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The Pepperbark – South Africa’s most endangered tree

By Wayne Jones

Warburgia salutaris, the only African member of the Canellaceae family, is a highly endangered species on the International Union for Conservation of Nature (IUCN) Red List (listed as Endangered) and is protected by law in South Africa. *Warburgia salutaris*, also known as the Pepperbark tree for its pungent inner bark and peppery leaves, or by its Zulu trade name, Isibhaha, is an evergreen tree that grows to about 5–10 m in height with a dense canopy.

It is considered a tropical forest tree that inhabits forest or woodlands on slopes and ravines. Although it was previously widespread over southern Africa, habitat loss and over exploitation has severely restricted its distribution. Its range is limited to a few small pockets extending into north-eastern KwaZulu-Natal, eastern and northern Limpopo and Mpumalanga, where it occurs in nature reserves and protected areas. In these areas it is under constant surveillance and protection. Armed guards protect the trees and attempts have even been made to train sniffer dogs to detect their presence as part of the conservation effort.

There are several reasons for its scarcity. Firstly, seed production is low due to predation from the mango fruit fly, *Ceratitis cosyra*, secondly the seeds are recalcitrant, and germination can be poor. Furthermore, due to its medicinal properties, both the leaves and bark are highly sought-after by the traditional herbal trade as well as the modern pharmaceutical industry, leading to unsustainable exploitation.

The name ‘salutaris’ means good health and the species’ traditional medicinal properties include treatment of coughs, colds, chest complaints, abdominal pain and a plethora of other ailments. It can be taken as an expectorant or smoked. Alternatively, it is dried and ground to be used as snuff and even mixed with water and taken orally. The traditional medicinal properties have been supported by evidence of similar concentrations of two major active compounds (polygodial and warburganal) in both the bark and the leaves. This suggests the potential for use of leaves as a more sustainable alternative to bark, but one that requires stakeholder education and engagement.

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The species has also been used in food preparation, where the leaves can be incorporated into various dishes, like curries, for their peppery taste, or used to make tea. The leaves, pods and seeds can all be used as fodder and the timber as firewood or furniture wood. This, however, is not common, possibly due to its rarity.

Many concerned parties have attempted to contribute towards the restoration and conservation of *W. salutaris*, and thus diminish its threatened status. Objectives have included promoting sustainable use of (Cont. pg. 2)

SAIF Dedicated Service Award: Hannes van Zyl

Mr. Hannes van Zyl is a lecturer in Forestry and Fire related subjects at the George Campus of Nelson Mandela University (NMU). He is currently the coordinator of the Veldfire program and has just registered for his PhD in Fire Management. Hannes has been a loyal and dedicated servant of the Southern African Institute of Forestry (SAIF) for many years and also acted as Chairperson for the Southern Cape for several years.

Hannes has been a stalwart in the SAIF as member and Branch Chair for the Southern Cape Branch. He has actively promoted the SAIF Amongst Forestry students on campus and run the branch for several years between 2014 and 2017. He also actively promotes the sale of clothing and books amongst members. Apart from arranging meetings, guest speakers and field excursions to keep members interested and inclusive, he has managed the SAIF website for several years and still continues doing so.

His excellent support rendered to the new chairperson, has been of major assistance and he is always willing to become involved and help arranging an event. Hannes has been a dedicated and honorable member of the SAIF for many years and his contribution not only to the local branch but also to the SAIF nationally, deserves recognition.



KZN branch helps Howick cubs on Arbor day

By Nokukhanya Maplanka

The 1st Howick Cubs club informed parents of Cubs that they would be doing an Arbor day tree planting on the 6th of September. The SAIF KZN Branch felt this would be a great opportunity to do some SAIF community work with some young children for Arbor week. Sappi has been propagating the critically endangered Pepperbark tree, with the intention in part to increase its population in the wild but also to give them to people who will take care and appreciate them. As you may know, The Cubs have a keen interest in indigenous fauna and flora. They were extremely excited and proud to have a tree of national importance and one that could teach the Cubs many things about it. The leader of the Scouts club explained to the Cubs the importance of indigenous trees that have medicinal properties. We have no doubt the trees will be well cared for and will teach many Cubs and Scouts for many years that trees are absolutely amazing! The KZN SAIF Branch have made arrangements and looking forward to planting more Pepperbark trees with Linpark High School and Grace College in the next couple of months.



The Pepperbark (cont. from pg.1)

of *W. salutaris* tissue (e.g. leaves) and supply of nursery-grown cuttings to market vendors. This has involved participation of various government enterprises, including: KwaZulu-Natal Ezemvelo Wildlife, South African National Parks (SANParks) in Mpumalanga and Limpopo, the Agricultural Research Council (ARC) and the South African National Biodiversity Institute (SANBI), through to commercial forestry industries and even small-scale farmers. While some of these initiatives have shown partial success in increasing the populations of this species, few have really made a significant impact on its threatened status. In 2014, after numerous attempts at rooting field-derived cuttings, Sappi was approached by SANParks to assist with this project, as part of an environmental initiative. The mass vegetative propagation of the species has successfully been achieved resulting in the production of plants for re-establishment.

In line with Arbor Week, the KZN Branch of the SAIF approached Sappi to donate some *W. salutaris* trees for planting at various schools in KwaZulu-Natal as part of its efforts to educate scholars on the importance of conservation and sustainability

Shake or Wipe – Travels in the East African Forestry Industry! – Part 2

by Tim Ross

Uganda

In 2017, Uganda had forest cover of just over 2 million ha of natural forests and woodlands. These forests decreased at an average rate of 3.3 % between 1990 and 2015, from 24% to below 9% today (FAO, 2017). Uganda's forests consisted of Tropical High Forests and woodlands which have largely been removed for agriculture and replaced in some areas with small plantations and woodlots (broad-leaved and coniferous). Unregulated harvesting, land clearing and charcoal production all contribute to the vanishing forests.

Tree growth in East Africa can be exceptional. The warm, tropical climate and deep fertile soils produce fantastic growth rates, second only to the weeds and Brazil. Tropical species like *Pinus caribaea* and *Eucalyptus grandis x urophylla* hybrids perform extremely well in the warm climate. In some areas, pine compartments achieve average diameters in excess of 35 cm at 12 years. Commercial timber companies produce poles for the energy distribution companies and sawn timber for lumber, plywood and pallets. Resin tapping of *P. car* is a recent non-timber forest product activity. Small networks of research trials have been established to track the growth of trees and develop site-specific growth and yield models. (Photo: 4-year old *E. gxu* hybrids in Uganda)



(Photo: Resin tapping from 12-year-old *P. car* in Uganda)



Rwanda

Rwanda is a small, land-locked country covering just 25 million ha, with a population of over 8 million, or 317 people per km². The landscape is characterised by vast hills and mountains interspersed with valleys. Total forest cover in Rwanda in 2017 was estimated at less than 3% – just 696,000 ha. Of this, 59% is made up of plantations, usually in the form of small woodlots consisting of *E. maidennii* and *P. patula*. One of the last remaining high-altitude rain forests, Nyungwe National Park, is situated in Rwanda, covering 90,000 ha and home to several Chimpanzee families. It is always exciting to see one of these animals wandering through the park and sometimes even into the plantation (FAO, 2017).

Nyungwe is surrounded by a buffer plantation that prevents encroachment into the rain forest. This buffer plantation was established in the mid 1980's and then abandoned during the genocide. Only in the last 5 years has it been re-opened for commercial management and harvesting. The major species is *P. patula* and *E. maidenii*, all of which are older than 30 years with generally poor form and large diameters. The absence of management in the last 25 years has resulted in tree diameters ranging from 15 to 100 cm in a single compartment. Although almost on the equator, the buffer plantation is situated at high altitude and is generally cool with almost daily rainfall. The climate, steep terrain and poor road infrastructure make harvesting a challenge. (Photo: Early morning mist in a Rwandan plantation and 3-year-old *E. maidenii* in Rwanda)



It's up to us now!

By Rob Thompson

The Kruger National Game Reserve is a favourite holiday destination for many forestry practitioners and their families. Booking is an instantaneous affair over the intranet, providing that one does it almost a year in advance and just as the bookings open. Whilst some may complain about the competition for booking, spare a thought for what used to happen in the past without the internet.

An elderly reader recently published a letter in the outdoor and travel magazine "Go". She lived on the West Coast back in the day and had to write to the then Parks Board to enquire as to booking vacancies. This letter travelled by car, truck and train reaching its destination in over a month. The response and brochures from Park Board travelled back the same manner, only in reverse. The lady then had to consider the information thus received and then post back to Parks Board her final booking request. Confirmation reached her a good few months later.

On the positive side, the postal service was probably more efficient than currently is the case! I wonder how many of us, in this fast paced and "immediate" world, can even envisage such an archaic system? Many of us once lived it but how soon we forget!

So have things really improved? Is our connectivity really adding value to our lives?

I have never tweeted a thing in my life. Neither have I ever received a tweet. I would not even know how to start tweeting. I guess that makes me a twit but believe me I'm fine with that.

I work for a forestry marketing organisation which, like many other forestry companies, relies on the health and stability of the global economy and ongoing demand for pulp and paper products. We accordingly do not need events that disrupt economic balance. A declaration of war between super powers would, for instance, create quite a wobble and such powers have done reasonably well over the last few decades to not get too physical. Two attempts at world conflict have after all, taught us that there can be no winners via such strife.

Then comes along a habitual and negligent chief tweeter who happens to lead the world's most powerful country as his day job, and who takes on the world's second most powerful force, in a war of incendiary text messages, limited to 240 characters a shot, and available to millions and millions of people across the globe who share a tweeting habit. The resultant fall out between America and China could just as well have been caused by trading intercontinental ballistic missiles. A trade war of note has emanated from the verbal fracas, and seen from the forestry front, the Chinese population (read the world's largest consumers of pulp and paper products) has decreased consumption significantly, pulp stocks are building up at many ports globally, and the sale of raw material (timber) into paper producing countries is suffering a huge setback (read pricing mayhem). Who once said once that words could never hurt us and to rather be on the look out for sticks and stones?

On the environmental front, cattle ranchers decide to set alight the Amazon rain forest based on the (not so) well-thought out notion that critical biodiversity, ancient eco-systems and oxygen producing high forest are an impediment to cattle grazing. Global warming has changed the nature and dynamic of most forests and forest fires despite the chief tweeter tweeting that this notion is twak. The Amazon accordingly continues to burn unabated and at a rate that ought to have had every nation on the planet sending in armies of manpower and equipment to curb this global disaster. What actually happens? The Brazilian Head of State has a tweeting spat with his French counter-part (amongst others)

implying that the fires are a mere inconvenience, aid is unwarranted and unwelcome and that Notre Dame is far more news worthy!

As so called global "leaders" continue to prevaricate about critical matters on political platforms and self-aggrandising gatherings, along comes a Swedish teenager called Greta Thunberg who is horrified at the environmental catastrophe that she sees unfolding across the world. She decides to live by example and gives up eating meat and use of air travel, creates awareness at every opportunity and embraces the power of collective strength and social media. Her encouragement and viral social messaging has recently led to two events where more than 1.5 million young people in 125 countries walked out of schools and tertiary education facilities to protest climate change en-masse. Greta even had the tenacity to travel to the UN Climate Action Summit in New York City, by sailing vessel, and inspire millions through what has become known as the "Greta Thunberg Effect". Equipped with a way with words, Greta totally demolished the chief tweeter who had the audacity to attempt crude sarcasm to quell rising support for her notions, by using her well measured and mature responses.

Greta's powerful insights, continually shared via social media, is gaining traction and a virility never before seen in social activism. Global leaders will soon have no recourse but to sit up and listen.

Back at home, South Africans, have been recently inundated with report upon report of woman abuse and murder. This creates such a perverse stain on our nation that one wonders how it can ever be expunged. Only dramatic and sustained behavioural transformation can pull us from the depths of depravity that currently prevails. Yet, there are indeed stirrings of things happening in much the same manner as the Greta Thunberg effect.

Social media is playing a positive awareness-creation role. #Aminext is a viral social media platform (amongst many others) highlighting the plight of women in our society. One would literally have to be from another planet not to have encountered this or related hashtags somewhere recently. Mass gatherings and protests are intensifying and the message is being circulated. Politicians, law enforcers and influencers will soon have no place to hide. Firm action will have to be taken.

A recent Board meeting I attended drove home to me the reach of the message being presented out there. Our Chairman opened the meeting by making an unsolicited point of the need for men to carry themselves like real men and protectors of all women. This was not a subtle accusation that the team members present were wanting in this regard, but an open acknowledgement of care and concern for the female gender. Social media has created this awareness and we can only trust that unprecedented traction is gained in its reception by all.

So all told, social media and its immediate global connectivity can be both friend and foe. It's a bit like the gun debate. Some pundits will argue that a gun is only as dangerous as its handler. Well, words too, can be handled in either a reckless or safe manner and our chief tweeter comes to mind here. That said, he has some interesting views on guns too!

Let's watch the media platforms with interest going forward. Those words emanating from insightful people, genuinely intent on moving for change, and walking the walk, are those that we should take the most notice of and embrace.

Could it be that social media has surpassed the controlled power of the politicians and pompous leaders and is passing the responsibility of change management to common folk like you and I? I sincerely hope so!

It's up to us now!

SAIF photo competition 2019

The competition is now closed, and the judging will take place during October. Once again, we thank Stihl for the generous prizes:

1. STIHL RE 88 High Pressure Washer
2. STIHL HSA 25 Cordless Shrub Shears
3. STIHL SE 62 Vacuum Cleaner



Southern Forests is growing tall!

By Hannel Ham

Last year we celebrated the 50th birthday of the SAIF. Little was mentioned about the history of the Journal (*Southern Forests: a Journal of Forest Science*). The first issue (then *The Journal of The South African Forestry Association*) was published by the South African Forestry Association in October 1938 (66 pages and 10 articles) with JM Turnbull as Chief Editor. The first issue costs only 6c and was bilingual with articles alternating between Afrikaans and English. Until the late 1990's, when electronic communication was still a distant cousin, the Journal served as a communication medium between SAIF and South African Forestry Association members. Advertisements, constitution changes, announcements, message from the president, editorial notes, book reviews, research articles and summaries of proceedings (international and national) featured regularly. This contributed to the size differences between issues.

After the amalgamation of the SA Forestry Association and SAIF in 1989, the SAIF became the sole publisher of the South African Forestry Journal. An editorial board for scientific papers and research notes was established and H van der Sijde joined the editorial team of V Jordaan and TMJ Kelly. Henk van der Sijde became the editor in 1993, Dennis Owen in 2000, Andrew Morris in 2010 and Neels de Ronde in 2019. As a result of increasing membership in neighbouring SADC and Southern Hemisphere countries, the Journal's name changed a couple of times. The current Journal ("*Southern Forests: a Journal of Forest Science*" adopted in 2008) was formally known as *Journal of the South African Forestry Association* (1938 – 1961), *South African Forestry Journal* (1962 – 1996), *Southern African Forestry Journal* (1997 – 2006) and *Southern Hemisphere Forestry Journal* (2007). Although the various issues of the Journal varied in number of pages and articles, a staggering 81 volumes and almost 260 issues were published (an average of three issues per year) since 1938. This contributed to Southern Forests as a household name and preferred Journal in Forestry research.

The success of *Southern Forests* is also reflected in the impact factors (1-year and 5-year) that were released by NISC at the end of June 2019. The 2018 impact factor (0.896) came slightly down from 2017 (0.972). However, the 5-year impact factor of 1.13 is a record high for the Journal. *Southern Forests* is now in a unique category of journals with an impact factor of higher than one. Indeed a feather in Andrew Morris's and his editorial board's hat. Nonetheless, we also have to tilt our hat to NISC and Taylor & Francis as publishers for the ongoing support, marketing and

behind the scenes work to keep the Journal current and on time.

Recently the Journal has undergone various changes. The most exciting is definitely the move to ScholarOne (online system). Currently we are in a transition phase, from manual to electronic submissions but this should be concluded by the end of 2019. More about these changes in future newsletters.



Industry and government support for saw-log forest management research project

By Brand Wessels

A research project at the Department of Forest and Wood Science on alternative management regimes for South Africa's saw-log trees recently received a huge boost from a successful THRIP funding application to the government's Department of Trade and Industry. The project will receive R8.1 million over 3 years with industry and government each contributing about half of the cost. Three PhD and eight MSc students are supported in this project which will range from basic research activities on tree physiology to the development of decision support models for managing saw-log plantations. The main commercial partners are represented by the industry organisation Forestry South Africa (FSA) with the Hans Merensky Foundation also providing funding.

According to dr. Brand Wessels, adjustments in the management regimes of South African grown saw-log resources as well as genetic tree improvement resulted in profound changes in the wood properties of pine and eucalypt trees in South Africa. Many forestry companies growing pine saw logs decreased the plantation rotation age from close to 30 years to less than 23 years over the last two decades. One of the consequences of lower rotation ages is lower stiffness of lumber products which is problematic for structural lumber producers. It is possible to improve the stiffness of lumber of most of our pines by applying higher planting densities. In fact, wood and lumber properties could be manipulated through a number of interventions including genetic selection, rotation ages, and silvicultural management options such as planting density and thinning. Each of these interventions has cost and value influences that can be complex to analyse. For instance, increased planting density increase the stiffness and value of lumber end products, but it will also increase the planting cost, harvesting cost, and result in lower diameter trees. The primary objective of this project is to create a decision support framework, using software tools, for saw-log growers and processors which will assist them to maximize the financial returns over the full saw-log value chain. The focus will be on finding optimal solutions in terms of rotation age, planting density, and thinning ages and intensity while providing wood material with acceptable properties.



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October 2019 birthdays



01-Oct	JOUBERT JHL	13-Oct	GOUS DJR
02-Oct	BIGGS S	14-Oct	VERRYN SD
03-Oct	JOOSTE A	15-Oct	SASS T
05-Oct	GWENDE N	22-Oct	ALADE AA
06-Oct	PRINS AC	23-Oct	KAPTEIN ND
08-Oct	CONRADIE JP	23-Oct	KäTSCH C
08-Oct	KAMFER W	24-Oct	VAN ZYL (Hannes)
09-Oct	MULLER PH	26-Oct	BALLANTYNE D
09-Oct	RAATH-BROWNIE L	28-Oct	DU PREEZ B
10-Oct	MARWICK PC	28-Oct	KASSIER HW
10-Oct	RUSK GD	29-Oct	NAIDOO S
10-Oct	TSHANGISA LI	30-Oct	DU PLESSIS M

Newsletter compiled by Andrew McEwan