning, J. 1993. Checklist of Vernacular Plant Names in Mozambique. Wageningen Agricultural University, Wageningen.
- Flora of Mozambique website: http://www.mozambiqueflora.com/speciesdata/species.php?species_id=180570 (accessed 20 February 2016)
- Flora of Zimbabwe website: http://www.zimbabweflora.co.zw/speciesdata/species.php?species_id=180570 (accessed 20 February 2016)
- Germishuizen, G. & Meyer, N.L. (eds) 2003. Plants of Southern Africa: an Annotated Checklist. Strelitzia 14. National Botanical Institute, Pretoria.
- Hutchinson, J. & Dalziel, J.M. (revised by Keay R.W.J.) 1958. Flora of West Tropical Africa. Crown Agents. London.
- Keay, R.W.J. & Brenan, J.P.M. 1950. *Acacia sieberiana* DC. var. *villosa*. In: Tropical African Plants: XXI. Kew Bulletin 5(3): 364-366.
- Palmer E. & Pitman N. 1972. Trees of Southern Africa (3 volumes). A.A. Balkema, Cape Town.
- Roodt, V. 1998. The Shell Field Guide Series Part 1. Trees and Shrub of the Okavango Delta. Medicinal Uses and Nutritional Value. Shell Oil Botswana (Pty) Ltd.
- Ross, J.H. 1977. A Conspectus of the African *Acacia* Species. Botanical Research Institute. Department of Agricultural Technical Services, Pretoria.
- Setshogo, M.P. & Venter, F. 2003. Trees of Botswana: Names and Distribution. Southern African Botanical Diversity Network (SABONET) Report No. 18. National Botanical Institute, Pretoria & University of Botswana Herbarium, Gaborone.
- Smit, N., 1999. Guide to the Acacias of South Africa. Briza Publications, Pretoria.
- Steyn, M. 2007. Photographic *Acacia*. A guide. *Acacia Fotografies*. 'n Gids. Privately published by the author, Polokwane.
- Timberlake, J. 1980. Handbook of Botswana Acacias. Division of Land Utilisation, Ministry of Agriculture, Botswana.
- Timberlake, J., Fagg, C. & Barnes, R. 1999. Field Guide to the Acacias of Zimbabwe. CBC Publishing, Harare.
- Van Wyk, B., Van den Berg, E., Coates Palgrave, M. & Jordaan, M. 2011. Dictionary for names of Southern African Trees. Briza Publications, Pretoria.
- Van Wyk, B. & Van Wyk, P. 1997. Field Guide to Trees of Southern Africa. Struik Publishers, Cape Town.

DIE OLYFBOOM

Naas Grové

Historiese verwysings na die olyfboom

Die olyfboom is een van die oudste bekende gekweekte bome in die wêreld. Dit is deur die mens veredel lank voordat die geskrewe taal uitgevind is. Olywe is gekweek op Kreta ~ 3 000 VHT (Voor Huidige Tyd) en dit was waarskynlik die bron van die rykdom in die Minoïese koninkryk gewees. Die Fenisiërs was verantwoordelik vir die verspreiding van die olywe na lande rondom die Middellandse See en al langs die kus van Afrika en Suid-Europa. Sommige argeologiese bewyse dui daarop dat die olyf reeds 10 000 jaar gelede in die oostelike Middellandse See streek aangeplant is. Die bome het op daardie stadium waarskynlik aan weerskante van die Mediterreense Kom voorgekom. Genetiese studies ondersteun dié hipotese dat olywe in baie plekke rondom die Middellandse See verbou was.

Ander rekords dui daarop dat olywe wat in Oos-Spanje en Suid-Frankryk gekweek is dateer uit die Neolitiese Era wat ongeveer 10,000 jaar gelede in die Midde-Ooste ontstaan het (heelwat later in ander dele van die wêreld). Die Era is gekenmerk deur die begin van boerdery, die mak maak van diere, die ontwikkeling van handewerk soos pottbakkerij en weef, en die vervaardiging van gepoleerde klip gereedskap.

In die Midde-Ooste is daar verwysings uit die vroeë Bronstydperk (tweede helfte van die 5de millennium VHT) wat aandui dat olyfolie omtrent is en daar is ook bewyse van die teenwoordigheid van stuiwmeelkorrels, sade en hout van die plante gevind. Die oudste bewyse van *Olea* is versteende blare, wat op die eiland Santorini in die Egeïese argipel ontdek is en dateer 50 000-60 000 jaar gelede. Argeologiese bewyse in die suide van Griekeland vir die bestaan van olyfbome dateer 61 140 – 55 230 VHT en daar is ook bewyse dat *Oleae* in Krete en Sirië verbou is so lank gelede as 2 500 VHT.

Daar is baie roemryke verwysings in die geskiedenis deur talle godsdienste en kulture na die kulturele-, medisinale gebruike, simboliek van die olyfboom asook sy vrugte en olie. In die Bybel en die Koran word daar na *Oleae europaea* verwys as die mees heilige, mees gerespekteerde en mees geliefde boom. Dus speel dit 'n belangrike rol in die beskawing, godsdienste, dieet en kuns van daardie tyd. *Olea* is gekweek in die vroeë Bybelse tydperk vir die vrugte wat met beitsoda en sout behandel is en vir die ontsluiting van die kosbare olie. Die spesie is in antieke Egipte bekend soos blyk uit Egiptiese mediese papyrus van kruie kennis (1550



Olyfboorde in Griekeland

Foto: Creative Commons Attribution-Share Alike 2.5 Generic

VHT), mummies wat gekroon is met olyfkranse en in 'n lied van die Egiptiese Farao Ramesses II (1198-1176 VHT), wat opgedra is aan die god Ra waarin die kwaliteite van die olyfboom besing word. Die spesie is ook in Armenië bekend en die Romeine het dit hoofsaaklik in kookkuns benut. In die glorie dae van die Romeinse Ryk was dit 'n gunsteling onbewysbare waarheid spreuk dat 'n lang en aangename lewe afhang van twee vloeistowwe: wyn na binne en olyfolie van buite.

Volgens die Griekse mitologie is die stad Athene vernoem na die Griekse godin Athena. Hiervolgens sou Athena, die godin van wysheid en oorlog 'n olyfboom in die grond op 'n rotsagtige heuwel, wat ons vandag as die Akropolis ken, plant. Daar word nog vandag geglo dat al die ander olyfbome wat naby die Akropolis groei, ontstaan het uit die oorspronklike wortles van dié boom.

Die Hebreeuse woord vir olyfboom is *es shemen*, wat letterlik beteken - 'n boom van olie.

Daar is meer as 2 000 gekultiveerde variëteite van die olyfboom



Foto: Cassiopée 2010

Daar is baie bespiegelings oor die ontstaan van die eetbare olywe en olyfolie wat ons vandag ken en die oorsprong van olyf-boerdery is in geheimenis gehul. Wetenskaplikes het onlangs die DNA van 'n paar duisend wilde en aangeplante olyfbome in die Middelandse See Streek, deur die ontleding van die genome gedoen in 'n poging om die geskiedenis, oorsprong en verspreiding van die gekultiveerde plante te bepaal. In die proses is drie basiese geenpoele van die olyfboom geïdentifiseer, naamlik die Midde-Ooste, die gebied rondom die Egeïese



Die susters olyfbome van Noag is na bewering die oudste lewende (6 000 jaar) olyfbome in die wêreld. Bechealeh, distrik Batroun, Libanon

Foto: <http://www.greenprophet.com/2013/01/noah-olive-trees-lebanon/>

See en die Straat van Gibraltar.

Volgens die studie, het die wetenskaplikes bevind dat die mate van diversifikasie van plantiede (dit is kompartemente van die plantselle wat chemiese verbindings bevat) tussen die wilde en aangeplante olywe aangedui het dat die transformasie van die wilde olyf na die gekultiveerde olyf die eerste keer plaasgevind het in die noordooste van die Levant gebied (Die Levant is 'n geografiese term wat verwys na 'n groot gebied in Suidwes-Asië, suid vanaf die Taurusberge, wat begrens word deur die Middellandse See in die weste, die Arabiese woestyn in die suide, en Mesopotamië in die ooste. Die term word ook soms gebruik om te verwys na moderne gebeure of lande in die streek onmiddellik aangrensend aan die oostelike Middellandse See, naamlik, Ciprus, Palestina, Jordanië, Israel, Libanon en Sirië).

Deur die genetiese kode van die olyfboom te ontleed en te verstaan het dit wetenskaplikes in staat gestel om 'n verskeidenheid van faktore wat verband hou met die boom, insluitende sy langslwendheid, die aanpasbaarheid by droë toestande, en verskille tussen die kultivars, groottes en die geur van die olyf vrugte te dokumenteer. Uiteindelik sal dit ook nuwe navorsing fasiliteer oor genetiese verbetering vir die produksie van olywe en olyfolie, asook hoe om die olyfboom te beskerm teen bakterieë en

infeksies.

Botaniese beskrywing van die olyfboom

Sesduiend jaar gelede het antieke inheemse olyfboomspeesies oral in Klein-Asië, Iran, Sirië, Palestina, Israel en ander lande rondom die Middellandse voorgekom. Die plant behoort aan die OLEACEAE, Olyffamilie. Die familie bevat ~25 genera wêreldwyd met ~700 spesies.

Theophrastus (371 - 286 VHT) skryf dat die wilde olyfboom verskil van die gekweekte olyf deurdat eersgenoemde stekels op die laer takke het en dat die blare en steenvrugte kleiner is. Gekweekte olyfbome beskik oor soortgelyke eienskappe en dit is moeilik om wilde olyfbome van die gekweekte bome te onderskei.

Die belangrikste verskil tussen die wilde en die gekultiveerde olyfboom is die groter en smaakliker vrugte van laasgenoemde. Dit blyk ook dat die hele veredelingsproses oor baie jare plaasgevind het om sodoende die genetiese wisselwerking tussen die wildeolyf en die gekultiveerde olyf te kon laat realiseer.

Daar word geglo dat die botaniese voorloper van die veredelde *Olea europaea* 'n groep bome was, wat tradisioneel na verwys is, as wildeolywe.



Olea europaea subsp. *europaea* var. *sylvestris* (Foto: Stavros Apostolou)



***Olea europaea* subsp. *africana* - olienhout**

Hierdie plante het in die Middellandse See streek floreer in 'n gebied wat 'n gunstige klimaat het vir die aanplant van olywe. Hierdie wildeolywe word deur sommige plantkundiges as 'n onafhanklike spesie geag, naamlik *Olea oleaster*. As gevolg van hulle noue morfologiese en genetiese verwantskappe aan die veredelde boom, plaas die meeste navorsers dit egter binne *Olea europaea*, óf as 'n sub-spesies (subsp. *oleaster*) of as 'n variëteit (var. *sylvestris*). Daar is ses natuurlike subspesies van *Olea europaea* wat oor die wêreld versprei is naamlik:

- *Olea europaea* subsp. *europaea* met die twee botaniese variëteite, var. *europaea* (gekwekte olyf) en var. *sylvestris* (wilde gelokaliseerde olyf), wat wyd verspreid oor die hele Middellandse See streek voorkom
- *Olea europaea* subsp. *africana* – olienhout (= *Olea europaea* subsp. *cuspidata*, *Olea africana*, en *Olea chrysophylla*) (in suidelike Afrika en die hele Oos-Afrika, Arabië en Suidwes-China)
- *Olea europaea* subsp. *guanchica* (in die Kanariese Eilande)
- *Olea europaea* subsp. *cerasiformis* (in Madeira)
- *Olea europaea* subsp. *maroccana* (in Marokko)
- *Olea europaea* subsp. *laperrinei* (in Algerië, Soedan, Niger)

Die *Olea europaea* subsp. *europaea* var. *sylvestris* is 'n immergroen struikagtige boom en in sommige

gevalle 'n woudboom. Die plante leef vir baie lank en kan meer as 1 000 jaar oud word. Die stam is dikwels verdraai en verwronge en die boom kan hoogtes van tot 15 m bereik. By jong plante kan dorings voorkom. Die elliptiese tot lansetvormige blare is enkelvoudig, teenoorstaande, leeragtig en die blaarrand is glad. Die tweeslagtige welriekende blomme is wit en in okselstandige trossies gegroep. Die blomme word oor lang afstande deur die wind bestuif. Die steenvrug is eivormig, aanvanklik groen en word swart-bruin by volwassenheid. Dit huisves 'n enkele (selde twee) harde houtagtige saad.

Die stuifmeel van die blomme is een van die belangrikste oorsake van seisoenale respiratoriese allergieë in Mediterreense See gebied. Daarbenewens is gevalle van dermatitis en voedselallergieë aangeteken van mense wat in kontak kom met die vrugte en die olyfolie.

Botaniese beskrywing van *Olea europaea* subsp. *africana*

Die olienhout behoort aan die OLEACEAE, Olyffamilie. Die spesienaam *europaea* verwys na die verwantskap met die Europese olyf.

Dit is 'n enkelstammige boom wat dikwels 'n verdraaide of ingeduike stam het. Die takke neig om laag te vertak om 'n digte tweekleurige kroon met gladde lyne ten toon te stel. Jong takkies is kenmerkend vierhoekig. Die stam is skurf en

donkergrys. By ou bome breek die bas in klein blokkies op.

Die enkelvoudige blare is kruisgewys teenoorstaande, lansetvormig en het 'n leeragtige voorkoms wat kenmerkend tweekleurig is: helder blink aan die bokant en dofgroen aan die onderkant as gevolg van sliwer tot ligbruin skubbe. Die blaarpunt is skerp gepunt en effens na onder gebuig. Die blaarbasis is breed spitstoelopend. Die blaarrand is glad en krul effens na onder. Die sy-are op die blare is deurskynend en kan waargeneem word as die blaar teen die lig gehou word. Die blaar is al lanks die middelaar na onder gevou. Ouer bome se blare is hard en nie verteerbaar nie, maar dit word goed bewei waneer die boom nog jonk is. Dikwels kan jong verkrompte boompies in die veld waargeneem word omdat die nuwe groei gedurig teruggevreet word en die plant nooit kans kry om behoorlik te herstel nie.

Die tweeslagtige blomme is nie baie opsigtelik nie. Dit is roomwit, klein en het 'n effense reuk (Oktober – Februarie) en word in trossies in die blaaroksels gedra. Die steenvruggies lyk soos bessies en word pikswart by rypwording (Maart – Julie). Die dun vlesige vrugmoes omsluit 'n enkel saadjie en dit word deur verskeie voëls gevreet.

Ekonomiese belang van die olyfboom

Tradisioneel was die verbouing van olywe beperk gewees tot die Middellandse See-gebied (77% van die wêreld se produksie vind nog steeds in die streek plaas). Wêreldwyd is dit 'n belangrike gewas vir die verkryging van olie en vir tafel gebruik. As gevolg hiervan het die kommersiële produksie van olywe uitgebrei na lande soos Frankryk, Italië, Marokko, Chili, Kalifornië, Argentinië, Brasilië, Mexiko, Australië en Suid-Afrika.

Olyfolie is 'n relatief duur groente-olie as gevolg van die hoë verbouingskoste en beperkte produksie. Die eerste oes kan ~5 jaar nadat die boom geplant is, verwag word. Oor die algemeen kan optimale opbrengste nie bereik word voordat die bome 10 jaar oud is nie. Die gemiddelde koste (2014) om 1 kilogram olyfolie in die wêreld te produseer is € 2.63 (R 42.09)

Die ryp vrugte bevat 'n bitter glukosied, oleuropien. Die geplukte vrugte moet behandel word om die bitter smaak te neutraliseer voordat dit smaaklik is. Afhangende van die tipe (variëteit) olyf en of dit groen of ryp gepluk word, word die olywe in die regte mengsel pekel gelê of meer male met water afgespoel.



Foto: Gary Knight

Tydens die fermentasieproses van tafelolywe is dit noodsaaklik om te verseker dat slegs die gewenste bakterieë of gis in die pekel oplossing vermeerder en groei ten koste van ongewenste patogene en ander mikroorganismes. Tydens die fermentasieproses word bakterieë deur melksuur (byvoorbeeld *Lactobacillus* spp.) en of giste op fermenteerbare substrate soos suiker vrygestel sodra die olywe in water of pekel geplaas word. Melksuur en asynsuur word geproduseer wat die suurvlak verhoog en die pH vlak verlaag. In sommige fermentasieprosesse word alkohol ook geproduseer. Die kombinasie van hoë sout en lae pH vlakke verminder grootliks die risiko op mikrobiologiese bederf van die olywe.

Suiwer olyfolie (virgin olive oil) bestaan hoofsaaklik uit trigliseriedes (98-99%) en die res word opgemaak uit ander verbindings wat insluit alkohol, chlorofil, sterole, karotenoïede en flavonoïede. Die olie word deur meganiese en ander fisiese maniere onder beheerde toestande (bv. temperatuur en 'n natuurlike afwasproses van die vrugte) onttrek wat nie lei tot 'n wysiging of manipulasie van die chemiese samestelling van die olie nie. Binne hierdie kategorie is ingesluit ekstra suiwer olyfolie (extra virgin olive oil) waar die olie nie meer as 0,8 gram / 100 gram van die natuurlike oleïensuur wat in die vrug voorkom, bevat nie. Verfynde olyfolie (refined olive oil) word verkry uit suiwer olyfolie (virgin olive oil) deur meer verfynde metodes toe te pas wat nie lei tot die

afbreking van die oorspronklike gliseried struktuur nie. Gewone olyfolie bestaan uit 'n mengsel van suiwer en verfynde olyfolie. Olyfmoesolie (*olive pomace*) word verkry deur die behandeling van die olyfvrug doppe met oplosmiddels om al die oorblywende olies te onsluit wat dan met ander soorte olies vermeng word.

Die globale olyfolie gebruik het met 73% oor die afgelope 25 jaar toegeneem. Wêreld olyfolie verbruik in 2015 was 'n rekord 3,295,911 ton. Italië is bo aan die lys van verbruikers met 640 443 ton, gevolg deur Spanje met 540 133 ton en die Verenigde State van Amerika, wat 339 512 ton verbruik het.

Spanje was in 2014 die grootste olyfolie produsent met 841 200 ton, gevolg deur Tunisië (340 000), Griekeland (300 000), Italië (220 000), Turkye (170 000), Marokko (120 000), Sirië (105 000), Algerië (69 500), Portugal (61 000), Jordanië (23 000), Egipte en Libanon (21 000 ton elk), Israel (17 500), Libië (15 500), Albanië (11 000), Ciprus (6 200), Argentinië (6 000), Iran (4 500), Frankryk (1 900), Kroasië (1 000) en Slowenië (200).

Meer as 30 miljoen mense is wêreldwyd in diens van die olyfolie sektor in 47 produserende lande oor vyf kontinente. Olyfolie word in meer as 160 lande verbruik, en dit verteenwoordig slegs 1,7% van eetbare vette wat deur die mens verbruik word.

Bronnelys

- Coates-Palgrave, K. 2002. *Trees of Southern Africa*, new edition, revised and updated by Coates-Palgrave, M. Struik, Cape Town.
- Coates-Palgrave, K., Coates-Palgrave, P. & Coates-Palgrave, M. 2004. *Die Suid-Afrikaanse Boomgids*. CNA Press, Pretoria.
- Schmidt, E., Lotter, M. & McClelland, W. 2002. *Trees & Shrubs of Mpumalanga and Kruger National Park*, Jacana Publishers, PO Box 2004, Houghton, Johannesburg.
- Van Wyk, A.B. & Van Wyk, P. 1997. *Field Guide to Trees of Southern Africa*, Struik, Cape Town.
- Van Wyk, A.B. & Van Wyk, P. 2013. *Veldgids tot Bome van Suid-Afrika*, Struik, Cape Town.
- Van Wyk, A.B., Van den Berg, E., Coates-Palgrave, M. & Jordaan, M. 2011. *Dictionary of Names of South African Trees*. Briza, Pretoria.
- Van Wyk, A.B., Van Wyk, P. & Van Wyk, B-E. 2008. *Fotogids van bome van Suid-Afrika*. Briza, Pretoria.
- Van Wyk, B-E. & Gericke, N. 2000. *People's plants. A guide to useful plants of southern Africa*. Briza, Pretoria.
- Von Breitenbach, F. 1989. *National List of Introduced Trees*. Dendrological Foundation, Pretoria.
- Von Dürckheim, H., Van Wyk, A.B., Van den Berg, E., Coates Palgrave, M. & Jordaan, M. 2014. *Saklyk van Suid-Afrikaanse Inheemse Bome*, 5de hersiene Uitgawe, Dendrologiese Vereniging van Suid-Afrika. BRIZA, Pretoria.
- Riley, FR. 2002. Olive production on Bronze Age Crete. *Oxford Journal Archaeology* 21: 63 -75.
- Theophrastus, 1926. Fourth century BC. *Enquiry into plants (Vol I, II) in ancient Greek*. Loeb Classical Library, Cambridge & Harvard University Press
- Valvanis, P. 20014. Olive oil and the ancient Greeks. *An ode to the olive tree*. Academy of Athens 63 -73
- Zohary, D. & Spiekgeel-Roy, P. 1975. Beginning of fruit growing in the old world. *Science* 187: 319 - 327
- Forbes, H. & Foxhall, L. 1978. The quenn of all trees. Preliminary notes on the archaeology of the olive. *Expedition*, 21: 37 -47
- Liphshitz, W., Gophna, R., Hartmann, M. & Gideon, B. 1991. The beginning of olive (*Olea europaea*) cultivation in the Old World: a reassessment *Journal Archaeological Science*, 18: 441 - 453
- Boardman, I. 1976. The olive in the Mediterrean: its culture and use. *Philosophical Transactions of the Royal Society London B*, 275: 187 - 196
- Doveri, S., Baldoni, I. & Kole, C. (Ed). 2007. *Genome mapping and molecular breeding in plants*. Vol 4. Fruits 7 Nuts. Springer. 253 - 256
- Rhizopoulou, S. 2007. *Oleae europaea L. Botanical contribution to culture*. *American-Eurasian Journal Agriculture & Environment Science*, 2 (4): 382 - 387
- Tutin, T.G., Heywood, N.A., Burges, D.M., Moore, D.H., Valentine, S.M. & Webb, D.A. 1992. *Flora Europaea*. Cambridge University Press., 3:55

A RIVERINE GIANT

Naas Grové

At the southern tip of Africa is where archaeologists discovered 2.5million year old fossils of man's earliest ancestors as well as the 100 000 year old hominid remains of modern man. South Africa boasts an amazing variety of natural beauty and an abundance of wildlife, birds, plants and minerals. It is also a dry country with no significant natural lakes and very few perennial rivers. But it is along the Orange, Vaal, Breede, Eerste, Komati, Lepelle (previously Olifants), Tugela, Umzimvubu, Magalakwena, Crocodile, Komati, Sabi, Limpopo and Molopo Rivers you will find the most extraordinary diversity of plant species. Riverine vegetation occurs along all the nutrient soil laden river banks of the perennial large rivers as well as the smaller rivers and streams throughout South Africa. Some of these trees are very tall, forming a narrow band like a rock python all along the riverbanks. The most beautiful trees can be found here because their root systems are able to access enough water from underground resources all year round. These narrow zones along the river networks possess important ecological properties

and is probably one of the most complex ecological systems in South Africa. What plants you will find in the riparian corridor depend on where the river is, the climate, alkalinity of the soil and may other factors.

The Lepelle River (previously the Olifants) has its origin in Mpumalanga with the Letaba and Steelpoort Rivers its largest tributaries. It flows through the Limpopo Province and joins the Letaba River before it crosses into Gaza Province in Mozambique becoming the Rio dos Elefantes before joining the Limpopo River where it enters the Indian Ocean at Xai-Xai. It is one of the most heavily polluted rivers in South Africa and researchers have found at least seven different pathogens in the water (including salmonella) and extremely high levels of faecal pollution because of inadequate waste water treatment.

It is a shame that the water quality of these rivers is in such a bad state because along its banks you will find some of the most spectacular riverine



trees in South Africa, like njalaberry (*Xanthocercis zambesiaca*), matumi (*Breonadia salicina*), waterberry (*Syzigium cordatum*), sausage tree (*Kigelia africana*), Natal bushveld mahogany (*Trichellia emetica* subsp. *emetica*) and river bushwillow (*Combretum erythrophyllum*).

An all-time favourite riverine tree is the gigantic jackalberry (*Diospyros mespiliformis*) belonging to the same family (EBENACEAE) as the *guarri* trees. These evergreen trees can reach a height of more than 25m and a stem circumference of 5m[>] is not uncommon. Although it is mainly a savannah tree it thrives in conditions where there is adequate water such as the riparian corridor of the Lepelle River.

Apart from its majestic appearance the tree boasts a unique ecosystem. It is often associated with wood destroying fungus termite species (*Odontotermes badius*, *O. transvaalensis* and *O. vulgaris*) who construct giant termite mounds around the trunk of the tree. To build this structure the termites use a mixture of clay, sand and salvia and it is estimated that a fair size mound can take 80 years to build! These termites have under developed eyes and cannot tolerate daylight, therefore dead plant material is collected at night and carried into horizontal chambers inside the nest referred to as fungal gardens.

The termites' physiological composition does not allow it to digest the two energy-containing

elements in plant cells, i.e. cellulose and lignin. The fungi cannot like animals or chlorophyll plants manufacture their own food. Instead the *Termitomyces* fungi thrives on the partially digested cellulose and lignin discharged by the termites. They then inoculate and secrete digestive enzymes which will break down the substrate, making it easier for the fungus to absorb the nutrients. In this symbiotic relationship the existence of both termites and the fungi is guaranteed and each year these fungi produce a good crop of edible mushrooms (different *Termitomyces* spp.) emerging from the base of the mound. The tree benefits from the aeration as a result of the burrowing termites in the soil and many lizards and snakes feed on the rodents, insects and different bird species that in turn feed on the termites or fallen fruit of the tree.

The tree is heavily browsed by kudu, njala, impala and bush buck. Many bird species like African green pigeons, parrots, hornbills, louries and primates feed on the fruits and seeds. The tree is also host to the larvae of the emperor butterfly (*Charaxes achaemenes*).

Not only is this one of the biggest tree species in South Africa, it also plays a very important role in the ecosystem and the circle of life.



fokus
focus

The University of Pretoria's' living library: the Manie van der Schijff Botanical Garden

J. D. S. Sampson and A. W. Frisby
(Department of Plant and Soil Sciences, University of Pretoria)



Covering 3.5 hectares on the Hatfield Campus of the University of Pretoria (Fig. 1), this historical garden had humble beginnings; with the simple planting of Pavetta species that were to be used for research purposes by Prof. Barend Elbrecht (Fig. 2) in 1924 near his office in the Old Agriculture Building.

**“The creation of a thousand
forests is in one acorn.”**

~ Ralph Waldo Emerson ~

Professor Elbrecht, who became the Head of Department of Botany in the 1930's, was a real driving force behind the development of the Botanical Garden, and his legacy lives on in many of the old and historical trees in the heart of the gardens, particularly those planted around the old Botany building.

Some of the oldest specimens planted by Prof. Elbrecht are particularly noteworthy, such as the 5m male *Encephalartos transvenosus*, more commonly known as the “Modjadji Cycad” which is located in the courtyard of the Old Agriculture Building (Fig 3). This “old man” was received by Prof. Elbrecht as a gift from Queen Modjadji the third herself. This was to be the first cycad in a now extensive living collection of cycads (Fig. 4), showcasing not only South Africa's species, but also the rest of Africa and the world whilst simultaneously promoting conservation-orientated research on this highly threatened group of plants.

The entire Hatfield campus grounds were maintained by the Department of Botany from the early 1930's until the formation of the Department of Facilities Maintenance in the early 1960's. Special plant collections were predominantly planted along the western and north-western boundary of the campus near the old Botany Building. Because of this



Figure 1: The view of the Universities' Administrative Building with Aloe hybrids in the foreground which are key plants used in the Botanical Gardens "water wise" approach. Photo: J. Sampson.

area's continually growing beauty and usefulness, it was formally proclaimed a botanical garden in 1961 with a commitment to maintain and expand its plant collections so as to support education, research, conservation, aesthetics and community outreach. It was named in honour of Prof. Manie van der Schijff (Fig. 5) who was Head of Botany, Dean of the Faculty of Mathematics and Natural Sciences and Vice-Chancellor. He was, however, first and foremost a botanist. Prof. van der Schijff greatly contributed to the expansion of the botanical garden and who was responsible for, among many other features, the pond next to the Old Botany Building (Fig. 6).

Just short of a century since the botanical gardens' beginnings, it has developed into an extensive display and educational/research resource with over 3000 plant species planted in aesthetic and carefully thought out displays across the Hatfield campus. One of only five University Botanical Gardens in South Africa, the Manie van der Schijff Botanical Garden has become an integral part of the University of Pretoria, bringing joy and delight to students, staff and the public alike.

One of the unique aspects of the botanical garden is how the botanical garden and the built environment of the University merge seamlessly into one another. Eye-catching examples of this can be seen in places such as the Plant Science Building with its two "green walls" (one wet and one dry) that make use of the usually unutilised vertical walls for botanical displays (Fig. 7). Another example is the ground-



Figure 2: A commemorative plaque honouring Prof. Barend Elbrecht, — a man with a huge passion and enthusiasm for the Southern African flora. Photo: J. Sampson.



Figure 3: The first cycad in the gardens collection, a male *Encephalartos transvenosus* located in the courtyard of the old Agriculture building and pictured here with the late Mr. Philip Rousseau. This plant has doubled in size in the 95 years since its planting. Photo: J. Sampson.

breaking "Rainwater Harvesting System" which surrounds the engineering students' study centre and conference venue in a lush and environmentally friendly wetland while supplying the garden with irrigation water. (Fig. 8, 9 and 10).



Figure 4: Some of the mature *Encephalartos* species in the garden. Photos: P. Rousseau.



Figure 5: The commemorative plaque honouring Prof. Manie van der Schijff — protector and supporter of the garden in his time at the university. Photo: J. Sampson.

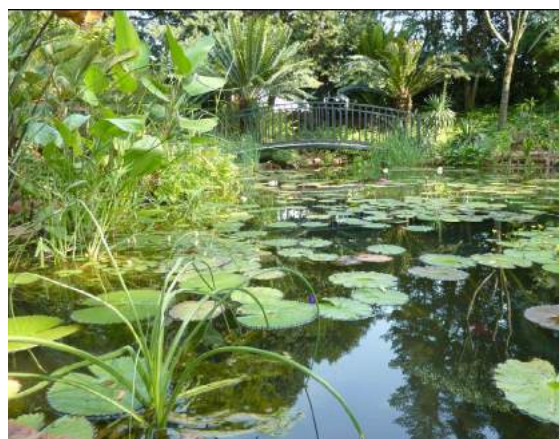


Figure 6: The pond near the old Botany building that was first installed by Prof. van der Schijff and affectionately known as “Prof Manie’s Pond”. Photo: J. Sampson.



Figure 7: Dry wall of Plant Science Building. Photo: J. Sampson.





Fig 9, the North-western shallow pond of the rainwater harvesting pond as seen from the roof of the Mineral Sciences building. Photo: Neal Dunstan.



Fig 10, the South-western shallow pond of the rainwater harvesting pond as seen from the entrance to the Engineering 2 labs. Photo: Neal Dunstan.

The collections of the garden are considered heritage collections of the University of Pretoria, and thus deserving of special protection. There are two curator positions; the senior curator is traditionally responsible for the management and maintenance of the collections and grounds on main campus and oversight of the HPC arboretum collections, while the junior curatorship is focused on the cycad

collection and the indigenous plant propagation unit on the experimental farm. There are ten garden staff, both permanent and contract, and varying numbers of volunteers and internship students. Other special collections housed in the garden spaces include the "Monocot Garden", a specially landscaped space planted up entirely with monocotyledonous plants.

The Succulent and Karoo collections built up over decades of our researcher's work.

"Oom At" Arthur Koeleman hybrid aloe collections, forming an integral part of the wider Universities water wise gardening drive, and through our close working relationship with the Department of Facilities Maintenance.

The Hydrophyte collection, planted mainly in our huge rainwater harvesting garden and Prof. Manie's pond near the old Botany building.

Cremonophytes and *chasmophytes*, cliff dwelling plants that are grown on the living walls of the new Plant Sciences building.

A budding *Agavaceae* collection, housed largely in the satellite succulent garden near the department of Architecture, but branching out on the rest of the Hatfield campus as particularly useful and attractive species are identified and grown.

Edible/culinary plants, this collection is growing and will be housed in the forage gardens to be installed as part of the Future Africa development.

Poisonous and/or medicinal plant collections, grown for our ethnobotanists, this collection is actively growing too.

Carnivorous plants, these have recently received a new greenhouse, and are housed on the Experimental farm. (Fig 11).



Figure 11: *Dionea muscipulata* or 'Venus Fly Trap'. Photo: Arnold Frisby.



Figure 12: Variegated *bromeliad* selections on our plant propagation nursery. Photo: Arnold Frisby.



Figure 13: The huge old *Ficus religiosa* specimen planted next to, and towering over, the old Botany building. This specimen is rumoured to be a cutting from the 'Bohdi' tree in Sri Lanka, which is a sacred tree in Buddhism.



Figure 14: Leaf detail of the same specimen.



Figure 15: The bizarre and almost luminescent colour of this lime yellow mutation of *Erythrina caffra* (Named 'Dednam's Lime' after its discoverer) can be seen in spring near the new Plant Sciences building. Picture: Ludwig Eksteen

Bromeliad collections, planted in the fairy garden space near the old Botany building. (Fig 12).

Our historical tree collection, with dozens of very large and old specimens, many over sixty years old and some much older, which includes some very unique selections.. (Fig 13, 14 and 15).

And of course, our peerless Cycad collection as mentioned, which has its own curator, currently one of the best in the Southern Hemisphere, particularly in terms of the African cycads.

We maintain a propagation unit at the Experimental Farm of the University where many of our special plants, including cycads, may be bought at below market prices, which is open most Thursdays throughout the year.

More information about our garden and projects can be found on our website, www.up.ac.za/botanical-garden, as well as a very active and regularly updated Facebook page too, where news about our activities is shared almost daily.

While the Hatfield campus is access controlled, we can and do take tours and educational groups through the collections on arrangement with either of our curators, and we will be glad to hear from the readers of this fine publication if you have any queries in this regard.

The contact details of our Curators below:

Curators

Mr Jason Sampson
Office: Greenhouse 1-4, Main Campus
Tel: +27 (0)12 420 4274
Email: jason.sampson@up.ac.za

Mr. Arnold Frisby
Office: Nursery – Experimental Farm 1-2
Tel: +27 (0)12 420 6031
Email: arnold.frisby@up.ac.za

When A Giant Tree Collapses

Izak van der Merwe

In South Africa the baobab (*Adansonia digitata*) is the largest of the indigenous tree species. The Sagole baobab in northern Limpopo is the second stoutest tree in the world, measured at 33,9m trunk circumference, or 10,8m diameter at breast height (dbh). With a trunk diameter of 10,7m the measurements of the Platland baobab near Modjadjiskloof came quite close to that of the Sagole baobab. That was until part of the tree split and collapsed on 18 August 2016.

This event was widely reported because the tree is so well-known. Unfortunately the media perpetuated

some of the misconceptions about baobabs, such as a wildly exaggerated claim that the tree could have been 6000 years old. Or that such collapse is a rare occasion. Several years ago the crown of another giant baobab on the Glencoe farm near Hoedspruit collapsed in a much more dramatic fashion, and this tree was incidentally determined to be about 1835 years old through carbon dating done by Dr Adrian Patrut - thus the oldest reliably dated tree in South Africa. The Sunland baobab lives on, despite its calamitous collapse.



Sagole baobab. Photo Naas Grové

**“When great trees fall,
rocks on distant hills shudder...”**

~ From the poem by Maya Angelou; When Great Trees Fall ~

Among the top five of the largest baobabs, the Platland tree (also known as the Sunland baobab) receives the most visitors of all. This is partly due to the somewhat commercialised development and marketing of the site. The tree is especially known for a bar that was created inside the hollow trunk. A lush irrigated lawn was created on one side of the tree, and a paved area on the other, serving as an occasional entertainment area. Although such development promoted tourism and income for the property owners, they were warned by specialists of the Tree Protection Co-operative Programme (TPCP) Forestry and Agricultural Biotechnology Institute (FABI) that the activities may be harmful to the tree. Soil compaction by many visiting feet, the paving and additional watering of the lawn could all be harmful to the tree. However, when these specialists investigated the tree two years ago, they did not find any symptoms at that time that could have predicted the impending disaster that struck the tree.

A team of specialists of FABI, including Professor Yolanda Roux (a tree pathologist), visited the Platland tree on 1 September 2016. That investigation uncovered a fungus that was considered not to be harmful. Incidentally this type of fungus has not been found on a baobab before. At the time of writing, the investigation of FABI was ongoing. The African News Agency interviewed Professor Roux.

She informed them that although the partial collapse was an upsetting event, it offered an opportunity to investigate the causes of such collapses or deterioration, which may offer insight into similar conditions that afflict some baobabs in Southern Africa.

The Platland tree was declared a Champion Tree many years ago. It is not the only Champion Tree to suffer from a condition that may threaten its health or status. A Champion English oak tree (*Quercus robur*) in the leafy Joburg suburb of Northcliff, is seriously afflicted by aphids and mildew. At the old government buildings in Bloemfontein (Mangaung) many of the historic trees planted there more than a century ago died – apparently due to lack of watering during building renovations. The famous Tokai arboretum with a collection of more than a hundred and fifty tree species planted since the late nineteenth century, was ravaged by a fire which destroyed and damaged many of the trees. The Sagole baobab itself may be threatened by water extraction from boreholes, and the effects of increasing visitor numbers.

The Champion Tree Evaluation Panel of experts which assists the Department of Agriculture, Forestry and Fisheries (DAFF) with the shortlisting of nominated Champion Trees, advised the Department that management plans need to be



The partial collapse of the Platland baobab. Photograph by René O'Connel, Aurecon.



International tree climbers investigating the Platland baobab in 2013 - Photo Izak van der Merwe

drawn up for each of the listed trees or groups of trees. Currently the capacity to do this is very limited within the Department. DAFF also has limited funds, and such a strict and onerous procurement process that funds cannot be obtained timeously for trees faced with a sudden problem, such as the Platland baobab. A global company, Aurecon, has recently engaged DAFF on a proposed initiative called Adopt the Champion Trees Programme. The aim is to create a mechanism whereby projects that can assist the management of Champion Trees will be funded. A Memorandum of Understanding will soon be concluded between Aurecon and DAFF.

For the moment, the Platland tree appears to be under no immediate threat. Steps will have to be taken, however, to ensure better management in future. Although there is no clear proof that the visitors, paving and irrigation contributed directly to the partial splitting of the tree, these activities are considered to be potential hazards to the health of the tree. The property owners continued such practices against the advice of specialists, and this exposes a weakness of the actual control that DAFF has on a tree located on private property.

Once listed and declared by Government Gazette, a Champion Tree may not be cut or damaged without a license under Section 15 of the National Forests Act No 84 of 1998. Such licences will not be issued

unless a tree poses a serious threat to property or public safety. Yet apart from that, the actual control of the trees lies in the hands of the property owners, and this is mostly regulated by the Common Law. Indirect activities endangering a tree could be seen as triggering the National Forests Act, but in actual legal practice it is difficult to prove, and such conflict between the Department and the property owner would make interventions difficult. Unlike trees that are declared as National Heritage Resources, the land on which the Champion Trees stand is not covered by that protection. The advantage though, is that these trees are much easier to declare, and the list of Champion Trees grows much faster than trees protected under the National Heritage Resources Act. Some trees or groups of trees have double protection as Champion Trees and National Heritage Resources.

The Platland tree will continue to be a Champion Tree, and fortunately did not lose too much of its grandeur. A management plan will be drafted with the inputs of specialists and the owners. It will be in the interest of the owners to implement the advice of specialists, for their income also depends on the health and longevity of the tree. Property owners have a co-responsibility to look after trees that are also part of the magnificent tree heritage of the nation.

The Kathu Bushveld

M.W. van Rooyen¹, N. van Rooyen², and H.M. van den Berg³

1. Department of Plant and Soil Sciences, University of Pretoria, Gretel.vanrooyen@up.ac.za;
2. Ekotrust CC, noel@ekotrust.co.za;
3. Iris International, hennievd1@gmail.com

1. Introduction

The research offset on the Kathu Bushveld (*sensu* Mucina & Rutherford 2006) stemmed from the condition specified in the Environmental Authorization given to one of the solar energy developments to compensate for the protected trees that would be destroyed during the construction of the facility. The objectives of the research offset were to improve baseline data available on the vegetation type in order to assist authorities in managing and conserving the vegetation type. The information could also contribute towards refining the South African vegetation map and should be incorporated into the regional biodiversity strategy and action plans.

2. Study area

The Kathu Bushveld is located in the northeastern corner of the Northern Cape province (Figure 1). For the purpose of this study a buffer zone of 10 km around the vegetation type was included in the study area. At a broad scale, the Kathu Bushveld is part of the Mega-Kalahari Basin (Partridge et al. 2006), a vast expanse of land covered with wind-blown sand. At a finer scale, the study area falls in the so-

called Southern Kalahari (Thomas & Shaw 1991), a region that forms a watershed between the Orange River System and the channels draining northwards to the Makgadigadi depression.

Figure 1: a. The location of the Kathu Bushveld vegetation type in South Africa. b. The study area indicating the 10 km buffer zone around the Kathu Bushveld (outlined in red).

Topographically most of the study area is classified as level plains or level plains with some relief. The parallel dunes (dune cordon) roughly divide the study area into a northern and southern section. In the southern section the study area is bounded to the east by the Kuruman Hills and to the west by the Korannaberg and Langeberg. The study area is drained mainly by the Molopo, Kuruman, Gamagara and Moshaweng Rivers and their tributaries.

Geologically, the study area is dominated by aeolian sand. Along the major river systems, deposits of calcrete, sandstone, conglomerate, gravel, limestone and greywacke occur locally. A conspicuous feature of the southern section of the study area is a large sheet of calcrete in the central portion, corresponding approximately to the Ag Land Type (Figure 2). In the eastern, western and southern sections of the study area, where the

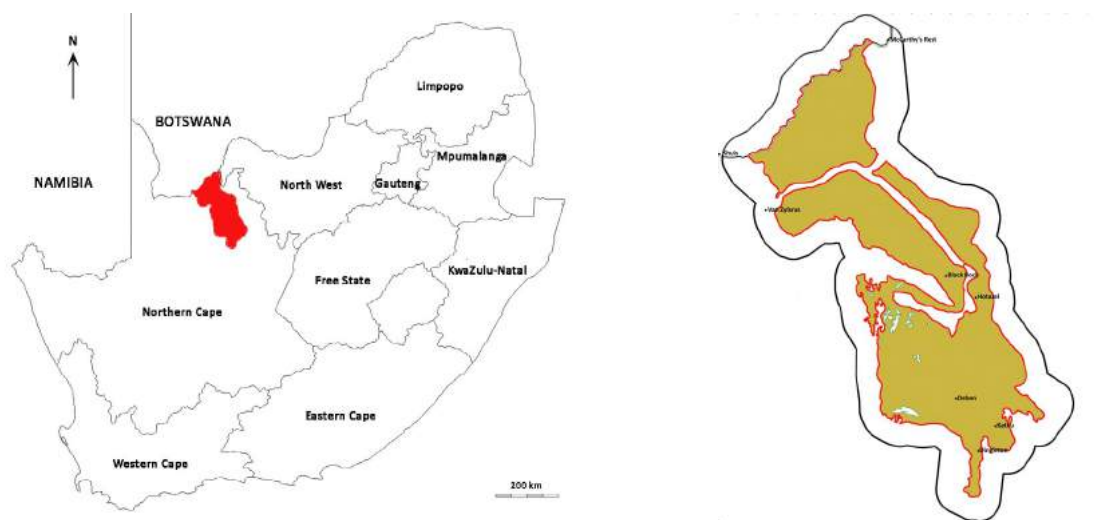


Figure 1: a. The location of the Kathu Bushveld vegetation type in South Africa. b. The study area indicating the 10 km buffer zone around the Kathu Bushveld (outlined in red).

landscape is more hilly or mountainous, the geology is more diverse.

The northern part of the study area is dominated by Ah and Af land types, whereas the southern part consists of Ae, Ag and Ah land types (Figure 2). The mountainous portions flanking the study area to the east, west and south belong to Ib and Ic land types. All land types from Aa to Ai refer to yellow and red soils without water tables. The Af land types contain dunes and in the case of Ag land types the red, high base soils are <300 mm deep.

There is a general trend of increasing rainfall from north to south, as well as from west to east, across the study area. When examining the climate diagrams compiled according to Walter & Lieth's (1960-1967) convention a distinct difference in the climate of the northern section around Van Zylsrus and the southern section becomes apparent (Figure 3). In the northern section, the rainfall curve never exceeds the temperature curve and consequently there is no wet period. In contrast, the climate diagram for Sishen/Kathu, in the southern section, shows a wet period from December to April, with a bimodal peak.



Figure 2: The land types in die study area.

3. Methods

A variety of methods were applied in the study:

- The vegetation classification was based on the Braun-Blanquet methodology (Werger 1974).
- The veld condition and grazing capacity assessments were based on the method of Bothma *et al.* (2004).
- For the diversity analysis several of the most common diversity parameters were measured and compared across the associations in the study area.
- The protected tree surveys were conducted in belt transects and the population structure of the protected trees were analysed by (i) a curve analysis; (ii) regression analysis; (iii) position of centroid; (iv) canopy: subcanopy ratio; (v) density of dead and live trees; and (vi) tree health.
- The sensitivity was assessed using a sensitivity model.
- Image analysis was carried out on Landsat ETM (2001/2002) data, Landsat 8 (2014) 2014 data, Spot 5 (2014) images, high-resolution colour aerial photographs and SRTM (Shuttle Radar Topography Mission) hill-shading data.

4. Results

4.1 VEGETATION CLASSIFICATION

On the basis of the Braun-Blanquet analysis of the field data 21 associations were identified. There was a distinct difference in the vegetation between the northern and southern sections of the study area. Furthermore, the Kuruman Hills, Korannaberg,

Langeberg and Iron Hills were not part of the Kathu Bushveld. The 21 associations could be roughly grouped into eight units (Figure 4).

Unit 1: This dense shrubveld is found on the plains east of the Gamagara River between Kathu and Deben and northwards to Hotazel. Prominent features of this association are the shallow calcrete; presence of free lime in the A horizon; and the even height of the canopy dominated by *Tarchonanthus camphoratus* and *Senegalia mellifera* (Figure 5).

Group 2: This unit extends across most of the southern section of the study area with the exception of the area covered by Unit 1. The vegetation type is typically a bushveld with the dominant tree being *Vachellia erioloba* and dominant shrub *Senegalia mellifera* (Figure 6). The Kathu Forest is part of this unit.

Group 3: The unit covers most of the area to the north of the linear dunes from Van Zylsrus in the west to Severn in the east and Black Rock in the south. The vegetation ranges from a grassland in the far west to a woodland in the east (Figure 7). The most prominent tree species are *Vachellia erioloba*, *Vachellia haematoxylon* and *Boscia albitrunca*.

Group 4: The unit is characterised by high, often linear, dunes. In the northern section *Terminalia sericea* is the dominant tree (Figure 8). This unit is currently mapped as part of the Gordonia Duneveld, but can be distinguished from the rest of the Gordonia Duneveld by the abundance of *Terminalia sericea*.

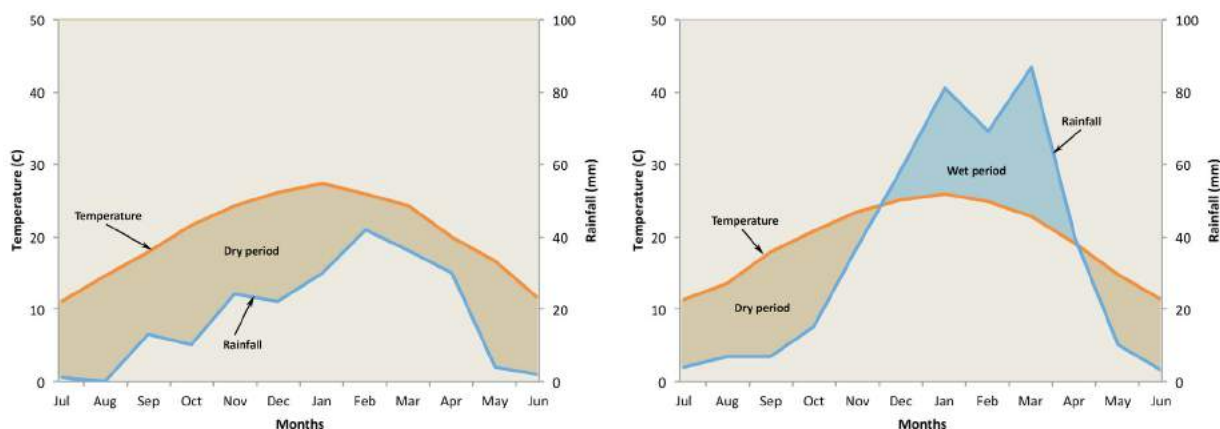


Figure 3: Climate diagrammes according to Walter & Lieth's (1960) convention. A. Van Zylsrus; and b. Sishen/Kathu.

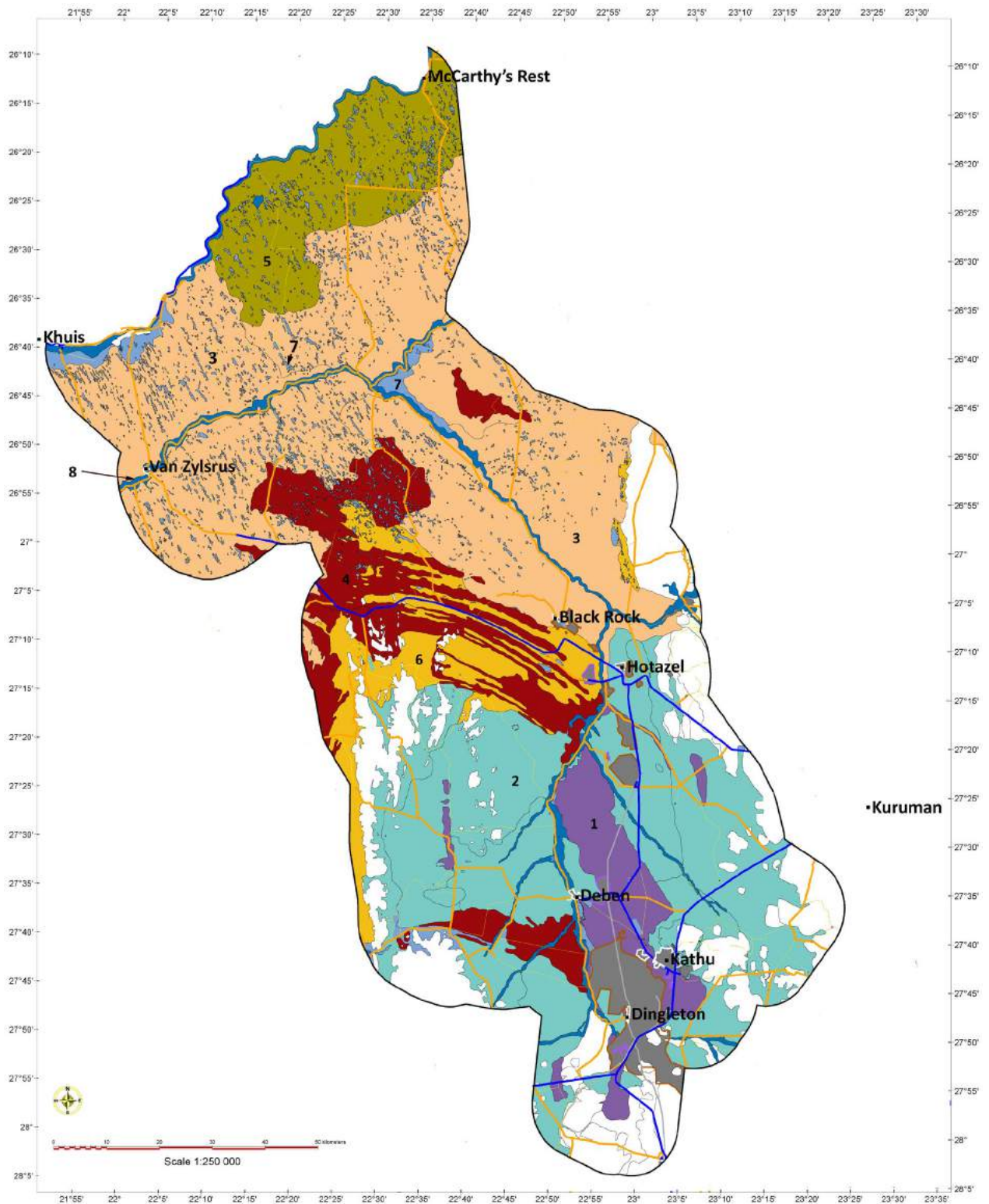


Figure 4: Preliminary revised vegetation map of the study area indicating eight units. Built-up areas are in grey and mountainous areas in white.

Group 5: This unit is quite distinct and is characterised by the presence of *Vachellia luederitzii* (Figure 9). It occurs in a band along the Molopo River. The eastern boundary of this unit could not be mapped as it occurs all the way to Vorstershoop and Bray.

Group 6: This unit consists of two variations (i) the northern interdune valleys and (ii) the southern section including both interdune valleys and the valleys associated with the Korannaberg and Langeberg. Although there are clear floristic differences between the two variants they share the dominance of *Rhigozum trichotomum* (Figure 10) and many of the habitat features. *Boscia albitrunca* and *Vachellia erioloba* are the prominent trees.

Group 7: This unit includes the pans, depressions, dune valleys and calcrete river banks in the far northern section. Many of the interdune valleys and depressions/pans, occur as a mosaic within units 3 and 6 and cannot be mapped separately. Prominent woody species include *Rhigozum trichotomum* (Figure 11) and *Senegalia mellifera*.

Group 8: This unit includes the rivers and associated vegetation and is currently mapped as the Southern Kalahari Mekkacha (Figure 12) (Mucina & Rutherford (2006).

4.2 DIVERSITY

Depending on which diversity parameter is used to compare the associations, the ranking of the associations differed slightly. According to the exponent of the Shannon-Wiener index of diversity the most diverse associations were the northern calcrete terraces along the rivers, the area around Severn and confluence of Moshaweng and Kuruman Rivers and the area surrounding the Kathu Forest. The least diverse associations were the southern calcrete pans/plains (Unit 1) and the southern interdune valleys (Unit 6).

4.3 PROTECTED TREES

The status of the protected tree populations revealed that overall, the populations of *Vachellia erioloba* were healthy and could be classified as young and growing populations. The Kathu Forest had by far the highest density of *Vachellia erioloba* individuals of all sizes. Furthermore, the Kathu Forest had a relatively large proportion of large, mature to old trees and consequently a fair number

of dead individuals. However, if the dead trees in the Kathu Forest are expressed as a percentage of all individuals, the dead tree percentage (7%) is not cause for concern. Overall, *Vachellia erioloba* densities were higher in the southern section of the study area than in the northern section.

The *Boscia albitrunca* populations showed a mixture of healthy and unhealthy populations. Although most of the populations could be classified as growing populations, it should be kept in mind that many of the so-called 'small' individuals of *Boscia albitrunca* have a stunted growth due to being browsed down to the ground and kept in a multi-stemmed form. Although these multiple stems are often small, the individuals are not young. Overall, the northern populations were in a poorer state than the southern populations, with 5 out of 10 associations showing a declining population. Trees that had come into contact with herbicides were easily recognized by their yellow appearance.

Overall, *Vachellia haematoxylon* lacked a healthy population structure and the populations could be classified as mature-to-old populations. This species had the highest density of live individuals in the vicinity of Hotazel. Densities of this species were generally low in the southern section of the study area and noticeably higher in the northern section. The highest density of dead trees of this species was found in Unit 7.

4.4 VELD CONDITION

The veld condition index of the different plant associations in the study area ranged from 17.5% (very poor) to 76.7% (excellent), with a mean of 49.4% (moderate). More than 17% of the area was in poor condition at the time of the surveys; 24% in moderate condition; 55% in good condition and 4% in excellent condition. The mean veld condition index for the southern section was 48.4%, whereas the mean for the northern section was 50.7%. Overall, the grazing capacity of the southern section was better than that of the northern section. The southern section also has a slightly higher rainfall and soils with a higher water holding capacity than the northern section.

4.5 IMAGERY ANALYSIS

Individual tree canopies were mapped on SPOT 5 2014 images after applying a local adaptive contrast enhancement filter to each of the PAN bands to

Figure 5: Note the high shrub cover and even height of the canopy dominated by *Senegalia mellifera* and *Tarchonanthus camphoratus* in Unit 1.



Figure 6: An open woodland surrounding the core of the Kathu Forest in Unit 2.



Figure 7: An open bushveld with a well-developed grass layer in Unit 3.



Figure 8: Unit 4 occurred on dune crests of the high linear dunes with *Terminalia sericea* the dominant species.



Figure 9: Unit 5 south of the Molopo River near McCarthy's Rest in the study area.

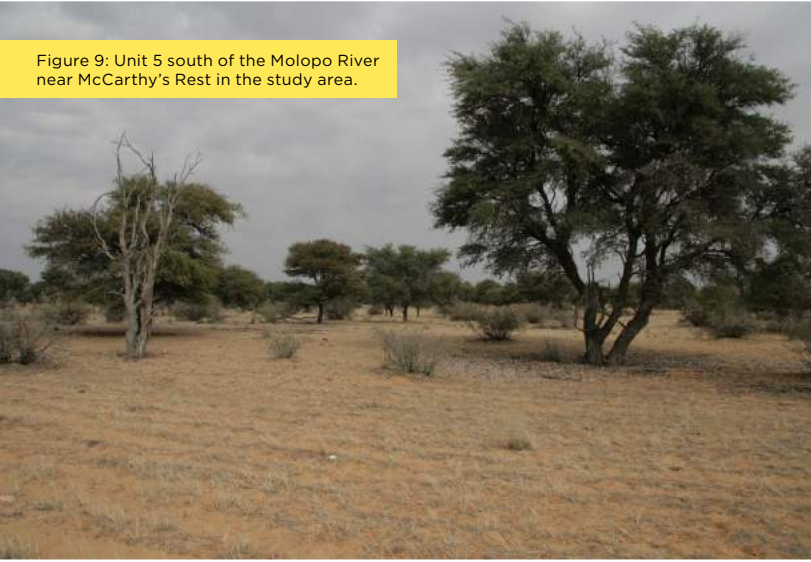


Figure 10: A high cover of grasses and *Rhigozum trichotomum* in the interdune valleys in Unit 5.

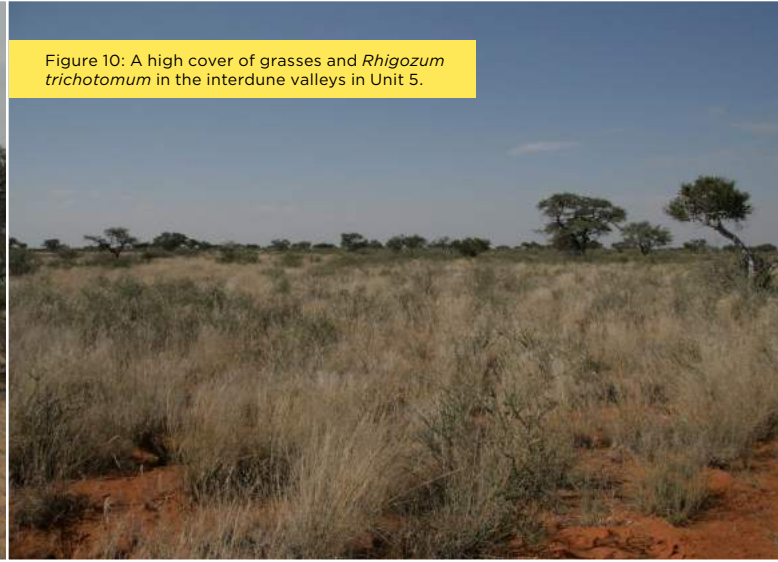


Figure 11: One of the pan/interdune valleys in the northern study area representing Unit 7.

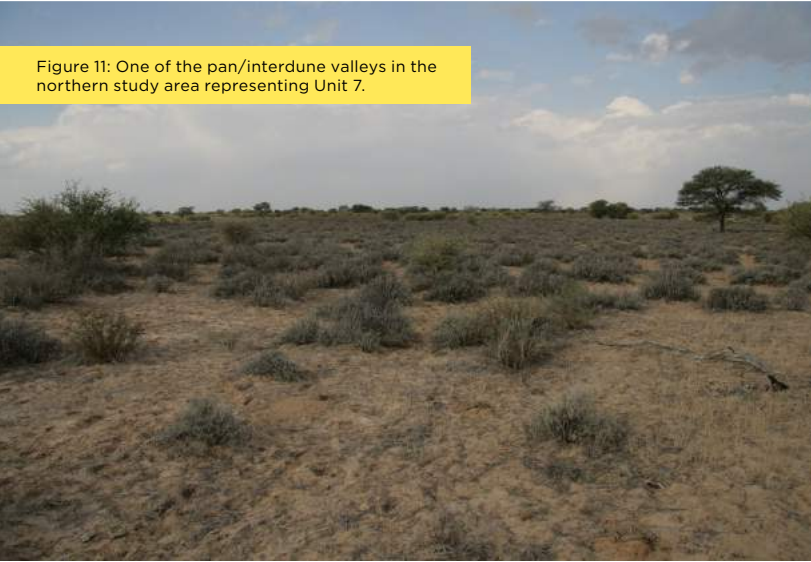


Figure 12: Unit 8 along the Kuruman River with the alien *Prosopis* sp. a prominent feature.



reduce local background darkening effects. Woody cover was mapped using a semi-automatic digital image feature mapping procedure. Woody cover was classified into five classes and the area covered by each class was calculated per association. The change in woody cover and transformation from 2002 to 2014 could consequently be analysed (Figure 13). The percentage of the study area classified as low and medium cover increased slightly from 2002 to 2014 (low cover increased from 30.2% to 32.9% and medium cover increased from 50.1% to 54.1%), whereas the percentage of the study area classified as high cover decreased substantially from 2002

to 2014 (19.0% to 10.4%). These changes could be ascribed to the bush clearing that has been applied across the study area. The most noteworthy change was the percentage of the study area that had been transformed, that increased more than 4-fold from 2002 to 2014 (0.6% to 2.6%). The increased transformation was mainly due to mine and town expansion.

Furthermore, the 2002-2014 ground cover change map was reclassified into a 7-class vegetation condition map (not illustrated). This analysis indicated that Unit 1 was most prone to

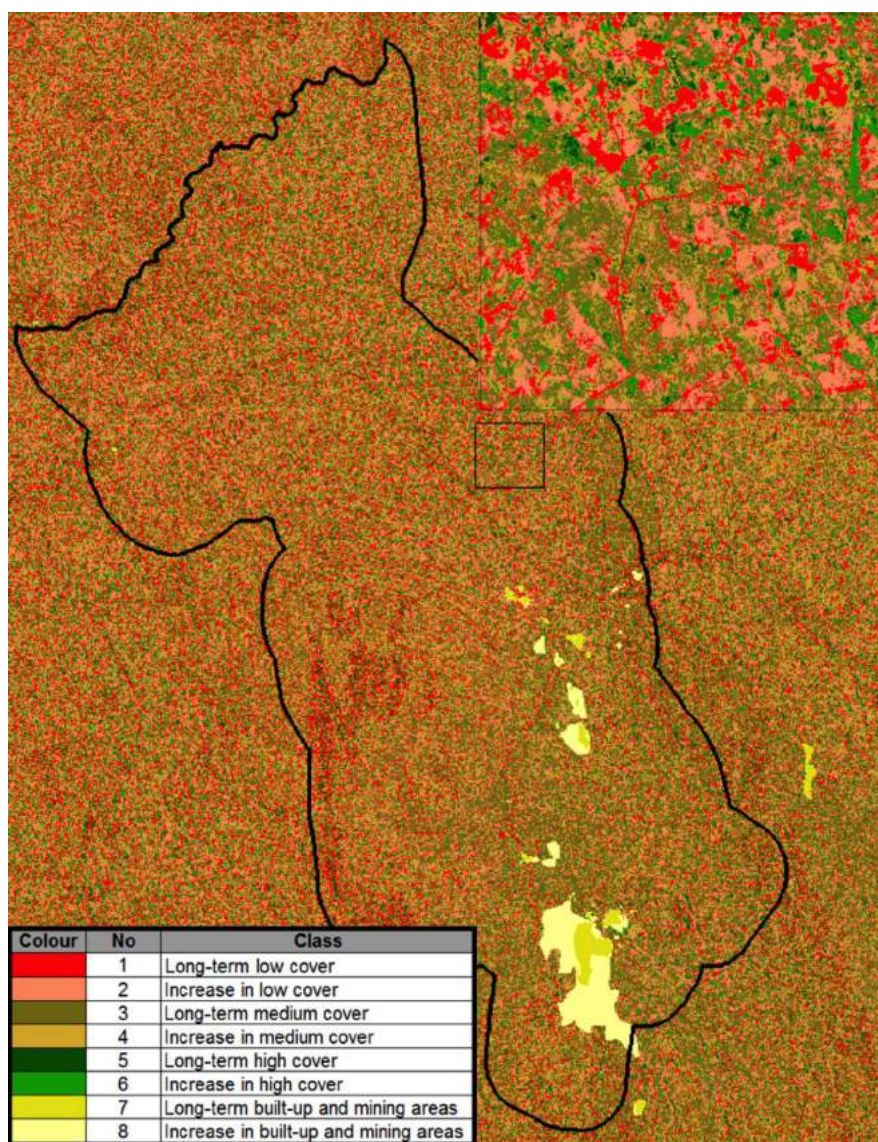


Figure 13: Change in woody cover from 2002 -2014.

transformation, followed by Unit 2. Approximately 30% of the study area was classified as severely degraded or degraded. More than half of the study area was considered to be either in a moderate (27.3%), moderate to good (20.7%) or good condition (8.7%).

4.6 THREATS

Major threats in the study area are bush encroachment, injudicious application of herbicides to control bush, overgrazing and infrastructure developments (mining, solar facilities, town expansion). In particular the clearing of *Senegalia mellifera* and/or *Rhigozum trichotomum* by herbicides has caused immeasurable damage to the protected tree populations of *Vachellia erioloba* and *Vachellia haematoxylon* and to a lesser extent to *Boscia albitrunca*.

4.7 SENSITIVITY AND OVERALL CONSERVATION STATUS

Several features of each association (e.g. threatened status of ecosystem; species richness, presence of red listed or endemic plant species, number of Northern Cape protected plant species, number of protected tree species) were assessed to derive a

sensitivity score. Sensitivity was rated as high in the Units 1 and 4.

The sensitivity score for each association was then combined with (i) the degree of transformation, (ii) degree of degradation and (iii) the degree of moderate to good condition within each association to derive an overall conservation value. The highest conservation value was obtained for the high-dune association (Unit 4).

5. Conclusions

The research offset study showed that the Kathu Bushveld vegetation type as delineated by Mucina & Rutherford (2006) is not a coherent unit. There is a distinct difference in the vegetation between the southern and northern sections and these sections should therefore be split. Further subdivisions could be considered after a broader area has been surveyed. The study could furthermore pinpoint areas with the highest conservation value, diversity, veld condition as well as where the most transformation has occurred.

Literature

- Bothma, J. du P., Van Rooyen, N. & Van Rooyen, M.W. 2004. Using diet and plant resources to set wildlife stocking densities in African savannas. *Wildlife Society Bulletin* 32: 840-851.
- Mucina, L. & Rutherford, M.C. 2006. The vegetation of South Africa, Lesotho and Swaziland. SANBI, Pretoria.
- Partridge, T.C., Botha, G.A. & Haddon, I.G. 2006. Cenozoic deposits of the interior. In: Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J. (eds). *The Geology of South Africa*, pp. 585–604. Geological Society of South Africa, Council for Geoscience, Johannesburg/Pretoria.
- Thomas, D.S.G. & Shaw, P.A. 1991. *The Kalahari Environment*. Cambridge University Press, Cambridge.
- Van Rooyen, M.W., Van Rooyen, N. & Van den Berg, H. 2016. Kathu Bushveld study: research offset for first development phase of Adams Solar Energy Facility. Ekotrust CC, Pretoria
- Walter, H. & Lieth, H. 1960-1967. *Klimadiagramm Weltatlas*. Fischer, Jena
- Werger, M.J.A. 1974. On concepts and techniques applied in the Zürich-Montpellier method of vegetation survey. *Bothalia* 11: 309–323.

Senegalia montis-salinarum, newly endemic tree species of the Soutpansberg

Adopted from an article by Dr Norbert Hahn

The newly discovered *Senegalia montis-salinarum* (the specific name *montis-salinarum* meaning "salt-pan mountain") by Dr Norbert Hahn, post-doctoral research fellow in the Biodiversity Research Chair at the University of Venda, is an endemic species, presently only known from two widely spread localities on the Soutpansberg. Given the small population (< 250 trees) and distribution area of the species it is suggested by Hahn that the new species would qualify as endangered under the International Union for Conservation of Nature Red List Species. Furthermore, the specific locality of the species is situated a mere 450 metres from Coal of Africa's newly approved Makhado Colliery Project. Close monitoring should therefore be undertaken to avoid habitat degradation that could further endanger this rare tree through mining operations.

The tree grows on the northern rocky slopes of the mountain. According to Hahn the species is morphologically most similar to *Senegalia burkei* (= *Acacia burkei*) but differs from the latter by being multi-stemmed, having smaller flowers that produce a greater number of seeds. The wood is soft, almost semi-succulent and decays rapidly compared to the relatively hard wood of *S. burkei*.

Dr. Hahn's scientific article, "*Senegalia montis-salinarum*, a new species of *Fabaceae: Mimosoideae* endemic to the Soutpansberg, South Africa", can be accessed by registered users of the *Phytotaxa* journal website at <http://dx.doi.org/10.11646/phytotaxa.244.2.5>.



Photo: Norbert Hahn

In Memoriam
Ons Gedenk

In Memoriam Ons gedenk

Jutta von Breitenbach

1931 - 2016

Confucius, wat rondom 500 jaar voor Christus gelewe het, het van 'n afgestorwene gesê:

Tot my spyt is hy oorlede. Ek het hom slegs vorentoe sien gaan.

Nooit het ek gesien dat hy stilstaan by dit wat hy bereik het nie.

Hierdie aforisme is kenmerkend van hoe ons Jutta gesien het: Nooit het sy stilgestaan by iets wat sy bereik het nie. Altyd was sy op pad na 'n ander uitdagende bestemming.

Jutta Maria Hofrichter is op 31 Augustus 1931 in die stad Beuthen gebore waar haar vader 'n handelaar was. Soos dit dikwels daar voorgekom het, was haar moeder Pools, en haar vader was Duits. Die stad Beuthen lê in die provinsie Bo-Silesië in 'n kleurvolle landskap, laagliggend, met uitgebreide woude en groot, sterklopende riviere.

Ons weet nie veel van hoe het Jutta se jeug verloop het nie, maar op haar 8-jarige ouderdom het die Tweede Wêreldoorlog uitbreek en die hele provinsie van Silesië was oorrompel en verbrysel deur die vyandighede van daardie tyd. Sy was toe sekerlik op skool en mens wonder watse herinneringe sy aan daardie tyd van gevaar en onstuimigheid gehad het. In Januarie 1945, toe sy 'n jong dogter van 14 jaar was, het die Russe die stad beset en alle Duitssprekendes verjaag. Haar ma het saam met haar twee dogters voor die Russe gevlug, en na omswerwinge het hul in Berlyn aangekom, waar hulle weereens enkele maande later die oorname van Berlyn deur die Russe moes belewe. Mens moet mooi verstaan wat dit in daardie jare beteken het om voor die Russe te "vlug": Dit het beteken jy neem dit wat jy op jou rug en in die hand kan dra, verlaat jou tuiste en heenkome, en stap, moontlik verskeie honderde kilometer en te midde van wrede ontberings, na 'n plek waar jy veiliger voel. En dit gebeur in die hartjie van 'n koue winter met reën, sneeu en ys. Een belewenis uit hierdie oorlogstyd



het Jutta wel oorvertel: Die Geallieerde magte het in Februarie 1945 sowat 4000 ton bomme en brandbomme oor die middestad van Dresden afgewerp wat 'n kataklismiese vuurstorm veroorsaak het en die stad vernietig het. In hulle vlug na die weste is hulle deur Dresden, pas na die vuurstorm daar. Die algehele verwoesting en die nood van die oorlewendes het haar diep geskok en 'n blywende indruk op die jong dogtergemaak. Jutta het slegs selde oor hierdie tyd gepraat, waarskynlik omdat die herinneringe daaraan vir haar te pynlik was. Sy het haar jeug en haar tuiste in hierdie sinnelose oorlog verloor.

Na die oorlog het sy as Sekretaresse by die Duitse buitelandse diens aangesluit. Sy het as helper en amanuensis vir die bekende Duitse kansellier Konrad Adenauer gewerk met die skryf van sy outobiografie en praat met die hoogste agting van daardie beroemde persoon. Daarna was sy in Londen gestasioneer waar sy te doen gehad het met die repatriasie van Duitse rekords wat deur die Geallieerdes na die oorlog weggevoer

is. Later is sy na Ethiopië verplaas, 'n tydperk wat sy ook baie geniet het. Sy vertel ook dat sy met die destydse Keiser van Ethiopië, Haile Selassie, kennis gemaak het. Op die vraag: Hoe het jy Ethiopië ervaar?, was haar antwoord: "And what a country!".

Meer belangrik, het sy haar toekomstige eggenoot, Fried von Breitenbach in Ethiopië ontmoet. Dis noemenswaardig dat Fried na die oorlog 'n aantal jaar as krygsgevangene in Siberië

gevangene gehou was, so beide van hulle was erg deur die oorlog gekwes. Fried was in Ethiopië in die hoedanigheid van Bosbou Raadgewer aan die Verenigde Volke se Ekonomiese Kommissie vir Afrika, en het later Direkteur van Bosbou in Ethiopië geword. Hy was 'n imposante figuur, veelsydig en 'n reus in sy vakgebied. Jutta en Fried is op 17 Junie 1961 in Ethiopië getroud, en het in 1963 na Suid-Afrika verhuis. Oor hulle besluit om Ethiopië te verlaat, vertel Jutta dat toe hulle hoor wat Haile Selassie alles "aanvang",



Protea lepidocarpodendron
FSA90.5
Afr • swartbaardsuikerbos
Eng • black-bearded sugarbush

het hulle gemeen dinge kan nie goed eindig nie. Onthou dat Haile Selassie 'n groot skender van menseregte was en 'n jaar na hulle vertrek uit Ethiopie is hy toe ook na 'n coup d'etat oorlede.

Met hulle aankoms in Suid-Afrika het Fried 'n pos by die Bosbounavorsingsinstituut te Saasveld, George aanvaar waar hulle ongeveer sewe jaar lank gewoon het. Hulle was baie gelukkig in George, en Jutta het in hierdie tyd ook bykomende kunsklasse in Kaapstad bygewoon. In die vroeë 1970s het Fried navorsing op die Suid Kaapse woude gelei, wat die grondslag gelê het vir 'n wêreldklas bosbestuurstelsel wat vandag nog toegepas word. Jutta het hiermee bystand verleen, en in daardie tyd begin om van die inheemse boomspeesies se blare, blomme en vrugte te skets. Die sketse is later uitgebrei en opgeneem in 'n sleutelgids van bome vir Suid Kaapse woude.

Later het die egpaar na Pretoria getrek waar hulle 'n tuiste in Magalieskruin geskep het. En dit was die begin van 'n leeftyd se werk en toewyding tot inheemse bome en die Dendrologiese Vereniging. Dit was die tyd waar beide Fried en Jutta as 'n gedugte span 'n onkeerbare golf van nuwe bewustheid, passie en energie oor ons inheemse bome aangeblaas het, en duisende aanhangers en vereerders gewerf het.

Perhaps Jutta's greatest contribution to Botany and Dendrology in South Africa is her line drawings which she made of the leaves, twigs, and flowers of so many trees. There are several hundreds of these, possibly even more. Accurate in detail, perfect in execution, pleasing to the eye, and most useful for the identification of the tree. These line drawings decorate the pages of many well-known publications amongst which, the popular Pocket List of Southern African Indigenous Trees, which was published by the Dendrological Society. You will also find her drawings in various other publications, such as the Dendron, the Journal of Dendrology, and also in Fried's numerous publications on the trees of our land. She initially learned the art of drawing from classes in Addis Ababa, starting off with the drawing of figures, such as in human figures and forms. She relates that she progressed well with this until one day Fried came to her to say: "Don't go on with this, you're wasting your time. Draw trees". And that was the end of drawing figures and the beginning of her career as a botanical artist.

Fried, Sidney Press and E.A. Stewart established

the Dendrological Foundation in 1979 with the objective of promoting, protecting, and preserving the indigenous trees through education, research and publications. Jutta was on the Board of Trustees together with many an eminent personality.

Soon after, in September 1980, the Dendrological Society was founded to promote public awareness and encourage the conservation of indigenous trees in South Africa. Fried was the President, whilst Jutta was appointed as the Honorary Secretary and Treasurer. Somehow, the Society managed to capture the imagination and support of tree-lovers from all walks of life: Academics, professionals, laymen and even many distinguished business people. The Society went from strength to strength, growing at a rapid pace, with literally hundreds of members joining up annually. Within a couple of years there were thousands of members all over the country organised into more than 50 branches. A convenient office was set up in the home in Magalieskruin from where activities were planned and directed. And behind this all: Fried as Director and scientist, and Jutta attending to the execution with inexhaustible energy and commitment. There were tree outings to be planned, visits were brought to branches countrywide, research papers were produced and typed up, arbor days and tree planting ceremonies were arranged, the journals were typed, edited, published and posted, visits from foreign and local dignitaries were hosted, tree knowledge courses were conducted, tree tags were produced, a seed bank was established, big trees were measured and recorded, and numerous other activities in support of members of the Society and of the indigenous trees of South Africa. Most, if not all, of the laborious administrative and secretarial work was done on a typewriter by Jutta in person. She spent nights on end doing what it took to maintain and promote the Society.

Jutta often accompanied Fried on his field trips and was, in her own right, highly knowledgeable. She has guided and inspired many a prospective dendrologist with her extensive knowledge of our trees, and has, in her own right, authored a number of articles and monographs on trees. Further, she was a co-compiler of the Tree Atlas of Southern Africa, of which, unfortunately, only the first volume was published in 1992. She has participated in the tree knowledge courses as a tutor and supervisor, whilst also acting as a tour guide to visiting dendrologists from abroad. In the 1980s Fried was the mentor of several of the older generation of Dendrological

Society members, ably assisted by Jutta. On outings she often gave attention to the novices who tried to find their feet in the bewildering world of tree identification. In this endeavour she was always kind, generous with her knowledge, yet firm in her admonitions. But it was not all work and no play. Those who participated in the weekend outings discovered that Jutta had a good sense of humour, and could even be mischievous on occasions.

Through the immense efforts of Fried and Jutta the Dendrological Society grew into a highly respected organisation that was regularly consulted on matters relating to trees, and whose opinions were greatly valued.

Fried was a strong believer in the potential of indigenous trees to be used as street trees and in the parks of urban areas in preference to exotic trees. He believed that the popular exotic species had undergone selection and genetic refinement, in some cases for centuries, to enhance their suitability for urban areas. This could be done with our indigenous trees as well and the exotics could be replaced by suitable indigenous species. Accordingly, the Dendrogenetic Development Cooperative was established in 1991, with Jutta as the managing director. This was to be a self-financing development project to promote the planting of indigenous trees through the selective propagation of suitable varieties.

Disaster struck on 21 June 1995 when Fried was involved in a fatal motor car accident. At the time the fourth tree knowledge course was being conducted in Pretoria, and Fried was the course leader. In spite of her grief, Jutta stepped in courageously and arranged for the course to proceed on schedule. This is the type of person she was: Decisive, energetic, and goal-oriented.

After Fried's demise, Jutta pursued her activities with the Dendrological Society. For a time, she continued serving on the Central Committee of the Society, and maintained her office and many of the services to members. She also continued as the chief executive of the Dendrological Foundation and assisted with tree knowledge courses that were conducted, where her drawings of leaves, thorns and flowers were used as study material.

The spacious office in the Magalieskruin home was maintained neatly and intact right up to the last day of her life: A large writing-desk in a prominent position

from behind which she issued her instructions; the trusted typewriter and several computers; shelves with numerous books on a variety of topics line the walls; cupboards filled with thousands of photographs and slides of trees; a collection of about a thousand herbarium files with pressed and indexed leaf samples, and shelves of tree tags that never found an owner. Walking out of the front door you enter an arboretum established in the front yard: A dense grove of trees growing tall and delivering shade in the summer. On the sidewalk, a baobab, stout and outstretching its branches to heaven as though in supplication.

As a person, I remember Jutta as strict yet kind, and always eager to help. She spoke her mind and usually got her way. I remember, during a visit to her, she reproached me for infrequent attendance of outings, but she did so in a very friendly and supportive manner, which inspired me to develop a passion for our tree heritage. I believe she was quite lonely, especially in her later years, even though she maintained relationships with friends locally and overseas.

Jutta and Fried were childless. In fact, we know of no blood relations of either, since Fried was an orphan himself, and Jutta's sister Renate has preceded her. Jutta passed away peacefully in her sleep on 11 August 2016.

This brief sketch is not complete without acknowledging the meaningful role of three people in her latter days of life: Sarah Masombuka was her home manager serving her with dedication and distinction for 24 years. Daphne Coetzee was her friend, compassionate companion and wise guide since 2010. And then there was Faan Wolvaardt, friend, companion and confidant to Jutta for many years, helping her in time of need, managing her affairs and graciously supplementing her financial position.

The way I read her character, she would have said to us who remain behind: "Do not mourn my death, rather celebrate my life".

Hartwig von Dürckheim, August 2016.

Acknowledgements:

The apposite contributions of Dr. Hildegard Huchzermeyer, Izak van der Merwe, and Faan Wolvaardt to this essay are gratefully acknowledged.

In Memoriam Ons gedenk

Emeritus Ds Cassie (JC) Carstens

07 Januarie 1947 – 25 Julie 2016

Ds. Cassie Carstens was 'n kleurvolle karakter, selfs kleurryker as sy groot versameling onderbaadjies. Hy was welbekend in die NG Kerk vir onder meer sy werk as Kamporganiseerder, sy betrokkenheid by kultuur, kerkmusiek en sy betrokkenheid by die Sinode van Noord-Transvaal en die Algemene Sinode (1978 – 2004). Hy was betrokke by die samestelling van die Jeugsangbundel I (1984) en Jeugsangbundel II (1993) en was een van die eindredakteurs van die Liedboek van die Kerk. Hy was ook orrelis en koorleier en het gereeld as spreker oor liturgiese en himnologiese aangeleenthede opgetree.

Hy was ook die Sekretaris van die Afrikaanse Filatelievereniging van Pretoria. Hy het op verskeie geleenthede ook by die Sentrale Komiteevergaderings praatjies oor sy seëlversameling gelewer.

Ds. Cassie Carstens het diep spore in die Dendrologiese Vereniging getrap en dien vir etlike jare op die Sentrale Komitee en was tot en met sy afstrewing 'n lid van die Magaliestak in Pretoria. Hy het die wêreld vir almal beter gemaak.

Redakteur.







Postal: Postnet 2054, Private Bag 82234, Rustenburg, 0300
Telephone • 082 575 4244 • Fax: 086 670 7715
Web: www.dendro.co.za • E- mail: secretary@dendro.co.za
Facebook: www.facebook.com/DendroSA

Posadres: Postnet 2054, Privaatsak 82234, Rustenburg, 0300
Telefoon: 082 575 4244 • Faks: 086 670 7715
Web: www.dendro.co.za • secretary@dendro.co.za
Facebook: www.facebook.com/DendroSA