Volume 1 | Issue 7
July 2020

Southern African Institute of Forestry

Delivering a professional service to forestry

Southern African Institute of Forestry, Postnet Suite 329, Private Bag X4, Menlopark, 0102
www.saif.org.za, saif@mweb.co.za

Contents:

Photograph from the 2020 SAIF Calendar (Month: October) taken by Robin Hull from Kwazulu-Natal titled "Clan Aerial"

From the President's desk

Learn or Lose

As global temperatures rise, wildfires are becoming more common and more intense. South Africa, Australia and New Zealand are particularly prone to such events and this is evident from the past few years. Wildfires caused extensive damage and loss of life across these regions. With our own fire season in the north eastern parts of the country well underway, preparations, training and significant investments in protecting properties and infrastructure have been made, but are we ever completely prepared?

In light of the recent devastating fire season in Australia, scientists and officials are working together to develop fire-prediction technologies that will enable firefighters to work faster and more safely when the next season starts, which is expected to be equally as grueling. Similarly, the New Zealand Scion's (New Zealand Crown Research Institute) rural fire research team recently completed several experimental burns of scrub in the Rakaia Gorge, Canterbury. The burns are part of a set of experiments in different vegetation fuel types to test a new fire spread theory. This data will go on to provide insights into fire behaviour in scrub fuels and ultimately help protect people, property and the environment. In South Africa Light Detection and Ranging (LiDAR) is one of the latest technologies being used to help map, monitor and manage the spread and damage caused by wildfires by understanding fuel loading.

Central to many of the more recent technologies employed by the Australian fire fighters is the ability to predict the influence of Australia's eucalypt trees on a given fire. Eucalyptus are particularly fire-intensive, their dry shedding bark easily catches alight and the embers can be blown ahead of a blaze starting new fires. This phenomenon is known as "spotting," and it is one of the most challenging problems in predicting fire behaviour. Using a programme called Phoenix, a predictive model tool has been developed for a given set of conditions where spotting will occur, and fires will spread. When a fire starts all available and required data are captured into Phoenix, such as the fire's location, the time it started and the terrain. Closer to the fire, regional teams feed information back to headquarters, where the fire management team, with the help of manual analysts, can decide where to send resources like firefighters, trucks and water-bombing helicopters.

The technology does not yet outperform experienced foresters when predicting the spread and behaviour of a fire. Using their experience, foresters can incorporate the uncertainty inherent in fire behaviour, something "the computer just isn't able to grasp." But where the computer model excels, is in analyzing several fires at once and determining which one poses the greatest risk. The Commonwealth Scientific and Industrial Research Organization (CSIRO) and the Australian national science agency have improved on Phoenix with new computer software called Spark that uses unique equations for each fuel type, is more intuitive and reliable.

New Zealand's current Extreme Fire research programme is underway with key focus areas on creating new fire spread models, developing innovative decision support tools by automating and linking satellite and ground based fire detection, fire growth prediction, smoke modelling and real-time predictions to improve fire response to name a few. As with other countries South Africa is exploring to use drones (UAV) to help fire and rescue crews fight domestic and natural fires, owing to its ability to assess the affected areas remotely. Integrated cameras provide real-time information to show the spread and scale of a fire to allow crews to formulate action plans with more clarity. A UAV can take to the air and provide immediate intelligence, moments after first responders arrive at the scene. Drones can also be equipped with infrared sensors to read the heat signatures of plants to determine how stressed the vegetation is in an area and thus how dry and fire-prone the terrain might be.

The South African forestry landscape is probably the most dynamic when compared to other countries, with many factors contributing to the increased risk of fire. This will no doubt become more complex as stakeholders change and forestry business production models evolve. In this lies the need to add to current systems and develop predictive tools to manage fire risk on a broad and local scale. With the advances in data processing capacity, data collection devices, data sources, historical data and skilled analysts various predictive tools using machine learning could possibly be developed to prevent large scale losses. These tools will not only allow for staging fire-fighting assets close to where fires are likely to occur but also have the potential to predict where fires are likely to spread. Can we learn form the past to avoid losses in the future?

https://www.nytimes.com/2020/04/21/science/australia-wildfires-technology-drones.html
https://www.scionresearch.com/rural-fire-research/research
http://saforestryonline.co.za/articles/map-manage-monitor-wildfire-lidar/

Rob Thompson's Column:

There really is nothing new today.

One of the more irritating aspects of the current COVID-19 pandemic, is the flurry of clichés that it has invoked.

These are overused statements stemming most likely from the frustrations of extended lockdowns, sanitizer saturation and unbecoming face-mask fashion. Over-regular mention of the "new normal" or "new beginnings" has begun to attack the synapses of my brain in much the same way as an irritating catchy song or earworm that repeats through one's mind long after the tune has stopped playing.

People today claim that we now have to suddenly tread a new path, adjust to and discover a new reality and set sail towards a new destination. New demands, new outputs required.

The irritating cliché 'earworm' does however provide ample opportunity for reflection on the appropriateness of their inferences. The conclusion that I have drawn is that emphasis on "new" in all cases, is totally incorrect.

I would venture further to state that, that which we are experiencing via the pandemic, is neither new nor abnormal in relation to mankind's experience. We have been on a tumultuous trajectory ever since we discovered that a bludgeoned mammoth tasted a lot better if one hung its carcass above that weird, hot, flickering, lightening induced occurrence, that we later came to name "fire". We seem to forget too easily just how often over the ages that we have had to recalibrate and adjust to circumstances that presented. There have been constant repeats and realignments, an iteration of which we are experiencing currently.

Winding it in a bit to the more recent past, many more senior (in age) forestry practitioners would have had insights from their Grandparents about the Great War that sadly did not end all wars. The universe contrived to co-ordinate the onset of Spanish Flu just as the hostilities were ending. As the war weary combatants from both sides made their way back to what was left of their homes, they carried with them the deadly virus, spreading it far and wide. By 1920 the influenza had infected an estimated 500 million people with around a 10th of that number succumbing to the illness. A global tragedy that strangely would have been all but forgotten had it not been for the modern day similarity of occurrence and an ironic sense of Déja vu.

The view that today's experiences are not really new can be illustrated by means of the varied experiences of forestry practitioners over the ages.

The forestry industry of this century started off focussed on sawtimber for widescale application in war efforts (ships, aircraft, trenches and infrastructure). Post-war rebuilding created similar demand lasting right through to the second war that by all accounts ought never to have happened. The genesis of forestry in South Africa was ironically based on strategic sawtimber to feed the potential needs of the warmongers as well. Forestry training accordingly specialized in sawtimber management and this trend lasted well into the eighties.

Plastics and alternatives to sawn timber rapidly appeared and consumer demand in the timber arena turned increasingly to paper and pulp. Corporates adjusted meaningfully to this demand with South Africa proudly producing two multi-national pulp and paper companies and a number of domestic producers adding value to an ever diverse supply chain. Foresters on the ground were necessitated to adjust to short rotation hardwood stands comprising gum and its' lessor spoken about cousin, wattle. Pandemics, not being limited to the human species, caused widespread diseases within the original hardwood species being grown from seedlings, necessitating yet another major adjustment, this time into conversion to disease resistant clonal hybrids. Generalist forestry practitioners now diversified into specialist fields such as tree breeding, forest engineering, harvesting and silviculture.

Modern forestry did not escape conflict either.

On the environmental front, clashes with and criticism from green movements, often uncalled for, but nevertheless a reality requiring realignment occurred. In a dawning age of transparency, forestry was called upon to re-measure and openly manage a triple bottom line approach to business. Profit had to come after social and environmental responsibility, necessitating fundamental management redirection and changed processes. Certification, sustainability and social responsibility became the critical and key access portal to discerning global markets, creating a complex and competitive marketing arena.

The "competitive edge" became the Holy Grail sought after by all and sundry. The old foresters of yore would certainly never have believed that timber would ultimately be turned into textiles, plastic composites, filters, and scores of other products catering for the whims of the consumer. Consumption of timber products amplified exponentially and as is the case with things that go up, they must come down again. The recession of 2008 was the first taste that many current forestry practitioners had of extremely dire financial straits. Layoffs, downscaling and severe constriction of supply chains became the order of the day.

A changed world order with China challenging the economic might of the USA and its long standing rival Japan, gave rise to resumption in consumerism and the revival of forestry as a noteworthy producer of raw material feeding this consumption. A period of growth ensued, but, not without challenge.

Climate change became very a very real hurdle despite the noise made by certain high level denialists. Massive fires domestically and abroad drew forestry unwittingly into the spotlight yet again. Foresters had their work cut out to redesign an approach to fire protection. Species choice was questioned, terrain evaluations re-done, plantation layout plans studied and a general overhaul of "what we thought we knew", executed.

And then people stopped reading. Well, at least paper based material. Internet-based social media took off commensurate to increasing affordability of internet devices (cell phones, tablets, laptops etc.)

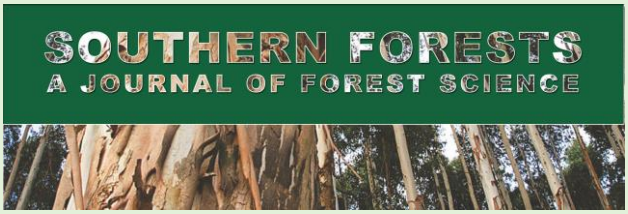
Decrease in demand for traditional paper based products became the order of the day. Slightly buoyed by the increase in packaging demand (every cell phone comes in a box) it was not all doom and gloom, albeit that certain pulp and paper production processes had to realign to the new product offering, leading in turn, to ground changes in species and stand management.

Roll on early 2019. China was all but claiming the laurels as new economic powerhouse of the world. Its burgeoning citizenry was consuming record volumes of paper products and life for the average forester was good. A disgruntled leader of the USA saw fit to implement a trade war with China, effectively placing a strangle hold on essential trade, the economic ramifications of which were felt world-wide. Forestry supply chains became constricted. Unused pulp inventories climbed whilst prices plummeted. The average forester began to sweat. The trade war lifted in the last quarter and signs of trade and economic recovery were well received. The average forester began to breathe again. Then someone ate a bat and the rest is history in the making.

Foresters are now faced with adapting to a pandemic, working from home, finding access to limited markets, low global consumer consumption, low prices, demand for reduced product array, social/staffing aspects relating to the pandemic, less staff availability, overall economic decline, redefining processes … hang on a bit! …. haven't we been here before? This book has already been written and in various forms.

As tragic and as challenging the current pandemic and it's ramifications are, we must take heart in the fact that similar, and in fact far worse circumstances have preceded this occurrence, and people have ultimately prevailed. Our focus ought not to be on the uniqueness of our circumstances (however true that might be) but rather on the knowledge that there are hidden solutions and we do certainly have the wherewithal to find those solutions. We have found them, time and time again.

History has taught us that much!



Dear SAIF member,

The Editorial Board, NISC and Taylor & Francis have been hard at work during international lockdowns to keep the Journal updated and on track. Issues 1 and 2 of 2020 are slightly delayed due to lockdowns (United Kingdom and South Africa), but we are working hard to catch up. As mentioned in previous newsletters, the impact factor (one- and five-year) is an international and academic indicator of the popularity, relevance, success and rating of a journal. The numbers for 2019 were released on 29 June. We are proud to announce that Southern Forests has an Impact Factor of 1.16 for 2019 and a 5-year Impact Factor of 1.223. These are both record scores for the journal. A warm hearty applause to the Editorial Board, reviewers and staff (production and printing).

The Editorial Board was updated and renewed. This is to speed up the peer review process, appoint more reviewers (spread the workload), and introduce new experts and younger researchers. Therefore, nine Associate Editors (AEs) were appointed based on publication record, scientific rating, geography (representatives of Africa and the southern hemisphere), field of expertise and previous peer-reviewing of manuscripts. The AEs are:

- Prof. Jolanda Roux from Sappi (South Africa): Plant Health
- Prof. Mathew Leitch from Lakehead University (Canada): Wood Science
- Prof. Paxie Chirwa from Pretoria University (South Africa): Forestry Development
- Dr Sylvanus Mensah from RUFORM (Uganda): Hybrid between Silviculture and Forest Management (growth and yield, enumeration, allometric functions etc.)
- Dr Washy Gapare from CSIRO (Australia): Genetics and Propagation
- Prof. Eric Görgens from Federal University of Vales do Jequitinhonha e Mucuri (Brazil): Precision Forestry and Forest Management (GIS, remote sensing etc.)
- Prof. Carlos Sanquetta from Federal University of Paraná (Brazil): Hybrid between Forest Management (biometry) and Silviculture (climate change, allometric functions etc.)
- Dr Stuart Christie as independent consultant (South Africa): Basic Silviculture
- Prof. Don White from University of Tasmania (Australia): Basic Silviculture

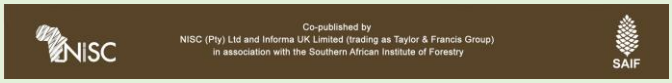
Dr Jolanda Roux agreed to be Guest Editor for a special issue (volume 82:4) commemorating the 2020 International Year of Plant Health. The focus will be on *Pinus, Eucalyptus* and indigenous species. Manuscripts are in the final phase of peer review and will be processed for online publication towards September.

A total of 73 manuscripts were submitted between 1 April and 10 December 2019. Of the 73 manuscripts, 45 manuscripts were rejected (74% rejection rate), while 19 manuscripts were accepted for publication (26% acceptance rate). ScholarOne (online submission platform) was introduced on 11 December 2019. A total of 77 manuscripts were submitted for the period between 11 December 2019 and 12 June 2020. Of these, 51 manuscripts were rejected (66% rejection rate), while 10 manuscripts were accepted for publication (13% acceptance rate). A further 13 manuscripts are currently in the peer review process. Brazil submitted the most manuscripts (27%), followed by South Africa (23%) (Table 2). January was the month with the highest number of manuscripts submitted (27%), followed by May (21%).

The AEs are committed to increasing the citation rate and impact factors. Therefore, we are stricter with submissions.

We can only publish 40 articles per year (10 per issue). However, an exception was made for the special issue (volume 82:4). Therefore, the four issues for 2020 are already filled and we have two manuscripts already accepted for volume 83(1) (2020).

Warm regards



The SAIF would like to congratulate and thank Dr. Hannél Ham with her achievements as editor of the Southern Forest over such a short period of time as well as her predecessor Dr. Andrew Morris with the foundation laid by him and his team of sub-editors.

Dr. Hannél Ham and Corine Viljoen

Teaching and Thinking about forest management courses during COVID

T Mapeto

Do you ever think about how many kernels of wheat make up your toasted sandwich, or how many grains of maize made up the braai pap portion you had last weekend? I don't, it takes just under half a year for wheat or maize to mature and get to the mill for storage and or for grinding into a flour or mealie meal and then to end up on your breakfast or back porch table. Now what am I on about? These grain production timelines are short, and our quantification lenses in limited timelines are likewise not zoomed out. Now this is a forestry newsletter, so I will stop with the maize farming and move on. Forestry timelines are long, half a year is just a small fraction, 2% to at most 10% of our rotations. The implication, we must always have a pulse on our rates of production for these long periods, the tree is both the factory and the product. Quantifiable and qualifiable knowledge of what you have standing is a huge component of the resource balance sheet. This makes it relevant to see the tree for the product and to think about how many trees it takes to make a table, a chair, a piece of paper, a dress with cellulose material and the list can go on. It also makes it important to see the tree for its place in the ecosystem, while it stands and beyond its life time. It is a long-time protecting the resource while continuously quantifying and evaluating the growth for a range of reasons. These include basic addition, that is volume quantification, integrated resource management and setting milestones for management prescriptions such as thinnings.

But, how do we teach forest resource management and mathematically oriented modules in a time when classes are virtual? How can we teach the measurement of trees and the analysis of resultant information when the university space is unavailable? When you cannot just walk out of the building to a stand of trees and connect the theoretical concepts of data collection and analysis to the resource? In addition, the abstract nature of counting systems such as forest biometry, already present a cog in the crossing of conceptual thresholds in forestry education.

In 2020, the COVID pandemic sent us packing our offices and classrooms. There I was, one term into the first semester, with a forest mensuration class that now must be virtual and a group of students that are just getting the first haze of current annual increment as a snapshot in time of a growing stand of trees. It is now two months since we started online classes and I am getting good at screen grading student assignments of graphical representations and interpretations of forest stands for 12 hours a day, we are surviving, but how.

As I start to see the light at the end of the first semester, my thoughts are, what did I learn, why did it work and how will I continue facilitating a practical module virtually. Forest mensuration is a practical science, physical measurements of trees are part of the DNA of forest resource quantification. Managers of tree systems will still need to align their biophysical understanding of the resource with a numbers system. These concepts seem to have translated successfully to the 2020 Saasveld class. One of the reasons could be, right at the beginning we had a practical day of laying sample plots and measuring trees in a thinning control enumeration at PG Bison's Ruigtevlei plantation. The industry support was vital to the achievement of the practical learning outcomes, if not, it would have made it a tougher climb. This educational partnership that the university has with the industry is testament to the success of our forestry professionals. Its relevance will continue to be highlighted as tertiary institutions navigate high population spaces in health pandemics, our students' vocation and education is inseparable and that is a plus.

Secondly, as with the mass application of technologies such as Zoom and Slack that seemed to be farfetched just four months ago, the application of remote sensing technologies together with digital technologies that provide dendrometric information for forest resource quantification cannot be a just by the way thing anymore. The accuracy limitations that are often hailed will become another make–do. We have seen this with remote working technologies that are now being updated daily on a per needs basis with introductions of online meeting functionalities such as raise hand and background choice add-ons.

Now as much as concepts on forest resource quantification have focused on traditional sampling techniques with remote technologies being a specialist field, the shifting of work modes as we know them should surely make us reintegrate our forest management education. To keep a pulse on forest resources, what frameworks should we be thinking about? The practical understanding, the thrill of looking at a huge Pine tree and running numbers in your head to get log and piece size estimations is just the best, but how do we leverage remote and simulation technologies, especially from a forest manager perspective. These are not new questions, they have probably been answered and I intend to keep finding out. But, during my remote facilitation of lectures, this is what I have been asking myself as a junior, very junior lecturer who is passionate about educating young foresters on quantification for decision making in sustainable tree production systems.

Tatenda is a forest management lecturer at the Nelson Mandela University. She can be contacted at tatenda.mapeto@mandela.ac.za

The SAIF would also like to congratulate Ms. Tatenda Mapeto on successfully completing her Phd studies for which she should shortly be able to add the title of Dr. to her name. Well done !

Upcoming Events / Seminars:

Ohio State University will host a virtual Plant Sciences Symposium by means of a webinar. To register please go to https://u.osu.edu/plantsciencessymposium/.

Date/ time : 23/07/2020 : 10.00-17.00
Note the time difference.

TreeHealth NEWS

Here, for your interest, is a news item about FABI's second International Seminar Series as well a new Research Feature published on the FABI website.

Dr Matthew Kasson presents the second FABI International Seminar : https://www.fabinet.up.ac.za/index.php/news-item?id=1024

Research Feature

FABI PhD candidate Mmoledi Mphahlele interrogates the benefits of implementing genomic selection for growth and wood quality traits in an established *Eucalyptus grandis* breeding programme in South Africa.

Mmoledi Mphahlele

Read the full Research Feature https://www.fabinet.up.ac.za/index.php/research/48

FABI International Seminar Series

Please join us for the next FABI International Seminar series on **Thursday 30 July at 16h00** (GMT+2). This month's presentation is by Dr Celine Caseys, and her talk is entitled "Plant versus Botrytis: a story of quantitative plant-pathogen interactions." For more information : https://www.fabinet.up.ac.za/index.php/event/FABISerminarSeries/

FSA is proud to announce the launch of the Timber Industry Presents... Magazine, TIP-Mag for short.

Link to TIP-Mag:

https://www.forestrysouthafrica.co.za/tip-mag/

Issue one has been a year in the making and has taken a great deal of hard work, time, belief and patience from all involved, including the many contributors and reviewers, and we would like to acknowledge everyone involved.

The TIP-Mag initiative, instigated by FSA's Timber Industry Pesticide Working Group (TIPWG), provides a platform for researchers and forestry students alike to share their research findings that may otherwise remain unpublished. It also includes opinion articles and interest pieces that present scientific content in an interesting and easy-to-digest fashion that is accessible to all and gives the publication its magazine feel.

By presenting science in a way that it is accessible to all, TIP-Mag becomes a knowledge transfer tool, showcasing the first-class research and scientific thinking going on within the Sector to a far broader audience.

We hope you enjoy this first issue and look forward to your feedback. Please share TIP-Mag amongst your colleagues and encourage those doing active research within your organisations to contribute to the next issue – due to be released at the end of the year. A submission form is attached, along with the media release.

SAIF 2021 Calendar Competition

The Annual Calendar Competition will be running again up until the closing date for entries which will be **30th of September 2020**. Please send your photos (high resolution) to your local Branch Chairperson or to the Secretary Corine Viljoen as soon as possible.

Thanks once again to our sponsors for their generous contribution and in particular to the main prize sponsor ANDREAS STIHL (Pty) Ltd

SAIF Contact Details

Position	Name	Email	Phone
President	Wayne Jones	president@saif.org.za	033 330 2455
Vice-president	Braam du Preez	southern-cape@saif.org.za	044 874 0682
Past-president	Dr Hannél Ham	past-president@saif.org,za	076 452 5567
National secretary	Ms Corine Viljoen	admin@saif.org.za saif@mweb.co.za/	082 523 8733
SF Journal Editor	Dr Hannél Ham	journal@saif.org.za	076 452 5567
KwaZulu-Natal	Mmoledi Mphahlele	kzn@saif.org.za	033 329 5415
Gauteng	Prof. Brett Hurley	gauteng@saif.org.za	082 909 3211
Mpumalanga	Vacant	admin@saif.org.za	082 523 8733
Southern Cape	Braam du Preez	southern-cape@saif.org.za	082 887 2592
Western Cape	Dr Philip Crafford	western-cape@saif.org.za	021 808 3303
DAFF representative	Tendani Mariba	tendanim@daff.gov.za	012 309 5753

Birthdays – July 2020

BIRTHDAYS : JULY 2020			
VALINTINE S.	Jul 03	DE WAAL N.	Jul 23
STAAL D.L.	Jul 08	KUNNEKE A.	Jul 23
PALLETT R.N.	Jul 08	STANSFIELD P.J.	Jul 24
HUBBLE J.H.	Jul 11	McINTYRE P.	Jul 24
POKWANA S.	Jul 14	DA COSTA D.	Jul 25
WINTER A.M.	Jul 16	GARDNER R.A.W.	Jul 25
CHITIKI A.K.	Jul 18	MNGOMEZULU L.	Jul 27
EATWELL K.A.	Jul 19	MACK R.C.	Jul 31
HOWARD M.D.	Jul 20	McARTHY R.	Jul 31
TYHODA L.	Jul 21		

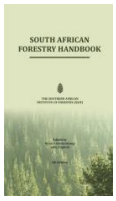
The Southern African Institute of Forestry

Handbook order form

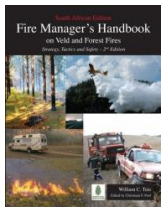
The Southern African Institute of Forestry publishes three industry specific handbooks.

I would like to order:

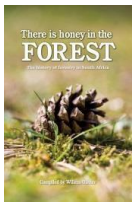
☐ **South African Forestry Handbook**
Price: SAIF members: R400
Non members: R500



☐ **Fire Manager's Handbook on Veld and Forest Fires**
Price: SAIF members: R300
Non members: R400



☐ **There's Honey in the Forest**
Price: SAIF members: R100
Non members: R150



International orders must contact the Secretariat for a quote due to currency and postage fluctuations.

A bulk discount of 10% applies on orders of 10 or more copies.
Price includes VAT and postage **(within SA)**

I am ☐ a member ☐ non-member of the SAIF.

Name	
Company	
Postal address	
Contact number	
Email address	

Bank details: Nedbank Retail Park Branch code: 169745 Account: 1697009913 Account name: SAIF
Fax order and proof of payment to: SAIF Secretariat fax 086 689 6430 or email saif@mweb.co.za.