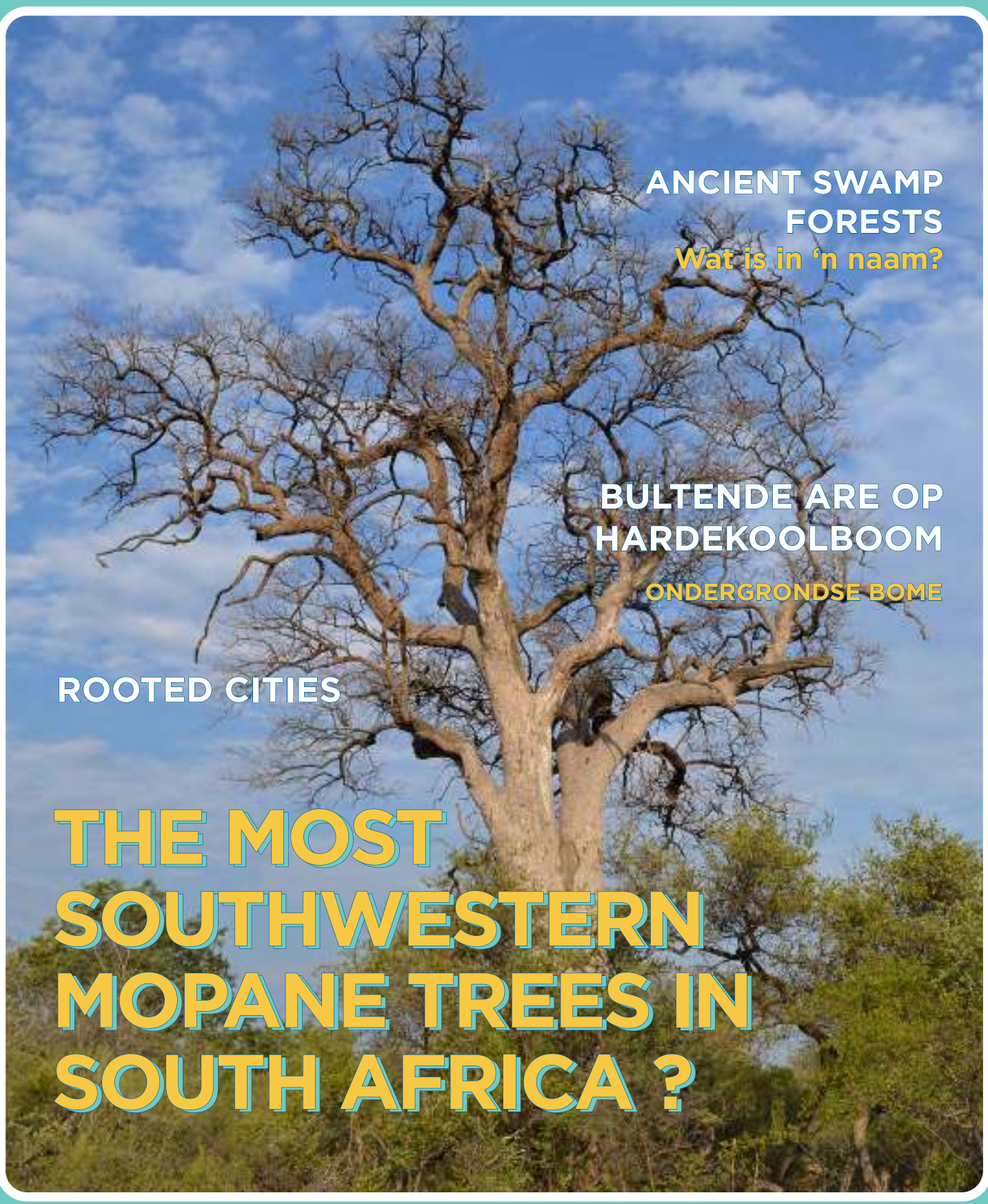
Dendron

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. 50 Desember 2016



ANCIENT SWAMP FORESTS
Wat is in 'n naam?

BULTENDE ARE OP HARDEKOOLBOOM

ONDERGRONDSE BOME

ROOTED CITIES

THE MOST SOUTHWESTERN MOPANE TREES IN SOUTH AFRICA ?

***Gardenia cornuta* - tongakatjiepiering / Tonga gardenia**
Foto: Naas Grové

The RUBIACEAE - Gardenia family is the largest family of trees in southern Africa, with ~200 native species. Opposite leaves and interpetiolar stipules are outstanding characteristics which makes it very easy to recognize. *Gardenia cornuta* (Tonga gardenia / tongakatjiepiering) occurs mainly in the Maputuland Centre of Endemism. The sweet scented, white showy flowers with spreading lobes turn yellow with ageing. The calyx tube, about 2cm long, extends as a ribbed sleeve beyond the insertion of the lobes, another outstanding feature that sets it apart from other *Gardenia* species.

Preface

In stede regoor die wêreld word bome dikwels vir vanselfsprekende redes aangeplant, onder andere om temperature te verlaag en dit kan ook die lewe van padoppervlaktes aansienlik verhoog deur die verlaging van die padoppervlakte temperature, as gevolg van die skaduwee wat dit verskaf. Alhoewel die aanplant van bome baie meer voor- as nadele inhou, is die keuse van die regte spesie wat aangeplant word makliker gesê as gedaan. Praat jy met paddoppervlakte ingenieurs en stads-ekoloë sal jy gou agterkom hulle is deeglik bewus van die nadelige uitwerking en potensiële gevare vir motorbestuurders en voetgangers as gevolg van byvoorbeeld direkte boomwortelskade aan die oppervlak van voetpaaie en paaie in en rondom parkeerareas wat deur bome veroorsaak word.

This subject is extensively covered in Rooted Cities and Prof. Juanee Cilliers discuss the effects of increasing urbanisation and land-use decisions and how this impacted negatively on the natural environmental. It is clear that the environmental benefits of city trees contribute towards enhancement of biodiversity and from a social perspective city trees are facilitators towards enhanced access to and experience of nature, influencing human physical and psychological health and well-being and overall sustainability.

Francois du Randt takes the reader back in time some 280 to 265 million years ago when coal producing swamp forests where formed in South Africa. Super cycles of hot and cold periods are still continuing today and as we are moving into the so-called Anthropocene – The Human Epoch – which marks the start of the sixth massive extinction. We are constantly reminded of the alarming ways in which the beauty of landscapes and animals on our planet are being disturbed due to human impact.

Hardekoolbome is gewoonlik redelik groot en majestieuse enkelsstandige bome. Dit sal selde die dominante boom spesie in 'n gebied wees wat dikwels saam met maroela, witgat en 'n verskeidenheid van doringbome voorkom. Die yl blare van die hardekool, ligte grys growwe bas wat in vierkantige blokkies opbreek, die diep oorlangse skeure van bo na onder wat oopkraak maak die boom maklik uitkenbaar op 'n afstand. Prof. Braam van Wyk gee 'n interessante verklaring vir die verskynsel van bultende are op 'n hardekoolboom se stam.

Hiking is not only therapeutic, it requires equipment, training, donkey-like stamina and patience. 'Wild therapy' as I call hiking is a person's relationship with the natural world that becomes the medium though which this therapy is done and all without a cognitive effort at all. By definition, walking in nature gives one pleasure, it not only makes you feel better, likely less depressed, it also improves your physiology. Combine that with a love for dendrology and you are guaranteed to meet very interesting trees as discovered by Theunis Morgenthal.

A visit to Delville Wood in France reminds us of the cruelty of war and of the 3,153 men of the SA Infantry Brigade who entered the wood, of which only 780 were present after their relief turned up four days later who successfully defended the wood against 5,000 German troops, despite running out of food and supplies.

Happy reading, hiking and dendroing holidays!

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Combretum imberbe – Baltimore
Foto: Naas Grové

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LAYOUT / UITLEG:
www.ropelius.co.za

COVER PHOTO:
Naas Grové

PUBLISHER/UITGEWER:
Dendrological Society of
South Africa
Dendrologiese Vereniging van
Suid-Afrika

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ISSN : 1991-1539

Life on Earth

Do not borrow off the earth, for the earth will require its own back – with interest

Swahili proverb

For the human species, living with nature has always been a struggle. All living species have survival strategies, and the most successful have strategies that have proved to be the most resilient and adaptable at times of change. For example, the *Welwitschia mirabilis* plant can survive for very long periods without water in the desert and there are viruses and bacteria that not only survive but thrive in extremes of temperatures and / or pollution.

By contrast, modern human survival depends on a very narrow and limited range of environmental conditions. Without very basic everyday commodities such as water, food and shelter most will not survive for very long and polluted environments will certainly kill us. Because our basic needs must be met on a daily basis, human survival strategies, whether in a modern rich western city or in a poor African village are similar in that they are both concerned predominantly with the immediate future. Providing for human needs and minimizing the risks involved for survival in nature is usually a conflict for food or a battle against the elements. Human survival strategies are planned not over decades or centuries but until the next harvest – or the next election. We all know too well we are in the eye of the storm of massive change: from magnetic pole shifts to earthquakes, from volcanoes to tsunamis, from nuclear damage to radioactive fallout, from drought to over population, poverty, inequality and urbanization. So, the question is: how will we survive and respond to all these changes?

We can trace our ancestors back to ˜200 000 years and then the earth was in an approximately steady state of vast range of species and covered with forests, grass plains, deserts, lakes, rivers, oceans (including coral reefs), plants, animals and insects. Periodically weather patterns would change from drought to a flood and it would return, within a reasonable time, back to the normal weather pattern.

Today this has all changed. Most human beings in the modern world lives in its own world and does not easily associate with others. This has led to societies that have more discontentment and hatred. Droughts and floods have always happened but because of the impact human beings have had on the globe over the last 100 years or so, we have experienced more drought in some places, more precipitation in others. This phenomenon is escalating and as a consequence of this there is no way the globe can sustain the current human population. For survival we need food, and radical changes must be made to grow food that does not continue to destroy the globe.

Most humans and social institutions may respond to these environmental changes as it is experienced (*post facto*) or because of increasing scientific knowledge on a rational basis as anticipated responses. Constant change means that both living and dead matter is forever being rearranged all over the face of the earth. Nothing ever disappears, it is only moved to somewhere else or converted to something else. A growing tree harbors many living creatures whose droppings will help it grow… someone fells the tree, burns it, the smoke settles kilometers away, the ash is dug into a garden to grow vegetables which are eaten, so we die, are buried, someone plants a tree above the grave and the tree grows…and the cycle of life is repeated. In the cycle of life on earth everything is connected to everything else. In a never-ending cycle of birth, death and rebirth there is this continuous replenishment and renewal. For three billion years life on earth has survived natural disasters, both from its molten interior and from outer space. Over time the whole has maintained its equilibrium, crucial stability and balance. Life on Earth as we know it - if we would only leave it alone to look after itself - could continue for as long as the sun's life expectancy is – another 4.5 – 5.5 billion years!

Naas Grové

President
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Natural abilities are like natural plants; they need pruning by study

Abhi Sharma

fokus
focus

Ancient swamp forests

Francois du Randt

The newcomers in dendrology may find the scientific names difficult and mind-boggling, but look at these names, *Scutum leslii, Gladiopomum acadarense, Ottokaria transvaalensis, Rigbya arberioides, Lidgettonia natalensis, Dicroidium odontopteroides* and *Noeggerathiopsis hislopii*, all ancient *Gymnospermae* and *Glossopterids*.

These were coal-producing swamp forests which thrived in the cool, post-glacial, fluvial-deltaic settings along the northern and eastern margins of the large, shallow, Karoo Sea in the Permian Period, 280 to 265 million years ago. Today they became South Africa's important energy given coalfields and *Glossopteris* floras.

A typical impression of what these ***Glossopteris*** forests looked like in a retreating glacial valley

We know this knowledge from the rich South African fossil heritage, where the energy from the sun was stored in ancient swamp forests all over the Karoo by the process of photosynthesis, producing life-giving oxygen. These forests produced peat formation from their fallen leaves. The buried peat was converted to coal, our fossil sunshine and cheap energy sources.

If layers of peat are protected from oxidation and covered over with sediments and buried, the peat is gradually transformed into hard coal. Burial leads to compaction, dewatering and increased geothermal heat and pressure, causing progressive changes.

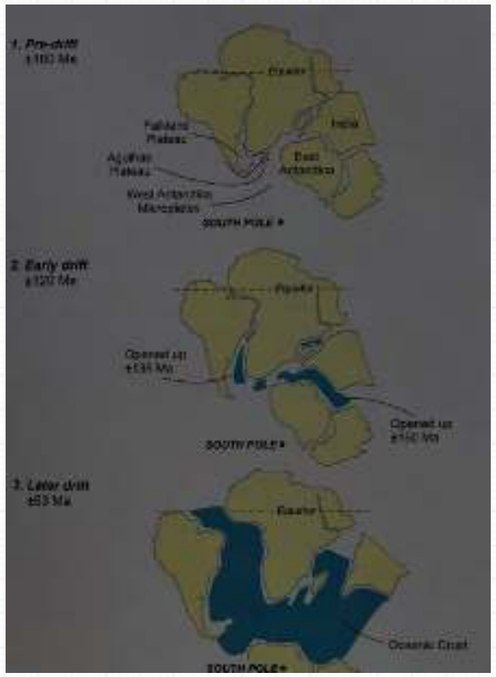
Coal is the main source of energy in Southern Africa, whether in huge megawatt power stations that burns tens of thousands of tons of coal, or humble domestic fires burning anthracite. It is a very important export earner for South Africa, most of the country's high-quality coal being shipped out through the Richards Bay Coal Terminal in KwaZulu-Natal.

The major coalfields in South Africa are centred in an arc extending from Vereeniging in the west, through Grootvlei, Delmas, Witbank, Middelburg, Belfast and into northern KwaZulu-Natal. Large deposits are also found in the Springbok Flats, Waterberg, Lephalale (Ellisras) and Soutpansberg areas. These were the northern and eastern margins of the extensive Karoo Sea, 280 million years ago. The giant open cast coalmines, which are industrial scars on the landscape, and ecological disasters, are in fact, spectacular geological heritage and paleontological wealth, a window in the past.

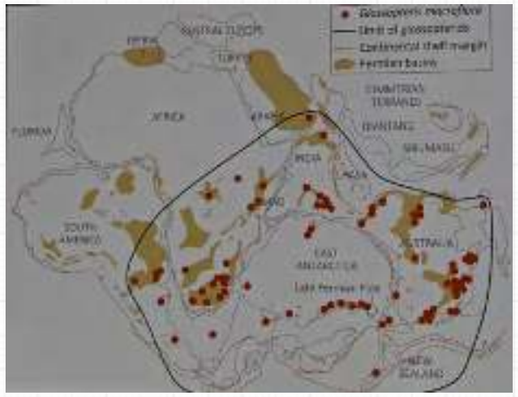
Gondwana during the Carboniferous Period, 360 million years ago

The Carboniferous Period was characterized by the formation of carbon and coals, also with the appearance of the first land reptiles and Permian herbivores. Gondwanaland consisted mainly of Africa in the centre, bordered by South America, the Falklands, Antarctica, India, Madagascar, Australia and New Zealand. Gondwana moved over the South Pole, 360 million years ago, forming vast ice sheets. It was called the Great Ice Age of the Permo-carboniferous Period. The thick layer of glacial sediments melted with the deposition of the Dwyka tillite, and the Karoo Geological Sequence started with the various (very interesting) deposits, Dwyka tillite, Ecca shale's, Beaufort Series and Stormberg Series (Molteno, Elliot & Clarens Formations). This formed about 65% of South Africa.

Peace on Earth was disrupted 200 million years ago with severe tectonic movement and extensive lava eruptions, causing major volcanic basalt upliftment (to form the Drakensberg and Lebombo Mountains) and the start of the break-up of Gondwana.



Gondwanaland Continental Drift

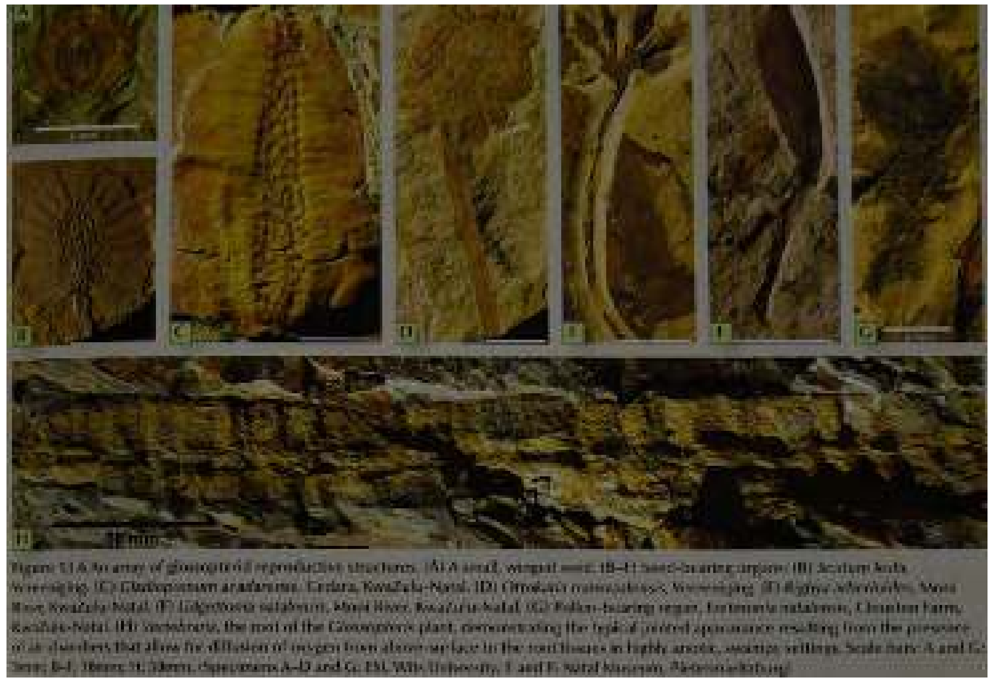


Glossopteris in Gondwanaland

Large evergreen and deciduous trees in forests covered the shallow sea, after the glacial sediments melted across the Karoo basin of South Africa. The prove lies in the continuous fossil records, not only of Glossopteris leaves, but also of insects and other animals. There are beautiful fossil records in Karoo National Park.

The Glossopteris macro flora covered all the areas marked with red dots on above (and below) map of Gondwana, before brake-up. The first leaves were described in India in 1828, and Stephanus le Roux recognized seed-bearing organs in 1940 in South Africa in a brick quarry at Vereeniging. Prof. Edna Plumstead confirmed that these plants were mostly primitive Gymnosperms with naked-seeds.

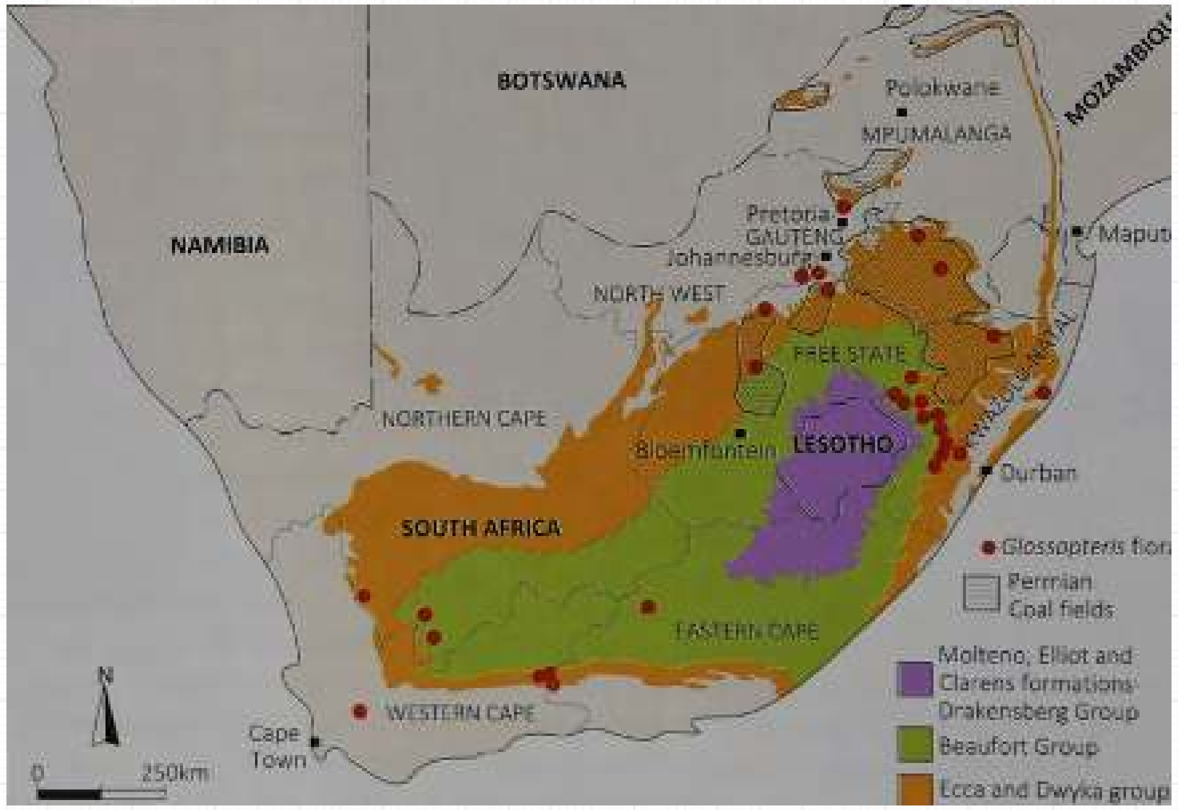
We know that there were large trees because of many fossilized tree trunks in the Permian deposits. These trees had roots, called Vertebraria, with air chambers and a distinctive jointed appearance, adapted for the swampy, anoxic ecosystems. Other plants in these Permian ecosystems were mosses, lycopods, ferns, like *Botrychiopsis* and *Sphenopteris lobifolia*, and early ginkgo's. Swampy areas were also dominated by stands of reedy horsetails.



Some ***Glossopteris*** leaves

Petrified ***Glossopteris*** tree trunks, with visible year rings below

A typical ***Glossopteris*** swamp forest



The ***Glossopteris*** habitats in South Africa (red dots)

Although vast *Glossopteris* forests rein Gondwana ecosystems for over 50 million years, they did not linger long into the Early Triassic. They involved in the post-glacial landscapes following the Great Ice Age, but were apparently unable to keep pace with the rapidly warming climate. There are several petrified plants and tree trunks in Karoo National Park. These were the woodlands of *Glossopteris* and other trees bordering riverine areas in the Late Permian period.

Petrified tree trunks preserve fine details of the original wood. This was completely replaced by silica following rapid burial within sediment, e.g. after major floods. Clear annual growth rings show that these trees grew in a highly seasonal climate. Growth was rapid in the warmer, wetter seasons, but slowed to a halt during the long, dark winters, or periods of drought when *Glossopteris* shed its large, tongue-shaped leaves. Rotting plant debris created a chemically reducing environment within porous sandstones at the base of river channels.

Minerals of uranium (green in colour) and copper (blue in colour) were precipitated locally from circulating groundwater. Several potentially valuable deposits of uranium ore occur in the Beaufort-West area.

Some of the Late Permian inhabitants were *Brachysaurus* (the first herbivore, known as the Late Permian rhino's), *Therapsids, Moschops* (*Dinocephalians*), *Dicynodonts* (the ultimate Permian herbivores), *Diictodon, Oudendon, Rhinesuchus* and *Gorgonopsians* (like *Lystrosaurus* and *Thrinaxodon*). Before the Permian period all terrestrial vertebrates were entirely carnivorous. *Therapsids* were not dinosaurs. *Therapsids* thrive for 50 million years before dinosaurs appeared and they were the direct ancestors to modern mammals and humans. Dinosaurs were more related to reptiles, like crocodiles, long after the Permian period. They gave rise to mostly birds.

Almost the entire fauna of the Karoo were wiped out by an ecological catastrophe at the end of the Permian period, 251.4 million years ago. Severe global warming and a long-lasting drought with the disappearance of the *Glossopteris* flora, and an almost empty world followed this! *Glossopterids* became extinct during the greatest turnover of ecosystems in Earth's history! A few lucky fauna survivors in the early Triassic period were *Lystrosaurus*, a hippo-sized *dicynodont* that dug burrows to survive, and *Thrinaxodon*, small weasel-like carnivorous *therapsids* that could have been warm-blooded.

By the Middle Triassic, a completely different flora graced the super continent (Gondwana), typified by the seed fern, *Dicroidium odontopteroides*, and reflecting an explosion in gymnosperm diversity, as captured in the astonishingly rich fossil record of South Africa's Upper Triassic Molteno Formation.

These super cycles of hot and cold periods are still continuing today, with our planet just moving out of the last Ice Age between 18 000 years and 11 700 years ago. We are moving towards the sixth mass extinction, when Mother Earth will be so hot that nobody, or nothing, will be able to survive. We already see the growing, and alarming, extinction of plants in Southern Africa, and one does not have to look much further than the pristine fynbos of the South Western Cape and the very sensitive microhabitat of the Maputaland Sand Forest.

Amazingly fascinating is to think that our total human existence is only a mere few seconds on this geological clock!

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4. FOSSIL RECORDS on the Fossil Trail at Karoo National Park.

The *Welwitschia mirabillis* is a living fossil and close relatives of this plant went extinct in the middle Cretaceous period about 110 million years ago. The plant is a monotypic genus (only one species in the family) from gymnosperms plants that do not produce flowers.

Rooted cities: Considering the value of city trees from a spatial perspective

Prof Juanee Cilliers
Urban and Regional Planning, Unit for Environmental Science and Management, North-West University, 2520

The landscape, in natural and artificial context, constitutes a significant construct in an urban identity (Oktay & Bala, 2015:203). The essential role of the natural landscape within broader spatial planning approaches, dates back to 1930 with Ebenezer Howard's first Garden City, 1933 with Le Corbusier's Radiant City, and to 1785 with Frank Lloyd Wright's Broadacre City (Timmermans et al., 2015). Recently, the increasing levels of urbanisation across the globe have underscored the significance of the natural landscape in terms of urban identity, distinctiveness and meaning (Cheshmehzangi, 2015:395). Increasing urbanisation in has, in this sense, brought along a rapid change in urban environments (Kaymaz, 2013:739). Potchefstroom, a small town in the North-West Province of South Africa, is one such example where increasing urbanisation and land-use decisions impacted negatively on the natural environmental. Research conducted in 2018 (Demacon, 2018) considered the residential areas in close proximity (2.5 minutes' drive time) to the North-West University (refer to Figure 1).

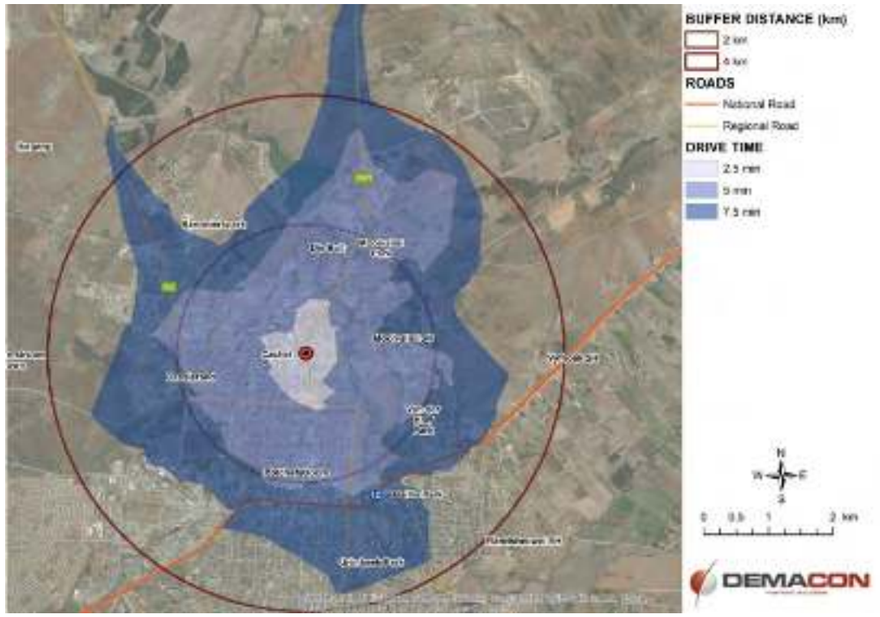

Figure 1: Potchefstroom case study area to evaluate the environmental impact of land use decisions
Source: Demacon (2018)

Household densities were considered and a densification trend was identified where low density residential units were rezoned to Residential 3 of Residential 4 permitting to 2 to 6 storey apartment buildings in the respective area. These land-use decisions supported objectives of economic development within the area, but brought along high density residential areas (refer to Figure 2).

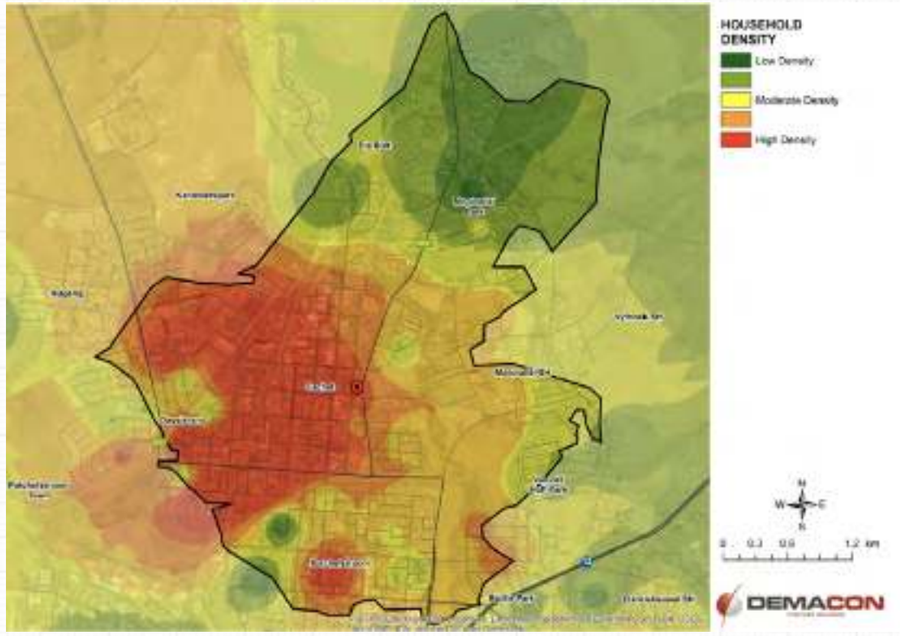

Figure 2: Potchefstroom case study household density
Source: Demacon (2018)

A qualitative analysis of the high density areas was conducted by using aerial photography, to determine the impact of the change in household density from 2013 to 2017. The analysis illustrated a decline in natural spaces and city trees in areas where density was increased (refer to Figure 3 and Figure 4).

Figure 3: Potchefstroom case study land-use change 2013-2017, area 1
Source: Demacon (2018)

Figure 4: Potchefstroom case study land-use change 2013-2017, area 2
Source: Demacon (2018)

The impact of urbanisation and economic-driven land-use decisions was evident in the qualitative analysis. This research aligned with national and international trends on declining natural spaces in the urban context, and disappearance of city trees to make space for residential and commercial developments within cities.

However, with increasing populations and densities, came compounding environmental problems, up to such point where green spaces and city trees are now recognised in terms of their paramount influence in the urban landscape (Bassett, 2015:1), owing to their particular structure and spatial function (Edalatkhah et al., 2012:143). The increasingly influential role that city trees play within the broader urban planning context and within contemporary cities are being recognised (Cilliers & Cilliers, 2016). 'New physicalism' and 'ecological urbanism' (Mostafavi & Doherty, 2010) are gaining importance in the academic discourse considering the linkage between cities and their natural landscapes, referring to the benefits that such cities trees provide to their host cities and communities.

The environmental benefits of city trees are the common point of departure for building a case towards urban greening. The most vital environmental benefit derived from city trees is the enhancement of biodiversity (Cilliers et al., 2013), and related ecosystem services that provide a myriad of services to human societies (Stiles, 2006:30). The Millennium Ecosystem Assessment (MEA) of 2005 and TEEB (2011) divided ecosystem services into four categories, namely provisioning services (e.g. food, medicine, water, raw material such as rubber, latex and plant oils), regulating services (e.g. climate regulation, air quality regulation, carbon sequestration, moderation of extreme events, water purification, erosion prevention, pollination and biological control, habitat or supporting services (e.g. species diversity, habitat diversity and genetic diversity) and cultural services (e.g. recreation, mental and physical health, aesthetic appreciation, social cohesion, spiritual experience and sense of place). These categories and implementation thereof is well documented and part of the urban ecology literature, but as correctly stated by Niemelä et al. (2010), is often not 'basic knowledge' for City

Planners and other land use decision-makers. To enhance environmental benefits of city trees, planners and authorities need to understand the science of city trees and include city trees as part of public furniture planning. City trees need as much space underground as above and should be taken into consideration when designing public spaces.

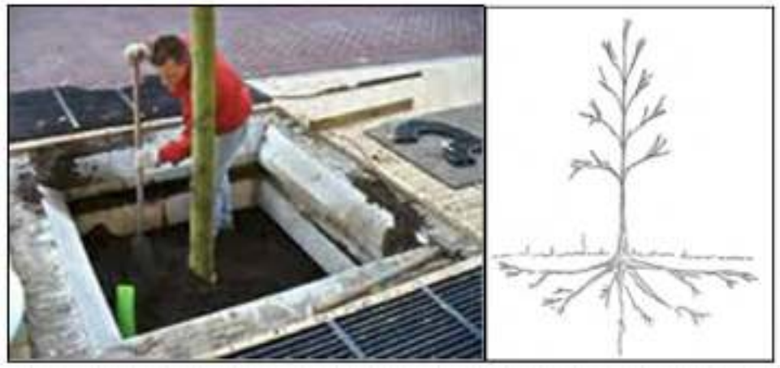

Figure 5: Planning to enhance environmental benefits of trees through provide adequate space
Source: Cilliers et al. (2012)

When planning for city trees, planners and authorities need to comprehend the ecological functioning of city trees and possible factors that could impact on the functioning of the ecosystem services provided by trees. The Scientific Reports journal published a study in 2017 that identified how urban climate might be one such factor to impact city trees. Researchers considered 1400 trees in different climate contexts across 10 world cities and illustrated how higher urban temperatures led to longer growth periods in trees. Longer growth periods resulted in faster maturing trees, suggesting that increased temperatures ultimately decrease the lifespan of city trees and impact on the ecosystem services provided by these trees. It is also important that planners and authorities understand that city trees offer services, but in some cases also have disservices. "The same natural functions and structures that provide beneficial services in urban areas can also be responsible for detrimental disservices" (Von Döhren & Haase, 2015). These disservices include aspects such as damage to infrastructure by tree roots or falling branches, social nuisances such as allergenic pollen, poisonous plants and safety hazards from tree fall; introduction of invasive species and the production of volatile organic compounds which decreases air quality (Escobedo et al., 2011; Von Döhren & Haase, 2015) to mention a few. Both ecosystem services and disservices of city trees therefore need to be considered (Lyytimäki & Sipilä, 2009) to draw conclusions with regard to the environmental benefits of city trees.

From a social perspective city trees are facilitators towards enhanced access to and experience of nature, influencing human physical and psychological health and well-being and overall sustainability (Stiles, 2006:32). Social benefits of city trees in the urban fabric are linked to enhanced community cohesion (Ulrich and Addoms, 1991), aesthetic values (Kong et al., 2007), recreation opportunities (Tyrvainen and Miettinen, 2000), qualitative living environments (Caspersen et al., 2006), and positive assimilation of values and moral attitudes (Sutton, 2008). Human health and mental health are also part of the social benefits provided by city trees, along with psychological restoration (Van den Berg et al., 2007:1) and other psychosocial benefits (Kuo, 2003; Roger, 2002) such as stress relief (Hansmann et al., 2007) and enhanced urban liveability (Caspersen et al., 2006). In a city planning context, where healthy ecosystems are promoted as the foundation of sustainable cities (TEEB, 2011:1), cities should depend on, and enhance, the natural environment and city trees as valuable natural assets in the built environment. City branding is continuously being linked to nature-based solutions where city trees, amongst others, play a valuable role in the branding of a place, as evident from the Oak lane in Potchefstroom, that lies embedded in the identify of this town, illustrated in the following figure.

Figure 6: Aesthetic benefits of city trees to create space identity in Potchefstroom
Source: Google Maps (2018)

From an economic perspective, the price of environmental quality is determined by using methods such as willingness to pay, travel costs, advertising costs, direct monetary damages, the household production approach, or some combination of the above (Brasington and Hite 2005: 4). Other methodologies have placed attention on the impact of green infrastructure and city trees on property values (Goffette-Nagot et al., 2010). Other common qualitative evaluation methods include the market price method, damage cost avoided, replacement cost or substitute cost method, contingent valuation method, contingent choice method, benefit transfer method, productivity method and the most familiar hedonic pricing method. These approaches and methods try to translate value to monetary terms (Gómez-Baggethun & Pérez, 2011: 613) to emphasise green-value and not to put a price tag on the environment (Korsgaard & Schou, 2010). Following this approach, the Ecological Modelling journal captured research conducted on 10 mega cities and illustrated how these cities can save up to 505 million dollars per year by planting urban trees.

These savings were derived from decreased air pollution, decreased costs relating to storm water management and soil erosion, decreased energy costs and decreased carbon sequestration. On the other hand, financial gains were evident in terms of increased property values due to proximity to city trees, and 2% to 4% energy savings per household, in cases where city trees were planted strategically to counter wind or sun.

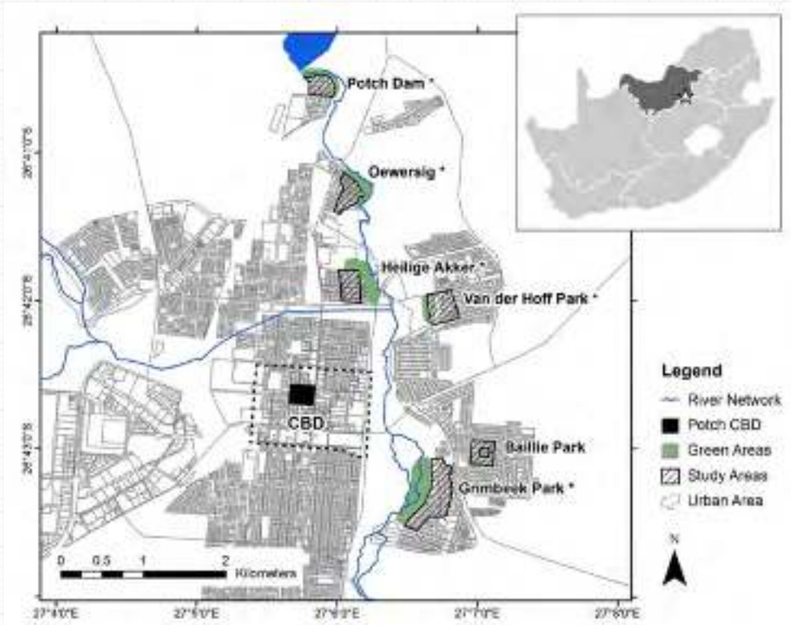

Figure 7: Location of green spaces in proximity to residential areas
Source: Cilliers and Cilliers (2015)

Various online portals now quantify the value of trees in an attempt to sensitize authorities and community about the importance of such trees in the urban fabric, considering the specific city, the type of tree, and the trunk diameter. Such research, based on the economic valuation of city trees, could sensitise planners, policy makers and also the general public to realise the value of these natural assets (Defrancesco et al., 2006) and encourage city governments to embed sustainability thinking into city planning. Provided that the information is packaged appropriately, these numbers can also build a good economic case for environmentally beneficial legislation (Rodriguez, 2009) and the planning and management of city trees (and green infrastructure) within cities. Purposefully selected residential areas in Potchefstroom were considered to determine the impact of the green space and city trees on the overall neighbourhood value. These included areas (refer to Figure 7) were ranked according to the average property price per square meter of the area (Cilliers et al., 2013) and the ANOVA and Kruskal-Wallis analyses (Cilliers and Cilliers, 2016).

The impact of green spaces and city trees on the neighbourhood were evident, especially in cases where public had recreational opportunities in close proximity, and where the spaces were maintained, thus implying function- and use-values. The neighbourhood with the highest average property value also illustrated the most perceived uses and ecosystem services. The neighbourhood with the lowest average property values had, simultaneously, the least perceived uses and ecosystem services. The case study identified that more use-values and ecosystem services a green space or area comprising of city trees provide (collectively), the greater the positive impact on the neighbourhood (in terms of economic value) will be.

City trees forms a significant part of quality of life in cities (ELC, 2012:3). The role and importance of city trees should, in this sense, not be underestimated, but enhanced through a transdisciplinary planning approach, emphasising these benefits as captured in Table 1.

Table 1: Benefits of city trees from a spatial planning perspective

Category	Green values	Application in future planning approaches
Economic benefits	Enhanced tourism	Natural corridor and transport linkages should be explored to create favourable cities which could attract more tourists and investors
	Increased trading	Planning approaches should aim to create a unique selling point through city trees which could result in increased trading and economic growth
Social Benefits	Attractiveness	Revitalisation initiatives focussing on city tree solutions should be explored to increase attractiveness and community cohesion
	Sense of place	Visual attributes enforced by city trees should be integrated into planning and design to enhance the feeling and perceptions of the place
	Health benefits	Health agenda in urban areas to be enhanced by adequate planning and maintenance of city trees in line with improved mental health and wellbeing
Environmental benefits	Fertile soil	The importance and value of city trees as component of the natural landscape should be realised and protected despite the development pressures and urbanisation forces present in cities
	Countering climate change	Exploring city trees as carbon sink and introducing city trees as low-carbon options for building and energy
	Moderating temperature	Introducing city trees to address the urban heat-island effect in growing urban areas
	Greening initiatives	Green tree corridors should be an integral part of broader regional planning approaches to protect the green identity in cities
	Green infrastructure	City trees should be considered as part of a broader vision to enhance green infrastructure across scales and boundaries.

Source: Adopted from Forestry Commission England (2010), Cilliers and Cilliers (2016)

Supplementary to enhancing the benefits of city trees within the urban context, the successful management of urban trees should be supported by:

- Emphasising the role of the public as direct benefactors and raising awareness about the value and role of city trees within the broader spatial fabric.
- Supporting ecological productivity and social importance of city trees through adequate planning and design guidelines.
- Including city trees as crucial component of broader spatial planning infrastructure in line with sustainability and resilience objectives.

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Ondergrondse Bome?

Hans Vahrmeijer

Gifblaar

Plante is baie goed aangepas om feitlik oral op die aarde te groei. Die meeste groen plante groei in die sout seewater as alge, ander weer bo-op of binne-in die vars water van mere en riviere. Die meeste landplante leef met hul wortels in die grond en met hul ander dele in die lug. Ander plante leef geheel in die lug, met hul wortels bo-op die takke van ander plante (epifiete) of met hul 'wortels' parasities binne-in die takke ingeënt is soos voëlent

Gifblaar is een van verskeie hout-agtige geofiete waarvan die grootste gedeelte van die plant onsigbaar en relatief onbekend onder die grond leef. Meeste van ons het al gehoor dat gifblaar (*Dichapetalum cymosum*) ''...soos 'n boom onder die grond is waarvan slegs die klein takkies met blare bo die grond uitsteek.'' Dit is seker nie in alle gevalle dat die ''silhoeët'' met dié van 'n bo-grondse boom ooreenstem nie. Wat wél waargeneem is, is dat gifblaar 'n geweldig uitgebreide ondergrondse 'stam' of wortelsisteem het wat reeds tot 30m diep uitgegrawe is, terwyl die 'stam' steeds dieper afgedaal het. In Zimbabwe is een in 1947 volledig uitgegrawe waarvan die 'kroon' 30m in deursnee was, en die 'hoofstam' 13m diep.

Daar is ‘n hele aantal hout-agtige plante, sommige van hulle bekende bome soos Lekkerbreek (*Ochna pulchra*), verskeie *Pachystigma* en *Pygmaeothamnus*-soorte, ook bekend as gousiekte- en goor-appels van die Rubiaceae wat die vermoë besit om hul bo-grondse habitat om te ruil vir ‘n ondergrondse leefwyse wanneer toestande moeilik word vir bo-grondse oorlewing. Lewe onder die grond is totaal anders as lewe in die vrye lug daarbo, en plante moet hulle spesiaal aanpas by die ‘nuwe’ omstandighede. Die bas van die hout-gedeeltes word dikwels verander na kurk-agtig om die gedurige teenwoordigheid van grondwater te kan hanteer, wortels verminder en meer ‘lentiselle’ word gevorm om water en suurstof in ‘n suurstof-arme omgewing direk op te neem. Die grond hou die hele plant ‘regop’ en oormatige hout verdwyn, terwyl die plant meer die groeivorm van ‘n klimplant aanneem. Uiterste koue of hitte pla nie meer nie want die grond-temperatuur wissel egalig en eenvormig tussen winter en somer-uiterstes, jaar-in en jaar-uit dieselfde patroon. Só kon hulle self in die verlede die verskillende ystydperke oorleef. Voorwaar ‘n ideale omgewing. Hierdie ‘ondergrondse bome’ is nodig om son-energie dmv voedsel na die kleiner diere, insekte, wurms en mikro-fauna wat diep in die grond lewe, oor te dra.

Ook sien ons dat geweldige hoeveelhede stysel in die ondergrondse dele opgeberg is, meer as genoeg om die plant vir etlike duisende jare, eintlik onbeperk van voedsel te vooorsien. Wanneer ons die uiters stadige vegetatiewe groeitempo van die ‘ondergrondse bome’ bepaal, sal tot die gevolgtrekking gekom word dat hierdie plante as die oudste lewende wesens op aarde gereken kan word. Elke 10cm lengte van die ondergrondse dele van Gifblaar bevat 29 groeiknoppe waaruit verdere dele met groeiknoppe en bo-grondse takkies kan spruit. In beginsel kan hierdie ondergrondse boom dus duisende jare reeds bestaan en steeds nog duisende jare in die toekoms kan groei.

Dit is nie sonder goeie rede dat die baie dun grond-kombersie van die aarde die skeppings-materiale was van al die geskape lewe op aarde nie. Saam met die dieptes van die oseane is die grond-habitat seker van die onbekendste plekke op aarde en menige wesens en dinge wag nog om ontdek te word.

Baie van die somer reënvalgebied se geofiete, dié met bolle en knolle soos die klien struikie, *Elephantorrhiza elephantina* met sy reusagtige ondergrondse stamme, wag nie vir die eerste reëns voor hulle uitloop nie. Hulle somer-groeiseisoen word aan die gang gesit deur grondtemperatuur wat vanaf winter- na somer-temperatuur beweeg. Hierdie ‘sneller-temperatuur’ aktiveer die geofiete baie vroeg in die seisoen sodat hulle voor die gewone plante reeds groen is. Hierdie vroë plante word die ‘‘Lente-flora’’ genoem. ‘n Belangrike komponent van die ‘‘Lente-flora’’ is die relatief groot aantal giftige plantsoorte wat dit bevat. Hulle rol in die ingeskape beskerming- en bewarings-meganisme van die natuur, is die vermindering van beweidingsdruk op die veld deur die vergiftiging van diere wat ná ’n lang droë winter deur die liggroen, vars kleur in die weiding aangelok word. Dikwels is dit uiters moeilik, selfs vir kundige kenners, om tussen giftige en onskadelike plante in die ‘‘Lente-flora’’ te onderskei.

Vee-diere wat uit Europese rasse afkomstig is, is veral aan vergiftiging deur inheemse Afrika-plante blootgestel vanweë gebrek aan oorgedraagde kennis vanaf hul voorgeslagte. Daar is egter bome wat die teenwoordigheid van hierdie gifplante met ‘n goeie mate van sekerheid aandui. Hulle word die ‘‘Indikator-bome’’ genoem , o.a. *Burkea africana, Ochna pulchra* en *Terminalia sericea*, is maklik sigbare plante wat die soms klein gifplante uitwys.

Die algemene begrip ‘‘boom’’ hou dalk meer in as wat ons oor die algemeen aanvaar. Daar is tog onopgeloste vrae oor hoe lyk die onsigbare bome wat onder die grond groei, is die dik veselrige ‘stam’ van tot 3m lank en tot 50cm in deursnee van die geofiet *Tylosema esculentum* nie dalk ‘n boom nie? So is daar verskeie ander kandidate wat ook hul ‘‘vinger in die lug steek’’.

Treading across the canopies of very big, very old trees

Elephantorrhiza elephantina – eland’s bean, elephant’s root / baswortel, elandsboontjie, leerbossie, looiersboontjie, olifantswortel

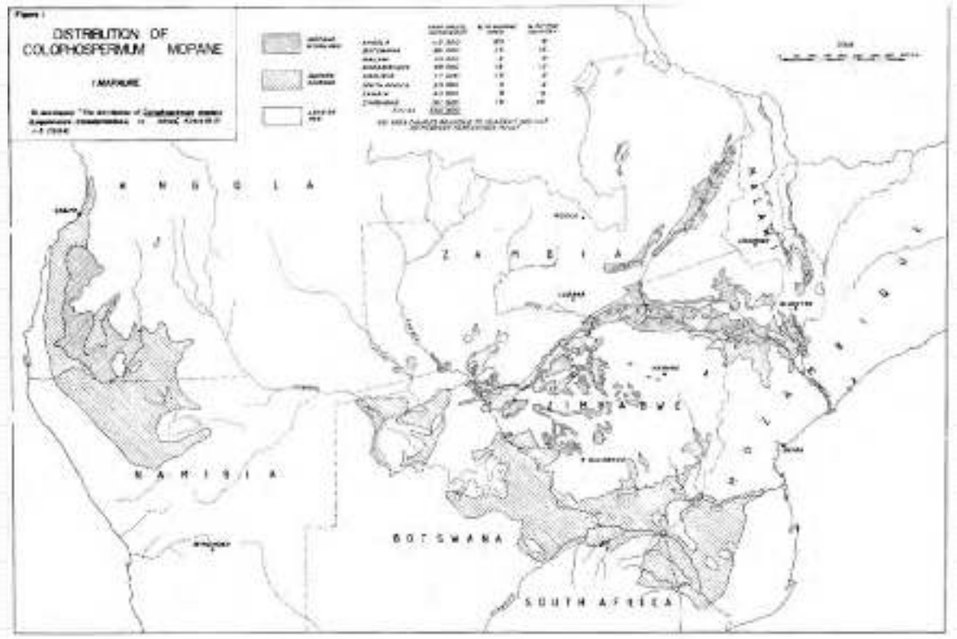
The most southwestern mopane trees in South Africa?

Naas Grové

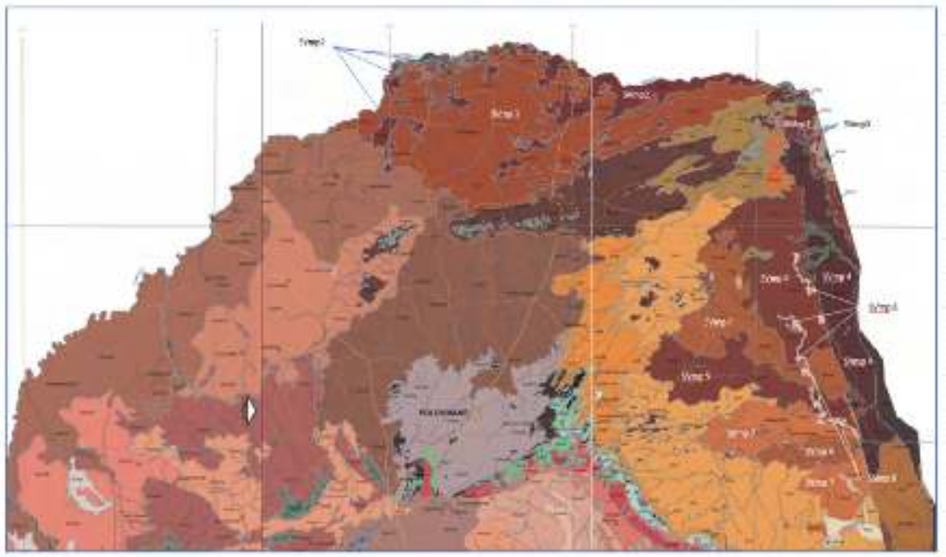
The mono-specific genus *Colophospermum mopane* (mopane) is one of Africa's most remarkable trees. The genus name *Colophospermum* is derived from the Greek word meaning 'oily seed', referring to the turpentine smell of the oil contained in the seeds. The species name is derived from the SeTswana name phane for the tree. Mopane is a xeric species and grows widely across the savanna woodland zone of southern Africa and covers approximately an area of 550 000km² between latitudes 9° S and 25° S. It occurs naturally in parts of Namibia, South Africa, Zimbabwe, Zambia, Mozambique, Malawi and Angola. It can be a dominant tree in the main river basins on overloaded nutrient clay-rich soils in some parts of the region or stands comprising stunted shrub-like trees of comparatively even size in drier areas. These trees can also tolerate alkaline and poorly drained and temporarily waterlogged soils. Distinctive adaptations contribute to the shallow rooted mopane woodlands being the dominant species across the basalt plains and undulating landscapes north of the Soutpansberg, in low-lying frost-free areas close to the Limpopo River.

In South Africa the tree is restricted to the Limpopo and Mpumalanga Provinces within an altitudinal range of 300 – 1 000m with an annual rainfall 0f ˜400 -700mm with a long dry season. The mean maximum temperature is about 30°C in summer. A large mopane belt lies between the Limpopo River valley and the Soutpansberg range at an altitude of ˜400 – 700m, with an annual rainfall of ˜ 250 – 400mm. Another belt occurs in the Kruger National Park in the east along the Lebombo range and stretches down as far as Arconhoek in the southeast where the annual rainfall is > 400mm. The Soutpansberg forms a definite southern border of mopaneveld and the southern-most limit of mopaneveld in South Africa is south of the Olifants River in the Kruger National Park.

The distribution in South Africa is mainly influenced by latitude, rainfall and soil type, all affecting the general appearance and growth form of the species. The soil structure will determine whether mopane develops into dense thickets and pure stands of either fully fledged trees or multi-stemmed shrubs. Mopane occurs in alluvial soils and also in Kalahari-sand but thrives in alkaline (high lime content) and poorly drained and temporarily waterlogged soils. Most xerophytic plants have an extensive shallow root system which will absorb most of the salt-rich water and calcium in a short space of time. The roots are adapted to arid conditions and can take up water much better from drier soil than competing grasses and other trees. This leads to complete impoverishment of the soil, rendering the soil unsustainable for any grass, shrubs or other trees. The shallow root system enables the tree to take advantage of maximum water retention and nitrogen near the surface zone.



Distribution map of ***Colopospermum mopane*** (Mapaure, 1994)



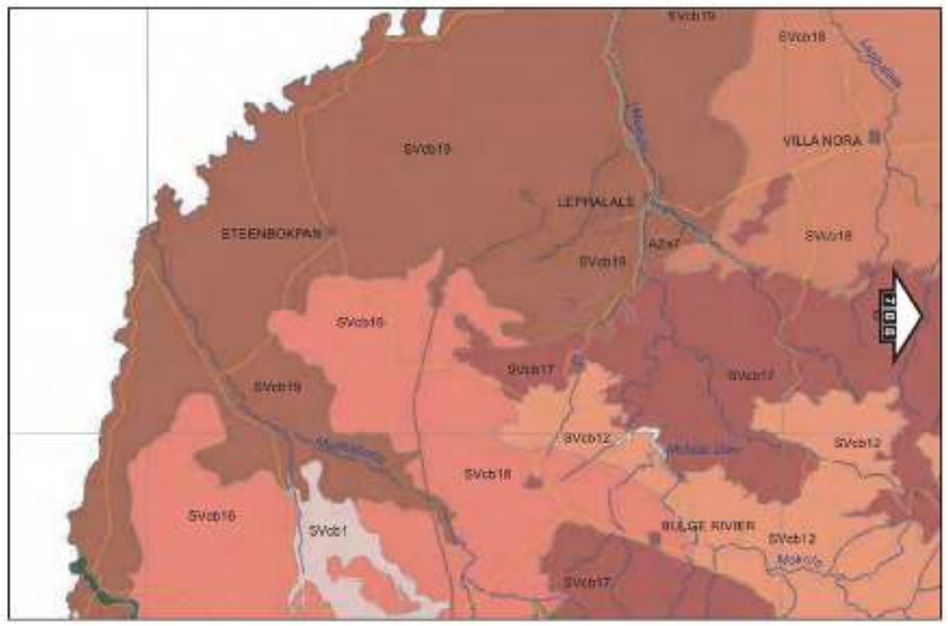
Mopaneveld distibution in South Africa: Rutherford & Mucina, 2006

According to Rutherford & Mucina (2006) there are eight different mopane bioregions located in South Africa. Below is a summary of these.

Mopane Bioregion Description		Distribution	Altitude	Climate
	SVmp 1 Musina Mopane Bushveld	Limpopo Province. Most diverse, mopaneveld type in South Africa. High species richness. In the west, north of the Soutpansbeg and south of the Limpopo River, undulating plains around Baines Drift & Alldays, through Musina, Tsiphise, Malongavlakte, Masisi and Banyini Pan is the east	300m in eastern Limpopo Valley – 800m	Summer rainfall 300 -400mm / annum. Dry moderate winters, generally frost-free. Mean average temperature – 20.9° C
	SVmp 2 Limpopo Ridge Bushveld	Limpopo Province. In the west in the Mogalakwena River basin, on the hills and ridges in the Pontdrift area, including Poortjieberg and Tolwe, eastwards, including Mapungubpwe National Park towards the Limpopo River and further downstream. Also including the hills away from the river north of the Soutpansberg and east of the Sand River and also northern Kruger National Park	300 – 700m with the top of the hills in the west around 1 000m	Summer rainfall, 300 – 400mm / annum, very dry frost-free winters Mean average temperature – 21.7° C
	SVmp 3 Cathedral Mopane Bushveld	Limpopo Province. Limited area in Kruger National Park on the flats east of Punda Maria Gate. Extends northwards in the upper Madzaringwe River Valley and in the Shilahlandonga River Valley to the east	300 – 500m	Summer rainfall, 400 – 500mm / annum, very dry frost-free winters Mean average temperature – 22° C
	SVmp 4 Mopane Basalt Bushveld	Limpopo and Mpumalanga Provinces. Occurs in a large belt on the plains in the Kruger National Park from around Klopperfontein in the north, southwards and east of the Lebombo Mountain range through the Shingwedzi and Letaba Rest Camps areas to the vicinity of Olifants and Roodewal Rest Camps in the south	200 – 450m	Summer rainfall, 400 – 600mm / annum, very dry frost-free winters. Mean average temperature – 22° C

Mopane Bioregion Description		Distribution	Altitude	Climate
	SVmp 5 Tsende Mopaneveld	Limpopo Province. Main area occurs on undulating terrain west of the basalt plains from the Mpolongo River and Sirheni Bushveld Camp area in the north, southwards across the Shingwedzi River and include Malumelele outside the KNP through the upper Tsende River catchment area to around Mopani Camp in the south. Another belt occurs further south around Hans Merensky Nature Reserve in the west to the vicinity of Letaba Rest Camp in the east as well as a narrow strip immediately to the east of the basalt plains as far as the Shingwedzi River area	300 – 550m	Summer rainfall, 450 – 650mm / annum, very dry frost-free winters Mean average temperature – 21.7° C
	SVmp 6 Lowveld Rugged Bushveld	Limpopo and Mpumalanga Provinces. Broken veld southeast of Giyani in the west to Shimuwini and Boulders Camps in the east as well as rugged area of the Olifants River valley south of Phalaborwa, from Grietjieberg in the west to the Maveni River tributary in the east	250 – 550m	Summer rainfall, 400 – 600mm / annum, very dry winters, frost sometimes occurs in low-lying areas Mean average temperature – 21.6° C
	SVmp 7 Phalaborwa-Timbavati Mopaneveld	Limpopo and Mpumalanga Provinces. Occurs in a strip 40km west and east of Phalaborwa and also south of the Olifants River on the boundary between the Kruger National Park and the Timbavati Game Reserve, including parts of the Umbabat & Klaserie Nature Reserves	300 -600m	Summer rainfall, 400 – 600mm / annum, very dry winters, generally frost free. Mean average temperature – 21.2° C
	SVmp 8 Mopane Gabbro Shrubland	Limpopo and Mpumalanga Provinces. Narrow irregular and disjunct belts from Phoda Hills near Bateleur Bushveld Camp in the north, southwards in the vicinity of Stapelkop Dam and Shimuwini Bushveld Camp to the Shilawuri area and further south in the vicinity of Shisakashanghondo Dam	300 -460m	Summer rainfall, 450 – 650mm / annum, very dry winters, generally frost-free Mean average temperature – 21.8° C

The most southwestern mopane trees in south Africa, close to Lephalale?



During the weekend of 25 - 28th April 2019 members of the Dendrological Society: Pilanesberg Branch visited Swebeswebe Wildlife Estate in the vicinity of Visgat in Limopo. Swebeswebe is located to the east of Lephalale in the Roodeberg Bushveld (SVcb18: Rutherford & Mucina). From the foothills of the Waterberg the Roodeberg Bushveld stretches further north through Baltimore near Swartwater and include the plains around the base of Blouberg and Lerataupje Mountains in the northeast. The altitude is between 850 – 1 100m. Mainly sandstone, conglomerate, siltstone and shale of the Kransberg and Matlabas Subgroups occur, and the plains are moistly undulating with some low hills. It is a summer rainfall area with 400 – 500mm / annum. The winters are cold, and frost occurs frequently in winter. The mean average temperature for the area is 17.6° C

The Waterberg Mountain Bushveld (SVcb17: Rutherford & Mucina) is adjacent to the Roodeberg Bushveld and is located to the south of Swebeswebe. Rugged mountains occur in this area with a variety of soil types, mainly sandstone, siltstone and shale of the Kransberg Subgroup and medium to coarse grained sandstone, conglomerate, trachytic lava and quartz porphyry of the Swaershoek Formation and Nylstroon Subgroup (Rutherford & Mucina). Altitude is about 1 000 – 1 600m. Summer rainfall 500 – 750mm / annum with cold winters and frost occurs frequently in winter. The mean average temperature for the area is 19.4° C.

During the weekend the group explored one particular kloof close to Maria Camp. The vegetation in the kloof is dominated by different veld types, the two dominant forms being sour Bushveld and mixed Bushveld which are typical savanna vegetation types, as well as the Waterberg Moist Mountain Bushveld.

The kloof close to Camp Maria

Over 270 different tree species grow in the Waterberg and we were fortunate to identify more than 100 tree species, many not so common, like *Sclerochiton ilicifolius* (spiny white-lips), *Wrightia natalensis* (saddlepod), *Rotheca myricoides* (rough-leaved cat's whiskers), *Buxus macowannii* (small-leaved box), *Ptaeroxylon obliquum* (sneezewood), *Nuxia oppositifolia* (water-elder), *Hexalobus monopetalus* var. *monopetalus* (shakamaplum), *Erythrophysa transvaalensis* (bushveld red balloon), *Grewia subspathulata* (false grey raisin), *Commiphora tenuipetiolata* (white-stemmed corkwood), *Combretum nelsonii* (Waterberg bushwillow), *Lagynias dryadum* (bushveld pendent-medlar), *Margaritaria discoidea* var. *nitida* (bushveld peacockberry), *Sterculia rogersii* (star-chestnut), *Brachylaena transvaalensis* (forest silver-oak) and *Albizia tanganyicensis* subsp. *tanganyicensis* (paperbark false-thorn)

Sclerochiton ilicifolius - spiny white-lips / stekelwitlippe

Rotheca myricoides – rough-leaved cat's whiskers / growweblaarkatsnorbos

Buxus macowannii – small-leaved box / kleinblaarbuksboom

Wrightia natalensis – saddlepod / saalpeultjieboom

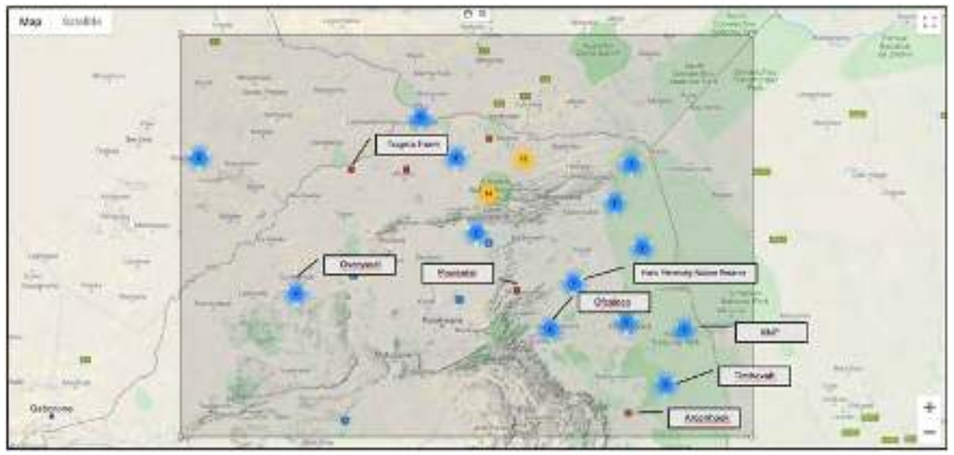
Margaritaria discoidea var. ***nitida*** – bushveld peacockberry / bosveldpoubessie

This amazing biodiversity is complimented by rock art paintings in cliff overhangs which portrayed a rich biological diversity of animals such as the red hartebeest, eland, elephant, rhinoceros, kudu and giraffe as well as varied cultures and heritage.

Rock art

A discussion around a campfire one evening about the occurrence of mopane trees in the Overyssel area, not far from Swebe, attracted everyone's interest and upon further inquiry Dr. Peter Vervoort suggested that we visit the population of mopane trees the next day.

Back home in my study, I began to collect information about the occurrence of mopane trees in that area. Like most people, I also assumed that the trees only occur north of the Soutpansberg in Limopo and also in the Kruger National Park. I explored data and performed a site assessment from the South African plant names and floristic details (POSA) website (South African National Biodiversity Institute -http://newposa.sanbi.org/) and contrary to my ignorance, I found that the following specimen observations were made about mopane trees outside the assumed natural distribution range:



Colophospermum mopane - POSA Specimens Observations

1. Tugela Farm, close to the Limpopo River, Limpopo. Observer Van Graan, 1973: GPS --22.625 / 28.625, Elevation 728m
2. Overyssel, east of Lepalale, Limpopo. Observer Coetzee, 1972: GPS -23.625 / 28.125, Elevation 870m
3. Mooketsi, north of Tzaneen, Limpopo. Observer, Krige 1937: GPS -23.625 / 30.375, Elevation786m
4. Ofcaloco, Macloutsie, east of Phalaborwa, Limpopo. Observer, Breijer 1917: GPS S -24.125 / 30.3, Elevation 651m
5. Timbavati, in the Kruger National Park, Mpumalanga. Observer, Van der Schijff, 1953: GPS -24.375 / 31.375, Elevation 453m
6. Arconhoek, south of Hoedspruit, Limpopo. Observer, Theron 1971: GPS -24.625 / 31.125, Elevation Observer 592m

The chances that these trees are still alive are slim, but the fact is that mopane trees are known to have occurred in the western bushveld, south of the Soutpansberg for many years.

Mopane trees can be identified by their butterfly-shaped leaves which they shed gradually during the dry season. The trees can be leafless for almost 5 months of the year and this is not uncommon. The woodland species' leaves are structurally well adopted to heat and stress and folds together and hang straight down at midday to prevent extensive transpiration and water loss. The folding of the leaves produces little shade and this action adds to the harshness of mopane woodlands. This is a very strong survival tactic which also affects the metabolism of the tree causing a reduction in growth. This results in the formation of calcium-oxalate crystals which are deposited in the wood. These crystals enhance and affects the wood's burning properties and decomposition of the wood by fire will only commence at approximately 370°C. These crystals also influence the burning properties of the wood through producing considerable amounts of carbon dioxide. When carbon dioxide is released it inhibits the burning of the wood and create long lasting fires with little ash and mopane wood fires may reach temperatures of 300 – 800°C. Ash from the wood has high concentrations of phosphate, calcium and lime and is used as fertilizer and to make whitewash. Mopane wood is sought after as a quality source of firewood and charcoal all over Africa where the trees occur. The presence of calcium-oxalate crystals in the wood makes it unpalatable for wood termites. The wood is traditionally used for fence posts and poles in the construction of houses and cattle fences, and for wood carving. Roots have the ability to produce root suckers which coppice easily, and they grow faster than seedlings. Furthermore, the tree has the ability to produce high concentrations of secondary chemicals during its growth season, such as tannin and phenols for defense against herbivores.

Thousands of seedlings are commonly found after a good raining season but because the savanna ecosystem supports frequent fires, which also causes a reduction in mopane mortality and growth form, saplings between 1 – 5 years old are rarely encountered. Another reason for the lack of saplings is that most of these seedlings are under the canopies of matured mother trees where they die out first, probably because of competition. The growth rates are generally slow, and it is estimated that a tree with a trunk diameter of 10cm is 42 years old, which is in line with research that indicated matured trees to be between 100 – 200 years old. Large herbivores such as elephants have a preference for mopane trees, inhibiting the height of the trees by repeatedly breaking branches, ring barking and toppling.

The tree is the main host species for the larvae of the mopane emperor moth (*Imbrasia belina*) which hatch on the surface of the mopane leaf. Other trees that also act as host species to the mopane emperor moth include wild seringa (*Burkea africana*), musasa trees (*Brachystegia* spp.), munondo trees (*Julbernardia* spp.), marula (*Sclerocarya birrea* subsp. *caffra*), weeping boerbean (*Schotia brachypetala*), resin trees (*Ozoroa* spp.), karee (*Searsia lancea*), red-beech (*Protorhus longifolia*), jackal berries and star-

apple trees (*Diospyros* spp.), some wild fig trees (*Ficus* spp.) and sweet thorn (*Vachellia karroo*). All these trees are fundamental to the life cycle of these moths. Outbreaks of mopane worms are common at certain times of the year (November/December and / or February/March), resulting in the complete defoliation of large stands of host trees. Live adult worms are rich in protein, harvested and dried for human consumption. It is also cooked and served with maize meal or sorghum and served as a substitute for meat. The tree is also host to the larvae of the foxy charaxes (*Charaxes jasius saturnus*) butterfly and the wild silk moth (*Gonometa rufobrunnea*). Cocoons of the latter are harvested as wild silk and processed to make cloth.

During the dry winter periods, when all the other trees are completely leafless, the African mopane psyllid (*Retroacizzia mopanei*) will emerge in massive population outbreaks. During the nymph stages these insects feed on the trees by sucking out liquids from the tree. Much of these liquids are sugary and when the substance pass through their system the insect excretes a crystalized substance called 'honeydew'. The scales are highly nutritious, and it is a palatable food source relished mostly by baboons and monkeys, commonly known as 'mopane manna'.

The tiny stingless mopane bee (*Plebina denoita*) nests in hollow trunks and produces small quantities of edible yellow honey. Its nests are recognizable by a small waxy tube at the outside of the opening to the nest. They are well known as the little irritating insects for creeping into one's eyes, ears and nose in search of moisture on a hot day. The male cicada (family CICADIDAE) abdomen is largely hollow, and acts as a sound box. The shrill deafening noise is produced by complex membranes with thin, membranous portions and thickened ribs vibrating together that dominates all other sounds on a hot day.

All these adaptation mechanisms and different ecological interactions enable mopane trees to use the available and limited resources such as moisture and nutrients efficiently in order to survive semi-arid to arid conditions. It is by far one of the most remarkable trees of southern Africa.

In search of the most southwestern mopane trees in South Africa.

So, the next morning we went on an excursion to find the mopane trees. On our way we also found a stand of *Adansonia digitata* trees.

***Adansonia digitata* GPS S 23 ° 43'49.7" E 28 ° 05' 31.9"**

Not too far from the baobab trees we saw the first mopane trees at GPS -23.4332 / 28.5259 at an elevation of 951m, on a waterlogged plain just north of the Waterberg. For the next 700m or so we drove through a proper mopaneveld and stopped to admire some of the larger specimens. The estimated total area on which the mopane trees occur is about 20ha. What is fascinating about these trees is that the previous specimen observation was made in 1972 at Overyssel, some 21km further to the northeast.

Mopane observations at Swebe in relation to the Overyssel observation in 1972

Colophospermun mopane – just north of the Waterberg, approximately 150km south of the Limpopo River

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Delville Wood – A South African forest of remembrance in France

Izak van der Merwe

In the north of France, astride the village of Longueval, is a small corner of South Africa that was once the scene of a bloody battle with 2 536 South African casualties (dead and wounded) within a few days. This land, comprising a forest of 63 hectares known as Delville Wood (Bois d'Elville in French), is a Site of Remembrance managed by the South African Government. In this it is partly supported by the Delville Wood Commemorative Museum Trust.

The large cemetery next to the forest is managed by the Commonwealth War Graves Commission. It is the third largest World War 1 cemetery in the Somme area, and contains more than 5 500 graves of British, South African and other troops that died during the fighting in the vicinity of Longueval.

The cemetary at Delville Wood

Before the Battle of Delville Wood in July 2016, the forest was densely grown with trees like European beech (*Fagus sylvatica*) and common hornbeam (*Carpinus betulus*). In some parts it also had dense tangles of common hazel shrubs (*Corylus avellana*). In less than a week it was almost completely destroyed by heavy bombardments. Today, the green forest of tall trees is testimony to the remarkable ability of nature to recover from disaster, albeit assisted by tree plantings in the 1920s.

Delville wood after the Battle
Photo | Delville Wood Commemorative Museum

Pieces of wood of a shattered tree (said to be Scots pine, *Pinus sylvestris*) were brought to South Africa from Delville wood after the battle. These were made into three crosses placed in Pietermaritzburg, Durban and Cape Town to commemorate the battle. Scots pine does not occur naturally in the north of France, but were widely planted in that area, and became naturalised in some forests.

The cross placed in Pietermaritzburg "weeps" a sticky red resin each year around the time that the battle took place. It is reported that this phenomenon baffles scientists, and some legend has been created around what has become known as "The Weeping Cross of Delville". One explanation put forward is that the cold southern winter weather around July causes the wood to shrink, resulting in the seeping resin. The cross is currently held in the Moth Remembrance Garden in Pietermaritzburg.

Delville Wood was purchased in 1920 by the South African Government, which assisted the re-growth of the destroyed forest by tree-planting. In 1926 a monument was erected in remembrance of the fallen soldiers. Much later, in 1986, the construction of a museum was completed, with exhibitions detailing the South African participation in the First and Second World Wars, and the Korean War. New additions such as a paved pathway and commemorative walls were added recently.

The Battle

The Battle of Delville Wood was one of many costly engagements of the Battle of the Somme, which lasted from 1 July to 18 November 1916. More than three million men on the Allied and German sides participated in this bloody battle, over a frontline of more than 20 km. When the battle ended, more than a million soldiers on both sides were either killed or wounded. At Delville Wood, the first major engagement for the South Africans, they faced veteran units of highly trained Bavarian forces. That they resisted repeated onslaughts for days, under constant bombardment, speaks volumes for the mettle and discipline of the South African soldiers.

On 14 July 1916 the South African Infantry Brigade, headed by Brigadier-General Henry Lukin, was ordered to attack the Germans in Delville Wood. This Brigade was attached to the Ninth Scottish Division. The attack started on the morning of 15 July, and General Lukin was ordered to take the forest at all costs.

Within just more than an hour the South Africans occupied most of the wood. They then began to dig in inside and around the fringes of the forest, and formed strongpoints with machine guns. Digging trenches was difficult owing to the thick mat of roots. The forest also formed a vulnerable salient surrounded by Germans on most sides except the village of Longueval, where British troops were still engaged in fighting.

The South Africans had barely managed to dig shallow trenches when the Germans started to counter attack, and their casualties mounted. That night they were subjected to heavy artillery bombardments at a rate of more than 400 shells per minute. On 16 July the Brigade attacked the northwest part of the wood not yet occupied, but met stiff German resistance.

During this action Private "Mannie" Faulds exhibited bravery that earned him the Victoria Cross. For three days the casualties mounted with successive attacks and counter attacks. General Lukin requested a withdrawal of his men on 17 July, who had been under intense pressure with little sleep, but was ordered hold the forest at all costs, as there was no reserve troops available.

By the afternoon of 18 July Delville Wood resembled a moonscape, turned into a quagmire by rain. The battlefield was littered with South African and German corpses. Brave stretcher bearers were overwhelmed by the rate of mounting casualties, and some wounded remained behind among their dwindling number of fighting comrades.

More than 6000 Germans launched a strong attack in the late afternoon of 18 July. Desperate hand-to-hand fighting took place with many South Africans fighting on in isolated groups.

A German officer that took part in the fighting described the scene as follows:

“ ... Delville Wood had disintegrated into a wasteland of shattered trees, charred and burning stumps, craters thick with mud and blood, and corpses, corpses everywhere. In places they were piled four deep. Worst of all was the lowing of the wounded. It sounded like a cattle ring at the spring fair....”

On 20 July the South African Brigade was relieved at last by units of the Third Division. By then some of the haggard soldiers, deprived of sleep and under constant strain for days, had begun to fall asleep during battle. A handful of officers and men, some wounded, came out of the battlefield. Some of the relieving British troops looked at the sad procession, and wept. At a roll call a few days later, 21 officers and 751 other ranks were all that remained of the 3023 men of the Brigade that went into the woods. The survivors included two mascots – a baboon called Jackie, and a springbok called Nancie.

The Creation of a Memorial Forest Site

After the Battle of Delville Wood a tall wooden cross was erected in the desolate landscape that was once called a forest. In February 1918 the Brigade, reformed with new men joining the unit, held a memorial service at the cross. Just over a month later many of these men would be casualties on another battlefield, paying the highest price in an effort to stop a new German offensive.

Years after the war ended, Commonwealth countries like Canada and New Zealand began erecting memorials at sites where their troops distinguished themselves. In 1920 Jan Smuts, Prime Minister of the Union of South Africa, voiced the desire that South Africa should have its fallen soldiers commemorated with a monument. This would also be some consolation to loved ones who did not have the remains of their fallen sons and brothers returned to this country.

An initial idea that a monument be erected in South Africa was abandoned, partly due to opposition to it by a divided public. Some people were against participation in the war, and a critical black press bemoaned the fact that non-white soldiers who died in the war did not receive similar recognition.

In 1918 Colonel Geoffrey Herbert tried to persuade the government to purchase Delville Wood as a “national treasure”. The Union government entered into negotiations with the land owner, Vicomte Dauger, and purchased the land in 1920. A Delville Wood Memorial Committee was established with Sir Percy Fitzpatrick as chairperson, and a memorial fund was established to raise funds from subscription moneys. A sum of about 50 000 pounds was raised from public and private donations. It was a deserved process, yet not without a fair share of criticism and politics.

Sir Herbert Baker was appointed to design the memorial. It was decided that a long, wide grassy avenue flanked by planted trees would lead to the memorial, from the Delville Wood Cemetery, which is separated from the forest by the Longueval-Ginchy road. He designed a domed arch, with a long semi-circular wall built from stone and flint on either side. These walls terminate in a covered building on either side, resembling a Summer House built by Governor Simon van der Stel on the slopes of Table Mountain. The arch bears dedicatory inscriptions.

Wide grassy lane flanked by planted oak trees leading to the Delville Wood memorial

On top of the dome is a bronze sculpture by Alfred Turner, representing two men clasping hands over the back of a war horse. These figures represent the two brothers named Castor and Pollux from an 18th century French opera, one mortal and the other immortal. The statue was replicated and installed at the Union Buildings, and at the Company Gardens in Cape Town.

At the unveiling of this monument, it was hailed as a symbol of all the peoples of South Africa who are united in their determination to defend their common ideals. The unveiling took place on 10 October 1926, by the widow of General Louis Botha. The ceremony was also attended by General JBM (Barry) Hertzog, then Prime Minister.

Over decades, further additions followed to the commemorative site. On 5 June 1952 a stone of remembrance was unveiled, and on 11 November 1986 the South African Commemorative Museum was unveiled. Construction of the museum took just over two years, and the unveiling by Prime Minister PW Botha coincided with the seventieth anniversary of the Battle of the Somme. The unveiling, seemingly used as propaganda by the Apartheid regime, was widely condemned in France, and the French Government snubbed the regime by sending a low-ranking representative to the event.

This impressive museum is built in the form of the seventeenth century castle in Cape Town, built by the Dutch East India Company. It hosts exhibitions detailing the participation of South Africa in both World Wars and in North Korea. Large frescoes depict scenes of the South African participation in these wars.

Recently, more inclusive exhibitions have been created, detailing the contributions of the South African Native Labour Corps during the world wars. One of the most fascinating exhibitions deals with the sinking of the SS Mendi, which sank on 21 February 1917 with the loss of hundreds of Black South African troops. The museum is built around the Cross of Consecration, which is now in the central courtyard of the star-shaped building.

The latest addition is a paved pathway built from the monument to the museum, with a sloped wall built on either side, creating somewhat of a trench effect. The names of all South African soldiers who died during World War 1 are etched into the wall. It was unveiled by President Jacob Zuma on 15 July 2016, during an impressive centenary event, including a large procession moving from the cemetery to the monument and museum.

Pathway to the museum, flanked by commemorative walls

Several commemorative ceremonies were held here prior to 2016, and since. A paved pathway is also planned through the grassy avenue leading from the cemetery to the monument. These commemorations happened in the summer months when the forest is lush and green. During winter the landscape undergoes a complete transformation when the deciduous trees stand bare, often covered in snow.

Tree Planting to Aid the Forest and Accentuate the Monument

After the devastation caused by the Delville Wood battle, there remained only one surviving hornbeam tree. It has been described by historian Ian Uys as the only living witness of the battle – a silent and moving testimony. This tree has a low fence around it, with a plaque. It is decorated with a few rosettes and South African flags, left on the trunk and at the base of the tree by visitors. Cuttings of this tree have been planted at various places in South Africa, including General Smut's home at Doornkloof and the Garden of Remembrance at Pietermaritzburg. Not far from the surviving tree, a beech tree was planted in 2002. This tree was planted in remembrance of the British soldiers Corporal J.J. Davies and Private A. Hill who were each rewarded a Victoria Cross during the fighting of 20 July 1916. This site has been dubbed the Davies-Hill Tree Memorial.

The surviving hornbeam tree

When the Union of South Africa purchased Delville Wood, it was a desolate wasteland full of shellholes, broken trees and trenches. It was a sad remnant of the once densely grown forest, crossed by wide grassy bridle paths in east-west and north-south directions. These paths (that remain as broad grass lanes today) were given street names of cities such as London and Cape Town on battle-maps, including Strand Street.

In 1920 the South African Department of Forestry took on the daunting task to aid the rehabilitation of the forest. Seedlings of suitable European tree species occurring in the Delville Wood area, were grown for planting in the devastated landscape. This augmented the natural germination of trees. The plan was basically to recreate a forest landscape.

It was a daunting undertaking, which took years to complete. Bill Nasson calls the project "… a monumental effort of resurrectionary landscaping of the shattered site." He also states that "…horticultural renewal was a striking part of the Delville Wood story as historical allegory." By 1926 when the monument designed by Sir Herbert Baker was unveiled, the landscape still had an open appearance as can be seen from the historic photographs, but the bare undulating moonscape created by artillery fire was by then masked by the growth of young planted trees, together with regenerating vegetation.

The Kirstenbosch Botanical Research Station, aided by Britain's Kew Gardens, cultivated the seedlings and understorey plants for the forest restoration project. These had to be transported to France by ship. Planting in a bare battlefield pock-marked with shell-holes was difficult, and required some grading here and there. Yet most of the undulations in the landscape remained, and is even visible today in the undergrowth of the beautiful tall forest that now covers most of the site.

The forester M. Hockvelden stationed at La Motte State Forest near Franschoek, was tasked to collect acorns for the double row of oak trees planted on either side of the wide grass avenue leading to the memorial, from the cemetery. These were collected from oak trees on farms near Franschoek, which were planted by French Huguenots in the late 17th century.

Concluding Remarks

The epic struggle of the South African Brigade at Delville Wood has left us with an endurable heritage. Visiting the forest, memorial and museum in France, is an experience that is bound to leave an indelible impression on any history-minded visitor. This site and its history is abundantly described in many books and on many websites, and a visit to it is strongly recommended by some travel websites. The tripadvisor website, for example, describes it as an unmissable part of any battlefield tour in the north of France.

The memorialising of the site and restoration of the forest was a monumental and costly effort. Today, Delville Wood counts among the best of the World War 1 memorial sites in Europe. The site evolved gradually from its purchase in 1920 to the unveiling of a commemorative museum in 1986 and the recent commemorative walls in 2016.

Ironically the memorial site, which symbolises a united national purpose, had its fair share of controversy and divided public opinion. The current Government has paid much attention to Delville Wood, ensuring that it became a more inclusive memorial which celebrates the efforts of South African soldiers of all races in the two World Wars.

Walking through the peaceful forest today, it is hard to imagine the devastation that befell man and nature. The remains of many soldiers still lie under the roots, buried by the bombardments. Ian Uys, in his first book on Delville Wood, makes the fitting comment that "The largest and most moving memorial is Delville Wood itself… ".

The forest today, with an undulating terrain in the understorey created by bombardments still visible

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Wat is in ‘n naam?

Naas Grové

“Die mens het ‘n ingebore drang om te wil ’weet””

~ Aristoteles

1. Hoe word plante geklassifiseer?

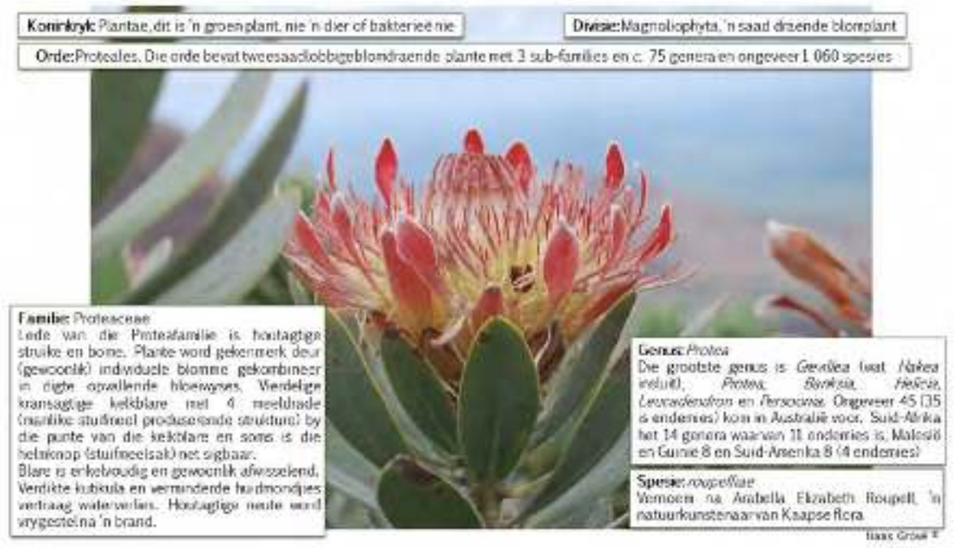
Die klassifikasie van plante kan gedefineer word as die groepering van individue, sodat al die individue in ‘n groep, wat sekere kenmerke of dieselfde eienskappe in gemeen het, onder een sambreel geklassifiseer word. Om te verstaan hoe wetenskaplike name toegeken word, is dit eers nodig om kortliks te verstaan hoe plante geklassifiseer word, aangesien dit die eenhede waarin hulle onderskei word en die struktuur van die name wat toegeken word, deur hierdie klassifikasie bepaal word.

Biologiese organismes word volgens ‘n hiërargiese model wat gebaseer is op die werk van Linnaues, (Carl von Linne, ’n Sweedse Botanis van die 18de eeu wat as die Vader van die moderne Taksonomie beskou word) op grond van ooreenstemmende fisiese kenmerke geklassifieeer. Hiervolgens word alle lewende dinge, synde *Anamalia* (diere), Argeobakterieë en Eubakterieë, *Mycetae* (swamme), *Protista* (eensellige eukrariote wat insluit blou en groen alge) en *Plantae* (plante) in verskillende ryke geklassifiseer.

Binne die Plantryk is daar weer verskillende hoofindelings naamlik spoordraende plante (Algae, *Bryophyta* [mosse en lewermosse], *Pteridophyta* [varings en hulle bondgenote]) en saaddraende plante, wat insluit *Gimnosperme* (konifers en hul bondgenote) en die *Angiosperme* (blomplante). Die blomplante word weer onder verdeel in twee klasse: monokotiele of eensaadlobbige plante en dikotiele of tweesaadlobbige plante.

Die Internasionale Kode van Nomenklatuur vir alge, swamme, en plante (The International Code of Nomenclature for algae, fungi, and plants - ICN) het ‘n stel reëls en aanbevelings opgestel oor die formele botaniese name wat aan plante, swamme en ‘n paar ander groepe organismes (soos alge) gegee word.

Omdat dié klassifikasie sekere voorspelbare waardes veronderstel moet dit in staat wees om ons iets te vertel van die organisme wat benoem word, asook wat die kenmerke is wat die organisme beskryf. Ek moet dus in staat wees om sekere kenmerke uit die naam van die plant te kan aflei sonder dat ek die plant fisies hoef te sien, soos in die diagram hieronder geïlustreer.



2. Plantname

Lank voordat enige geskrewe rekords van beskawings gehou is het mense plante versamel, hoofsaaklik vir voedsel en medisinale redes. Volgens historiese rekords word die totstandkoming van die eerste botaniese tuin aan Theophrastus (c. 371 – 287VHT) toegeskryf tydens die opkoms van die Griekse Ryk. Dit verklaar dan ook die Griekse oorsprong van baie van die wetenskaplike plantname.

Die intense sin vir nuuskierigheid en sy vermoë om te kan kommunikeer is twee van die kenmerke wat die mens van ander diere onderskei. Wanneer ons dus iets nuuts leer of ontdek skep ons nuwe woorde om dit te omskryf wat ons in staat stel om die nuutgevonde kennis met ander te deel. Vir hierdie vindingrykheid bestaan daar geen reëls nie, behalwe dat dit aanvaarbaar moet wees. Geen wonder dat van die gewone name wat aan plante gegee word uiters oorspronklik en baie beskrywend is. Die probleem begin egter wanneer daar so baie plante is wat name moet kry, of wanneer daar oor taalgrense heen oor die onderwerp gesels word.

Foto Bron: http://en.wikipedia.org/wiki/Theophrastus

‘n Onvermydelike ergenis vir talle mense wat in bome (of plante in die algemeen) belangstel is die onafwendbare konfrontasie met die wetenskaplike name van bome. Dit is moontlik hierdie een aspek wat die meeste mense afskrik om meer oor die onderwerp te leer. Hierdie inherente weersin in die gebruik van wetenskaplike name is as gevolg van die feit dat dit moeilik is om die name te onthou, die vreemde woorde is tongknopers, sommige is onuitspreekbaar en dikwels verander die name net sodra jy dit gememoriseer het!

Die spesifieke bynaam, wat die tweede element in die Latynse binomiale naam van ‘n spesie is, sal volg op die generiese naam wat dié spesie onderskei van ander spesies in dieselfde geslag. Dikwels verwys die bynaam na ‘n geografiese gebied. Byvoorbeeld, *Rothmannia capensis*. Alhoewel dit selfstandige naamwoorde is, word hulle steeds met ‘n klein lettertjie geskryf. Onthou dat sommige woordverwerkers sal hierdie verwysings outomaties na hoofletters verander.

Die vraag wat ons met reg kan vra is of ons die wetenskaplike name nodig het? Wel, indien ’n bepaalde plant beskryf word, word ’n wetenskaplile naam daaraan gekoppel en bied dit ’n internasionaal aanvaarde standaard, verhewe bo alle taal beperkinge, sodat daar geen onduidelikheid kan bestaan oor waarna daar verwys word nie. Dit is ook ‘n elegante manier om ons te wys op die verwantskap tussen families, spesies en selfs sub-spesies.

Deur dus die wetenskaplike naam te gebruik sal alle onduidelikheid met betrekking tot die spesie waarna verwys word verdwyn. Boonop is die wetenskaplike naam ook in baie gevalle beskrywend oor die kenmerke van ‘n spesifieke plant. Net soos wat mense in dieselfde familie dieselfde van het, sal groepe plante wat na aan mekaar verwant is ’n genus naam deel. Indien jy dus bekend is met die kenmerke van ’n spesifike genus, kan ’n inlgeligte raaiskoot geneem word gebaseer op byvoorbeeld die reuk, tekstuur, voorkoms en groeivorm van ’n plant, met ander woorde die genusnaam is redelik voorspelbaar. Sodra jy die wetenskaplike naam van ’n plant het is dit maklik om meer inligting oor die plant te bekom, soos wat is die plant se gewone name, waar kom dit voor, is dit giftig, watter habitat dit verkies, ensovoorts.

Volksname of streeksname: dit word plaaslik gebruik en kan volgens streek of land verskil. Algemene name van spesies kan volgens geografiese gebied verskil en omdat daar geen algemeen aanvaarde reëls bestaan vir die gee van algemene name aan plante, of ‘n paneel of komitee bestaan wat uitspraak kan lewer nie, kan ons nie sê dat dié of dit, die regte naam is nie.

Die tradisie om (hoofsaaklik) Latyn in die skepping van boomname te gebruik, het baie meriete. Omdat die Latynse taal uitgesterf het, bly die betekenis van woorde konstant en sal dit nie maklik verander soos in die geval van ’n lewende taal nie. Die botaniese Latyn is boonop ook baie beskrywend en maak dit gebruik van verskillende terme vir byvoorbeeld vorm, kleur, tekstuur, ens., wat almal dieselfde kern betekenis het. Carl von Linne, ’n Sweedse Botanis van die 18de eeu word as die Vader van die moderne taksonomie beskou. In lyn met die mode van daardie tyd, het hy sy naam ook ver-Latyniseer na Linnaues. Linnaues het ‘n hiërargiese stesel ontwerp wat plante en diere in verskillende groepe plaas en elke spesie het daarom ‘n unieke dubbel-door naam gekry. Hierdie name was dikwels in Latyn gewees of ‘n ver-Latynisering van ‘n moderne taal of ‘n verbuiging van die antieke Grieks.

Wetenskaplike naam: Dit is unieke name wat deur die wetenskaplike gemeenskap gebruik word om spesies akkuraat en universeel te identifiseer

Kom ons ontleed ter illustrasie die bekende witstinkhout se naam, *Celtis africana*. (wetenskaplike name verskyn altyd in kursief). *Celtis* is die genusnaam en *africana* die spesifieke agtervoegsel. Die naam van die spesifieke spesie is nie Celtis nie maar, *Celtis africana*. Die naam van die spesie bestaan dus altyd uit ’n kombinaise van minstens twee woorde, en hierdie verskynsel staan bekend as bi-nominale nomenklatuur (bi beteken TWEE en nomen beteken NAAM). As daar na ‘n sub-spesie of variteit verwys word kry die naam ‘n derde agtervoegsel en dit staan bekend as ‘n tri-nominale naam, bv. *Diospyros lyciodes* subsp. *guerkii*.

Die binomiale naam bestaan uit 'n genusnaam en 'n spesifieke bynaam. Die wetenskaplike name van spesies verskyn altyd in kursief. Die genusnaam begin altyd met 'n hoofletter en dit word eerste geskryf; die spesifieke bynaam volg die genusnaam en word nie gekapitaliseer nie. Daar is geen uitsondering op hierdie reël nie

Dit is egter wanneer die gewone naam / streeknaam gebruik word dat daar 'n Babelse verwarring kan ontstaan – want sommige mense kan verwys na die witstinkhout ook as die Kamdebo-stinkhout of net Kamdebo – en tereg kan die vraag dan gevra word: word hier na dieselfde spesie verwys of na iets heeltemal anders? In 'n poging om hierdie verwarring uit te skakel is die Afrikaanse en Englese name ook gestandardiseer, maar helaas, ou gewoontes word nie maklik afgeleer nie en onvermydelik kan hierdie gebruik van streekname tot hewige struwelinge lei.

Dikwels verskyn daar ook 'n naam / van en 'n datum agter 'n wetenskaplike naam. Alhoewel dit nie deel van die naam van die spesie is wat beskryf word nie, verwys dit na die persooon wat die spesie die eerste maal wetenskaplik volgens die taksonomiese reëls en beginsels van Linnaues beskryf het, asook die jaar waarin dit plaasgevind het. Indien die naam van die outeur in hakkies verskyn beteken dit dat die naam later verander is. Die stamvrug is 'n klassieke voorbeeld hiervan. Die botaniese naam het nie minder nie as vier keer verander: vanaf *Bequaertiodendron magalismontanum* (Heine & Hemsley) na *Poteria magalismonta* (Meeue), na *Chrysophyllum magalismontanum* (Sonders) na, soos wat dit nou bekend staan, *Englerophytum magalismontanum* (Pennington)!

'n Wetenskaplike naam kan gevolg word deur 'n voorletter of 'n afkorting. Dit dui op die persoon wat die spesie ontdek of die eerste maal benoem het

3. Waarom verander plante se name?

Teen hierdie tyd weet ons dat wetenskaplike plantname verteenwoordig gewoonlik beskrywende eienskappe van 'n plant en dat hierdie binominale name streng volgens die Internasionale Kode van Nomenklatuur vir alge, swamme, en plante (ICN) se reëls en aanbevelings toegeken word.

Indien daar soveel kontroles in plek is om plantname toe te ken kan daar met reg gevra word: waarom verander die name van plante steeds voortdurend?

Daar bestaan basies drie redes waarom plantname kan verander:
a. Vooruitgang van die wetenskaplike navorsing, veral op die gebied van genetika.
In die verlede was dit algemeen aanvaarbaar dat plantklassifikasie die morfologie van die plant sou reflekteer en dat spesies met ooreenstemmende kenmerke aan dieselfde genus moet behoort. 'n Kremetartboom lyk soos 'n kremetartboom en 'n leeu soos 'n leeu. Morfologie verwys derhalwe na die struktuur van 'n organisme of enige van sy dele. Die morfologiese spesieskonsep ondersteun dus die opvatting dat 'lede van 'n spesie is individue wat na mekaar lyk'. Hierdie skool van denke was die basis van Linneaus se oorspronklike klassifikasie wat nog steeds vandag van toepassing is. Soos wat navorsingstegnieke egter verbeter het en meer data versamel is, het plantkundiges se idees oor ooreenkomste en verskille van plante ook verander. Daar is nou toenemende oortuiging dat die manier waarop ons plante moet groepeer, eerder dalk die evolusionêre verwantskappe moet reflekteer. Ongeag of die klem op morfologie of evolusie val, die resultate van taksonomiese navorsing het onvermydelik tot gevolg dat:

- 'n Genus in kleiner komponente verdeel kan word. Die gevolg is dat die nuwe genus 'n ander naam sal kry, byvoorbeeld die geslag *Acacia* (eng gedefinieer) is nou verdeel in die volgende nuwe genera, naamlik *Acacia, Vachellia, Senegalia, Acaciella* en *Mariosousa*.

- Twee of meer genera word saam gegroepeer sodat een groot genus gevorm word. Die naam van die oudste genus sal in hierdie geval behoue bly, terwyl die ander genus name in onbruik sal verval

- Taksonomiese oorwegings is gewoonlik meer omstrede. Die rol van taksonomie is om organismes in verskillende groepe te klassifiseer. Hierdie groepe ('taksa' of enkelvoudig 'takson') bevat familie, geslag, spesie, subspesie, verskeidenheid of variteit en kultivar. Plantkundiges hersien voortdurend hul siening oor hoe om plante te klassifiseer. In die verlede was dit meestal gebaseer op sigbare eienskappe, maar vooruitgang op die gebied van genetika het nuwe bewyse gelewer. Gevolglik het plantkundiges plante herklassifiseer om die evolusionêre verwantskappe wat onlangs aan die lig gekom het, te weerspieël: dit wil sê dat plante wat nouer aan mekaar verwant is as wat oorspronklik gedink is, nou in dieselfde groep geplaas word. Dit behoort tot toekomstige stabiliteit te lei, maar tans lei dit tot 'n tydperk van moontlike veranderings. Soos wat nuwe inligting beskikbaar word en daar vasgestel word dat die betrokke spesie nie tot die oorspronklike geklassifiseerde genus behoort nie kan plantname dikwels drasties verander soos bv. *Acacia albida* die anaboom wat eers as 'n *Acacia* geïdentifisser is, maar nou *Faederbia albida* heet.

- Een of meer spesie word onder 'n ander (nuwe) genus herklassifiseer en moet dus 'n nuwe naam kry. Byvoorbeeld, appelblaar, voorheen onder die genus *Lochocarpus* word nou onder die *Philenoptera* genus geklassifiseer. Die naam het dus verander van *Lochocarpus capassa* na *Philenoptera violacea*.

Philenoptrea violacea voorheen ***Lochocarpus capassa***

b. Foutiewe nomenklatuur. Tydens die negentiede eeu het daar geweldig baie botaniese eksplorasie regoor die wêreld plaasgevind en dit was heeltemal moontlik dat verskillende plantkundiges, onbewus van mekaar se werk dieselfde spesie kon beskryf het. Op die manier het hulle mekaar se werk nie doelbewustelik ‘gedupliseer’. Dit het veroorsaak dat ‘n enkele spesie twee of selfs meer name, of selfs meer as een spesie dieselfde naam gehad het.

c. Dit is ook moontlik dat plante foutiewelik geïdentifiseer was en gevolglik een of meer foutiewe name gekry het. Indien ‘n geldige naam bestaan en die foutiewe identifikasie word reg gestel sal die geldige korrekte naam aan die plant toegeken word.

Benamingsveranderinge en wysigings aan die nomenklatuur is gebaseer op internasionale reëls vir name, waar een naam eerder as ‘n ander gebruik moet word. Hierdie besluite is gewoonlik eenvoudig; die regte naam ingevolge die reels is dié een wat gevolg moet word

4. Botaniese Latyn kan pret wees!

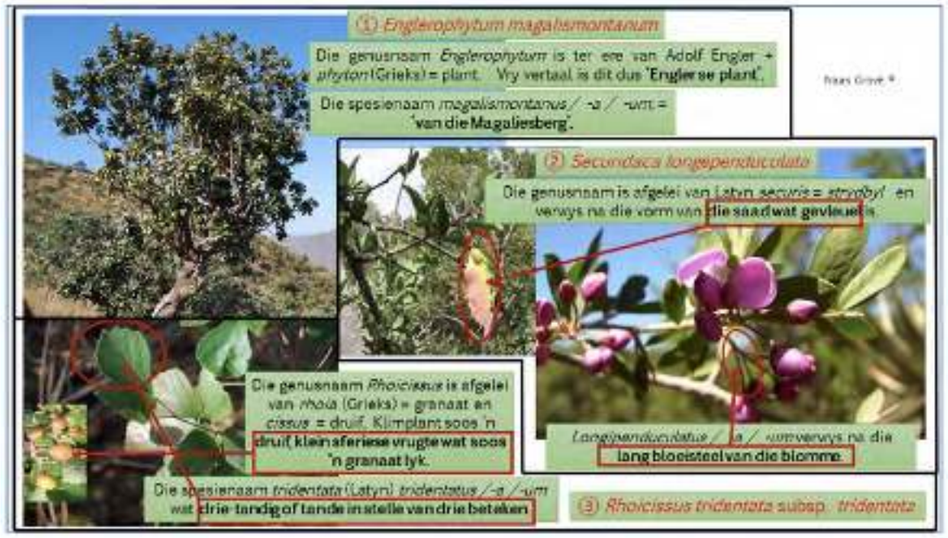
Die son het nie ‘n wetenskaplike naam soos plante en diere nie. Nietemin word dit onder die biljoene sterre op grond van sy temperatuur en grootte geklassifiseer. Kategorie O sterre is die warmste, met temperature van ongeveer 50 000 Kelvin (K). Die ander kategorieë is B, A, F G, K en M. Laasgenoemde verteenwoordig die koelste sterre met temperature van ongeveer 3 000K. Elke groep word verder onder verdeel in 10 klasse. Op grond van hierdie notasie kan ons ‘wetenskaplik’ verklaar dat die son ‘n G2 ster is.

Wanneer ons met plantname werk is die inligting tot ons beskikking eintlik heel eenvoudig, dit is geredelik beskikbaar en nie verafgeleë onbereikbare sterkonstelasies nie. Alle plante het ‘n wetenskaplike naam – die enigste betroubare naam vir ‘n plant. Die meeste plante het egter ook gewone of volksname en hierdie name is dikwels beskrywend óf selfs vaag en misleidend met betrekking tot die plant se uitstaande kenmerke. Wat die gebruik van gewone name veral aantreklik maak is dat die name sag op die oor val, dit maklik uitgespreek kan word en ‘n ryk kulturele taal erfenis daarin opgesluit is. Alhoewel hierdie gewone name ‘n eenvoudige manier van klassifikasie is, het een plant dikwels verskillende name (afhangende van die streek waarin dit voorkom), of word dieselfde naam aan verskillende onverwante plante gegee. Hierdie plantname kan van mekaar verskil binne die geografiese grense van een land en die verwarring word vererger as daar oor taal en landsgrense beweeg word. Sommige van die gewone name maak eenvoudig glad nie sin nie. Die laventelkoorsbessie het byvoorbeeld verskillende streekname waaronder apteekbossie, bergboegoe, boeghout, kalahari-boegoe, laventelbos en makwassieboom. Hierdie name verwys almal na dieselfde plant, *Croton gratissimus* subsp. *gratissimus* (laventelkoorsbessie)! Uit al hierdie name is dit onmoontlik om enigsins leidrade vir uitstaande kenmerke van die plant te kan aflei. Mense in die suid-wes Kaap wat bekend is met boegoe (*Agathosma betulina*) sal onmiddelik beelde oproep van ‘n klein struikagtige medisinale plant wat ‘n sekere tyd van die jaar oortrek is met helderwit blomme. Dit is baie ver verwyder van die plant waarna verwys word, wat ‘n medium-groot bosveldboom is en eerder bekend is vir sy welriekende blare en kwaliteiet kettiemikke as pragtige blomme.
Om al hierdie verwarring uit te skakel word wetenskaplike name vir plante gebruik.

Klassieke Latyn – soos deur die Romeine gebruik was - is in baie opsigte redelik anders as moderne Latyn en veral wetenskaplike Latyn. In wetenskaplike Latyn is die basiese grammatika en sintaksis behou maar baie van die woordeskat is verander wat verstaanbaar is, aangesien baie terme nie aan die Romeine bekend was nie. In botaniese Latyn is ons besonder geneig om die meeste werkwoorde weg te laat deur gebruik te maak van ‘n soort telegrafiese styl en vermy dus so die moeiliker dele van die taal.

Die wetenskaplike naam van 'n plant is in die meeste gevalle egter die sleutel tot 'n groot hoeveelheid inligting oor die betrokke plantspesie wat tersaaklike inligting kan bevat, ondermeer oor:

- Die persoon wat die plant ontdek het of wat die nuwe uitvinding voorgestel het of ter ere van 'n belangrike persoon
- Die natuurlike habitat of streek van die plant en / of groeivorm
- Eienskappe soos medisinale gebruike, kleur, vorm, grootte en reuk asook die vegetatiewe eienskappe van die stam, blare, blomme, vrugte, ens.



Die wetenskaplike name word nie lukraak toegeken nie. Dit verteenwoordig 'n kriptiese opsomming van verskeie uitstaande kenmerke van 'n bepaalde plant. Met min moeite kan hierdie inligting ontsluit word en terselfdertyd word die leergierige student se basiese kennis van botaniese Latyn en Grieks verbreed.

5. Regulering en standardisering van boomname

Talle mense het probleme met die volksname vir bome in die verlede gehad en 'n paar jaar gelede is daar 'n groot poging geloods om kwetsende of polities nie-korrekte verwysings in boomname soos baster, kaffer, drol en perdepram (om net 'n paar te noem) aan te spreek en te verander.

Ongeag dat alle plante 'n wetenskaplike naam het – wat die enigste betroubare naam vir die betrokke plant is, het die meeste plante egter ook gewone of volksname. Laasgenoemde is dikwels meer beskrywend en / óf selfs vaag en misleidend met betrekking tot die plant se uitstaande kenmerke. Wat die gebruik van gewone name veral aantreklik maak is dat die name sag op die oor val, dit maklik uitgespreek kan word en 'n ryk kulturele taal erfenis daarin opgesluit is. Alhoewel hierdie gewone name

'n eenvoudige manier van klassifikasie voorstel, het een plant dikwels verskillende name (afhangende van die streek waarin dit voorkom), of word dieselfde naam aan verskillende onverwante plante gegee. Hierdie plantname kan van mekaar verskil binne die geografiese grense van een land en die verwarring word vererger as daar oor taal- en landsgrense beweeg word.

Om al hierdie verwarring uit te skakel word die gebruik van wetenskaplike name vir plante sterk aanbeveel en aangemoedig. Die standardisering behels onder andere dat 'n plantspesie slegs een geldige gestandardiseerde naam kan hê wat internasionaal erken word. Dit opsigself skakel nie die verwarring uit nie, want min mense praat nog Latyn. Dan is daar ook talle van hierdie wetenskplike name wat steeds nie 'n duidelike betekenis het nie. Boonop het 'n mens 'n basiese kennis van botaniese Latyn of Grieks nodig om sin uit die name te maak.

6. Wat is die posisie van die Dendrologiese Vereniging van Suid-Afrika, met betrekking tot die debat oor boomname?

Daar is twee komponente betrokke by boomname, naamlik wetenskaplikename en volksname. Inligting omtrent die wetenskaplike name vereis die betrokkenheid van een of meer plantkundiges en hierdie inligting omtrent wetenskaplike name is nie altyd geredelik beskikbaar nie. Daar is weliswaar lyste van plantname wat van tyd tot tyd deur byvoorbeeld die Nasionale Herbarium (by SANBI) gepubliseer word, in gedrukte vorm asook op die internet (www.posa.sanbi.org Hierdie aanlynsoekenjin verskaf die nuutste name van plantspesies in suider-Afrika. Ongelukkig is die databasis vir 'n geruime tyd nie opgedateer nie, verifeer dus eerder name met 'n plaaslike herbarium of op die webwerf van die International Plant Names Index www.ipni.org)
Maar hierdie lyste benodig steeds kritiese evaluering om te besluit wat aanvaar is en wat nie. Dit sal uiters moeilik wees vir die gewone boomliefhebber om hierdie besluite te neem. Ook moet die wetenskaplike literatuur voortdurend gemonitor word om naamsveranderinge en nuwe spesiename aan te teken. Voorgestelde naamsveranderinge kan ook nie net aanvaar word nie. Elke geval moet op meriete beoordeel word om te besluit of die verandering geregverdig is al dan nie. Vir die doel is wetenskaplike agtergrond nodig. Volksname is 'n ander saak. Vir te lank het plantkundiges hulle bemoei met volksname, terwyl dit eintlik hoofsaaklik die terrrein van die nie-wetenskaplike eindgebruiker van die name behoort te wees.

In die lig hiervan het die Uitvoerende Komitee van die Dendrologiese Vereniging van Suid-Afrika 'n voorstel aan die Algemene Jaarvergadering van 21 Jnie 2014 voorgehou, wat tydens die vergadering goedgekeur is en wat bepaal dat:

Die Boomnamekomitee bestaan tans de facto uit Prof. Braam van Wyk, Dr. Erika van den Berg, en Hartwig von Dürckheim. Heelwat veranderinge aan beide wetenskaplike en volksname is tydens die hersienning van die Saklys in 2014 aangebring (Von Dürckheim, H., Van Wyk, B., Van den Berg, E., Coates Palgrave, M. & Jordaan, M. 2014. Saklys van Suider-Afrikaanse Inheemse Bome, 2014 / Pocket List of Southern Africa Indigenous Trees. Briza Academic Books, Pretoria)

Wat betref die volksname, is die veronderstelling dat daardie aanbevole volksname wat in hierdie Saklys opgeneem en gestandardiseer is, wye aanvaarding en stabiliteit sal geniet. Dit maak dus die bestaan van 'n staande komitee in hierdie verband onnodig. Natuurlik sal daar met 'n volgende hersiening van die Saklys in die toekoms weer aan 'n struktuur vir die hersiening van volksname gedink moet word. Intussen word lede uitgenooi om enige voorstelle vir naamsveranderinge te stuur aan die Sekretaris van die Uitvoerende Komitee van die Dendrologiese Vereniging van Suid-Afrika (secretary@dendro.co.za). Onthou ook om sulke voorstelle behoorlik te motiveer.

In beginsel is daar dus twee komitees wat tans figureer, naamlik:

a. Komitee 1 vir Wetenskaplike name

Hierdie Komitee bestaan uit Prof. Braam van Wyk, Dr. Erika van den Berg, Marie Jordaan van SANBI en Meg Coates-Palgrave. Laasgenoemde vir hulp met die die wetenskaplike name van bome wat ook in Zimbabwe en Mosambiek voorkom. Meg Coates-Palgrave se betrokkenheid sal ook verseker dat die Dendrologiese Vereniging dieselfde taksonomie in sy lyste volg as byvoorbeeld in Palgrave's Trees of southern Africa. Hierdie komitee is dan ook verantwoordelik vir die instandhouding van die lys van Flora South Africa (FSA) boomnommers omdat dit die taksonomie van die bome in die FSA gebied moet reflekteer.

b. Komitee 2 vir Volksname

Hierdie komitee sal hoofsaaklik uit 'amateur' boomkundiges / dendroloë bestaan en hoofsaaklik besluite oor volksname neem. Inligting oor wetenskaplike naamsveranderinge en nuwe name sal deur Komitee 1 tot die beskikking van Komitee 2 gestel word. Die volksnaamkomitee sal dan moet besluit oor nuwe volksname waar plante nie oor volksname beskik nie, maar ook aanbevelings maak oor voorkeurname in die onderskeie tale indien daar meer as een volksnaam is om uit te kies. Neem ook in ag dat die Saklys / Boomlys die FSA gebied dek; dit sluit Namibië, Botswana, Swaziland en Lesotho in. (met ander woorde die sub-kontinent suid van die Kunene, Okavango, Zambezi and Limpoporiviere) Dit sal dus goed wees as ten minste iemand van Namibië (siende dat Afrikaans ook by hulle 'n belangrike taal is) deel is van die komitee. Let asseblief daarop dat veral Zimbabwe dikwels hul eie volksname in Engels het vir van ons bome wat ook by hulle voorkom.

Deur iemand uit Zimbabwe op die komitee te kry (of dalk eerder as konsultant te betrek wanneer nodig) sal dus nuttig wees.

Aangesien die Saklys vir Inheemse Bome in Suid-Afrika die laaste keer in 2014 hersien is en die volgende hersiening eers in c. 2022 in die vooruitsig gestel word, is die samestelling van die Volksnamekomitee tans nie gekonstitioneer nie en sal dit, indien nodig, afhangende van die aantal voorstelle vir naamsveranderinge iewers in 2020, onder die jurisduksie van die Uitvoerende Komitee van die Dendrologiese Vereniging van Suid-Afrika saamgeroep word.

Intussen word alle voorstelle vir die wysiging van gewone volksname vir boomname verwelkom. Dit moet skriftelik gemotiveer word met redes waarom die naam verander behoort te word, asook voorstelle vir alternatiewe volksname.

***Sterculia murex* – lowveld star-chestnut / laeveldkastaiing**

Trees of the year

Izak van der Merwe

The list of Trees of the Year that was determined up to 2020, has been extended to 2035 by the Forestry Branch (now with the Department of Environment, Forestry and Fisheries) with the addition of new species. This was done in cooperation with key stakeholders such as the South African National Biodiversity Institute, the South African Green Industries Council and the South African Nurseries Association. Inputs were also given by some parks departments of local authorities, nurseries, the Tree Society of Southern Africa and the Dendrological Society of South Africa.

Every year South Africa celebrates Arbor Month during September. At that time the selected Trees of the Year are also promoted, which are currently a more common tree species or genus, and then also a less common species with more limited distribution. Nurseries propagate the Trees of the Year specifically for Arbor Month because of the greater public demand for these species at that time, due to the publicity given to these species.

The Tree of the Year list was started in 1975, and the first to be celebrated were the indigenous yellowwoods (*Podocarpus* species). Until 1995 the list was restricted to one species or genus that could be widely planted in the country. Thereafter the list was broadened to have a rare species or genus also celebrated. Since the start of the list in 1975 the Forestry Branch (Initially the Department of Forestry), had to initiate a process to extend the list about once every decade, usually at least two years before the list would have come to an end.

The latest review process to extend the list started in January 2018. At a meeting of key stakeholders the Trees of the Year list which would have ended in 2020, was extended up to 2035 with proposals for species to be added for those years. It was also decided to broaden the list to have a Common Tree, a Tree for Promotion and a Tree for Appreciation. The Common Tree is a species or genus occurring widely, and/or easy to grow. The Tree for Promotion is a species or genus that may be less widely adapted, but is not uncommon. The Tree for Appreciation would be a tree species or genus that is generally more restricted in its range or suitable habitat.

Individuals or organisations may still comment on the proposed species that appear for later years in the list for review in the longer term, but not on the species listed for the first years up to 2025, since some nurseries start planning their tree propagation years in advance. With the new list an attempt was made not have the number of species in all categories exceed four, and also not to list a whole genus.

The final list of Trees of the Year is as follows:

Year	Common Tree		Tree for promotion		Tree for appreciation	
	Scientific Name	**Vernacular Name**	**Scientific Name**	**Vernacular Name**	**Scientific Name**	**Vernacular Name**
2021	*Vachellia (Acacia) karroo*	sweet thorn	*Portulacaria afra*	pork bush	*Warburgia salutaris*	pepper-bark tree
2022	*Dais cotinifolia*	pompon tree	*Peltophorum africanum*	African black wattle	*Aloidendron dichotomum*	quiver tree
					Aloidendron pillansii	giant quiver tree
2023	*Buddleja saligna*	false olive	*Bolusanthus speciosus*	tree wisteria	*Leucadendron argenteum*	silver tree
2024	*Searsia lancea*	karee	*Apodytes. dimidiata*	whitepear	*Euphorbia sekhukuniensis*	sekhukhuni euphorbia
	Searsia leptodictya	mountain Karee				
2025	*Sideroxylon inerme*	white milkwood	*spirostachys africana*	tamboti	*Widdringtonia cedarbergensis*	Clanwilliam cedar
	Mimusops caffra	Red milkwood				
2026	*Olea europaea* subsp. *africana*	wild olive	*berchemia zeyheri*	red ivory	*Afzelia quanzensis*	pod mahogany
2027	*Dodonea viscosa* var. *angustifolia*	sand olive	*Calodendron capense*	Cape chestnut	*Curtisia dentata*	assegai
2028	*Vachellia erioloba*	camel thorn	*Erythrina lysistemon*	coral tree	*Prunus africana*	red stinkwood
	Senegalia (Acacia) galpinii	monkey-thorn				
2029	*Ilex mitis*	african holly	*Aloidendron barberae*	tree aloe	*Euclea pseudebenus*	ebony guarri

Year	Common Tree		Tree for promotion		Tree for appreciation	
	Scientific Name	Vernacular Name	Scientific Name	Vernacular Name	Scientific Name	Vernacular Name
2030	*Dombeya rotundifolia*	wild pear	*Burkea africana*	wild seringa	*Catha edulis*	Bushman's tea
2031	*Combretum erythrophylum*	bush river willow	*Faurea saligna*	willow beechwood	*Faurea macnaughtonii*	terblanz beech
2032	*Cussonia spicata*	lowveld cabbage tree	*Croton gratissimus*	lavender fever berry	*Bauhinia bowkeri*	white bauhinia
	Cussonia paniculata	Highveld cabbage tree				
2033	*Schotia brachypetala*	weeping boer-bean	*Rhamnus prinoides*	african dogwood	*Vachellia (Acacia) haematoxylon*	grey camel thorn
	Schotia afra	Karoo boer-bean				
2034	*Faidherbia albida*	ana tree	*Millettia grandis*	uzimbeet	*Commiphera harveyi*	red-stemmed cork tree
2035	*Diospyros whyteana*	bladdernut	*Maytenus acuminata*	silky bark	*Ocotea bullata*	black stinkwood
	Diospyros mespiliformis	jackal berry				

Notes on interesting trees while hiking

Theunis Morgenthal

Foreword

The hiking bug bit me again two years ago and since then it's been a challenge to balance my botanising excursions with the Dendrological Society and my extracurricular hiking trips with my new hiking club. Hiking do not only introduce you to new friends but also a few interesting trees. I would like to share some of these trees of which three were totally new to me. The only sad part is that a botanising hiker, like myself, do find it difficult to share my enthusiasm with fellow lesser interested hiking buddies. Identifying trees also happens in a split second and if you do not grab a twig while on the trot the opportunity literally passes you by.

Introduction

South Africa is blessed with hiking routes with some wonderful scenery in remote places away from the maddening crowds. Many of these routes are within forests and woodlands where some of our unique trees are growing. Herewith some of the interesting trees found on four of the hiking trails visited.

- Skeurkrans is situated on the eastern escarpment of the Waterberg near Mookgong/Naboomspruit and the trail traverse over the Waterberg-Magaliesberg Summit Sourveld and the Waterberg Mountain Bushveld (Mucina et al, 2006).

- Sokeng is near Groblersdal in the Loskop Mountain Bushveld (Mucina et al., 2006).

- Queen Rose adventure camp is in the Nelshoogte Nature Reserve. The vegetation includes Barberton Montane Grassland, of which most has been transformed to plantations, Northern Mistbelt Forests and Barberton Serpentine Sourveld (Mucina et al, 2006).

Each description and locality notes are accompanied by a distribution map based on the data available from SANBI (2016) and the Global Biodiversity Information Facility – GBIF(2019). Coordinates represent mostly quarter degree square centroids. Observation data presents approximate vicinities where the tree can be found. All photographs were taken by the author.

567 *Seemannaralia gerrardii* (valsgeelwortelboom / false carrot-tree)

Seemannaralia is a monotypic genus endemic to South Africa belonging to the *Araliaceae* (Cabbage tree) with the only species *S. gerrardii*. According to Palgrave (1991) the species is associated with ravine forests and rocky hillsides along the eastern escarpment from Transkei through KwaZulu-Natal to the Limpopo Province (Figure 1). At Skeurkrans the tree occurs typically along rocky mountain hillsides along the upper slopes of the Waterberg escarpment as a small tree or shrub.

Figure 1. Distribution map for ***Seemannaralia gerrardii***

Figure 2. The maple like leaves of ***Seemannaralia gerrardii***

Seemannaralia gerrardii is normally a small to medium size tree but can reach sizes of 20m (Schmidt et al, 2002). Its leaves are arranged alternatively and crowned near the end of the branches. A striking characteristic of the plant is the large palmate leafs with 5 or 7 lobes (Figure 2). Leaf venation is arranged from the base of the leaf resembling a maple leaf with each midrib radiating though each lobe (Schmidt et al, 2002). As indicated by Palgrave (1991) the petioles are long (up to 12cm). Unfortunately all the material observed at Skeurkrans was vegetative and no flowers or fruit were present. Palgrave (1991), however, describes the flowers resembling that of *Cussonia* with the exception that the calyx tube is saucer-shaped and not cup shaped. Fruits are ovoid, flattened to almost winged about 10x 8 mm arranged in an dense spherical heads 3-4cm in diameter. Flowering time is reported between March and April while fruit development occurs during June and September.

The population at Skeurkrans forms an outlier from the main populations along the eastern Drakensberg escarpment with a very limited distribution on the eastern side of the Waterberg.

477 *Sterculia rogersii* (sterkastaiing / star-chestnut)

According to the Plant List *Sterculia* is a genus of the Malvaceae subfamily Sterculioideae. There is about 91 accepted species in the genus Sterculia of which three species occurs in South Africa namely *S. alexandri*, *S. murex* and *S. rogersii*. *Sterculia rogersii* is described by Palgrave (1991) as a small deciduous tree up to 5m high. The trunk is characteristically swollen with a flaking bark revealing light pink and purple mottled appearance. In its natural habitat the tree is very distinctive with its succulent like appearance and very pale papery bark. Palgrave (1991) further describes the leaves as small (less than 6cm), broadly ovate, fairly deeply 3-lobed. The leaf margin is entire. Flowers which are green yellow and flushed with pink are small, saucer shaped developing before leafs, solitary or in clusters on old wood and branches.

The fruit are probably the most characteristic, made up of up to 5 separate carpels splitting open at maturity.

The habitat is typically low altitude dry woodland from northern KwaZulu-Natal, Swaziland, Mpumalanga, and Limpopo; eastwards into Mozambique, Zimbabwe and along the Limpopo river valley to eastern Botswana. Figure 3 illustrates a distribution map for *S. rogersii* based on data from SANBI database and its observed locality at Sokeng.

Figure 3. Distribution map for ***Sterculia rogersii***

At Sokeng, *Sterculia rogersii* occurred in stream beds along the dry hot north and north-western slopes. It's a fairly common tree and some well-developed specimens occur along the hiking routes. Because of its limited distribution in dry lowveld savanna it is not a well-known species and therefore its sighting is a treasure.

Main trunk with its typical bark pattern

Small flowers

Old fruit

Figure 4. Main trunk , flowers and fruit of ***Sterculia rogersii*** photographed at Sokeng during August 2019

454 *Heteropyxis canescens* (boslaventelboom / forest lavendertree)

Heteropyxis canescens is one of those rare trees that need to be on a South African Dendrologist bucket list. The tree nearly always is associated with streams and riverine forests. It is mostly a medium size tree but can reach 20m in exceptional circumstances. The genus *Heteropyxis* is confined to Southern Africa and the species *H. canescens* is endemic to the Eastern Drakensberg escarpment (Figure 5). The species are classified under the family Myrtaceae / Heteropyxidaceae.

Palgrave (1991) described the bark colour as grey which do not accurately describe this trees interesting bark colourations. The mature bark pattern has a rough pitted appearance with a light grey, brown, ecru mottling colour in comparison to *H. natalensis* which bark is pale grey and thinly flaking (Figure 6). The leaves are arrange alternate and are narrowly elliptic up to 15cm x 3.5 cm (*H. natalensis* are typically smaller). The leaves of *H. canescens* are characterised by prominent lateral veins forming an acute angle with the midrib (lateral veins not very prominent and forming open angle with midrib in *H. natalensis*). As with *H. natalensis* the leaves smell of lavender when crushed. Handsome specimens can be observed at Uitsoek Forest along the Houtbosloop but the tree also occurs at Nelshoogte and Buffelskloof Nature Reserve.

Figure 5. Distribution map for ***Heteropyxis canescens***

Figure 6. Bark pattern of mature ***Heteropyxis canescens***

684 *Breonadia salicina* (mingerhout/matumi)

Palgrave (1991) describes *Breonadia salicina* as a large tree growing in low altitude riverine forests on the banks of permanent streams and rivers. This habitat description is very true for Nelshoogte where *Breonadia salicina* occurs along the Queens River as a medium size tree frequently standing in water. The tree is so dominant in the riverine forest that the stretch of trail is known as Matumi Lane.

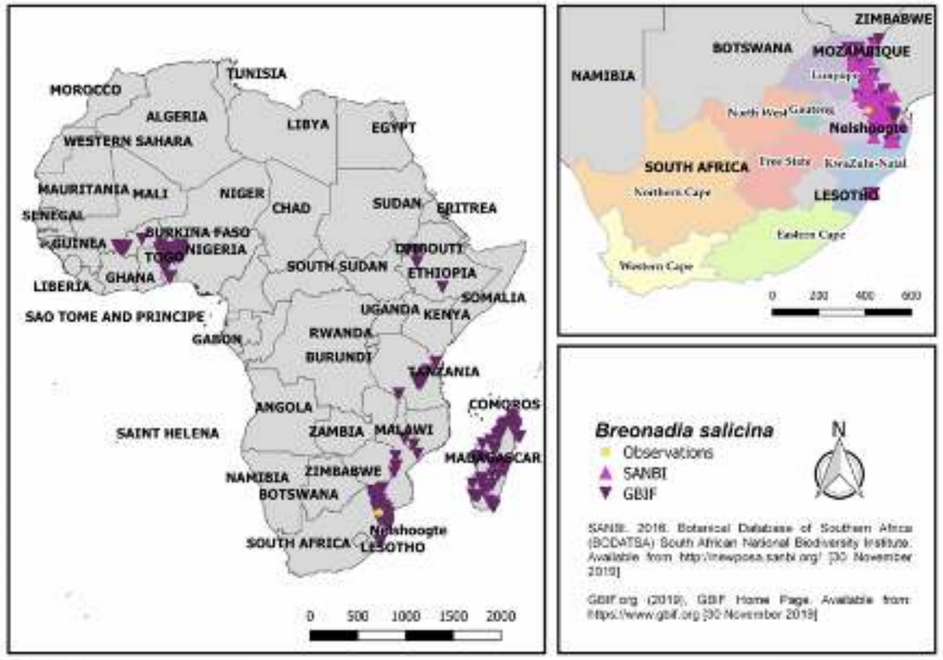


Figure 7. Distribution map for ***Breonadia salicina*** in Africa and South Africa. Data available from GBIF (2019) and SANBI (2016).

Breonadia salicina is from the Rubiaceae (Coffee) family. It is a monotypic species growing throughout lowland riverine habitats from South Africa, Mozambique, Madagascar, Tanzania, Ethiopia, West Africa (Benin, Tongo and Burkina Faso), and the southern Arabian Peninsula (Yemen, Saudi Arabia) where its regarded as a very rare species (Gaafar et al, 2014).

Leafs are characteristically crowded on the ends of branches either arranged oppositely or in whorls. Leaves are simple, large (12 – 30 x 2.5 – 6 cm), hard and leathery with a lanceolate to narrow elliptic form. The petiole blends into a prominent yellow midrib. Flowers are small pale mauve, sweetly scented in compact round axillary heads at the end of branches (Palgrave, 1991). Fruits are small 2 lobed capsules densely clustered into spherical heads. The plant is a favourite muti plant and is prized for its timber (Palgrave, 1991). The bark is reputedly used for stomach ailments and as a tonic. Because of over utilization it is a protected plant in South Africa.

The plant can be confused with *Rauvolfia caffra* (kinaboom, quinine tree). All parts of *Rauvolfia caffra* contain white latex, the fruit is a fleshy berry, leaves are more thinly lethery and the leave veins are translucent.

Typical growth form, of ***Breonadia salicina*** along the Queens River at Nelshoogte Nature Reserve

Leaf form and arrangement of ***Breonadia salicina***

Figure 8. Photographs of ***Breonadia salicina*** taken at Nelshoogte during September 2019

Conclusion

Hiking trails can provide access to some very interesting trees, with a little bit of sweet and good observation skills. At Sokeng 53 tree species were noted, Uitsoek 76 tree species, Queen Rose in Nelshoogte Nature reserve 72 tree species and at Skeurkrans 102 tree species. The hike at Sokeng was done during a very dry time in the year and therefore the 53 trees are probably an under estimation. At Skeurkrans and Uitsoek unfortunately walking in mountainous terrain is the only solution to explore the areas tree diversity. At Sokeng and Queens River trees can be seen by driving and walking sort distances.

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dit en dat
this and that

Bultende are op hardekoolboom

Naas Grové het hierdie fotos van ‘n hardekool by Baltimore in Limpopo afgeneem. Die lyk asof the boom besig is om dood te gaan met net nog ‘n paar yl takkies wat blare aan het (Foto 1 & 2). In fotos 3 – 6 kan ‘n duidelik verhewe ‘bultende aar’ aan die oppervlak van die stam waargeneem word. Wat is die verklaring vir hierdie verskynsel?

Foto 1

Foto 2

Foto 3

Foto 4

Foto 5

Foto 6

Prof. Braam van Wyk antwoord: Verhewe “are” op die stam van hardekoolboom

Lengtegroei van stingels by bome is slegs moontlik in die jongstadium wanneer nuwe selle in die groeipunte van stingels deur seldeling vorm. Boomstamme en ouer takke kan nie ‘‘rek’’ nie, maar neem wel in dikte toe.

Diktegroei word moontlik gemaak deur ‘n merkwaardige laag ongedifferensieerde (kiem-) selle wat voorkom op die oorgang tussen die hout en die bas. Dié laag selle staan bekend as die kambium (ook genoem vaatkambium). Kambiumselle kan herhaaldelik verdeel. Nuwe selle wat na binne vorm, aan die houtkant van die kambium, differensieer om nuwe houtweefsel te vorm. Indien die nuwe selle egter na buite vorm, aan die baskant, dan differensieer dit om nuwe basweefsel te vorm.

Houtselle en basselle het ‘n beperkte leeftyd waartydens hulle funksioneel is. Nuwe hout en nuwe bas moet voortdurend deur die kambium gevorm word, nie net om ouer nie-funksionele weefsel te vervang nie, maar ook om voorsiening te maak vir die groter behoefte aan vervoer van water en voedingstowwe soos wat die boom se kruin in grootte toeneem.

Indien verdeling van die kambium ritmies en seisoenaal gebeur, ontstaan min of meer konsentriese groeiringe. In hout word dié ringe as jaarringe geïnterpreteer en kan getel word om onder andere ‘n aanduiding van ‘n boom se ouderdom te verkry. Sonder ‘n aktiewe kambium kan geen nuwe hout en bas gevorm word nie en sal die boom mettertyd vrek. Bome wat geringbas word vrek in wese omdat die kambium vernietig is, gewoonlik deur uitdroging weens blootstelling aan die atmosfeer omdat die beskermende basbedekking verwyder is.

Die hardekool in die foto se kambiumweefsel het om een of ander rede grootliks gevrek en daarmee saam die geassosieerde hout en bas, asook daardie dele van die kruin wat dit van water en voedingstowwe voorsien het. Die dooie basweefsel is relatief sag en het lank gelede reeds ontbind en tans is slegs die onderliggende en meer bestande dog reeds verweerde dooie hout aan die omgewing blootgestel. Maar daar is steeds enkele takke met blare in die boom se kruin wat lewend is.

Die vervoer van water en voedingstowwe tussen die wortels en takke van bome vind plaas langs spesifieke roetes (gedeeltes) in die hout en bas. By hierdie boom is daar steeds ‘n funksionele hout en bas verbinding tussen die oorblywende lewende takke en hul geassosieerde wortels. Dit word verteenwoordig deur die duidelik verhewe gedeelte op die oppervlak van die stam (‘n ‘‘bultende aar’’ is ‘n gepaste analogie).

Hierdie weefsel is verhewe, eerstens omdat die bas nog lewe en nie soos elders aan die stam ontbind het nie, maar meer belangrik die kambium is nog lewend en vorm langs hierdie verhewe gedeelte steeds nuwe houtweefsel na binne en basweefsel na buite, alhoewel nie meer in konsentriese lae oor die hele omtrek van die stam nie. Met ander woorde, hierdie is die enigste deel van die stamomtrek wat nog in dikte toeneem. Al is die grootste deel van die boomstruktuur dood, kan hierdie ‘‘lewenslyn’’ nog vir ‘n lang tyd verseker dat gedeeltes van die boom se kruin aan die lewe bly. Hoe meer verhewe hierdie strook weefsel is, hoe langer het dit bly funksioneer nadat die res van die boom gevrek het; in die geval van die boom in die foto, ooglopend ‘n baie lang tyd.

Combretum imberbe – leadwood / hardekool

Bome draai kloksgewys

Fanie Steyn het die afgelope tyd in Limpopo iets raakgesien wat vir hom opvallend is. In die fotos is daar duidelike 'groewe' waarneembaar, almal draai kloksgewys om die boom na boontoe en wil graag weet hoekom. Hy het ook die verskynsel in telefoon en transmissie pale waargeneem, maar het dit nog nie by maroela en tambotie waargeneem nie.

Prof. Braam van Wyk antwoord as volg:

Bome draai kloksgewys

Spiraalgrein is die verskynsel wanneer hout van 'n boomstam of tak van buite beskou word, die houtvesels (grein) in 'n heliks rondom die stam se lengte as verloop, eerder as parallel daarmee, soos wat gewoonlik die geval is. In Fanie Steyn se foto's van 'n dooie stam word die spiraalgrein duidelik deur krake aangedui. Hierdie krake volg die orientasie van die houtvesels en ontstaan wanneer die hout tydens uitdroging krimp.

Indien die hout van die bopunt van die stam/tak se lengte-as bekyk word en die verloop van die heliks se windings na bo met 'n vinger gevolg word, dan is die patroon wat beskryf word of kloksgewys (regsom) of antikloksgewys (linksom). Die foto's wys dat die grein (volgens die voorafgaande definisie) antikloksgewys draai. Sou daar natuurlik van die onderpunt van die stam gekyk word, dan is die draairigting kloksgewys! Om moontlike verwarring wat op die manier kan ontstaan uit te skakel, verkies sommige mense om na kloksgewys (soos vanaf die bopunt bepaal) te verwys as linkshandig en na antikloksgewys as regshandig. Die ''handigheid'' van houtgrein (of te wel enige heliks) verander nie as 'n stam omgedraai word nie. Indien van buite na 'n heliks gekyk word, stel jou voor daarbinne is 'n spiraaltrap en die heliks is die handreling. As jy na bo klim met die trappe, watter hand sal jy op die reling plaas? As die reling aan jou regterkant is, dan is die heliks regshandig; andersins is dit linkshandig.

Terwyl sommige boomspesies selde opvallende spiraalgrein vertoon, is daar ander waarby dit meer algemeen voorkom. Die geneightheid van spiraalgrein om klokgewys of antikloksgewys te draai is soms ‘n spesie-spesifieke eienskap. Appelbome se grein is byvoorbeeld meestal kloksgewys terwyl dit by peerbome meestal antikloksgewys is. Maar by baie ander boomsoorte varieer die graad van ontwikkeling asook draairigting tussen bome en kan dit selfs in dieselfde stam wissel met ouderdom.

Die talle voorgestelde redes waarom spiraalgrein ontwikkel is steeds grootliks spekulatief. Daar is egter geen wetenskaplike getuienis dat die draairigting enigsins verband hou met of die boom in die noordelike halfrond of die suidelike halfrond groei nie, ook nie dat dit deur die heersende windrigting beïnvloed word nie. Net soos wat rankplante se stingels by meeste spesies antikloksgewys om ‘n stut slinger, so is die geneigtheid van hout om spiraalgrein te ontwikkel, asook die draairigting daarvan, by sommige spesies in ‘n mindere of meerdere mate geneties-bepaal.

Die moontlike voordele, indien enige, wat spiraalgrein vir ‘n boom inhou is nie duidelik nie. Een hipotese is dat dit ‘n mate van buigbaarheid aan stamme gee wat die spanning wat daarop geplaas word in ‘n mate buffer wanneer bome se kruine deur sterk wind geswaai word.

Plant photographs and captions for identification: basic tips

Naas Grové

Plant collection

Before you start collecting plants, you need permission to collect, as well as the right equipment, maps, vehicles, and emergency supplies. For a detail guide on how to collect herbarium specimens refer to Herbarium Essentials. The Southern African Herbarium User Manual, Southern African Botanical Diversity Network Report No. 25 2004

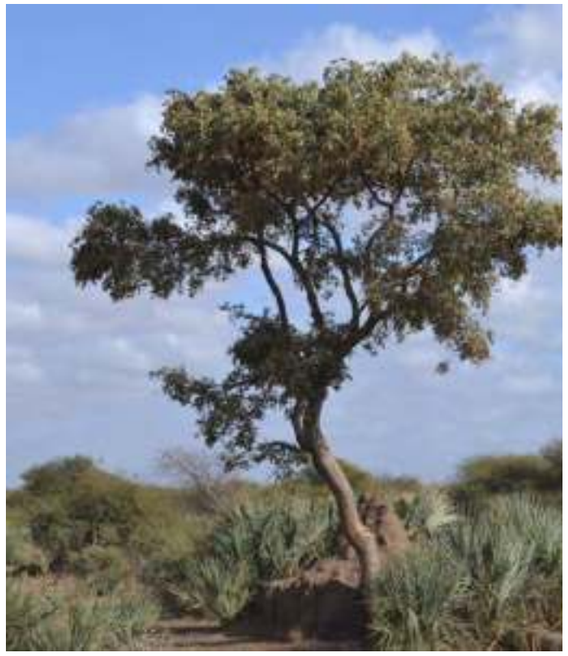
https://www.sanbi.org/sites/default/files/documents/documents/sabonet-report-no-25-herbarium-essentials-southern-african-herbarium-user-manual.pdf

Plant photography for identification purposes

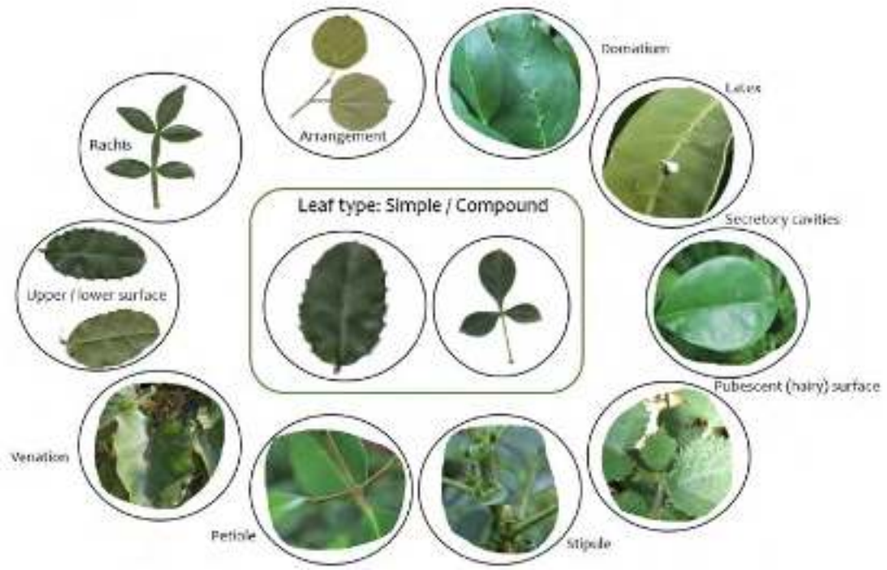
Notes when taking photographs

1. General information
   - Date photo taken
   - Name of photographer
   - File name of the photo
2. Location information
   a. Location description
      Begin with the country and then become more specific.
      For example: South Africa, Leolo Mountains, Sekhukhuneland Center of Endemism, Limpopo Province, South Africa
      GPS Location
      Can be of the general area rather than for each plant, i.e. around GPS coordinates
      24 ° 21'13.49'' S / 29 ° 55'31.48'' E
      Altitude ~981m
   b. Habitat profile
      Brief description: Type of vegetation, i.e. relative abundance / species richness of all plant species occurring

3. Gestalt Dendrology: Looking at the Whole Tree



4. Close-up pictures of specific outstanding leaf features



5. Close-up pictures of other specific outstanding features

Old tree at Brackenhill

Georg von dem Bussche
Retired Forester

Eucalyptus globulus

Not far from the spectacular Brackenhill Waterfall a very old and tattered and slowly dying blue gum tree (*Eucalyptus globulus*) is granted its old-age rest by the responsible forestry authority (at present MTO), surrounded by healthy pine plantations. This old monster however is still a living memory of a historical occasion, which has been described in detail by many and mostly in different ways. The story is based on the visit of the young Prince Alfred, son of Queen Victoria, to Knysna in 1867. He received a royal reception, which included an elephant hunt, which can be described in today's terms more an ''Elephant Murder'', however who are we to morally judge the sports of olden days.

Legend has it that a *Eucalyptus globulus* tree was planted at the site were the elephant was finally shot by His Royal Highness near the Brackenhill Waterfall. This old tree, today 152 years old reminds us of the fatal (but historical) occasion.

This short note, with a recent photo of the old tree, is supposed to serve as a document to remind us of the longevity of trees, the historical visit of His Royal Highness and the abundance of elephants, which roamed freely in the indigenous forests of the Garden Route only 150 years ago.

nuus uit die takke
news from the branches

Waterbergtak uitstappies na vêr plekke

Gertie Oosthuizen

Combretumpark

Die taklede het in April 2017 'n naweek-uitstappie na Combretumpark naby Modimolle onderneem. Hier het ons verskeie *Combretum* spp, krinkhoute, kurkbasklappers, bosveldkatjiepierings, vyebome, stinkwitgatte, doppruime en vele meer bewonder. Die park het baie verskillende biome wat meebring dat daar 'n groot verskeidenheid bome en voëlspesies voorkom.

Ons het kierrieklapper-tee gedrink en aan Andries se heerlike mieliepap gesmul.

Hoewel daar meer as twintig lede die daguitstappie meegemaak het, het slegs sewe lede vir twee aande daar oornag.

Punda Maria

In Februarie, 2018 het twintig lede van die Waterbergtak by Punda Maria-kamp in die Kruger Nasionale Park vir vyf dae bymekaargekom om bome te identifiseer en om die besondere skoonheid van elk in te neem. Alhoewel dit baie droog was, het dit daardie nag begin reën en was ons geseënd om koel, bewolkte weer vir die res van die week te hê.

Foto 1

Maandag en Dinsdag het die groep langs die Flycatcher-paadjie en in die kampeer-area bome geïdentifiseer. Woensdag is die Mahogany-sirkelroete met vier voertuie verken. Radioverbinding met Dr. Carel Pretorius, Andries van Niekerk en Douwe van Wyk het gehelp om interessante bome, soos anabome, langs die pad uit te wys. Donderdag het die groep weer na die Pafuri piekniekplek en Crooks Corner, in vier voertuie gereis, almal in radio kontak met mekaar.

Dit was asemrowend om die groot kremetartbome en die koorsboomwoud van naderby te sien. Die koorsboomwoud is 'n bietjie uitgedun na die laaste vloede. Ontbyt is op die oewer van die Levhuvhurivier onder die reuse jakkalsbessies genuttig.

Daar is altesaam 121 bome uitgeken, baie van hulle was vir ons 'n eerstemaal.

Blouberg

Gedurende Mei 2019 het die Waterbergtak die Bloubergnatuurreservaat in Limpopo onder leiding van Andries van Niekerk (voorsitter) en Dr. Carel Pretorius, vir vyf dae besoek.

Foto 2

Die natuurreservaat is aan die voet van die Blouberg geleë, wat deel van die Soutpansberg is. Die reservaat beslaan 9 300 hektaar en daar word 'n geweldige groot verskeidenheid boomspesies aangetref. Dr. Pretorius skryf dit aan die wisselende grond-tipes van die reservaat toe.

Noemenswaardige boomspesies is die groot kremetarte, verskeie kanniedood spesies, rusperboontjie, njalaboom, appelblaar, trosvy, groot haakbessie, wollerige kapperbos en grootblaarvalsdoring. Dan is daar ook sambokpeul, klokkiesboontjie, knoppiesboontjie, bergmahonie, towerghwarrie, sterkbos, vlamklimop, bergvalsdoring, wurmbasvalsdoring en vele meer.

Die kransaasvoël is 'n bedreigde spesie wat endemies tot Suider-Afrika is. Hierdie broeikolonie met sowat 1 200 broeipare, is die grootste ter wêreld en was 'n skouspel want 'n groot aantal van hierdie majestieuse voëls het bo die kranse gesweef. Dit was duidelik dat die broeiseisoen reeds begin het, aangesien ons kon sien hoe sommige met nesmaak-materiaal in hul bekke gevlieg het.

In die vyebos wat mens aan Magoebaskloof se woude herinner, het almal piekniek geniet.

Saans het die lede almal, na 'n lang opwindende boom-ontdekkings-dag, by die lapa saamgekom om braaivleis en smullekker pap uit Andries se driepootpot te geniet. Hier het Dr Pretorius voortgegaan om almal met interessante stories van bome en die natuur te vergas.

Die Waterbergtak het 'n groot aantal van die unieke bome in die kampe en hoof-roetes van boom-identifikasieplaatjies voorsien. Die lede sal weer eendag na hierdie boomparadys moet teruggaan om nog meer van die reservaat se groot verskeidenheid boomspesies te identifiseer.

Bloubergnatuurreservaat kan verseker as 'n boomliefhebber se paradys beskou word.

Gevolgtrekking:

Teen die verwagting in, het die laaste twee uitstappies getoon dat lede tydens langafstand uistappies wel bereid is om vir langer periodes, oor te slaap.

Outeniqua Branch of the South African Dendrological Society 2019

Robert Smith

This past year, the Outeniqua area has been the recipient of relatively favourable climatic conditions which has meant that growing conditions for trees, forests and gardens have, in the main, been positive. The important outcome of this is that there has been good sustainable recovery in areas damaged in the severe fire storms of the past two years. Recovery of vegetation, either through regrowth in the form of resprouting of certain species as well as new growth through seed germination, has meant that the worst ''scars'' from the fires have been covered over with new growth. Alas, one of the more negative outcomes of this new regrowth has been the perceptible amount of alien vegetation which has taken root and dominated certain areas with virile and uncontrolled vigour. Mercifully, numerous initiatives from the authorities and the public at large has led to the creation of a strong awareness and the introduction of dedicated teams which are actively engaged to counteract the effect of the alien weed problem, especially in and around the towns.

The January outing this year was held at the marvelous Ebb and Flow Nature Reserve near Wilderness, where the well wooded and tended camp site, forest dune scrub, fynbos as well as well conserved riverine high forest, were all appreciated.

The March outing took members to the remarkable ecological initiative undertaken by the invincible and enterprising couple, Debbie Stanley and Hatti Thesen. These two have been running the Eco-Ed training facility near Harkerville for the past decade. In the process they have managed to reach out to numerous children who, under the existing educational system, would have possibly never had the opportunity to be exposed to such an ecological experience. The Dendro visitors were broken up into competing groups and subjected to the same learning experience offered the children. This experience was well received to the great amusement of some who were baffled by the cryptic clues and spent much time puzzling over answers which the children would have also encountered. Being ex-teachers, this method of teaching has obvious advantages for young and old!

The Mid-week outing was to the De Vassselot Nature Reserve in Nature's Valley. This very popular resort and area did not disappoint. An opportunity to view the magnificent pristine riparian forest all set about with cathedral-like Yellowwoods, Stinkwoods, Ironwoods and many more, provided an ideal opportunity to appreciate fully the majesty of one of the last few remaining bastions of untouched coastal Afro-montane forest. A walk was undertaken through the town area of Nature's Valley.

This area has been subject to the forces of urbanization for the last century, and it was not surprising to see numerous exotic garden trees in the village. In spite of this, either through conscious planting or through the natural process of seed dispersal by birds and mammals, a large amount of indigenous vegetation has flourished in the town. The group contacted Trynie Roberts who described the efforts of certain residents who actively encourage the use of natural vegetation in their gardens. A great number of properties have vegetation which is entirely indigenous, while some are not.

The July outing was to the Pledge Nature Reserve in Knysna. This Reserve was almost totally ruined by the firestorm of 2017 to such an extent that all of the fynbos and most of the planted forest was unrecognizably denuded. Very energetic rehabilitation initiatives have been undertaken by the Trustees and Management which has resulted in almost all the opportunistic alien vegetation being eliminated accompanied by successful re-planting of young tree species which occur naturally in the area. Most encouraging was to hear of the selfless generosity of various donors who in many ways gave of their time and money to sponsor new trees for planting or simply to help with weed clearing and general restoration work.

In September, a very worthwhile visit was made to Jenny and Stuart Herd's farm Hidden Valley situated along the banks of the Karatara River. This farm was spared from the burning which ravaged the opposite side of the River two years ago, so it was most interesting to see what the Herds are doing to ensure that the fuel load is not unmanageable should a fire break out in their area. Under Jenny and Stuart's careful watch, the farm has been entirely cleared of alien vegetation and local indigenous fynbos and dry scrub bush vegetation is now flourishing throughout the property.

The annual year-end outing was held in the Diepwalle Forest Station under the expert leadership of Georg von den Bussche. Georg's aim with this outing, was to introduce the group to the Diepwalle Arboretum, in order to show how forest can recover from fire as well as to show how forestry practices of the last century (however inept by modern standards) has given pointers for present day thinking. Georg showed how a part of the forest was denuded in the fires of 1868 and how this had recovered by natural plant regrowth facilitated by the dispersal of seeds by birds and mammals. A further part of the forest had suffered total clearing by previous woodcutters. These various "blocks" had been singled out for regeneration in the early part of the 1930's. Only selected tree species were planted in each block as a monoculture. Each of these blocks which contained only one tree species, was monitored over the years to see what effect the planting would have on regrowth. Various practices were followed to see the effect of each on re-establishment. Some parts were cleared on a five-yearly basis of all the natural regrowth and some were left uncleared – only alien species were removed here. The conclusion drawn was that those areas where regrowth was left unchallenged showed more vigorous regrowth and with more diverse forest tree species than those that were continuously cleared. Another lesson was that certain species, such as *Podocarpus henkelii*, which do not occur naturally in this region, showed the most robust growth of all the species, and what is more, this area where

they were planted showed virtually no regrowth of naturally dispersed vegetation at all. The *P. henkelii*, thus, demonstrated an ability to suppress the regrowth of other tree species thus allowing only their own species to survive. Various explanations were discussed about the cause of this. One proposal was that they possibly occurred here in the deep geological past but had been squeezed out by the effects of previous climate change episodes and now felt very comfortable being reintroduced here. This could be the basis of scientific studies of this phenomenon in the near future. As is customary with Georg's talks, the group left with a great to think about!

Finally, I would like to extend my deepest thanks to all those who help to make our outings such a success. To Ariane Rholoff for holding the purse strings and for keeping us abreast of activities. To all who make our outings a success with their detailed arrangements and preparations – Ina Engelbrecht, Chris Gow, Ursula Peter, Georg von den Bussche and Jenny Herd a great word of thanks.

Pilanesbergtak 2019

Henry Francis – pilanesberg@dendro.co.za

Een van die talle rotspoele by Milhoro

Die Pilanesbergtak is hoofsaaklik gebasseer in Rustenburg en die westelike deel van die Magaliesberg is op ons voorstoep. Ons ledetal staan op 51 en is hoofsaaklik van Rustenburg, Brits, Koster, Swartruggens en Groot Marico se wêreld. Daar is 'n nuwe bestuur gekies in 2019 met Henry Francis as die voorsitter, Belinda Cornelius as sekretaresse en Naas Grové as addissionele lid.

Die tak oorhandig elke jaar drie wissel trofeë in die kategorieë Grootboom van die Jaar, 'n Familie trofee en die Arbor Scientia trofee. Tydens die afsluiting verlede jaar het dit onderskeidelik aan Clive Richter, die Van Beek-familie en Henning Visser gegaan. Die tak het 'n goeie jaar gehad met betrekking tot uitstappies en aandbyeenkomste.

Daar is aan die begin van 2019 met uitstappies na Milhoro Lodge en na Kgaswane Natuur Reservaat, albei in die Magaliesberg, afgeskop. Beide uitstappies word gelei deur Naas Grové en was baie insiggewend. Die naweek uitstappie na Swebeswebe Natuur Reservaat in die Waterberge naby Lephalale was 'n gekombineerde uitstappie saam met die Magaliesbergtak. 'n Groot verskeidenheid boomspesies is hier aangetref en was voorwaar die moeite werd.

Gedurende die wintermaande is twee aandbyeenkomste te Rustenburg gehou waar Naas Grové interessante aanbiedings gedoen het oor die *Euclea* en *Diospyros* genera. Gedurende Oktober 2019 doen Henry en Naas 'n Dendrologiese Vereeniging uitstalling tydens die Bloubessie en Kersiefees te Milhoro lodge wat byval vind by talle feesgangers. Ons laaste uitstappie is na Rustenburg Hoërskool se Arboretum, die enigste skool in Afrika met die geakkrediteerde status van die Morton Register of Arboreta geniet . Na elke uitstappie is daar soos gebruiklik lekker gesellig saam gekuier en gebraai.

Ons glo en vertrou dat 2020 selfs meer opwindend sal wees met uitstappies wat gereël is na interessante boombestemmings en 'n verskeidenheid veldtipes. Indien daar lesers is wat graag van ons aktiwiteite wil bywoon kan hul my gerus kontak om die nodige reelings te tref.

Die aandbyeenkomste in die winter is gewild en word goed bygewoon

Magalies Tak Jaarverslag

Theunis Morgenthal –Takvoorsitter
Izak van der Merwe – Sekretaris

Die jaar 2019 was `n besige tyd vir die Magalies Tak. Die tak het elke maand, behalwe Augustus, iets aan die gang gehad. Na baie jare se diens het André de Villiers sy voorsitterskapbaadjie opgehang. Theunis Morgenthal is verkies as nuwe voorsitter van die Magalies Tak.

Magalies Tak jaarprogram vir 2019

Maand	Aktiwiteit
Januarie	Jan Cilliers Park
Februarie	Donkerhoek
Maart	Magaliesberge – Groot- enYsterhoutkloof
April	Walter Sisulu Botaniese tuin
Mei	Voortrekker Monument
Junie	Marakele Nasionale Park
Julie	Merk bome by Jan Cilliers Park
Augustus	Rus – Geen aktiwiteit nie
September	Boomplant by Faerie Glen Natuurreservaat en uitstappie na Skuilkranskopje
Oktober	Buffelskloof Privaat Natuurreservaat
November	Marulani jaareinde

Vier naweekuitstappies is gehou met die idee om minstens beide 'n behoorlike bosveld- en wouduitstappie te reël vir die jaar. Vier oggend/daguitstappies is gereël in en om Pretoria. Ekstra moeite is ook gedoen om die bome by Jan Cilliers Park in Groenkloof te merk. Die park het vir die Magalies Tak `n spesiale plek geword, met sy groot verskeidenheid inheemse bome waarvan meeste ongewoon is vir Pretoria.

Ons eerste naweekuitstappie was by Groot- en Ysterhoutkloof tydens 9-10 Maart in die Magaliesberge. Oorspronklik was die plan om Hammerkopkloof te besoek, maar toegang tot die kloof was nie maklik om te reël nie. Gelukkig het die voorsitter vir Vlam Pieterse leer ken op een van sy stappe as deel van 'n stapklub. Vlam het in die omgewing grootgeword en ken die twee klowe soos die palm van sy hand. Tydens die uitstappie na Groot-en Ysterhoutkloof, is 100 bome gelys. Dit was besonders om beide die smalblaarwasbessie en breëblaarwasbessie te sien. Alhoewel dit moontlik is dat daar meer rooistinkhout voorkom, is daar slegs een boom waargeneem aan die onderkant van Grootkloof. In die sykloof, wat Groot- en Ysterhoutkloof verbind, staan daar ook `n paar hophoutbome, wat nie algemeen is vir die Magaliesberge nie. In die klowe kom pragtige groot without, stamvrug, moepel en bosveldysterhoutbome voor. Die Magalies se klowe bied voorwaar `n groot verskeidenheid, maar die kranige boomkyker moet bereid wees om bietjie klouterwerk te doen.

Die diep klowe van Groot-en-Ysterhoutkloof

Vir die tak se bosveld uitstappie, is Marakele Nasionale Park besoek die naweek van 15-16 Junie. Op die spyskaart was `n besoek aan Tlopi, wat `n rivieroewerbos is. Ongelukkig kon ons nie die hoof oewerbos besoek nie a.g.v. olifante in die nabyheid. Ons het wel doringolm, Kaapse kastaiing, geelkeur en witysterhout gesien. Die middag het ons die uitkykpunt besoek, waar opregte geelhout, bergsipres en rotshardpeer groei, asook 'n hele paar protea spesies, insluitend die minder algemene troshofiesuikerbos en witsuikerbos. Die Sondagoggend was `n geleentheid om in die park rond te ry met `n wildritvoertuig en uit te kyk vir besondere bome, waarvan dopperkiaat volop te siene was tydens die rit. Tydens ons naweek het ons 120 bome gelys. Marakele bied verskeie habitate van bosveld, rivieroewerbos, tipiese Waterberg suurbosveld, en bergveld.

Tlopirivierbos in Marakele Nasionale Park

Die naweekuitstappie na Buffelskloof Privaat Natuurreservaat was voorwaar die hoogtepunt van die jaar se uitstappies, veral as John Burrows homself beskikbaar stel om `n uitstappie te lei. Dít is 'n plek waar selfs die gesoute dendroloog nog `n les of twee kan leer. Tydens die naweek is 125 bome opgemerk waarvan meestal woudspesies is, soos rooipeer, berghardepeer, assegaai, lemoenhout, wildekweper, rooistinkhout, wildepruim, Kaapse swarthout, boslaventelhout en kannabas, om `n paar te noem. Op gedeeltes in die kloof staan pokysterhout dominant uit. Die droë noordelike valleihange word gedomineer deur valsperdehout. Tússen die valsperdehout kan mooi voorbeelde van rooistamkanniedood gevind word.

Die paar van ons wat die Sondag vir oulaas ‘n paar bome probeer opsoek het. Van links na regs: Ria, Owen, Ivan, Tessa en Theunis.

John Burrows vertel van die interessante geskiedenis van Buffelskloof.

Die bokant van Buffelskloof

Die grootmirting

John het spesifiek die teenwoordigheid van blinktaaibos, wat in die woud groei, uitgewys, wat `n aanduiding is hoeveel die woudbome die omring en die grasveld ingeneem het. Hy verduidelik dat blinktaaibos as pionierstruik verkies om in vol son te groei en die teenwoordigheid daarvan dui daarop dat groot gedeeltes eintlik grasveld was voorheen. Voor die kloof uitgeklim word raadpleeg John om uit te kyk vir die terrasmuurtjies wat deur die vroeëre inwoners van hierdie kloof gemaak is vir gewasverbouing. Duidelik was die konsep van grondbewaring reeds deel van die kultuur van die inboorlinge wat hier gewoon het. Ou murasies is teëgekom wat aandui waar hulle gebly het. In die middel van die murasies, staan een reuse koraalboom. John verdudelik dat dit praktyk was, wanneer ‘n stamhoof afsterf, om `n koraalboom op sy graf te plant. Om te luister na al die stories van die mense wat hier woonagtige was, bring beelde op oor hoe hierdie kloofhange moes gelyk het donkiejare gelede. Ons stap dieselfde voetpad uit wat die inwoners ‘n paar honderd jaar terug gemaak het… wat `n belewenis.

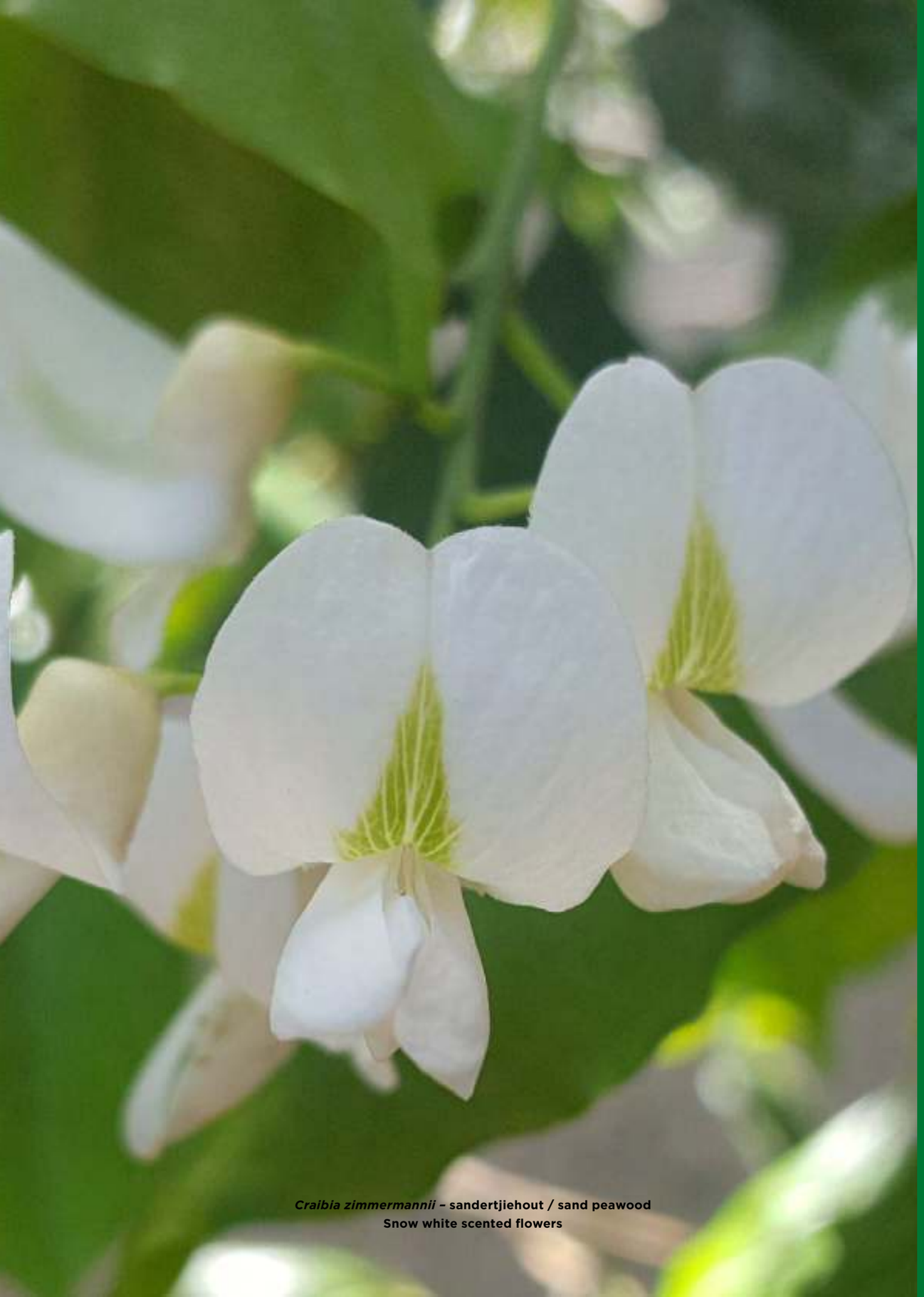
Deur die jaar was die Magalies Tak ook betrokke by die Gaufees en het soos oudergewoonte gehelp om kampioenbome te beoordeel by skole. Die tak besoek ook die Voortrekker Monument waar ons in die nuwejaar beplan om te help met die identifiseering van bome waar plaatjies aangebring kan word. Ons lei ook `n boomekskursie saam met die

Vriende van Moreletakloof Natuurreservaat om bewustheid rondom bome te bevorder. Boomplantweek is gevier deur weereens ‘n boom (blompeer) te plant by die Faerie Glen Natuurreservaat en na afloop daarvan vir ‘n stappie te gaan by die Skuilkrans Kopje, ‘n 10 hektaar koppie in Murrayfield, saam met Vriende van Skuilkrans Kopje.

Die tak sluit die jaar af by Marulani, Prof André De Villiers se wegbreekhuisie, in die Waterberge. Na afloop van meer as 50mm reën die vorige week, ná ‘n baie droeë seisoen, was ons net betyds vir nuwe blare en die geel blomme van lekkerbreekbome, asook die laventelkleurige poerabessie. Die bestuur van Magalies sê dankie aan elkeen wat die moeite gedoen het om ons uitstappies te ondersteun en by te woon.

Poerabessie (***Vitex pooara***) in blom by Marulani.

Magalies Tak lede by Marulani ter afsluiting van die tak se aktiwiteite vir die jaar.
Van links na regs: Izak van der Merwe (voor), Gert Middelberg (agter), Ivan Riggs, Owen Brett (en kleinseun Nathan), Izak en Nelia Lombard (nuwe lede), Tessa Joubert, Herman Jacobs en André de Villiers. Louise Kritzinger en Johan Rosemann buite foto.



***Craibia zimmermannii* – sandertjiehout / sand peawood**
Snow white scented flowers

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