Volume 2|Issue 12

December 2021

Southern African Institute of Forestry

Delivering a professional service to forestry

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Contents:

SAIF Calendar Dec. 2021: Photographer: Philip Fischer : "Highveld Forestry"

From the President's Desk
Looking back and looking forward

For many people this very tough year cannot end soon enough and many others will be anxious about what they still intended to do but could not achieve/ finish in time. Whatever your circumstances might be and view on the December/ January period, it is a time to pause and reflect on the past year but also to look ahead and plan for the year ahead.

Over decades, foresters have proved to be some of the most resilient and adaptable people not unlike farmers, who have to contend with severe droughts and devastating fires and floods. We are very aware of the forces of nature and whether it can be ascribed to Climate change or just regular cycles of droughts and floods which we know so well in South Africa, foresters have always risen to the occasion. Yes, it does not make it less painful and challenging but so many times we have risen out of the ashes and replant and move forward in faith not knowing what the future holds.

In former days characterised by long rotations of 30-40 years to grow sawlogs, most foresters who planted stands did not have the privilege of harvesting the trees which they have planted. Lately with many of the rotations especially for production of pulpwood have been reduced to 8-12 years and foresters can actually harvest the trees which they have planted.

Even with shorter rotations, it is so much different from growing and producing cash crops like maize which you plant & harvest in one year and annually.

This is an Industry characterized by large economies of scale, low margins, -facing many risks like fires and pests and diseases and uncertain marketing conditions as well as being very exposed to economic cycles. Forestry has therefore never been the ideal career for the faint- hearted and unfaithful but much more for the resilient and adaptable people !

The Southern African Institute of Forestry (SAIF) celebrated its 50th "birthday" three years ago and has faced many challenges through the years but managed to survive despite the "ups and downs". At present we face one such a challenge where our membership numbers have dwindled despite new and young members who have joined the SAIF during 2021 for which we are very grateful.

We are extremely grateful for those members who have been very committed during the years often despite personal difficulties and uncertainty and continued to pay their membership fees and to participate in events and to help build the SAIF.

The SAIF also unfortunately lost some of its most faithful members through death in 2021 but it was equally a very sad moment where after many attempts to persuade members who have been in arrears for 2-3 years to pay at least one year's membership and re-join the SAIF, to finally reach the point where their names were removed from the list of SAIF members.

As mentioned before, when exiting 2021 and before entering 2022 it is also a good time for reflection as well as to do some introspection. Many people will rightfully ask the question: "What does the SAIF do for me?" or is the SAIF still relevant in our day? These are valid questions and should be asked & considered. At the same time one can & should perhaps also ask "What can I do for the SAIF?"

All members are therefore invited to please share their thoughts and advice with the current Council. There is a lot of wisdom and knowledge out there amongst our SAIF members who can make recommendations on not only how the SAIF will not only survive but even manage to thrive despite difficult times. Please send all comments, criticism and suggestions to our Secretary or myself (See Contact details at end) .

It is also a very appropriate moment for the SAIF to say a big thank you to all the people who continue to contribute and build the SAIF through their personal efforts, -sacrifice and also to the organisations who contribute directly and indirectly to the SAIF.

The following persons from the SAIF deserve special mention:

- Corine Viljoen: National Secretary of the SAIF
- Hannél Ham : Editor of Southern Forests
- All Branch Chairs of the SAIF
- Past-President and Vice-President of the SAIF

The SAIF would like to thank all the following forestry companies/ organisations who contributed generously through their sponsorship of the 2022 SAIF Calendar.

- Stihl South Africa (Prizes for the photo winners)
- PG Bison
- CMO : Supply Chain Integrity
- Forestry South Africa (FSA)
- Nelson Mandela University : George Campus
- Ellepot
- Mondi
- SAPPI
- TWK AGRI
- MTO Forestry

The SAIF would also like to thank all the judges of the annual Photo competition as well as all members who entered with their photos. Please don't stop taking photos and send them to Corine or your Branch chair to be considered for the 2022 Photo competition !

The SAIF has strengthened its ties and special relationship with Forestry South Africa who represent several Forestry Companies in South Africa and FSA in many respects "fight the good battle" for forestry when dealing with government and other stakeholders in South Africa. Ronald Heath has been a tower of strength and we thank him and all his colleagues for their continued support to the SAIF.

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Photo Competition Winners Receive Their Prizes !

Izette Greyling(right) receives her first prize (a STIHL GTA26 Handheld Pruner) from Stihl

Robin Hull(2) receives his STIHL HAS26 Pruning Shear from Stihl

Roger Poole (3) receives his prize from Sthil

Is a multi-storey mass timber building an economically viable option in South Africa?

Research by a Zutari engineer focuses on a development cost comparison between a mass timber frame and a reinforced concrete frame building respectively.

The economic viability of multi-storey mass timber buildings in South Africa has come under the spotlight thanks to a research study carried out by **Stephanus van der Westhuyzen**, a Structural Engineer at leading consulting engineering and infrastructure advisory firm Zutari.

Stephanus van der Westhuizen from Zutari

Sawmilling South Africa (SSA) and the Institute for Timber Construction South Africa (ITC-SA) have both proposed that timber be designated a construction material of choice. This will assist in alleviating the housing crisis in densely populated informal settlements that have been hardest-hit by the Covid-19 pandemic, where quality accommodation needs to be built as quickly and as cost-effectively as possible.

Timber as a building material can substantially reduce greenhouse gas (GHG) emissions in the building sector, in addition to reducing the waste, pollution and costs associated with construction, and thereby contribute to a more physically, psychologically and aesthetically healthy built environment.

Van der Westhuyzen's research focuses on whether or not South African plantations can provide sustainable volumes of high-grade (S7, S10) timber to sustain a multi-storey mass timber building market. This was followed by the design of two eight-storey commercial buildings consisting of a mass timber frame and a reinforced concrete frame respectively.

A focus-group workshop conducted with industry professionals assisted with developing the construction schedules, while a financial model was used to determine the overall development cost and financial feasibility of the two approaches. Finally, a sensitivity analysis was conducted to investigate the effect of certain variables on the overall profitability of the mass timber frame option in particular.

The research revealed that mass timber products would need to be imported to satisfy the rapid growth in the multi-storey mass timber building market in South Africa, as current timber supplies (S5, S7, S10) are oversubscribed.

Studies suggest that future log resources could be added to the market through the development of new plantations. However, these plantations will only become available after 24 to 30 years.

The focus group workshop identified that construction of the reinforced concrete frame building and mass timber frame building will take 42 weeks and 21 weeks respectively. Furthermore, the total capital investment required for the mass timber frame building is 10% more than that of the reinforced concrete frame option. A five-year internal rate of return (IRR) of 20.9% and 25.7% was calculated for the mass timber frame and reinforced concrete frame options respectively.

Notably, the five-year IRR of both options is above the 15% minimum acceptable rate of return (MARR), indicating that they are both financially feasible. A significant finding of the sensitivity analysis was that the mass timber frame building proved to generate a higher five-year IRR than that of the reinforced concrete frame once the mass timber building achieved a rental premium of 7.8% or more. The sensitivity analyses further revealed that importing mass timber elements is an expensive option at a 16.4% five-year IRR.

The research study highlighted a number of aspects in the manufacturing sector that can be addressed to develop a sustainable multi-storey mass timber building market. This includes improving the sourcing of high-grade structural timber (S7, S10) and investing in equipment to enable the large-scale production of large beams and columns typically required in multi-storey mass timber structures.

Due to the sturdy and resilient qualities of timber and the relative ease of construction, timber-frame construction is one of the oldest known building methods, especially in the Northern Hemisphere, according to the South African Forestry Company SOC Limited (SAFCOL). While timber construction in South Africa can be traced back to the 1800s, it only became a bona fide building method over the last 30 years.

This resulted in the formation of the Timber Frame Builders' Association in the early 1980s, with SABS 082 amended in 1988 to include standards for timber construction in particular.

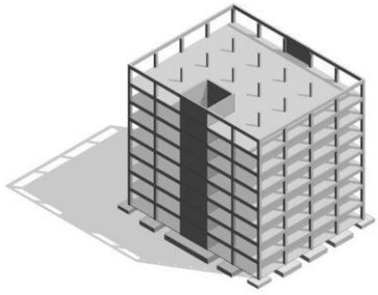
The Institute of Timber Frame Builders (ITFB) and the ITC were aligned in August 2014, with the ITC-SA established to promote and sustain timber engineered products in South Africa.

To read the full thesis by Stephanus van der Westhuyzen, click on:

https://scholar.sun.ac.za/handle/10019.1/109142

About Zutari

As engineering consultants and trusted advisors, Zutari co-creates an engineered impact that enables environments, communities and economies to thrive. Few others can match our local capacity, long-standing presence and understanding of the challenges required to operate successfully across various regions in Africa.



Celebrate the "now"

By Rob Thompson

2022 is looming over the horizon. Many of us are eagerly awaiting its arrival in anticipation of renewal and a fresh start. A new beginning in much the same way as a mature compartment is regenerated with a new species selection, new technologies and a new silvicultural approach, all in the hope of improved successional success.

Every year we do the same.

Hope for a better year and better fortune than befell us previously. It was whilst I was wishing some staff well for the new year that I realized the extent to which we all seem to dwell on the future and what is to come. Yes, we've been through some torrid times in the current year. We've all had to deal with the very real and often tragic ramifications of a pandemic, unstable economic conditions, political pontification, poor service delivery, insurrection to name only a few.

No wonder that we instinctively reach for better times to come…but will they?

Forestry is full of illustrations of expectations being proven otherwise. The eucalyptus clone to beat all other clones suddenly inundated with a gall wasp invasion. The show piece plantation, in perfect rotation, well managed, and productive, suddenly consumed in a runaway fire. The robust and highly lucrative timber marketing plan scuppered by global consumption restraints. A well balanced staff contingent thrown into disarray via the need to work remotely and deal with the angst brought about by a ruthless virus. Timber growers suddenly finding themselves isolated economically, given rising costs and static timber pricing making timber delivery over longer distances, unaffordable.

Next year just has to be better…there must be some relief into the future…or is there?

The more I think about this topic, the more I realise just how deeply we unwittingly allow ourselves to become entrenched into the future. Dare I mention politicians in this article? They are continuously promising us better service delivery and sadly much of the populace is drawn into these empty promises of better times. Sometimes our expectations of the future are driven by previous experiences. I'm sure you're familiar with this thought pattern…"They gonna close down the booze sales! Better visit TOPS!". I know for a fact that many of the readers hereof are currently sitting with admirable emergency stockpiles of nectar given this expectation of future events!

It is probably part of the human condition to gravitate towards positioning oneself into the future. We all tend to live the expected future better times, now, in our mind's eye:-
"I'm going to get that promotion and move off the forest estate to work at Head Office in the city".
"I'm going to retire to the coast, play golf and renovate the beach house that I buy".
"Next year I'm taking long leave and doing that overseas trip to Borneo".

Moving rapidly on a year or two, our friend is still working happily on the plantation, her colleague decided to extend her service contract and continue working, whilst the travel ban put paid to the Borneo adventure.

Going back to the analogy of the mature compartment. How soon do we forget the current and immediate past positives of that original stand. The revenue it brought in. The technical knowledge gained from regular observations made during its growth. The work provided to the persons servicing the stand. Ecological services rendered to the environment and the list goes on. Our attention is rather fixed on the new successional stand and the rewards that we hope to attain therefrom.

The gall wasp strikes and the focus is on the next and more resistant planting. Why don't we stop for a while and recognize and acknowledge the opportunity value of learning more about the pest and its habits?

The unstable economic conditions make us long for the return of times of plenty, and we don't make time available to really appreciate the long term value of the cost saving protocols that we are implementing out of necessity.

The runaway fire is devastating, causing us to focus on the damage and measure against what could have been. Not enough recognition is given to the open palette that the fire has provided. New technologies, layouts, innovations, salvage markets and work opportunities are now possible even though the circumstances are not entirely desirable.

The marketing plan upended via the global meltdown causes great revenue angst. The innovative approaches adopted towards diversification and alternative market outlets are however not celebrated to the extent that they ought to be.
Timber growers complain vigorously about rising costs but neglect to reflect enough positively on the cutting edge cost saving measures that they instinctively implement to maintain their operations as viable concerns.

This discussion describes just how the occurrence of 2021 approaching its end has brought home to me the need to focus more on the "now", as ugly and as traumatic as it may be.

This increased focus will doubtlessly reveal just how resilient and adaptable we all are to the most unexpected of circumstances. We actually don't need the future. Most of us are doing just fine in the "now" and by acknowledging this, should be available to assist those who are not.

Let me bold therefore and encourage you all to celebrate your "now" and wish you continued success "now" and into the future. We are all able to do this!

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The SAIF would like to extend its appreciation to Rob Thompson from NCT for his valuable monthly contribution !
He has lightened up our lives this year as he did over the years and has proved himself to be a very competent journalist ! Enjoy the break Rob !

The polyphagous shot hole borer beetle: Current status of a perfect invader in South Africa

Authors: Elmar van Rooyen, Trudy Paap, Wilhelm de Beer, Garyn Townsend, Shawn Fell, Wilma J. Nel, Seamus Morgan, Martin Hill, Allan Gonzalez, Francois Roets
URL: https://doi.org/10.17159/sajs.2021/9736

Abstract:
The polyphagous shot hole borer (PSHB) beetle is a recent invader in South Africa. Together with its fungal symbiont, *Fusarium euwallaceae,* it can rapidly kill highly susceptible host plants. Its impact is most profound in urban areas, but it has also been found infesting important forestry, agricultural crop and native species. Since its first detection in 2012, PSHB has spread to all but one province in the country. The beetle–fungus complex has several biological traits that enhance its anthropogenically mediated dispersal, establishment and survival in novel environments – factors that have likely facilitated its rapid spread across the country. We review the history of the PSHB invasion in South Africa, its taxonomic status and the reasons for its rapid spread. We highlight its potential impact and challenges for its management. Finally, we provide an updated distribution map and list of confirmed host plants in South Africa. Of the 130 plant species identified as hosts, 48 of these (19 indigenous and 29 introduced) are reproductive hosts able to maintain breeding PSHB populations. These reproductive hosts may succumb to beetle infestations and act as 'pest-amplifiers'. The economic impact on urban forests, plantation forestry and agricultural crops may be severe, but the ecological impact of PSHB invasion in native ecosystems should not be underestimated.

The polyphagous shot-hole borer beetle. Photo: S. Bush

Pests of indigenous forest trees

By Christopher Otim Komakech

(Tree Breeding Consultant) Part 2

The first part of this article appeared in the November 2021 Newsletter.

Introduction (shortened summary)

Recently, vigilant field team from forestry commission noted some pests causing mortalities in woodlands after a period of long dry spell. Borers have been recorded causing mortalities in *Brachystegia spiciformis* in the Miombo woodlands in Zimbabwe in the past and more recently a scale insect (*Aspidoproctus* sp.), possibly triggered by drought, has caused serious damage to indigenous trees in some areas.

Affected trees then included; *Brachystegia spiciformis, Brachystegia allenii, Brachystegia boemii, Julbernardia globiflora, Acacia spp. Monotes glaber, Piliostigma thonningii, Erythrophleum africanum, Pericopsis angolensis and Pterocarpus angolensis.*

The area affected was over 215, 000 hectares in three districts (Gandavaroyi, Hurungwe and Makonde).

Once again the most susceptible indigenous tree species, are those from the Miombo woodlands with extensive coverage in Southern, Eastern and Central Africa dry land forest ecosystem.

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(**Article continued : Part 2**)

The other morphologically different scale that was found in Binga is not described anywhere in literature and no specimens are available in the Natural History Museum collection. Thus, a call for molecular analysis is recommended to be able to positively identify the insect pests (from all infested areas) to species level. This way we would know exactly what we are dealing with and be able to confidently report on it.

Shown below are pictures taken from Binga

Pictures showing intensive scale infestation on Brachstegia spiciformis in Binga (Pictures by L .N Tshuma November 2020)

Pictures showing intensive scale infestation on Acacia tortilis in Binga. As seen in the pictures the scale insects infesting Acacia tortilis are morphologically different from those infesting Brachystegia spiciformis (Pictures by L .N Tshuma November 2020)

Control Measures

Control measures of other scale insect species in orchards include, removal and disposal of heavily infested plant, taking care to reduce spread of scale insects while doing so. If infestations are limited to a particular branch and it can be pruned and disposed, monitoring closely to ensure the rest of the plant is clean, ant control, restricting movement into areas known to be infested with scale insects and the application of non-residual contact insecticides, systemic insecticides only to mention a few (Gill, 2018).

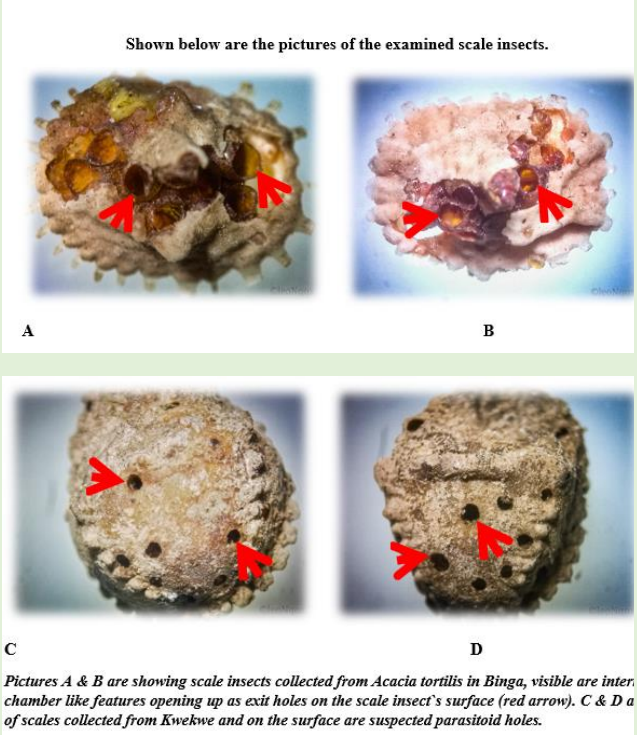
Some of these methods may be employed but are not however sustainable in natural forests.
If chemical control methods are considered then the feasibility for use has to be studied concerning cost, pesticide backlash and the ability of infested tress to absorb the pesticides. (Bare and Mutambara-Mabveni 2010)

Potential Biological Control

Field and laboratory examination of scale insects specimens collected from infested *Acacia tortilis* during the Binga survey showed that there were

holes on the dry dead pest's surfaces. These could be a result of a potential parasitoid present in the field but in small numbers to effectively keep the pest numbers low. Of the scale insect specimens from *Brachystegia* species collected from Binga, there were none showing visible signs of parasitism.

However on account of personal visit to Kwekwe it was noted signs of parasitism across *B. spiciformis* and *B. boehmii* on tree species in Binga. Interestingly dry and dead scale insects had holes on their surfaces, which could have been cut out by a potential parasitoid.



Pictures A & B are showing scale insects collected from Acacia tortilis in Binga, visible are inter chamber like features opening up as exit holes on the scale insect's surface (red arrow). C & D a of scales collected from Kwekwe and on the surface are suspected parasitoid holes.

The biological control approach of the pests also requires further study as three natural enemies have been identified in the field and isolated under laboratory conditions before as noted by Mushangande in his notes on *Aspidoprooctus glaber* a destructive insect pest of miombo woodlands in Zimbabwe (1996). These were a lady-bird beetle (Coleoptera*: Coccinellidae*) Rodoloia iceryae Jonson, a wasp (Hymenoptera: *Eupelmidae*) Eupelmus aspidoprocti (ferriere) and a fly (Diptera: Drosophilidae) Cacoxenus perpicax (Knab).

However no work was done to evalate the impact of these natural enemies on the pest both in the laboratory and field.

Conclusion

Literature on biology, ecology and behaviour of Aspidoproctus sp., on which control strategies are supposed to be based and built on is scarce save for early descriptions of adult female A. giganteus (Newstead, 1913-1914), adult females of A. cinera, A. euphobia (Green, 1922). The current published study was on "Behavioural characteristics of the Scale insect Aspidoproctus sp. near glaber (Homoptera: Margarodidae) in different instar stages in Miombo woodlands in Hurungwe, Zimbabwe (Bare and Mutambara-Mabveni 2010).

As interesting as these findings are, they are however inconclusive. There is a research gap that needs to be covered in terms of positive pest identification of both scale insects, current pest distribution data, pest recurrence and occurrence data, current extent and level of damage, potential biological control agents that when covered will lead to an integrated management approach in controlling the pest. Thus, more data needs to be collected and analysed for concrete findings that can be reported.

Recommendations

- Baseline survey in all affected areas, with sample collection for analysis and molecular analysis.
- Categorisation of scale insect damage by age on parts of the tree affected
- Damage progression from start to when a tree is completely infested leading to mortality
- Influence of long dry season on severity of infestation
- Monitoring to be done in countries with similar ecological characteristics i.e. miombo woodlands and sharing of information
- *C. mopane* which is a livelihood support for small scale businesses and food security in rural areas need special monitoring as it present a bigger food security matters

Acknowledgement :

Most of the content of this newsletter was extracted from field work report and observations made by Tshuma, L.N assistant entomologist in the entomology and pathology department of Zimbabwe Forest Commission. He should be commended for carrying this work at times at own costs which show the interest and enthusiasm he is putting in his line of work which will be useful for communities not only in Zimbabwe but the entire region with similar ecosystem.

References :

Gill D, 2018, https://www.lsuagcenter.com/profiles/jmorgan/articles/page1520001364362, accessed 16/09/2021.

Bere, J., and Mutambara-Mabveni, (2010), "Behavioural *characteristics of the Scale insect* Aspidoproctus sp. near glaber (Homoptera: Margarodidae) in different instar stages in Miombo woodlands in Hurungwe", Zimbabwe., Midlands State University Journal of Science, Agriculture and Technology Volume 2(1).

Green, E.E, (1922), The Coccidae of Ceylon Dulau and company Limited London.

Newstead, R, (1913-1914). Notes on scale insects (Coccidae) Part II. Bulletin of Entomological Research. Vol IV: 301-311.

Masuka A.J, Ryvarden L. and Mazodze R., 1995. A guide to Forest and Timber Protection in Zimbabwe. ISBN 0-7974-1541-6

Tree of the week: *Gardenia volkensii* –
Savanna gardenia – Bosveldkatjiepiering –Tshiralala

The Savanna gardenia is a small deciduous to evergreen tree that can reach a mature height of 8m depending on the habitat. It prefers open woodland, bushveld and thicket and occurs from tropical Africa through Namibia, Botswana, and the north-eastern parts of South Africa into KwaZulu-Natal in the southeast.

This multi-stemmed tree is characterised with a dense round crown. The bark is pale grey and smooth and the branchlets appear knobbly due to persistent leaf-like appendages at the base of the leaf stalk. The glossy green spoon shaped leaves exist in groups of three and are crowded at the tips of short stout branchlets. From July to October, the tree produces masses of white, sweetly scented flowers that age to a creamy-yellow colour. These blooms open during the night, spreading their fragrance throughout the garden. After flowering, ribbed, egg-shaped fruits are produced. These add on to the beauty of the tree.

Its slow growth rate, small stature and non-invasive root system makes this tree suitable for a small garden. *G. volkensii* makes an interesting container plant for the patio, flowering every season with fragrant, white, waxy flowers. This tree also makes a beautiful bonsai specimen.

Source : Sun Gardens
Email: sungardens.trees@gmail.com
Website: www.suntrees.co.za

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The Southern African Institute of Forestry

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

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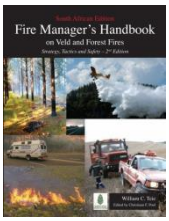

☐ **There's Honey in the Forest**
Price: SAIF members: R100
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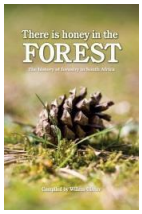

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