



Greetings,

Unfortunately, the 2018 fire season which began with such promise heated up from August and statistics show an increase on last year. Pilot Rob Taylor gives us a cockpit view of the issues faced over the past few months, a must-read for all members. We cover another beautiful but alien invader and discuss how vegetation size affects a fire. Until next time.



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From the Cockpit

Few are better placed to report on the season than the people at the coalface and *All Fired Up* is most grateful to Bomber 95 pilot Rob Taylor for telling us how it was. Over to you, Rob.

At the time of writing it has been a fairly uneventful season - touch wood as the saying goes. The first three months were very quiet but August, September and October were busy; bringing the numbers up to better than average. This year the weather pattern has been characterized by a robust high-pressure system which has kept the Berg Winds at bay.

Airfields

Most of this year's fires have been fought from tar runways namely, Nelspruit, Elandshoogte, Graskop and Ngodwana. This has made life a little easier on the bomber pilots but it is amazing the difference in tyre wear. Nearly all the bombers have had a tyre change this season which is unusual. Berlin runway has been a pivotal runway this season and flew out more loads than any other strip but it's condition requires attention. Elandshoogte was awarded Best Airfield 2018 & Berlin Best Loading Crew.

Crew Room

This is a great improvement on all past crew rooms and it certainly made standby more pleasant for all aircrew. Well done and thanks.

Pilot Shortage

The average age of a bomber pilot is approaching 60 and to the best of my knowledge there is no young talent entering the service, reflecting the unprecedented pilot shortage facing the aviation industry as a whole. Young commercial pilots are leaving South Africa in numbers to take up dollar paying jobs while the cost and scarcity of tailwheel training also affects the situation and it is almost impossible for a young guy to get trained up to a level that insurance companies will accept. How often do I hear the lament: *"To get a job I need experience. To get experience I need a job."*

Valuable feedback indeed from Rob, who was voted "Pilots Pilot" in 2018. Thank you for both your report and your sterling work throughout the season.

The Latest Fire Statistics

15 May to 31 October Fire Season Statistics			
	Total 2016	Total 2017	Total 2018
Lowveld Region Total Fires	44	56	93
Escarpment Region Total Fires	29	12	37
Total Ground Fires	19	34	72
Total Air Support fires	54	34	58
Total Flying Hours	552,02	373,69	592,73

FDI Days for Lowveld Region					
October 2017	4	15	10	2	0
October 2018	3	10	15	3	0

Yellow Bells Ring for *Tecoma stans*

We continue with Johan Louw's informative series on alien invasive plants and this month feature the beautiful but marauding *Tecoma stans*, Nemba category 1b, which you may know as Yellow Bells or Yellow Trumpet. An evergreen shrub or small tree, it is believed to originate from Mexico and South America. Intentionally introduced in South Africa, it fast became and remains a problem in the Eastern Cape, KwaZulu-Natal, Mpumalanga, Gauteng and Limpopo provinces.

Description:

Growing up to 4m high, the leaves are bright green above and paler below with sharply toothed margins. From October to May it produces bright yellow, showy, trumpet-shaped flowers in terminal sprays. *Tecoma stans* bears brown, shiny fruit capsules 12 - 20cm long that split open to release papery winged seeds.

How does it spread?

Natural, non-biotic dispersal is mainly by wind and water. The seeds are produced in large quantities throughout most of the year. Regeneration from cut roots and stumps results in dense population after mechanical disturbances. Little is known about the role of birds in the vector (biotic) dispersal. By far the biggest mode of global dispersal is through the nursery trade. *T. stans* is a popular garden ornamental shrub, easily propagated and with rapid growth.

Why is it a problem?

It competes with and has the potential to replace indigenous species. It invades hot and dry savanna and can reduce grazing for domestic and wild animals.

Does the plant have any uses?

It does, but they don't compensate for its overall negative impact. *Tecoma stans* provides wood and charcoal, an infusion made from the leaves can be taken orally for diabetes and stomach pains; leaves and roots can be used as a diuretic or to treat syphilis and intestinal worms. In the garden, this attractive plant provides shade and can be planted as a hedge.

Suggested alternatives to plant:

Cape honeysuckle (*Tecoma capensis*), yellow bauhinia (*Bauhinia tomentosa*) weeping wattle (*Peltophorum africanum*).

Control:

An integrative approach is the most effective control method, including the prevention of new introductions, dispersal and sale by nurseries as well as mechanical and chemical control. Terrain, the cost and availability of labour, the severity of infestation and the presence of other invasive species dictates the precise management measures to be taken. Prevention, of course, is the best form of invasive species management but if they begin to appear on your property, treat the weed infestation when it is small - an early detection and rapid response is key, as is controlling the weed before it seeds. Begin by controlling the least infested areas before tackling dense infestations. Consistent follow-up work is required for sustainable management and while seedlings and small plants can be hand-pulled, larger plants are more difficult to control manually and re-sprout from cut roots unless these are pulled up and burned after drying.

Chemical control:

The conventional chemical control methods of shrubs and small trees practised by most municipalities are not effective against *T. stans*. Repeated applications of foliar-applied herbicides are effective but uneconomical. However, cut-stump application methods using oil-based or oil/water emulsions of 2,4-D and picloram mixtures generously applied to freshly cut stumps either by spraying or painting are effective. When using any herbicide always read the label first and follow all instructions and safety requirements. If in doubt, consult an expert.

Biological control:

In 2007 the ladybird beetle *Mada polluta* Mulsant 1850 (Coleoptera:Coccinellidae) was collected on *T. stans* in Mexico and imported into quarantine in South Africa for screening as a potential biocontrol agent. Following several years of testing, the beetle was found to be host specific on Yellow Bells. Permission was obtained for its release and during the summer of 2013/2014 the first insects were released at various sites in KwaZulu-Natal, Mpumalanga, Gauteng and the North West provinces.

References

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Henderson, L. (2001). Alien weeds and invasive plants. A complete guide to declared weeds and invaders in South Africa. Plant Protection Research Institute Handbook No. 12, 300pp. PPR, ARC South Africa.

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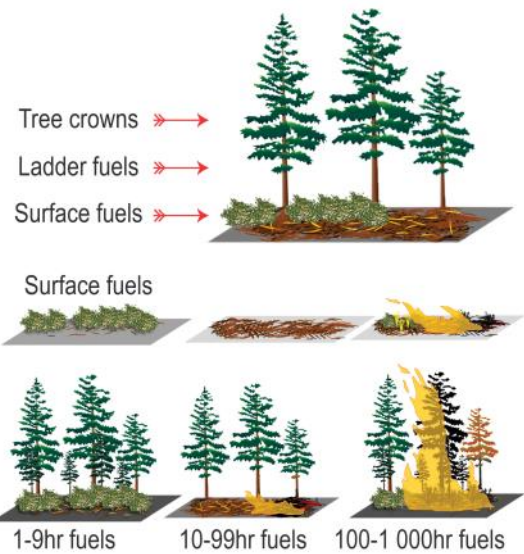


How Vegetation Size Affects a Fire

Andre Scheepers has highlighted an informative article in *Fire and Rescue News* regarding the role that vegetation size plays in a fire. Firefighters become experts at much more than beating and spraying flames, they learn expert fuel skills as well. Vegetation fuel is a case in point as diverse vegetation responds differently to ignition, length and heat of burn.

Fine fuels such as dry grass, leaves, weeds, twigs and shrubs ignite easily, burn fast then burn out very quickly. Fine fuels are called one-hour fuels because of the length of time it takes for the vegetation to be affected by atmospheric moisture.

Larger fuels have a higher volume to outside surface area ratio and thus ignite less easily, burn slower and for longer. Logs and fallen tree trunks, usually the largest vegetation fuel, are highly resistant to changes in moisture. Once these ignite, they burn for a far longer period of time and create smoke well after the main fire has passed through. In addition, fire is able to climb into standing trees by means of 'ladder' fuels - using small bushes, trees and shrubs on the ground to reach the twigs and branches growing higher up in living trees.



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Image by Hennie Homann

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LEFPA Assists at Cape Fires

Regrettably, firefighters tackling some serious fires near Vermaaklikheid in the Cape suffered loss of life when an experienced helicopter firefighting pilot, Nico Heyns, crashed during operations. His death left aerial resources at the fire shorthanded and LEFPA was asked for assistance as the unfavourable weather conditions continued with no foreseeable change. Working on Fire utilized more than 100 ground firefighters and management to assist the Garden Route District Municipality and the Southern Cape FPA.

Mike Assad from WoF sent through an early report to Andre Scheepers:

"It seems the 2 x 802s managed 11 loads after the ferry and feedback is that they were very effective. The main fire is getting under control but early this morning I was advised that two new large fires had started. Your contribution towards combating these devastating fires is truly appreciated."

Always ready to support fellow firefighters, LEFPA is upset by the loss of a comrade and echoes the sentiments expressed in this statement issued by Kishugu: "

'Working on Fire and Kishugu Aviation is saddened by the loss of one of their own. Nico Heyns, Kishugu Aviation aerial firefighting helicopter pilot, died Tuesday 23 October 2018 while battling the fire near Vermaaklikheid in the Riversdale area in the Southern Cape.

Nico was a respected, highly dedicated pilot and long-standing friend. He was well-known for going above and beyond in the line of duty. He helped fight countless fires during Working on Fire operations, assisting in the saving of numerous lives, properties and the environment. He will be sorely missed.

The cause of the accident is still unknown but the South African Civil Aviation Authority (SACAA) has commenced with its investigation and Kishugu Management will provide all the assistance and input required.

Working on Fire Aviation has deployed aerial resources from the northern region to assist ground teams. The extra resources provided include two AT 802 fixed-wing water bombers and a Huey helicopter as well as two Aviation Support Vehicles (ASVs/fuel bowsers) – one from Vryheid and one from Ermelo. We thank LEFPA, Umpiluzi FPA and Ugie for releasing these resources.'

The bravery of each and every firefighter, whether on the ground or in the air, is highlighted when tragedy strikes. Firefighting is a job for the courageous of heart.

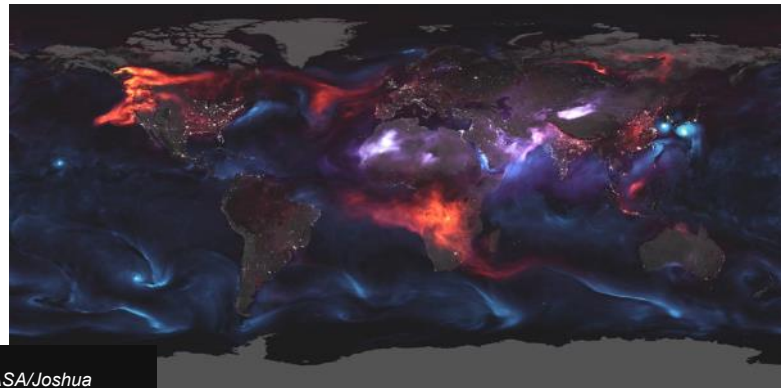


Just Another Day on Aerosol Earth

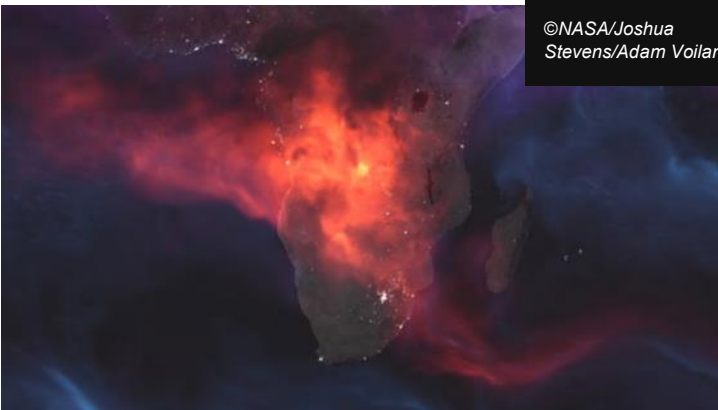
LEFPA Chairman Duncan Ballantyne has sent through a scientific paper abstract covering the biomass burning haze, known as Africa's "River of Smoke". Duncan was involved in the SAFARI 2000 project.

The atmosphere over southern Africa during the austral spring (August to October) is characterised by episodes of intense haze, lasting several days at a time. Results from the SAFARI 92 field campaign developed an understanding of regional-scale atmospheric transport over the region in the nature of an anti-cyclonic gyre and the importance of biomass burning of the African savanna as an important source of atmospheric trace gases and aerosols. However, the highest concentrations of biomass fires occur to the north of 15 degree S latitude, in the zone of tropical easterly winds, while the anticyclonic gyre, and much lower fire emission intensity, occurred to the south of this latitude. Measurements during the SAFARI 2000 Regional Science Initiative dry season intensive field campaign (August and September 2000) revealed a coupling of these two synoptic systems for several days at a time during the austral spring, allowing the dense biomass burning plumes to be fed into the southerly system over southern Angola and northern Namibia, and to be transported towards the south-west across Botswana and South Africa and ultimately to the Indian Ocean. This phenomenon has been designated the "River of Smoke". "River of Smoke" - Characteristics of the Southern African Springtime Regional Biomass Burning Haze. Available from: https://www.researchgate.net/publication/272788604_River_of_Smoke_-_Characteristics_of_the_Southern_African_Springtime_Regional_Biomass_Burning_Haze

In an article published on the NASA website (www.nasa.gov/image-feature/just-another-day-on-aerosol-earth) editor Yvette Smith explains the billowing palls of smoke that roiled liquidly across Africa on 23 August 2018, a day that Duncan recalls was extremely smoky with poor visibility here in the Lowveld. Unseen in the air that we breathe are millions of particles, known as aerosols, only visible to us as billowing wildfire smoke, volcanic ash or everyday dust blown up by the wind. A NASA model called the *Goddard Earth Observing System Forward Processing* (GEOS FP) offers an expansive view of the mishmash of particles that dance and swirl through the atmosphere. The images herewith show the aerosols on 23 August, when enormous plumes of smoke drifted over North America and Africa while simultaneously 3 tropical cyclones churned in the



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Pacific Ocean and large clouds of dust blew over deserts in Africa and Asia. Sea salt aerosols are carried into the air as part of sea spray and the storms are visible within the giant swirls (blue). Black carbon particles (red) are among the particles emitted by fires while particles the model classified as dust are shown in purple.

What a long way we have travelled from the classic photo of earth taken from Apollo 17 in 1972. Our 'blue planet' better resembles a witches cauldron in 2018.

©NASA 1972



Activities for the Month - November

- Keep monitoring FDI.
- Plan weed control operations.
- Attend LEFPA meetings regularly.
- Close manual lookouts if weather permits.
- Study weather systems and check forecasts on the internet.
- Slash burning allowed if weather permits-get a burning permit from LEFPA.

Important Notes

- 1 Spotter and 2 Bomber aircraft will be on standby at Nelspruit Airfield until 15th November.
- LEFPA office will close 21st December @13h00 and reopen 7th January 2019. Burning Permits will be available until 21 December @ 13h00 then again from 7 January 2019.
- **SUCCESS** cannot be spelt without **U**. Attend and participate - we need your contribution!