

# Southern African Institute of Forestry



Delivering a professional service to forestry

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Photograph from the 2020 SAIF Calendar November 2020 ober ) taken by Barry Muller from Southern Cape Branch showing Sunrise Pretoriuskop Kruger National Park

## From the President's desk

### **Innovation**

Growing trees requires a considerable long-term investment and input with ongoing innovative thinking, agility and response to changing conditions. This ensures the delivery of fit for purpose timber to various processing units across the industry. Innovation in the work-place can take on many forms, including the development of new products, services and organisational structures, and can range from incremental to disruptive or transformational. There is a general consensus that, in order to maintain and grow competitive positions, organisations must innovate and be proactive in doing so.

With this in mind a few down stream innovations caught my attention as examples of creating growth through innovation. Worldwide architects and engineers are crafting cutting-edge skyscrapers from one of the most renewable and sustainable materials available to humanity - **wood**. The tallest wooden building is 18-stories (85 meters high), located north of Oslo in Mjøstårnet, and consists of offices, hotel rooms and apartments. Canada has several tall wooden towers, including Brock Commons at the University of British Columbia which is 18 stories and 58 meters high and the Origine eco-condo development in Québec City (13 stories).





The 18-story building north of Oslo in Mjøstårnet

So-called “mass timber” construction is derived from old techniques of post-and-beam construction, but uses advanced technologies, including cross-laminated timbers (CLT) and laminated veneer lumber (LVL), which features layers of wood bonded with adhesives and produced as either beams or panels. Some concrete and steel may be used around elevator shafts or stairwells in mass timber construction, but floors and beams may be made entirely of wood. Structural wood products, like CLT, have a number of advantages in tall wooden building construction: they are lighter than conventional materials, require less energy to make than either steel or concrete (and thus produce lower emissions), and can sequester carbon. Studies investigating the fire risk associated with tall wooden buildings, with focus on the behavior of CLT or LVL, showed that tall wooden buildings can meet required legal requirements, if proper fireproofing materials and sprinklers are incorporated into the design.

What about family homes? The **Gablok** is an innovative yet easy construction material that is composed of insulated wooden stacking blocks. These Lego-type building blocks allow you to build a house in less than a week. While the Gablok concept is based on its insulated blocks, it’s accompanied by a customized flooring system, composed of beams and lintels to allow for the construction of exterior and interior walls.

Are there opportunities here to meet our own housing shortages? Is it possible to develop small home kits and a new range of products for solid wood growers in South Africa?



Gabloks

Can we meet the structural and fire regulations for wooden homes from locally sourced timber? This work is well underway at the University of Stellenbosch where they have been subjecting cross-laminated timber wall panels to fire tests to determine fire ratings, charring rates, and delamination. Although significant international research has been conducted, it is unclear whether these studies can be applied to cross laminated timber (CLT) products manufactured from timber species grown locally in South Africa (SA). The average charring rate calculated for the SA pine CLT and eucalypts CLT panels was 0.95 mm/min and 0.76 mm/min, respectively. These values are higher than the recommended charring rates, which range between 0.61 mm/min and 0.68 mm/min internationally (van der Westhuyzen, *et al* 2020). Innovative approaches are needed that could focus on species within the genera, characterising timber properties, understanding the variations in the charring dynamics and lamination geometries.



Moving from solid wood to fibres, in particular cellulose fibres, which are strong, natural and sustainable, if sourced from well managed plantations. Cellulose fibres are used in a number of applications, including an alternative for current standard compounds in used in automotive interiors. Cellulose fibres can be used as a lightweight alternative for structural parts, such as instrument panels, door panels, door trims and consoles. Known as Symbio in the industry, it is an innovative premium cellulose best-in-class solution enabling the automotive interior industry to design the parts of the future.

Cellulose fibres improve the life cycle analyses of products and processes, compared to fossil-based conventional materials. Symbio is a lightweight solution with high performance, less plastic, lower carbon footprint and reduced energy consumption.

Finally, it is time for some wine from a **paper bottle**, produced by a British sustainable packaging company, Frugalpac. The paper bottle is made from 94% recycled paperboard, with a carbon footprint of 84% less than the glass alternative.

The Frugal bottle is made from predominantly recycled paperboard and has a food-grade liner insert capable of holding both wine and spirits.

According to Frugalpac, the 750ml bottle, which is up to five times lighter than a glass bottle, also has a carbon footprint over a third lower than a bottle made from recycled plastic. In addition, its water footprint is also at least four times lower than glass.

The bottle, which can be refrigerated, has 360-degree branding opportunities and production costs are similar to a labelled glass bottle. This innovative approach offers a major point of difference for the global wine and spirits sector through its stand out design and positive sustainable benefits.



#### References:

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- <https://www.inverse.com/culture/wooden-skyscrapers>
- <https://www.facebook.com/lignebois.be/photos/a.697042963646894/4256647621019726/?type=3&theater>
- <https://www.facebook.com/techthatmatters/videos/lego-like-building-blocks/285775925846404/>
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- <https://www.sappi.com/symbio-automotive>

van der Westhuyzen, S., Walls, R. & de Koker, N. 2020. Fire tests of South African cross-laminated timber wall panels: fire ratings, charring rates, and delamination. *Journal of the South African Institution of Civil Engineers* 62(1): 33-41.

#### CONGRATULATIONS!

The SAIF would like to congratulate one of our long standing and very loyal members , **Prof. Mike Wingfield** with yet another achievement and award . He won the National Science and Technology Forum (NSTF) Annual Theme Award: Plant Health.

This Special Annual Theme Award, recognising the **2020 United Nations International Year of Plant Health (IYPH-2020)**, is one of 13 awards conferred at the NSTF-South32 Awards ceremony on 30 July. This is a just reward for Mike acknowledging him as a globally-recognised South African plant pathologist and recognises his lifetime of contributions to the identification and management of plant diseases, as well as the education and mentorship of large numbers of plant pathologists and entomologists globally.” He is also the Immediate Past President of the International Union of Forest Research Organizations (IUFRO) after serving a five year term as the Organization's President from 2014-2019. Well Done Mike !

## Rob Thompson's Column:

### The same storm but different boats.

So I'm going to try and write this article without one mention of the C word.

This will be challenging given the circumstances that we are all under, and the new way of life that we are all forced to adopt as a result of that "unmentionable". People from all walks of life are under considerable duress, some very much more so than others. We accordingly are obligated to spare a thought and some kind deeds for those less fortunate and less able to navigate this unexpected maelstrom.

As forestry practitioners, never forget that we are blessed to be active, functional and able to weather the storm better than most, and we simply must acknowledge this. We are actually in a "good place" and should not take this for granted.

I listened to a talk the other day in which the speaker alluded to the fact that we all face the same storm, but, in different boats. That analogy resonated in me and I could just imagine people at sea, in a raging storm, in all manner of vessels which they had inherently been assigned, without being able to influence the make, model, or condition. I could see certain individuals cutting through waves in high tech, storm resistant schooners, with others frantically baling out leaky, barely floating bathtubs!

After some reflection however, I concluded that, regardless of the type of vessel, the skill set of the occupant, is what actually counts. A racing schooner in the hands of a novice is probably less safe than that bathtub controlled by an experienced sailor. And so, as we journey through this storm with no apparent end, on boats that we did not necessarily choose, it is fascinating to observe the skill set development occurring all around us. People are adapting incredibly well to the ravages they face, and the controls available on their respective vessels. In fact, so well and efficiently in some cases, that we barely notice what are actually huge and progressive steps. These advancements are becoming so commonplace as to be deemed normal.

On the boat which we call the forestry industry, given the need to create "distance", Teams meetings are now the norm, electronic / internet connectivity is a given and considerably improved from that what was, only three months ago. Remote and efficient work stations are now common and electronic transactions, signatures and documentation-sharing, are accepted readily. No more chasing after signed original documentation. Paperless delivery notes are starting to emerge, cutting out the 7 pairs of potentially infected hands that invariably handle a paper version from source to mill. A URL on an sms on the driver's smartphone provides the cargo related detail on route to the destination mill.

Comparative photographic images and GPS locations, form an ever more important part of timber source verification, for chain of custody, and supply chain security. Have you noticed just how many more people are carrying smart phones these days, no matter their station in life? Necessity, has dictated conversion to mobile connectivity, to far more, and far faster, than the previous natural progression would have facilitated.

Robust hygiene and sanitizing facilities, instructions and informatics provided in-field, offices and at places of residence, have endorsed awareness and knowledge of our forestry staff, providing ownership, and enabling them to ward off risks, all that more efficiently. In the same vein, personal hygiene awareness across the population has become a huge and welcome advancement over literally a short 7 month period. When skeptically transshipping to a smaller café type vessel over the weekend, for a breakfast (the first time in months), I was impressed at the level of cleanliness encountered. Tables and chairs wiped down, hand sanitizer readily available, masks worn, food covered and distance between tables maintained. Hopefully these advancements pay dividends to the hospitality and restaurant vessel over time to come. Ironically this is progress that should have occurred long before the current storm! It may even have prevented the storm...damn!



As captains of our own individual vessels, we are also developing particular skill sets to overcome the incessant and relentless waves of necessity, boredom and frustration. Whilst certainly not a zealous social media pundit myself, I have noticed improved availability of quality offering and helpful written and video enlightenment, when seeking instruction. Seemingly, people are sharing their discoveries and skills more readily than previously was the case. How else does one explain the sudden profusion of pineapple and cider beer tutorials? It also would appear as if the sourdough bread loaf has become a staple on many boats, which affection is maintained by means of a lovingly nurtured live yeast culture, fed daily, and even christened with a pet name.

“Ja Boet, Bubbles has been alive for 6 months now and has helped me bake many loaves!”

Some waves of necessity are higher than others and call for an “all hands on deck” approach when they are sighted on the horizon. My own First Officer produced a beer brewing kit for me just as the devastating wave of prohibition struck us amidships. Not only were we able to stay “afloat” but we have been able to produce a regular deck ration of superb quality even if I say so myself. Not one to speak out about a particular skill set, I must just mention that our Weiss, produced on board, raises the current storm-riding experience from “unpleasant” to “quite enjoyable”.

Observations of activities on some fellow colleagues’ vessels, show that family life has taken on a new and improved dimension during the storm. There is more time for togetherness and family activities. This in effect also constitutes a skill set that has to be learnt and applied. A particular colleague, recently blessed with a new son (his second child), spoke to me animatedly and at length, with a broad pleasurable smile, about his associated diaper, pacifier and feeding activities in the nursery. Winding it back to pre-storm days, hard core masculinity would have limited our conversation to shared irritation of how being a new Dad impacts on time spent doing 4X4 maneuvers on that challenging forestry road, in the company bakkie.

Another forestry fellow, with two youngsters in junior school, bragged about his recent mastery of junior school mathematics, after having been unceremoniously relegated (by the State), into an informal home school teacher. To his credit, he did admit to his (concealed) reliance on a calculator, implying that his skill set does need further work.

On other boats, we see crew members readily logging on to an increasing array of webinars covering all manner of topics. Would this ready self-improvement have occurred pre-storm? I argue that it would not have, or, certainly in less frequent bouts. The quality and interactive-ness of webinars has improved exponentially over recent months making me wonder if that “conference facilitation” boat, wrecked in the onset of the storm, will ever set sail again?

On board our office boat, we have encouraged staff with interesting stories or skills (not necessarily work related) to share such in short webinar / Team format sessions. Enlightenment, ranging from the “Wonders of Raki” to “The value of bees” has been forthcoming, with further sessions dealing with aspects such as mental health care and yes...beer brewing, in the pipe line. As an aside, this type of shared “distance” information session, is something that the SAIF should really consider encouraging and implementing on a regular basis.

For all of those on the lessor kitted out boats, a phenomenally useful skill set can be seen evolving. That of making do with less. “Damn, that hinge has broken. I’ll have to nip down to the hardware store...or...wait a sec...I can make one out of that old tin can, a hammer and a drill set. Good to go!”. Less exposure to risk, less travel, more personal satisfaction, more adoration from the First Officer and hopefully it’ll last until post storm!

All told, the storm has created opportunity for improvements and efficiencies. It has acted as the catalyst to further incredible endeavor and innovation. Just imagine if this spark had occurred years and years ago without all of the associated trauma now being experienced.



In any event, we cannot dwell on wasted opportunity now. Now, is in fact the time, to embrace and accept all the positives, and opportunities, that the current storm has to offer. Don't see the waves as hurdles, rather join the thousands who have started to see them as raw material from which to craft products, both physical and intellectual, precious to all, for always.

Just as history illustrated at Dunkirk, every boat has an invaluable contribution to make.

Stay safe...stay afloat!

### XV WORLD FORESTRY CONGRESS

Building a Green, Healthy and Resilient Future with Forests

24-28 May 2021 : Coex , Seoul, Republic of Korea



#### WFC 2021

The XV World Forestry Congress will be hosted by the Government of the Republic of Korea from 24 to 28 May 2021 and held at the COEX Convention and Exhibition Center in Seoul.

The Congress will bring together global forest stakeholders to review and analyze key challenges facing the sector and ways to address these. Participation is usually diverse, with representation from all regions and sectors; including the public and private sector, NGOs, CSOs, scientific or professional bodies, and forestry societies, as well as those who simply care about forests and the environment.

The WFC 2021 will provide a unique opportunity for the global forestry community to consider the state and future of world forestry, particularly in the context of the recovery from the COVID-19 pandemic, while striving to achieve the Sustainable Development Goals. The Congress will focus on defining the role of forests in the global developmental agenda (2030 Agenda) and other major agreements (Global Forest Goals, Paris Agreement, post-2020 global biodiversity framework) and identify key measures that must be put in place as the forest sector adjusts to the new reality and aims to help 'build back better'. Forests must be an integral part of discussions and decisions to be made on sustainable development, because this will determine the health, wellbeing and stability of the planet and the people.

### The Eucalyptus snout beetle in review

(adapted from the FABI Research Feature, written by Namhla Tshisela and Michelle Schröder. [www.fabinet.co.za](http://www.fabinet.co.za) )

A review of the invasion history and global management strategies of Eucalyptus snout beetles in the *Gonipterus scutellatus* species complex was recently published in the Journal of Pest Science. In the article, the researchers from the Tree Protection Co-operative Programme (TPCP) warn against a simplistic blanket approach to the application of biological control programmes against the invasive pest species. The authors identify gaps in understanding the various factors that influence the success of a biological control agent outside of its native range.

Dr. Michelle Schröder, the lead author on the review, is a postdoctoral Fellow in the TPCP at the Forestry and Agricultural Biotechnology Institute. Her research interest is in insect ecology and insect plant interactions of economically important species. She is currently leading much of the research on improving the biological control programme of the Eucalyptus snout beetle in South Africa.

The Eucalyptus snout beetle (ESB) is a major pest in *Eucalyptus* growing regions across five continents. The term ESB refers to three of the eight cryptic species present in the invaded range that belong to the *G. scutellatus* complex. Thought to originate from southeast Australia, the ESB was reported for the first time outside of its native range in New Zealand in 1890. Subsequently, it was detected in South Africa in 1916. The beetle was assigned five different names before DNA barcoding revealed that the species in South Africa was in fact *Gonipterus* sp. n. 2, an undescribed species in the species complex.

The other two invasive species, namely *G. platensis* and *G. pulverulentus* are not currently present in South Africa. Given the alarming increase in the introduction and spread of invasive species globally, it is possible that *G. platensis*, *G. pulverulentus*, or other species in the *G. scutellatus* complex will, perhaps in the near future, be introduced in to South Africa.



As a result, there is “consequently a need to accurately identify known and new populations of these insects,” according to the authors.

*Anaphes nitens*, an egg parasitoid native to Australia, was introduced in South Africa as the biological control agent for *Gonipterus* sp. n. 2 in 1926. Larvae of this parasitoid feed on the yolk of ESB eggs, killing them before they hatch. Following its introduction to South Africa, *A. nitens* has been introduced as a biological control agent in other countries where *Gonipterus* species have been reported in *Eucalyptus* plantations. The researchers acknowledge that the global release of *A. nitens* as a biological control agent for multiple *Gonipterus* species “calls to question” its efficacy.

“Confusion regarding the taxonomy of ESB, and the recognition that most early reports referring to a single species actually represented numerous different taxa, has been one of the most important obstacles to research and management of these pests in *Eucalyptus* plantations,” wrote the authors.

DNA barcoding was instrumental in clarifying the confusion regarding the taxonomy of *Gonipterus* species, with a study by Mapondera et al. in 2012 revealing “ten distinctly different species of which eight are part of the cryptic species complex.” Five of these species remain undescribed, including the species in South Africa.

The authors advocate more in-depth understanding of the interactions between the different *Gonipterus* species, their host plants, the biological control agent and factors such as climate as the bedrock for a more resilient biological control programme. They also identify gaps in the management of the species.

“Understanding how climate influences the distribution of different species and populations of these insects is therefore important in the development of successful biological control agents. This will be especially important in the case of the ESB, where differences between species have almost certainly been overlooked,” forecast the authors.

The authors identify host susceptibility as one of the factors where there is little understanding of its interaction with the different species in the cryptic complex, with *Eucalyptus globulus* as a “very susceptible host of all three [invasive] species”. Management practices in the future would also benefit from better understanding “possible mismatches between the herbivore host and the parasitoid,”

Augmentative biological control, which entails the repeated release of large numbers of the parasitoid, is used in some countries in an attempt to manage the beetle population. However, the authors express concern that “very little research has been published on the impact of augmentative releases of *A. nitens* on *Gonipterus* populations.” The researchers suggest that future work should therefore focus on “evaluating the impact of mass releases on ESB populations over time.”



Photos : Credited to Dr. Michelle Schröder





Photo of the Author Dr. Michelle Schröder collecting adult snout beetles



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Credit to SA Forestry



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 **30<sup>th</sup> 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



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BIRTHDAYS : AUGUST 2020			
DE RONDE C.	Aug-02	MABENA K.	Aug-14
MPHAHLELE L.I.	Aug-02	SINUKA L.T.	Aug-14
GOUS G.	Aug-04	BARNARD W.H.	Aug-15
SCHROEDER E.W.	Aug-05	HAM H.	Aug-16
ALLPASS A.D.C.	Aug-07	ERASMUS N.	Aug-19
HEATHMAN W.Z.	Aug-07	MPHAHLELE M.M.	Aug-19
BEZUIDENHOUT R.M.	Aug-09	VAN DER ZEL D.W.	Aug-19
IMMELMAN J.A.	Aug-09	PRIGGE D.L.	Aug-26
FERREIRA E.	Aug-10	BLAKEWAY F.	Aug-28
CROUS J.W.	Aug-12	LEISEGANG K.W.	Aug-28
MATTISON C.E.	Aug-12	DU PLESSIS C.S.	Aug-31
ESTERHUYSE C.J.	Aug-14	HUGHES J.P.	Aug-31



# 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

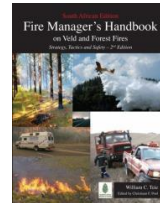
Non members: R500



**Fire Manager's Handbook on Veld and Forest Fires**

Price: SAIF members: R300

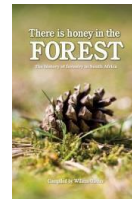
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**There's Honey in the Forest**

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Non members: R150



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