



HOWZAT!

ROTARY CLUB OF NEWLANDS
"The club that appeals"



President: Graham Finlayson
Secretary: Bill Meyer



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24 July 2017

WEEKLY UPDATE

P O Box 44735
CLAREMONT
7735

MEETINGS: Western Province Cricket Club Sports Centre, Ave De Mist, Rondebosch, every Monday at 18h00 for 18h15.

ATTENDANCE: Notice of apologies and guests and/or meal specifics to email Paul Spiller at dr.paul.spiller@gmail.com and copy to Bill Meyer at meyport@iafrica.com before 10h00 on Monday mornings please.

Comment

Via Graham Lowden

Knysna Fires: Five factors that produced the Perfect Inferno

*Dr Guy Preston, PhD (Environmental Science) Deputy Director-General:
Environmental Programmes, Department of Environmental Affairs.*

Fynbos burning over Lake Pleasant

June 2017 will be remembered by South Africans for decades to come. A historical moment when Mother Nature showed her true power and the only option was to get out of her path and watch in awe.

For a week preceding the fire, extreme weather warnings had been issued with predictions of flooding in drought stricken Cape Town and surrounds and rain and strong winds in the Garden Route. Waking up on the 7th June, little did anyone know that within 72 hours 10,000 hectares and in excess of 500 structures in the Garden Route would be burnt, some houses simply reduced to a heap of rubble and vast swathes of pine plantations burnt.

While fires aren't uncommon in the Garden Route, this fire had all the conditions to make the 'Perfect Fire', something that thankfully occurs only every 100 years. With hindsight being a perfect science, understanding the fire has produced insight into the elements that created this inferno.

There were five core conditions that made this fire so unique, namely:

1. The regional drought conditions,
2. The fuel load in the environment and suburbs,
3. Topography of the area,
4. Hot ambient air conditions,
5. The speed of the wind.

Each of these conditions would contribute to a fire, indeed the combination of two or three conditions would generate a formidable fire, but the combination of all five factors produced a historical fire.

Looking at each factor and how it contributed to the perfect conditions will assist in understanding the mechanisms and how to plan to mitigate escalated damage in the future.

Drought Conditions:

The Garden Route, along with the rest of the Western Cape has been in the grips of a severe drought for 12 months. While Cape Town exhibits an established winter rainfall, the Garden Route between Mossel Bay and Storms River don't. Contrary to popular belief, the Garden Route doesn't have a rainfall season.

The impact of the current drought on vegetation and the resultant increase of fuel for a fire has been substantial. One drought survival mechanism of plants is to reduce the surface area of trans- evaporation, or simply put, to defoliate and drop leaves. The defoliation can represent up to 40% of the trees leaf mass.

With the accumulation of extra leaf mass, the usual systems of decomposition by both chemical (fungal) and mechanical (earthworms, crickets, Pill Millipedes etc) means is retarded and thicker layers build up. This build up in areas can result in the formation of natural compost heaps. Normal composting is an exothermic process reaching internal temperatures between 45 and 77°C. Under certain conditions a compost heap can spontaneously combust.

Alone, the additional leaf litter and potential compost heaps has a potential for starting a small fire, or series of fires.

Accumulation of Fuel:

It is important to understand the different vegetation types in the Garden Route to appreciate the contribution to the build-up of flammable material for fires.

Everyone speaks of the Knysna Forest and the Fynbos in the Garden Route. However, we also have pine plantations, alien stands, coastal thicket and Milkwood Forest. In addition we have agricultural practices which comprise crop production, orchards and pastures for dairy and livestock production.

The importance to distinguish each of these vegetation types is that each has a different contribution to the progression of a fire, some retarding fire and others fuelling fire.

The Afro-montane forest, as a natural stand is fire retardant with the border species preventing the spread of fire to the interior of the forest. This has evolved as a means of protection against the fire climax vegetation of Fynbos.

Milkwood forest is also fire retardant which can be clearly evidenced on the eastern end of Lake Pleasant where the fire was stopped dead in a straight line by this vegetation type. Coastal Thicket is in some part fire retardant, but the leaf litter, when dry, and dead branches burn and smoulder. While not completely stopping a fire, it can slow the progress of the fire down. The biggest danger of this vegetation type is the potential of flare up after the main fire has stopped.

Then there is Fynbos. Every South African knows the fires of Fynbos. Fast, furious, extensive and most times unstoppable. Fynbos, is a fire climax vegetation and needs fire. There is no exact frequency period of a burn, but it does need to burn. Not burning it has two results. Firstly the build-up of flammable material and secondly the intrusion of either coastal thicket or forest species.

The Goukamma Nature Reserve east of Sedgefield hasn't had a burn in 30 years except for a small portion near the Goukamma River which was burnt in 2006. It was primed with fuel for a fire and was completely burnt during this recent fire.

Pine and Eucalypt plantations are also prone to burning. Depending on the age and maintenance of the plantations the leaf litter layer can build up and add to the fuel base for a fire. Representing the largest surface area burnt in this fire, the contribution as fuel of the mosaic of plantations has to be addressed.

Finally, the gradual intrusion of alien vegetation, which burns readily, in the form of extensive stands of Black Wattle has also contributed vastly to the provision of fuel to the recent fire.

The collection of fuel biomass from pine plantations, alien stand and a fynbos without partitioning corridors of fire retarding forest was a major contributing factor in the rapid spread of the fires.

Regional Topography:

Ask any old farmer or fire fighter where to run to when a fire gets out of hand and they will all direct you to the kloofs. This isn't random advice, but the wisdom of experience. Fire likes to race up slopes and along ridge lines, bypassing gorges.

The Elandskraal fire did exactly that, twice splitting along ridge lines and then joining up again. A good indication of the traditional fire paths, because the vegetation has been controlled by fire for millennia, is to check the vegetation that prevails. Again, if Afro-montane Forest occurs naturally in an area, then the chances are that fire hasn't travelled that way in the past and is unlikely to do so in the future.

Hot ambient Air Conditions: Berg Wind

Dendrochronological studies from trees in the Afro-montane forest lack any clear seasonal growth patterns in their growth rings which indicates a lack of a clear and defined rainfall in the region over a time frame that extends back at least 650 years.

The relevance of this distinction in rainfall patterns is important when weather predictions indicate heavy rain and flooding in Cape Town. When a winter storm is predicted for Cape Town, the anticyclonic weather mechanisms of the southern hemisphere will result in the pressure system veering north east from Cape Town and passing slightly north of the Garden Route.

This deflection north of the Garden Route creates a north westerly wind into the region which results in hot dry air known as a Berg Wind. Depending on the state and strength of El Nino and La Nina conditions, the degree of deflection of the pressure systems varies and can create a period of winter Berg Winds in the Garden Route. A previously notable period of prevailing Berg Winds in the Garden Route was from May 1995 for six weeks.

The mechanics of a Berg Wind are simple. As air descends from altitude, in this case over the Outeniqua Mountain Range, it heats up to approximately 32°C, but can be as high as 38°C. In addition to being hot, the air is extremely dry.

These hot dry conditions played a major role as a predisposition for the fires of 7th June. In the preceding week there were two days of Berg Winds which dried and wilted vegetation in the area. This, added to the extra layer of defoliated material as a result of the drought, prepared ample fuel that required a simple spark to ignite it.

Wind Speed:

Something beyond all human control is the speed of the wind. When a barometric chart indicates a large pressure differential, then expect strong wind. On the 6th June, the barometer started dropping from 1024mb me to approximately 997mb by 15h00.

Accounts of how fast the wind was traveling on the 7th June vary, but it was recorded at between 90km/h and 100km/h with gusts exceeding 110km/h, strong enough to divert one aircraft from landing at George Airport and to close the airport till the late afternoon.

Like a bellows, winds of this speed can fan a fire and superheat it in excess of 2000°C which is exactly what occurred on the 7th June 2017.

Thermal Wave:

Add all the above conditions in with the strong wind blowing from the north west and you have the makings of the perfect fire and the creation of a phenomena known as a Thermal Wave. Referenced in literature and rarely seen, a thermal wave is a sine wave flow of super-heated air associated with a fire.

Heat from the fire rises, while the wind blows it horizontally before it touches down and ignites a new fire and then again bounces off downwind. The wave length of this thermal wave can vary between 300m and 1000m allowing it to jump over valleys and rivers and resulting in the seemingly random effect of single houses exploding into flames while those around them are left unscathed.

The mechanics of the thermal wave are interesting. The superheated air rises from the flames and moves laterally driven by the wind. As the air descends into the trough of the wave (of the sine wave form) the high temperature heats everything before it, be it trees or a structure, which then erupts into flame spontaneously before any flame reaches the area. When this wave descends on a structure like a house, it forces the roof down with immense pressure while the extreme heat melts glass and disintegrates bricks. The result is a collapsed pile of rubble.

Eye witness accounts of this leading edge of the thermal wave describe it as a rolling 'tumbleweed' flying through the air at between 100km/h and 110km/h. One account even related how the fire overtook their car at 110km/h. The area beneath the peak of the thermal wave has been described by Knysna Fire Chief Clinton Manual as being beneath the 'dome', a smokeless zone of eerie silence and no wind.

In the Garden Route, during a few days starting on the 7th June, we lived through a historical event, another which has only ever been recorded in 1869. Nothing could have prepared us for this fire and nothing could have combatted it. It was the perfect fire, a combination of factors which fuelled the inferno.

Fortunately we have learnt from this event and can formulate plans to never again allow Mother Nature to play a Royal Flush of all five contributing factors to produce a thermal wave through the Garden Route. We can't prevent droughts or stop the Berg Wind or retard the wind speed, but we can manage the fuel load of the region and establish corridors of fire retardant vegetation and plan a mosaic of safe zones.



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Previous Meeting

Minutes of the meeting on 17 July 2017

Scribe: Ian Pursch

Sergeant Wybe M opened this nicely numerically-balanced meeting on 17.7.17 at 18.18, handing rapidly over to President Graham F to introduce guests Wendy Goddard and Barbara Murphy, Corinne H's brother Alexander van Wildeman and our Speaker, Warren B with his wife, Andrea.

Colin B read the 4 Way Test and Jenny H gave us the grace and toast. President Graham called for a minute's silence for the late and much-missed RI President Elect Sam Owori.

Jana F won the Wine Swindle, and the Spoon remained un-stirred.

Sergeant Wybe announced his intention to educate us with selected paraprosdokian phrases, which he explained as sentences or phrases with a surprising ending e.g. "Where there's a will I want to be in it". Greek scholars in the club will have recognised the etymology of paraprosdokia as ταρά (against) and προσδοκία (expectation) although Sergeant Wybe did not push his luck with this information.

Appropriately (her new Wine Swindle bottle firmly in her possession) Jana F introduced Warren B, long time member and distinguished organiser of Alcoholics Anonymous.

Warren B (he asked that we don't use his name outside the meeting in respect for the anonymity that is core to AA) gave us a talk on the organisation and his own personal history. AA has been going since 1935 and exists purely to help members to stay sober and to help others in the same way, using structure such as the '12 steps', the '12 conditions' and the '12 concepts'. Alcoholism is worked with as a treatable disease, and the 400 groups in South Africa hold regular meetings of various sorts such as closed, open, with speakers etc. and welcome all comers. Andrea added a little about Al-Anon, an organisation for family and friends of alcoholics and has close links with AA.

Janey B thanked Warren for his openness and for the interesting insights that he had given us.

Spots:

- Richard B continued the vinous slant that the evening had taken (even more than is usual at RC Newlands) with an update on the Wine Auction preparations. All is going well, with good responses so far from estates. Help with collections will be welcomed. More add-ons (meals, accommodation, tours, artwork etc.) are needed to enhance the lots and encourage even wilder spending from well-heeled attendees in Cape Town and Johannesburg.
- Andy I, on behalf of himself and Lucian P, announced an unusual joint meeting on the International/Vocational and the Entrepreneurship Committees immediately to follow.
- Wybe, temporarily abandoning his Sergeant's role, told us that he has assumed (good luck with that, Wybe) that Newrots will all be available to perform the same jobs as last year for the Cape Town Marathon on 17 September. As a result of the IAAF Gold status awarded to the event runners will this year be going in the opposite direction, which news caused consternation amongst some members until it was explained to them that this refers to the *course* rather than the actual *participants*.
- Menno d W reminded us that the E-Club Charter (a first for Newlands) was upon us, and thanked Janey B for her contribution to this success.

President Graham F used his slot to: thank the speaker again; read a letter of appreciation from RC Knysna for the club's donation to their post-fire disaster fund; suggest Mandela Day activities; support the Wine Auction call for help; announce birthdays and anniversaries; say that there would be a meeting of the Board on Wednesday and that everybody was welcome to attend.

Sergeant Wybe wrapped up with another Paraprosdokian example or two – “If at first you don’t succeed, then skydiving is not for you” - and called for Happy Rands, before announcing those duties for next week that he could remember and closing the meeting.



[Newlands Rotary ClubRunner Calendar](#)

FUTURE FIXTURES

Year Planner

Please advise the secretary promptly of any additions or changes

July 2017

Mon 24 Business
Mon 31 Ordinary

August 2017

Mon 7 Partners
Mon 14 Stop Hunger Now event
Mon 21 Ordinary
Mon 28 Business

September 2017

Mon 4 DG Visit
Sun 17 Cape Town Marathon

A graphic featuring the words "Happy Birthday" in a stylized, colorful font where each letter has a different color gradient (blue, purple, pink). The letters are slightly overlapping.

26 July
Jana Forrester

NOT important, movies, dinner, and keeps a Kosher kitchen. Ad# [REDACTED]
EASYGOING ATHLETIC
SJM, 41, seeking SF, looks not important, must be tall, slim and attractive. Ad# [REDACTED]
GOOD LOOKING EASYGOING
JM, 59, WW, 5'7", 148lbs., sincere.

353 Building Material/Tools
FREE to a good home, one toilet stool with many precious memories. 721 [REDACTED]

UMPIRES AND SCORERS

DATE	24 July	31 July	7 August	14 August
MEETING	Business	Ordinary	Partners	Stop Hunger
SERGEANT	Henry Campbell	Jenny Ibbotson	Shân Biesman-Simons	Anthony Galloway
4 WAY TEST/ OBJECT	Richard House	Brian Pickup	Terry Lancaster	Jana Forrester
GRACE & TOAST	Andy Ismay	Heidi Andersson	Lucian Pitt	Pippa McLeod
ATTENDANCE	Michael Walwyn	Jamie Hart	Pieter van Aswegen	Jenny Howard
FELLOWSHIP	Paul Spiller	Vanessa Rousseau	Graham Lowden	Janey Ball
MINUTES	Corinne Hudson	Glynis Menné	Melinda Stapleton	Regine le Roux
COMMENT	Christine Calothi	Mike Young	Johan Beukman	Ian Pursch
THANK SPEAKER		Willie Wijenberg	Geraldine Nicol	
INTRO SPEAKER		Nora See	Tony van der Lith	

**Invited
GUEST SPEAKERS**

7 Aug André du Toit –
*Changing lives
one talk at a time*

If you cannot do your job on the day, please find someone who can do it instead of you, then contact the Sergeant on the day to update the roster. Please don't leave this until the Monday afternoon – let the Sergeant know in advance if you have not been able to arrange a swap. If you are going to be away for particular future meetings let Peter Ennis know.



Motherhood. Yay.

Rotary Club of Newlands Office Bearers

Graham Finlayson	President	graham@gfinarch.co.za
Bill Meyer	Secretary	meyport@iafrica.com
Peter Ennis	Treasurer	treasurer@newlands.org.za
Corinne Hudson	Community Service	corinne.hudson@gmail.com
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Andy Ismay	Entrepreneurship	andy@quicktint.co.za
Chris Beech	Past President	christopher.beech67@gmail.com

Books for the World

For all educational school books and novels for
age from early education to High school

CONTACT: FRANCOISE NDAYIZIGIYE 0737317056

St Anthony's Catholic Church, Ndabeni Street, Langa

