

## **The Long Gully Bushfire near Drake, NSW**

**Begins September 5, 2019**

Denis O'Bryan  
Red Eagle Bushfire Protection Services  
20 November 2019

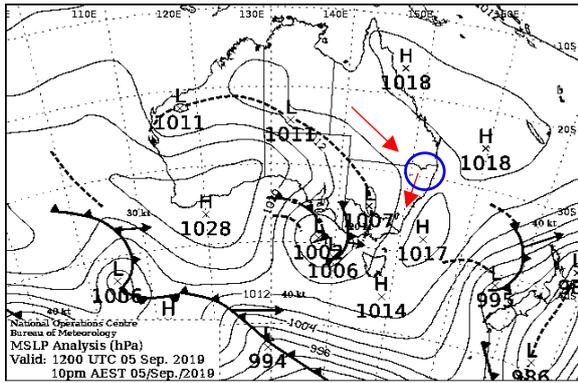
### **Introduction**

The aim of this study is to document the spread of this fire by making use of publicly available data from the fire agency, other government agencies and the media. The primary purpose is to seek to understand why it grew so large and to explore the respective role of weather, bushfire behaviour and fire agency policies in that growth, specifically, to identify policies and procedures that encouraged or prevented its growth. The secondary purpose is to record the impact it has on people and their property in the pathway of a running bushfire in severe weather, to contemplate their rights to remedy for unwanted life or property loss and to collect evidence to support the case for neighbourhood self-defence as a complementary bushfire prevention policy.

We begin the fire analysis at Drake near Tenterfield at Thursday 5 September, which has been declared a Total Fire Ban day for that area, typically meaning very hot and very windy weather. Drake sits at 500m elevation in the northern tablelands on the Bruxner Highway between Lismore (20m elevation) and Tenterfield (700m elevation).

The nearest weather stations are at the Tabulam Post Office on the Clarence River valley at 130m elevation and Tabulam (Muirne) on the 550m elevation plateau adjacent to the Clarence. Tabulam Post Office has long term rainfall records. Tabulam (Muirne) has long term rainfall, daily max / min temperature data, daily evaporation data and 9am weather readings. Stanthorpe/ Applethorpe weather station is 50km away on the same plateau at elevation 700m. It has rainfall, daily max / min temperature data, and both 9am and 3pm readings

The 4pm and 10pm weather charts shows a generally light NE air flow over the fire area. The mid-afternoon air mass is very dry on the plateau, eg, the 3pm weather at Applethorpe is 26C, 10% with light winds. It is being drawn from the dry inland air of SW Queensland, eg, the 3pm air mass at Barcaldine in SW Queensland is 33 / 11%, N @ 9kph.



10pm weather chart, 5 Sept, 2019 shows a generally light NE air flow over the fire area (blue circle). Note the low-pressure air mass / cold fronts extending northwards into western NSW.

The risk when fire fighters let a bushfire run in a dried-out forest landscape is that it can burn into areas that are too difficult for troops to stop its spread, or the perimeter can outgrow their on-site suppression capability. Once escaped, they have a going fire at the mercy of the changeable winds of this area.

They know tomorrow (6 Sept) is declared Total Fire Ban days (TFB days) where severe weather is forecast. The best practice forest bushfire suppression response is to hit the fire rapidly with everything to stop its spread and keep it small. The smaller the perimeter, the less length to black out and patrol and the greater chance of preventing escape.

But the fire agency took a risk here. They monitored the fire grow in light winds of the evening. But suddenly in early morning, the wind strengthened and the fire grew well beyond their control capability. Let's watch how the weather and winds pushed this fire around over the next few days and weeks.

Source data for this study uses updates from Northern Star rolling coverage (<https://www.northernstar.com.au/news> = *NS UPDATE*) as the framework and supplements it with other media coverage and Rural Fire Service (RFS) Tweets, Bureau of Meteorology records. Source quotes are in blue. Author comments in black. Author highlights in red.

Note: Sometimes FRS tweets are delayed or their date stamp does not match media reports. In these cases, we can reconstruct the fire's development to match primary local sources, ie, media reports.

## Chronology by the day

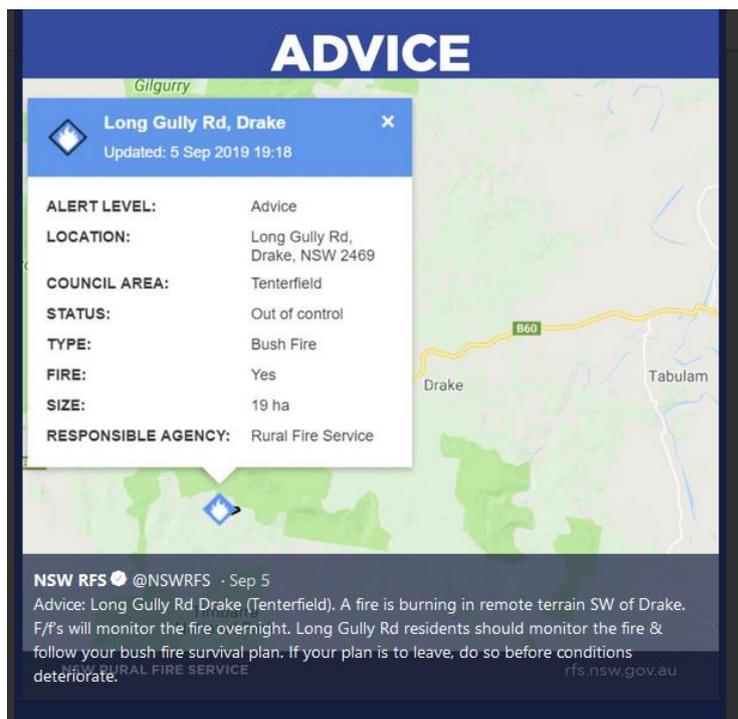
### Thursday 5 September

#### Fire and Events

**3.30pm NS UPDATE:** AFTER a revised forecast from the Bureau of Meteorology, seven Total Fire Bans will be in place for Friday September 6 - the Far North Coast, North Coast, Greater Hunter and Central Ranges, North Western, Northern Slopes, and New England. Hot, dry and very windy conditions are forecast.

**7.19pm** This RFS Tweet is the screen shot of the 7.19pm report of a 19ha fire SW of Drake, near Long Gully Road with attached note.

**“A fire is burning in remote terrain SW of Drake. F/f’s will monitor the fire overnight”.**



19 ha is approx 600m x 300m. Fire perimeter = 2 km. Theoretically, a skilled overnight crew of 25 could comfortably contain and mop up this fire before the winds spring up.

To have become 19 ha in light winds in a sheltered valley, the fire would have been burning for at least several hours, or perhaps a day or more.

#### **Evening NSW RFS Facebook**

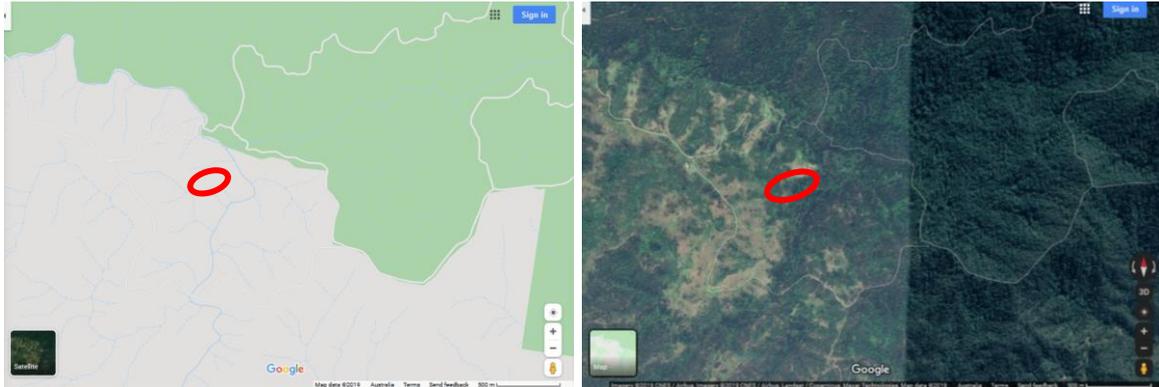
A new bush fire has been reported tonight burning in remote terrain south-west of Drake within the Girard State Forest. Crews will continue to monitor this fire overnight ahead of worsening conditions tomorrow.

#### **Summary of today**

Here is where the fire started. Red dot.



A close-up: Origin on private property? just south of junction of Macleod's Creek and Goughs Gully.



At 7pm on 5 September 19 ha. Fire appears to be on partially cleared farmland in a valley at elevation 350m.

**Terrain** The McLeod Creek valley runs NW / SE. Fire started in the valley at elevation 350m. The valley is flanked by 800+m ridge line on west side and 600+m ridges on east side.

**Cause** Probably lightning. Lightning activity was observed in this area on 29 and 30 August, 2019. <https://www.lightningmaps.org/blitzortung/oceania> A smouldering stump can persist for several days in dry conditions.

## Friday 6 September

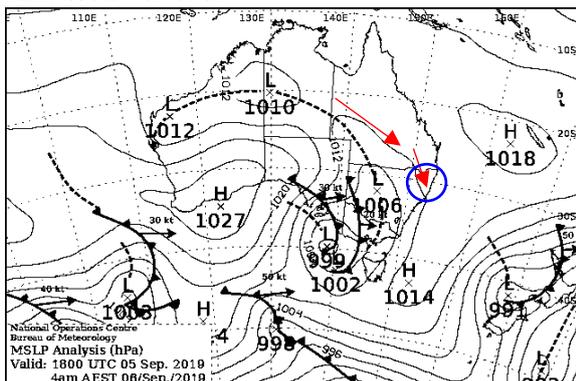
### Weather

The fire today is exposed to moderately strong winds all day, which change direction three times as the cold front from the deep south moves through the fire area.

- Between 10pm of 5/9 and 4am of 6/9, light wind in the fire area becomes a strong NW wind.
- In early afternoon, the strong NW swings Westerly ahead of the cold front
- In late afternoon, the Westerly swings to a South Westerly.

### Fire and Events

#### 4am Weather chart



The 4am weather chart shows a consistent air flow over the fire area from NNW, drawing dry air from SW Qld. If the isobars between 1012/14 and 1018 were drawn in, they would indicate a moderate to strong wind speed, eg, 25 to 30kph.

**Early morning**

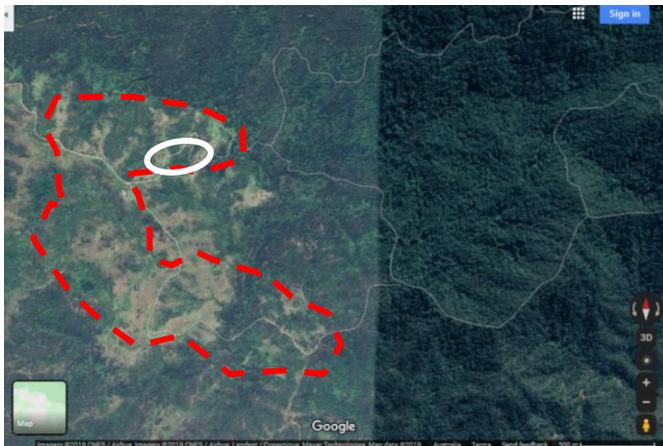
RFS post IMAGE 1 which is probably taken soon after first light, eg, 7am.



IMAGE 1

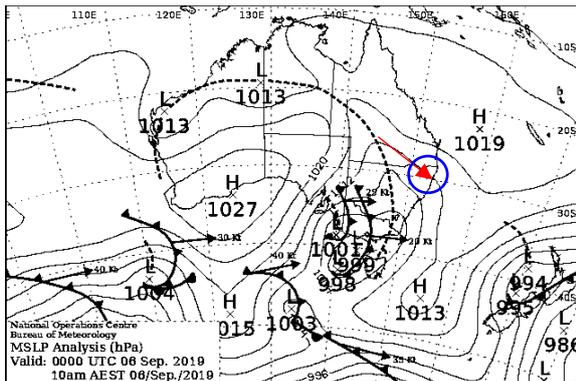
Note the wording: “If your plan is to leave, the safest option is to leave now towards Drake”  
Later today, the RFS fire commentary will say “A WSW wind change is due later & may move the fire towards Drake & Bruxner Hwy”.  
A few days later the commentary will describe Drake under siege.

When re-presented on an aerial image to scale, IMAGE 1 shows substantial spread of the fire along the valley toward the SE, growing over ten times its previously reported area to approx 250 ha, and four times the perimeter.  $3500 \times 700\text{m} = 250\text{ha}$ , perimeter = 8.4 km.



White line = original 19ha, red dash line = IMAGE 1

### 10am Weather chart



The 10am weather chart shows a strong NW air flow over the fire coming from SW Queensland.

The 9am weather at nearby Tabulam is 20C and 26% RH, and strong wind (28 kph) from the NNW. The 9am weather at Applethorpe is 21C 17%, N @ 15 kph.

The source air in SW Queensland is very dry. The 9am air mass at Barcaldine is 26 / 16% with 28 kph wind from N, and Charleville's 9am air is 26C, 10% RH and NNW winds @ 35kph.

Meanwhile, the media report an upgrade in RFS concern at 1.55pm and a further upgrade at 3.20pm, as follows:

**1.55pm NS UPDATE:** SEVERAL fires on the Northern Rivers have been elevated to Watch and Act level.

Fires under Watch and Act Long Gully Road, Drake

**3.20pm NS UPDATE:** THERE are numerous fires burning across the Northern Rivers. This is the latest information:

- Mount McKenzie Rd, Tenterfield: ALERT LEVEL: **Emergency Warning**, out of control
- Long Gully Rd, Drake: **Emergency warning**, out of control
- Derby St, Tenterfield: Out of control
- Douglas St, Tenterfield: Out of control
- Dam Lane, Tenterfield: Out of control
- New England Hwy, 4km south of Tenterfield: Out of control
- Bruxner Highway, Drake, out of control
- Chauvel Rd, Tabulam, out of control
- Charles St, Tabulam, out of control
- Benns Rd, Shannon Brook, under control
- Diggers Gully, Yabba, under control
- Summerland Way, Shannon Brook, under control
- Dibbs St, Coraki, out of control
- Old Tenterfield Rd, Six Mile Swamp, under control.

**MIDDAY, give or take an hour or so**

**RFS Tweets** – exact time of release not available

The RFS releases two more fire images that apply just before the wind change.

### IMAGE 2

The estimated time of IMAGE 2 is midday to 1pm, approx 2 hours before IMAGE 3.

The scale of IMAGE 2 is deceptive.

The dimensions of the fire now are approx 4 km wide and 15 km long.

Area = approx 45 sq km = 4,500 ha, perimeter = 30+km.

Emergency Warning: Long Gully Rd, Tenterfield Significant fire activity still being experienced with spotting ahead of the fire. A WSW wind change is due later & may move the fire towards Drake & Bruxner Hwy. Residents should seek shelter as the fire approaches. #nswfires #nswrfs



IMAGE 2 is now plotted onto IMAGE 3, which RFS has mapped onto an aerial photo.

### IMAGE 3

We can estimate this image was captured around 3pm, based on the weather chart. [Check – approx 12 km travel in 6 hours = 2kph along the valley floor, which is kind of reasonable for 20 – 30 kph winds across a predominantly forested pathway, interspersed with some clearings and several low ridgelines.]

White line = IMAGE 1, blue line = IMAGE 2, black line = IMAGE 3, red line = IMAGE 4

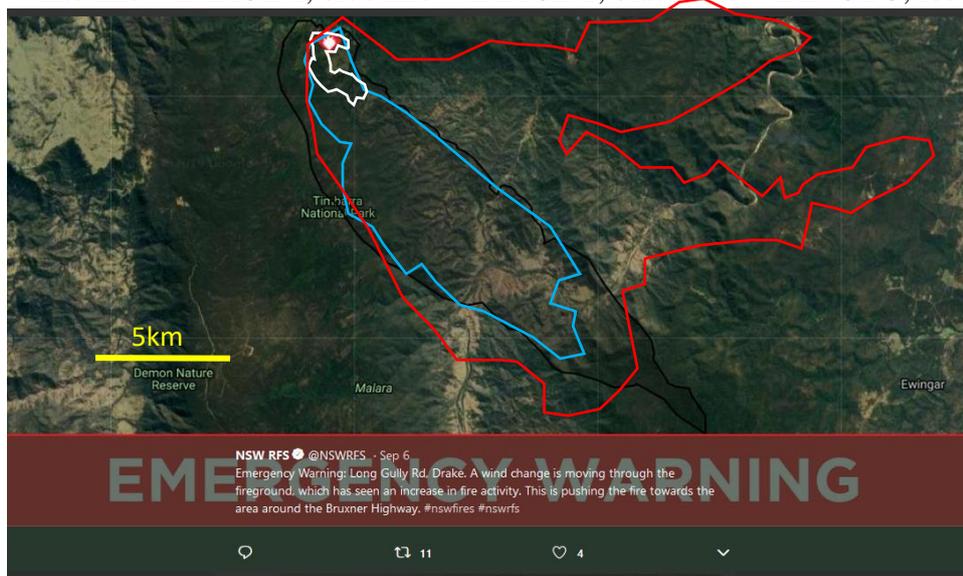


IMAGE 3 adds a narrow 5km tongue to SE of IMAGE 2, bringing total area to approx 60 sq km = 6,000 ha, perimeter = 40 km. The narrow tongue is seen later to have been spot fire, a few km distant.

The commentary note states “A wind change is moving through the fire ground”.

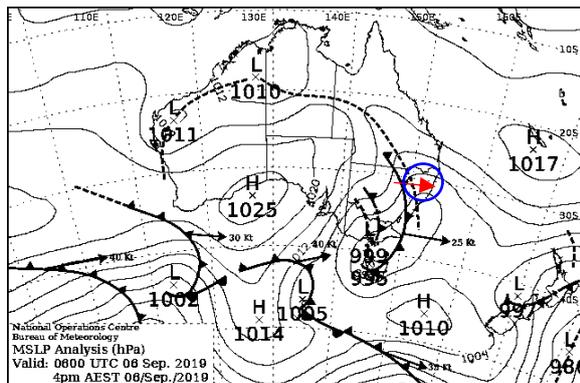
Based on the 4pm weather chart, we can estimate the NW wind influence stopped around 3pm, and the Westerly took over for a couple of hours till the SW wind established itself around 5pm.

**3pm weather** The 3pm weather at Tabulam is unavailable

Applethorpe weather at 3pm is 27C, 9% NW @ 15kph

The 3pm source air mass at Charleville is 33.4C, 7% and wind from NW @ 35kph

### 4pm Weather chart



The 4pm weather chart shows a strong W air flow over the fire coming from NW NSW, just ahead of the strong cold front. This suggests the NW wind influence over the fire ground stopped an hour or two beforehand.

### Approx 8pm

RFS Tweet provides us with IMAGE 4 – exact time of release not available

We can estimate that IMAGE 4 was taken around 8 - 9pm.

We can see the early influence of the Westerly wind, when most of the eastern edge spread to the East. It soon narrowed into two tongues and was pushed by the SW wind as the tongues headed more NNE.

After the wind change, both tongues travelled some 12km from the eastern perimeter in approx 5 or 6 hours. This is a flame spread rate of around 2 kph. Unsure of vegetation mix. Estimated area is 15,000 ha and perimeter 75+ km

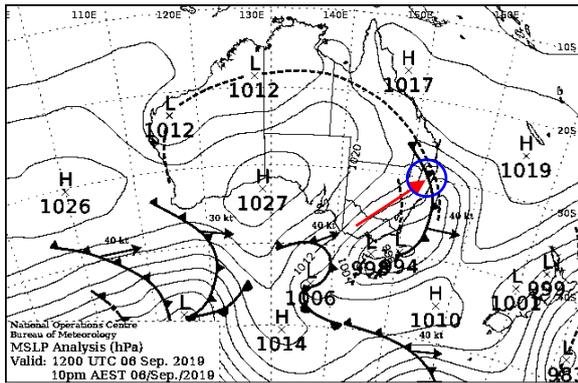


IMAGE 4

IMAGE 4 is plotted onto the IMAGE 3 aerial photo above.

### 10pm Weather chart

The 10pm weather chart shows a strong SW air flow across the fire area



### Summary of today

A notable absence in today's commentary is firefighter resources or strategy.

Implicit strategy is to monitor the fire and to provide accurate commentary about its growth to the media.

Perhaps their thinking is this – being deep within the forest and distant from settlement, where the RFS has limited capability or will for suppression, leave it to Nature to sort itself out and if it comes too close, we will bring it out to a track or stop in in the paddocks.

They have just created a 75km perimeter of live fire edge with a liability to contain it and black it out with volunteer resources in the middle of a dry season in serious drought. This appears to be extraordinarily irresponsible, or an error of judgement.

September 6 sees the fire grow under the Total Fire Ban wind changes from 19ha to approx 15,000ha. A fire at the mercy of the wind. A monitored fire, wind driven and no apparent suppression.



## Saturday 7 September

### Weather

The strong SW winds continue for the next three days. In absence of local weather stations, we will use Applethorpe's 3pm data as an indicator of daily weather over the fire area. Concerning fire weather for this fire is prolonged wind speed to be above 20 kph and RH at 20% or lower.

Applethorpe weather at 3pm today is 15.2C, 22% RH, wind SW @ 30kph

The fire size is already around 15,000 ha, but successive media releases take a day catch up with this total.

### Fire and Events

**7.30am NS UPDATE**      **RFS Tweet**      **Drake:** A bush fire is burning in the Long Gully Rd, Drake area. The fire has burnt more than 6,279 hectares in size and is out of control. The fire is burning in remote terrain south-west of the Drake village, within the Girard State Forest. The fire has crossed Long Gully Road, Rocky (Timbarra) River. A strong wind change moved through the area overnight. The fire is now burning in an east-north-easterly direction towards the Bruxner Highway and Plains Station Rd.

**10.45am NS UPDATE**      **RFS Tweet**      **Drake;** A bush fire is burning in the Long Gully Rd, Drake area. The fire has burnt more than 13,600 hectares in size and is out of control.

**5.15pm NS UPDATE:**      **RFS Tweet**      **Drake:** A BUSH fire is burning in the Long Gully Rd, Drake area. The fire has burnt more than 13,000 hectares and is out of control. The fire is burning in remote terrain south of Drake and Tabulam, in the Girard State Forest. The fire is burning quickly in an easterly direction.

The fire has crossed the Plain Station Road, and is burning on the western side of the Clarence River.

The fire may impact on areas around Cleveland Crossing and Cleveland Plain.



NSW RFS @NSWRFS · Sep 7

WATCH AND ACT - Long Gully Road fire (Tenterfield LGA). Firefighters have kept the fire to the western side of the Clarence River but another challenging day is ahead with strong winds forecast. The fire has now burnt more than 20,000 hectares. #nswrfs



The red outline is the perimeter on Sept 6 at 8pm.

**Comment** Still no mention of resources deployed for suppression. The fire grows organically under the SW wind. RFS commentary about the fire remains descriptive. What it just did, what it might do next.

## Sunday 8 September

### Weather

The strong SW winds continue today.  
Applethorpe weather at 3pm is 15.2C, 22% RH, wind WSW @ 26kph

### Fire and Events

**8.16am NS UPDATE:** **RFS Tweet** THERE is very high fire danger today for the Far North Coast, North Coast and New England areas. Strong winds are expected to continue today, making it another challenging day for hundreds of firefighters working in the area.

**Drake:** Firefighters have been working through the night to slow the fire and protect homes at the Long Gully Road fire, south of Drake. They've kept the fire to the western side of the Clarence River but another challenging day is ahead with strong winds forecast. The fire has now burnt more than 20,000 hectares.

**3.15pm NS UPDATE:** WATER-BOMBING aircraft have been grounded, with strong winds making it unsafe for them to support ground crews battling the Drake bushfire. According to Rural Fire Services Northern Tablelands Superintendent, Tim Carroll, this has put ground crews under a huge amount of stress at the uncontrolled Long Gully Road Fire, which is burning steadily towards Drake.

"This has put our firefighters under an enormous amount of stress."

Mr Carroll said it was too late to leave the village. He confirmed earlier news that residents in Drake must stay put and enact their fire plan.

**5.00pm NS UPDATE:** **RFS Tweet** A BUSH fire burning in the Long Gully Road, Drake area has burnt more than 22,200 hectares and is out of control. The fire is burning in a northerly direction along Long Gully Road and Plains Station Road, towards the Bruxner Highway and the villages of Drake and Tabulum.

**Evening Channel 9 tweet** [@9NewsQueensland](#) The fire is "definitely not under control" but given the south/southwesterly wind fires say there's no imminent threat to Drake village. 6 homes have been destroyed or impacted, 80-90 fire fighters are still on the ground.

**Comments:** Fire fighters are on site "to slow the fire" and "protect homes". Slowing a bushfire is not a recognised forest fire suppression strategy. Nature slows the fire when the wind slows or the fuel becomes moist. Best practice is to stop it at a nominated control line. If there are 90 fire fighters on site, there is an average of about one per km of perimeter for containing the edge and blacking out. There is no mention of bulldozers to clear the tracks. This level of resourcing is consistent with catching the fire when it comes out of the bush. I

hope the firefighters are making all the houses in Drake safe from the running flame and preparing the locals to deal with ember attack.

The RFS lets the fire grow because there is no imminent threat. The concern should be the future – what could 80km of live edge do to the forest and the local communities and the firefighters when the weather again becomes severe?

Meanwhile, the locals who have had this fire monster thrust upon them, must now enact their fire plan.

## Monday 9 September

### Weather

The strong SW winds continue today.

Applethorpe weather at 3pm is 12.6C, 28% RH, wind SW @ 26kph

An update posted on the RFS website after 11.30am today explains that more than 32,200 hectares of land has been burnt and the fire is still out of control.

### Fire and Events

**NS UPDATE, 12pm:** [RFS Tweet](#) DRAKE residents are being warned to be careful if they're planning on leaving, as roads might be impacted by smoke.

**1pm NS UPDATE:** [DRAKE](#) is a village almost deserted as the bushfires move relentlessly closer.

[RFS Far North Coast District Officer Aaron Howard](#) addressed a meeting at the Drake Community Centre at noon.

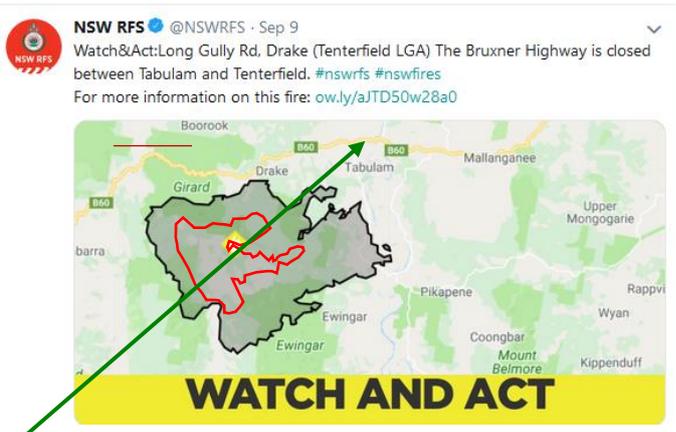
Mr Howard told the audience of around 25 residents that conditions around the Long Gully Road Fire were likely to get worse.

The normally bustling village was quiet, with only a few residents cars outside the post office and the Lunatic Hotel.



Drake residents prepare as a bushfire approaches.

<https://www.northernstar.com.au/news>



Red outline is perimeter on Sept 6, at 8pm.

The green arrow is the strong SW wind that is pushing the tongues to grow the fire organically. The blue lines are the newly burn-out areas by which fire fighters have now doubled the fire's area since Sept 6 and slightly increased the fire's perimeter from 75 to 90 km

## Tuesday 10 September

### Weather

Fire behaviour should be more moderate today.  
 Applethorpe weather at 3pm is 17.5C, 18% RH, wind WSW @ 11kph  
 Air mass is warmer and drier than yesterday, but less windy.

## Wednesday 11 September

### Weather

Fire behaviour should be much more moderate today.  
 Applethorpe weather at 3pm is 16.8C, 34% RH, wind E @ 7kph  
 Air mass is moister than yesterday and less windy.

### Fire and Events



Burning out to roads and creeks is causing the fire area to grow.  
 This containment line is just to the west of Drake village on the Bruxnor Highway.  
 This containment line breaches tomorrow.

## Friday 13 September

### Weather

Fire behaviour may increase in vigour due to today's dry air mass.

Applethorpe weather at 3pm is 23C, 10% RH, wind SE @ 6kph

Air mass is quite dry (10 to 16%) for the next few days and the air flow is predominantly from W and SW

### Fire and Events

A major fire escape occurs across control lines in the NW corner of the fire, near where they burnt off yesterday. The southeaster may have locally increased in speed.



Red arrow indicates where the fire escaped.

It clearly breached fresh burn-out control lines.

Red outline is perimeter on Sept 6, at 8pm

**Comment:** The SE perimeter has been expanded considerably on the map into the Ewingar area near the Clarence River. What this means on the ground is not clear. Was the track system or waterway nominated and burnt along it in the hope it runs back into the fire, or was it infilled by aerial incendiaries?

## Sunday 15 September

### Weather

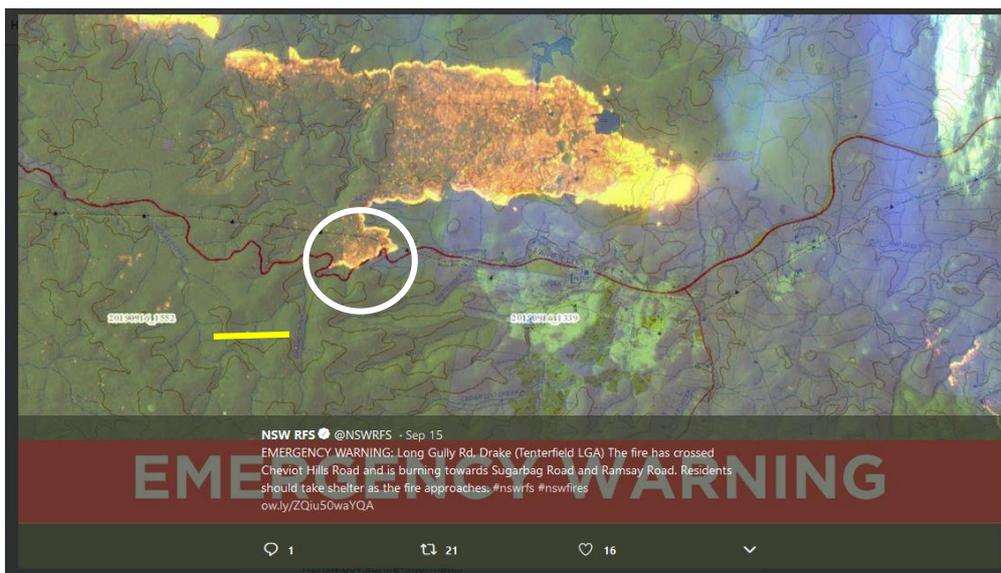
Fire behaviour will be moderate today.

Applethorpe weather at 3pm is 23.6C, 14% RH, wind W @ 9kph

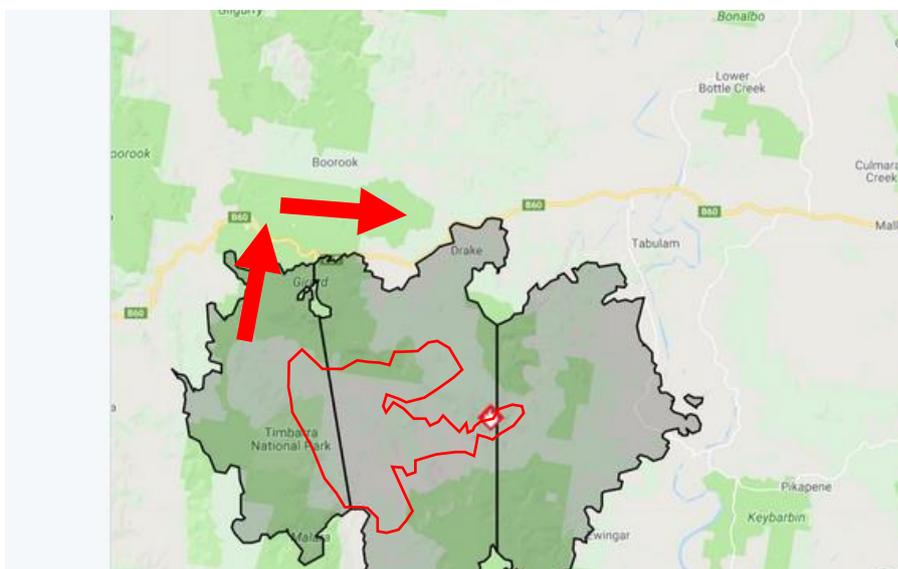
Air mass is still quite dry, but winds are light

### Fire and Events

RFS image shows vigorous-looking fire front spreading to the east, just north of Drake township. Brightest yellow flame front mass is approx 1km x 1km. White circle is the location of the pictured burnt containment lines of 11 September.



Yellow line = 1km approx



Red outline is perimeter on Sept 6, at 8pm.

Red arrows indicate where the fire crossed Bruxner Highway and then spread east, travelling approx 10km through forest over the past few days, immediately north of Drake.

The following RFS Tweets show the RFS reduce its high danger category later in the day, presumably reflecting moderation in the local weather.

<p>EMERGENCY WARNING: Long Gully Rd, Drake (Tenterfield LGA) Fire activity has increased on N of Bruxner H'way. Residents in Drake, Red Rock Rd &amp; Rover Park, take shelter as fire approaches. Protect yourself from the heat of the fire. #nswrfs #nswfires <a href="https://ow.ly/ZQiu50waYQA">ow.ly/ZQiu50waYQA</a></p>  <p><b>EMERGENCY WARNING</b></p> <p>8:47 PM - 15 Sep 2019</p>	<p>EMERGENCY WARNING: Long Gully Rd, Drake (Tenterfield LGA) The fire is burning on the northern side of Drake, towards Cheviot Hills Road and Sugarbag Road. #nswrfs #nswfires <a href="https://ow.ly/ZQiu50waYQA">ow.ly/ZQiu50waYQA</a></p>  <p><b>EMERGENCY WARNING</b></p> <p>10:12 PM - 15 Sep 2019</p>
<p>Advice: Long Gully Fire, Drake (Tenterfield LGA) Firefighters continue to employ waterbombing aircraft and heavy plant to slow the speed of the fire. The fire has currently burnt more than 53,000 hectares. #nswrfs #nswfires To stay up to date: <a href="https://ow.ly/pEo950waWjp">ow.ly/pEo950waWjp</a></p>  <p>0:12 1,819 views</p>	

## Monday 16 September

### Weather

Fire behaviour will be moderate today.  
Applethorpe weather at 3pm is 24C, 16% RH, wind W @ 15kph  
Air mass is still relatively dry.

The weather in the tablelands for the rest of September is dominated by 3pm temperatures in the low 20C's and RH above 35% and light winds (< 10kph) of variable direction.

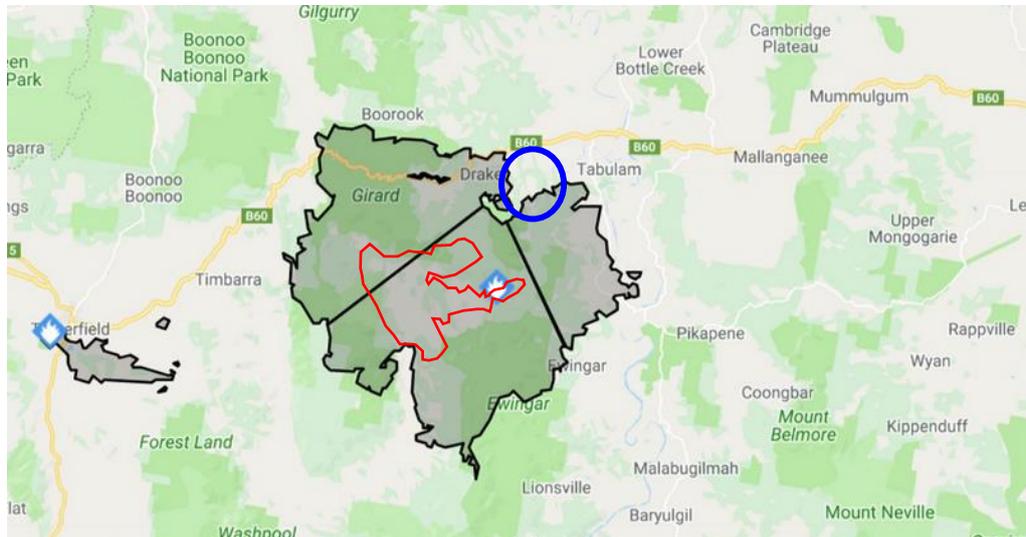
The exceptions occur on:

Tuesday 24<sup>th</sup> when RH is 20%, and

Sunday 29<sup>th</sup> when RH falls to 14% with Westerly winds at 19kph.

## Fire and Events

RFS updated fire area today. Except for subsequent burning out of the blue circled area, these boundaries remain stable until the escape from a containment line at Ewingbar in the SE corner on 8 October.



Red outline is perimeter on Sept 6, at 8pm.

**Comment:** The fire has grown organically to a ball of 60,000 ha with a perimeter of approx 100km of dubious security. Is it blacked out? To what depth? Will it be patrolled?

## 16 September

### Fire and Events

#### *ABC on line*

A fire at Drake near Tenterfield in northern NSW has been downgraded, with the threat to houses easing on Monday night.

The fire had been burning at emergency level for much of the afternoon, with the communities on the north side of the fire around Drake, Red Rock Road and Rover Park on high alert.

But it was downgraded to watch and act at about 8:45pm after fire activity in those areas decreased.

Earlier, the Rural Fire Service said about a dozen properties around Drake could be affected, but residents had known about the potential risk since Saturday and had planned accordingly. Inspector Ben Shepherd from the Rural Fire Service said residents in the fire path northeast of Drake were being told it is too late to leave.

"We have got fire trucks in around those properties and they are being supported by water bombing helicopters but this fire did escalate quite quickly," he said.

"We are seeing some spot fires ahead of the main fire front so people need to be on the lookout for that fire but people need to be indoors, inside that home as that fire front starts to move through."

The fire at Drake has burnt more than 60,000 hectares

***RFS Tweet indicates the known house toll to date in this bushfire is 16 houses.***



## September 21

### Fire and Events

***RFS Tweet confirms the known house toll to date in this bushfire is 16 houses.***



## Tuesday 8 October

### Weather

Today is a declared Total Fire Ban day, meaning very hot, very dry air and very windy. The relevant weather station for today's fire outbreak is Casino (50 km to NE) because the fire is located at lower elevation (120m) in the Clarence River valley at Ewingar.

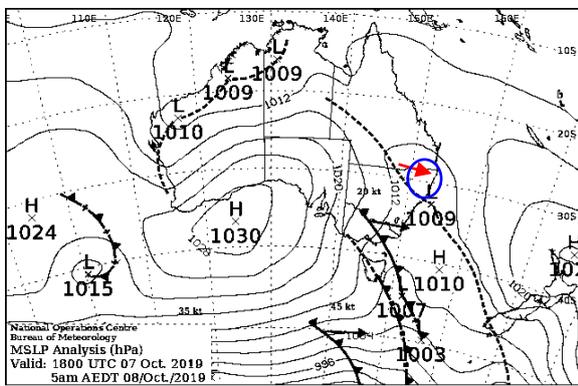
The forecast was accurate. Casino weather at 3pm today 39C and 9% with strong (33kph) WNW wind. The low humidity air flow is widespread on the tablelands, eg, Applethorpe weather at 9am is 29,5C, 113% RH, wind NNW @ 9kph [the wind change had already arrived at Applethorpe by 3pm – 28C 17% RH and W @ 26kph].

This dry air mass is drawn from inland. For example, Charleville’s 3pm air mass since the 4<sup>th</sup> has been 10% RH and temperature mostly above mid 30C. Even after the wind change on the 8th, its RH remains around 10% for most of October.

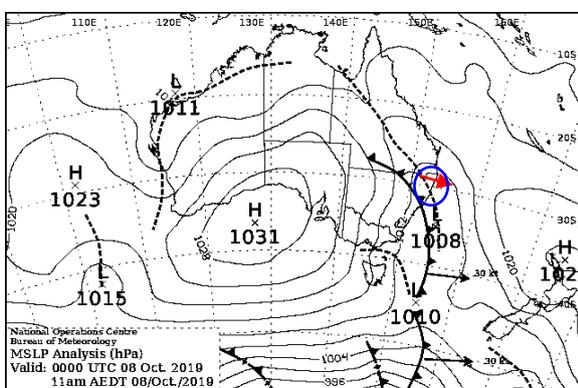
Deduced wind directions on fireground today (Refer to Busbys Flat fire report):

- From 12am to 9 / 10am 12 / 1pm - Light wind from NW
- From 9 / 10am to 12 / 1pm - strong wind from NW
- From 12 / 1pm to approx 6pm - strong wind from W
- From 6 - 6.30pm into tomorrow - Strong wind from S

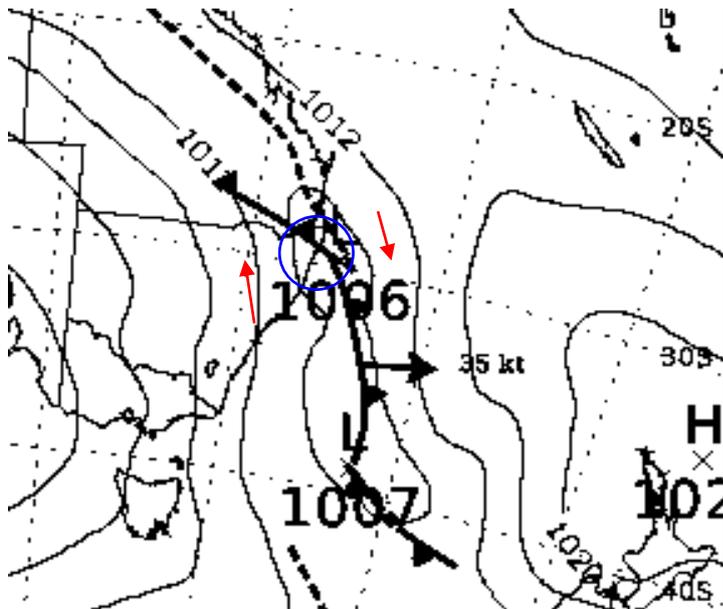
The weather charts reveal the wind changes during the day due to the passage of this weather system.



light winds from NW at 5am



strong winds from NW at 11am



Strong winds from S at 5pm

## Fire and Events

### *Escape from containment line at Ewingar*

RFS issues the following updates to the media. The mystery is the actual timing of the escape. There are two times to account for - the time it actually escaped and the time that RFS advised the media it escaped.

We have been able to deduce more accurate timings by comparison of these images with the nearby Busbys Flat bushfire.

As it turns out, these RFS updates were issued 2 -3 hours after each event. Nevertheless, we as analysts can obtain very useful information from their accompanying photos about bushfire behaviour. I am hoping RFS has vision of the escape and the crossing because it appears to be a spectacular mass ember rain, but this deduction clearly needs verification.

The escape is of great concern because this part of the fire edge had been dormant for over three weeks, and by the end of the day, it will be responsible for the deaths of two people.

### **3.18pm NS UPDATE:**      *Escape from containment line at Ewingar,*

The Long Gully Rd fire was upgraded to an emergency level warning just after 3pm this afternoon.

The estimated time of the escape is 11am, give or take 30 min.

The bushfire, which has already burnt more than 66,000ha, is now listed as out of control. The bushfire near Drake had been contained, but has seen increased fire activity this afternoon on the south eastern side of the fire around the area of Ewingar.

The fire has crossed Ewingar Creek and is burning towards Ridge Road, North Ewingar Road and Grandview Road.

Residents in the areas of Ridge Road, North Ewingar Road and Grandview Road should take shelter as the fire approaches. Protect yourself from the heat of the fire.

**5.10pm NS UPDATE:** THE Long Gully fire has now crossed the Clarence River as well as Clarence Way and continues to burn in an easterly direction towards Keybarbin Road. Residents should seek shelter as the fire approaches.



IMAGE 5  
The estimated time of this image is 3pm

The Long Gully Rd fire near Drake is at emergency level. NSW RFS

**6.42pm UPDATE: CURRENT fire situation:**

**Drake** The fire has crossed North Ewingar Road and is burning towards Ridge Road, Grandview Road, Hunters Road, Valley View Road and Peckhams Road. The fire has spotted east of Clarence River and Clarence Way.

Embers from this fire have started spot fires to the south of the Busbys Flat Rd, Busbys Flat fire in the area of Wyan Creek and Seery Road.

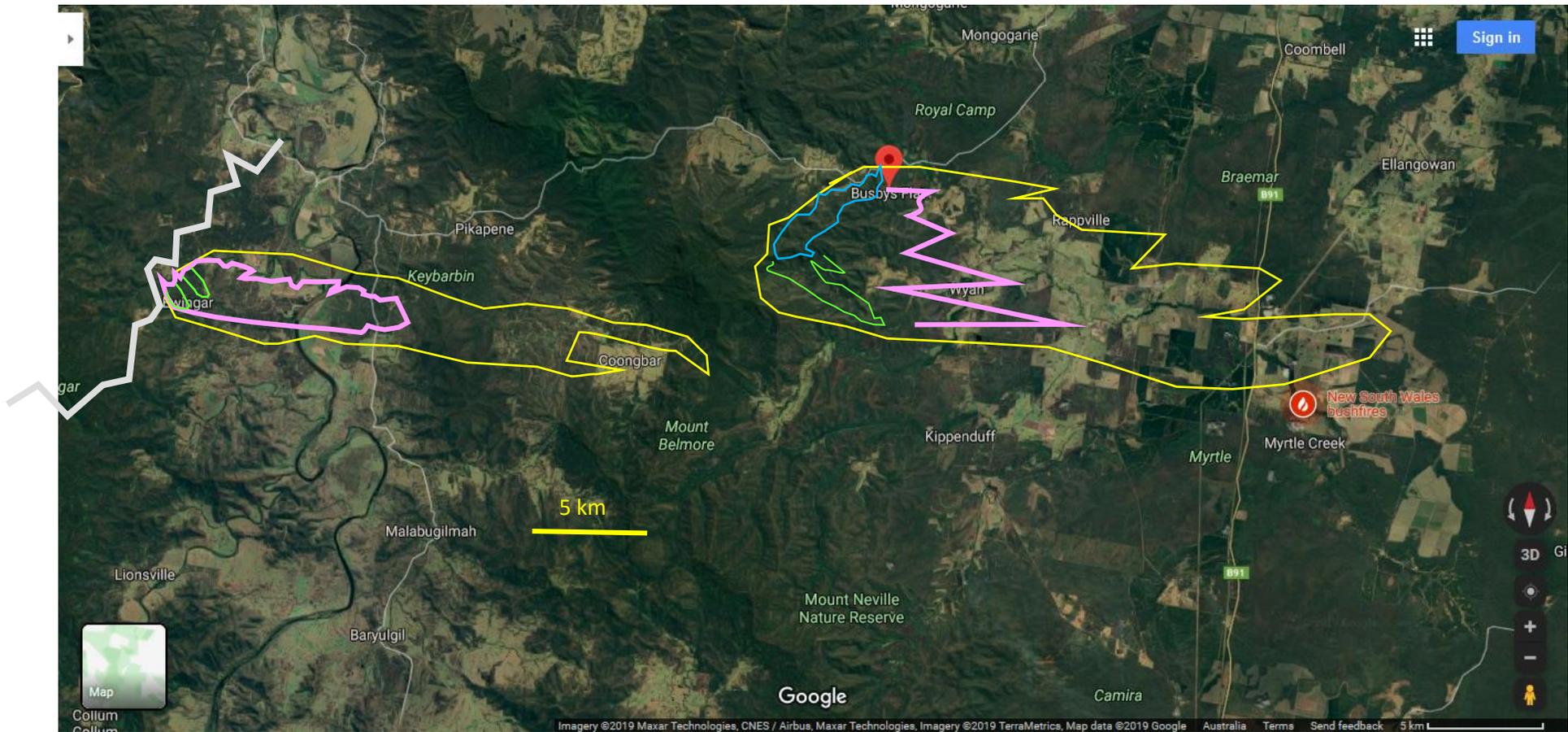
**8.49pm UPDATE:** THE below photo shows how close the Long Gully Road fire and Busbys Flat Road fires are burning to each other. A number of spot fires are starting ahead of the Long Gully fire, south of the Busbys Flat Road fire.



IMAGE 6  
The estimated time of this image is 6pm. The image shows the fire tending to northwards because the southerly change has just arrived.  
The red circle is the location of the deceased couple of Coongar  
The green circle is Rappville township

The Drake and Busbys Flat fires were close.

IMAGE 6 is now transposed onto an aerial photo to show estimated co-location and spread pattern of the Ewingar escape from the Long Gully fire and the Busbys Flat fire.



Blue = 7pm on Oct 7, Green = 11.30am on Oct 8, Pink = 3pm on Oct 8, Yellow = 6pm on Oct 8  
Grey = approx containment line of Long Gully fire

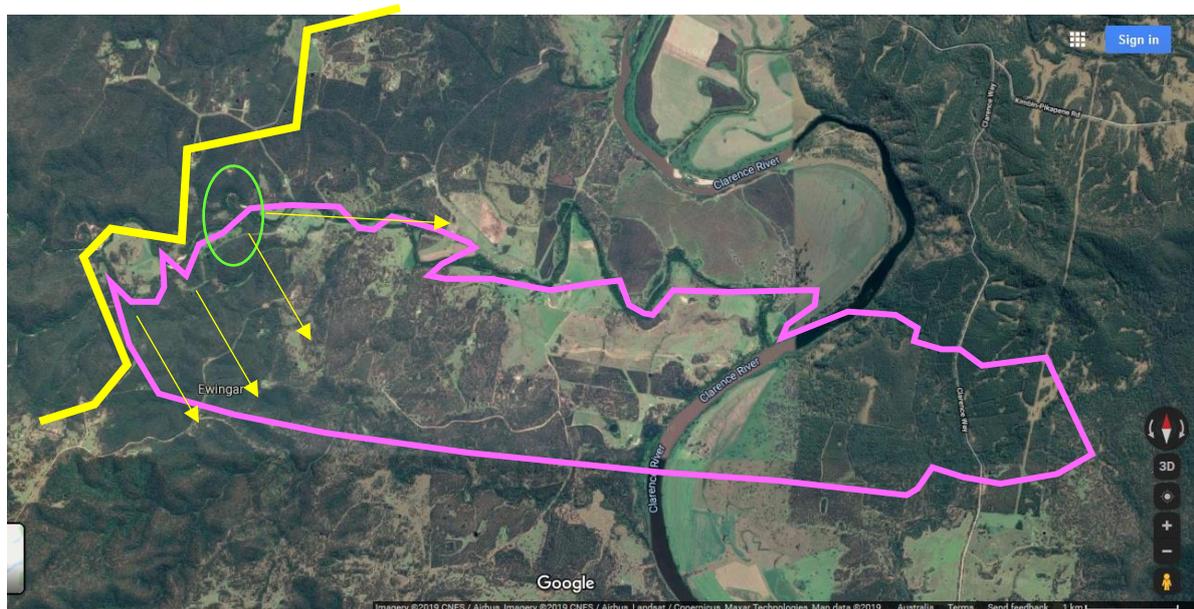
## ANALYSIS

### 1 Escape



IMAGE 5 The brightest yellow is in the forest area. Somehow, all has ignited within a short time. A mass ember dump?

This part of the containment line in this area was a wet line, a bend in the Ewingar Creek  
The Clarence is a 150m wide wet firebreak.



Based on wind change determined in the Busbys Flat bushfire analysis, the westerly wind change arrived in this area between midday and 1pm.

The eastern boundary runs to the SE, indicating that this fire escaped when the wind was from NW. It ran for approx 1 km. If it travelled 1km in an hour, the breach of containment lines occurred between 11am and midday.

The fire edge in the green circle on the north edge must have revitalised during the NW wind phase. We can see that after the west wind change, it expanded eastwards, probably by grass

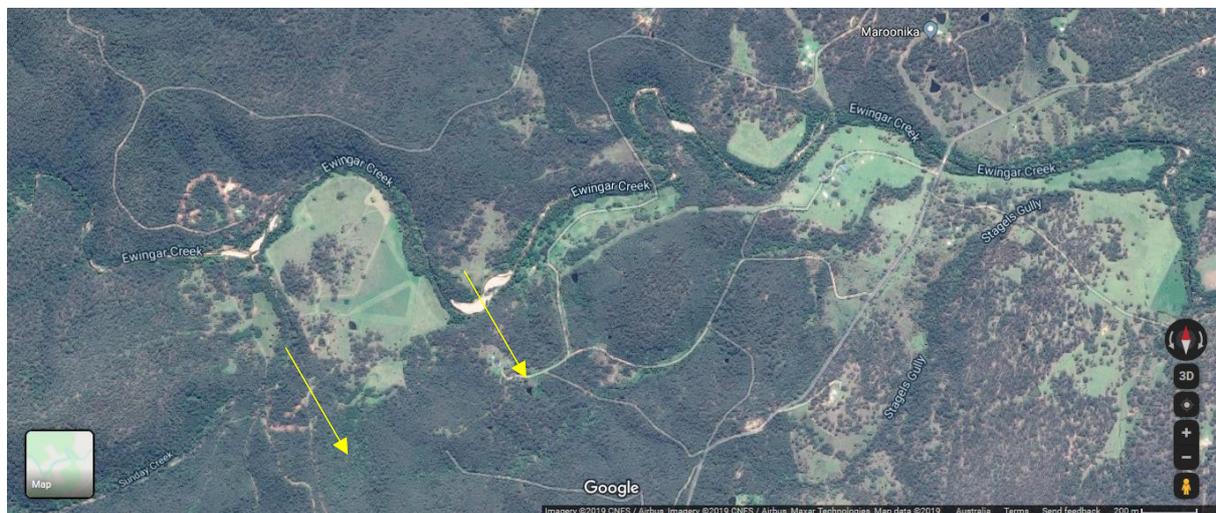
fire (if the paddocks were dry enough) because the whole the Ewingar Creek verge is alight, otherwise it occurred by leap frog spotting. The bright yellow flame attests to this recent flame.

The Westerly spread the eastern flank through the 4 km of the Ewingar ridge forest. It rises to 400m elevation, giving it extra height for throwing embers a long distance downwind and across the Clarence. It threw embers up to The up to 4km beyond the Clarence into the pine plantation. No hot spots are visible beyond the plantation, indicating it is too young to generate spotting.

The brightness and solidity of the yellow in the plantation east of the Clarence is reminiscent of a mass ember dump of simultaneous ignitions, of massive size - some 3 x 2 km. If so, the source of the embers would be the Ewingar ridge forest, which could well have been a solid front of up to 2 x 2 km. Hopefully, the RFS has footage of this event for subsequent verification.

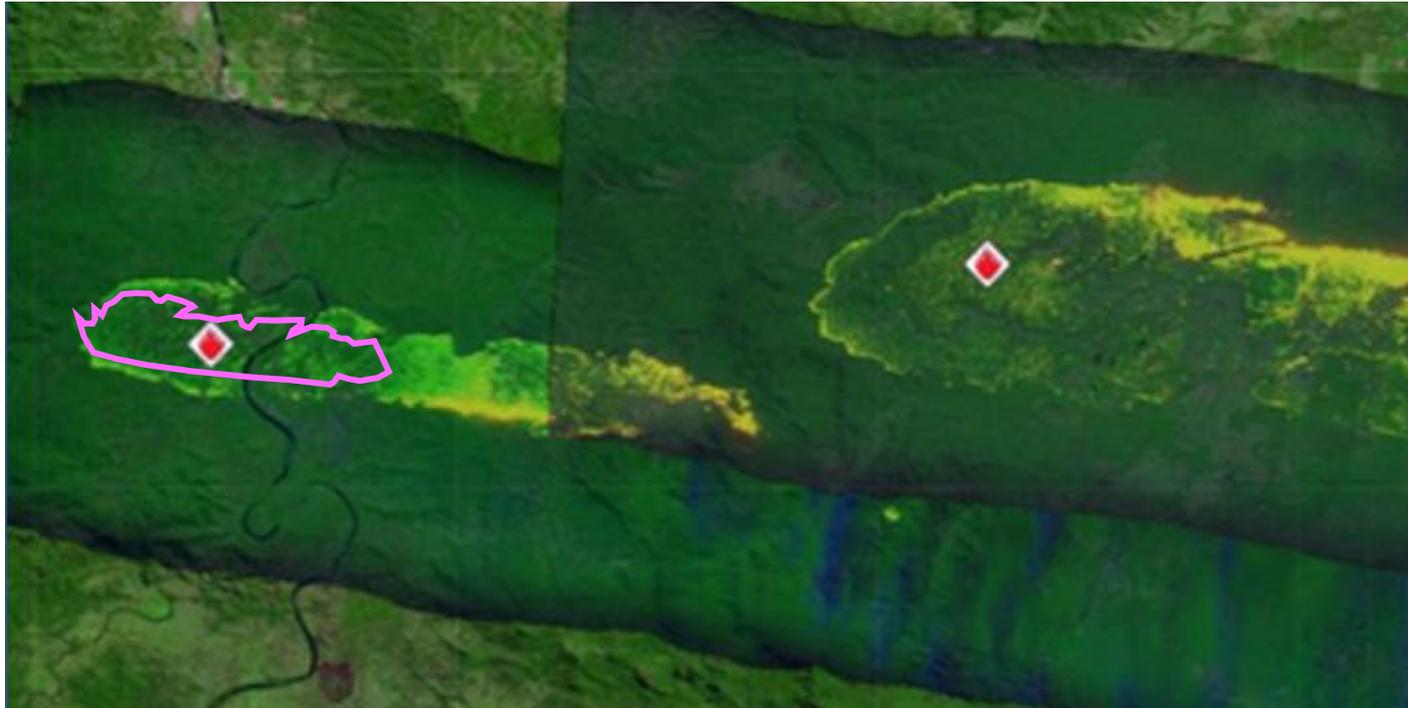
## Cause

Look at the flat and look at IMAGE 5. IMAGE 5 shows faded hot spots, suggesting a remnant of a recent fires



## 2 Progress

Estimated time of IMAGE 6 is around 6pm



Let's assume the pink area of IMAGE 5 is 3pm

This front pushed through broken hilly country and reached Coongbar at 6pm = 12 km in 3 hrs = 4 kph

The pic could have been at 2pm, if so, 12km in 4 hrs = 3kph.

Probable means of spread = short distance spotting Except for one possible spot, there are no apparent spot fires on IMAGE 6

Of interest is that after an 8 km run west of the Clarence and a 12 km run eastwards, the width of the escape tongue remained narrow at 3 – 4km wide.

The Length to Breadth ratio is  $20/3 = 7$  to 1

Comparison with Rappville run:

Starting from the boomerang escapes, the front runs a max of 22km in 5 hrs between 1pm and 6pm = 4.5kph

OR From Old tenterfield Rd from 1.30 pm, it ran a max of 18km in 4.5 hrs = 4kph.

**Wednesday October 9**

**Weather**

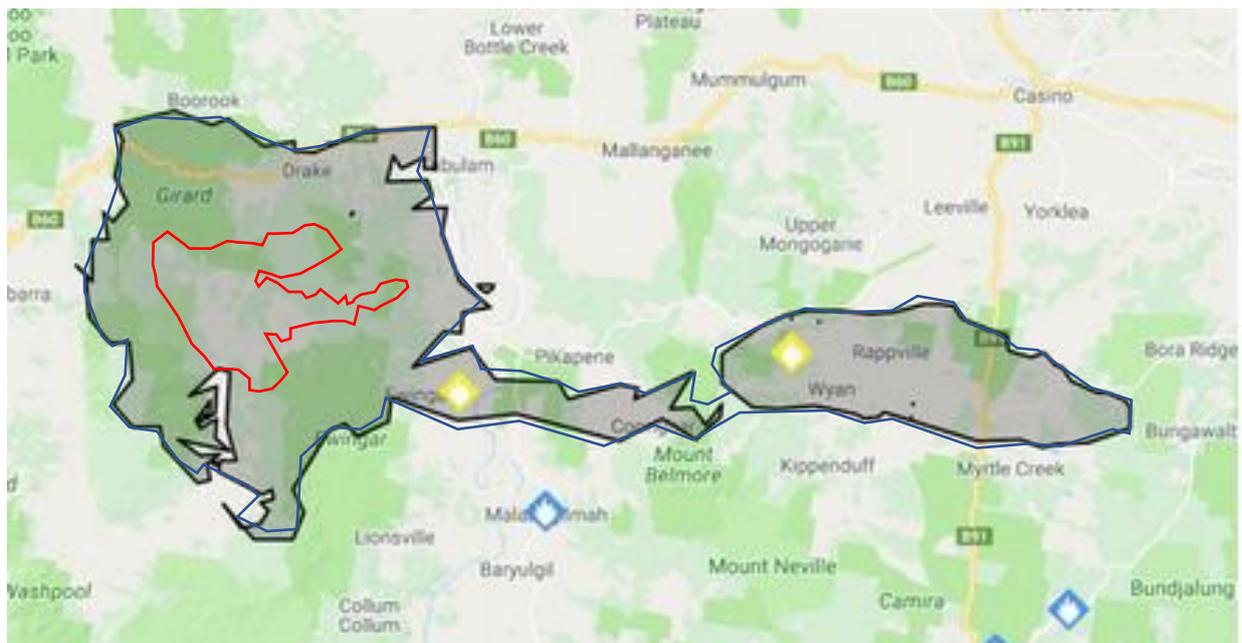
*RFS Tweet* Weather easing.



NSW RFS  
@NSWRFS

Follow

Watch & Act. Busbys Flat Rd fire. Easing conditions across the fire ground. Residents should follow the advice of fire fighters, remain vigilant and be ready to act should the fire threaten #nswrfs #nswfires



Red outline is perimeter on Sept 6, at 8pm.

## Thursday October 10

### *ABC on line*

<https://www.abc.net.au/news/2019-10-10/two-people-dead-in-nsw-bushfires/11589026>

A couple has died as part of the bushfires that ripped through northern NSW earlier this week, police have confirmed.

The bodies of Robert Lindsey, 77, and Gwenda Hyde, 68, were found inside a home on Deadman Creek Road in Coongbar.

The pair had been together for three years and were well-respected members of the wider Ewingar community.

They had a number of livestock at their property that either did not survive or were seriously injured, the NSW Rural Fire Service (RFS) said.



Gwenda Hyde and Robert Lindsey

### ***The Australian on line***

A friend of the couple said Mrs Hyde had called asking for advice about fires burning in their orchard hours before flames engulfed their house. “Gwen rang me to see if I had the phone number for the fire brigade as she was getting spot fires in her orchard and wanted to know what to do,” Carol Dillon said.

Ms Dillon said the couple had married three years ago, after Ms Hyde’s first husband died, and that they each had children from their first marriages.

She said the couple had received a call from the Rural Fire Service earlier in the day that the Long Gully Road fire was moving towards their property. The bushfire had been burning for more than a month before it swept through Coongbar on Tuesday.

The couple’s home was one of at least eight houses destroyed on Tuesday in the Long Gully Road or Drake bushfire.

Twenty-one homes were lost in the neighbouring Busbys Flat fire that ripped through Rappville on Thursday afternoon.

### **Friday October 11**

***NS UPDATE 2pm:*** Two people have been confirmed dead in the bushfires after police found bodies on a remote property on Wednesday night.

The home was destroyed when the Drake fire roared through the region on Tuesday.

Eight properties were destroyed by the Long Gully Road fire this week, in addition to 24 which were destroyed last month.

***NS UPDATE 9.37am:*** More than 30 fires continue to burn, 13 of which are uncontained. Two major blazes at Drake near Tenterfield and at Busbys Flat near Rappville have joined to form a massive fire, the RFS says. It has burned through more than 110,000 hectares.



Ruth Harriman, 68, pictured on her property in the Ewingar area where she managed to save her house with a water tank on the back of her ute. Picture: Dylan Robinson

**Saturday 12 October      RAIN**

***RFS Tweet***



**Recorded Rainfall**

<b>Date</b>	<b>Applethorpe</b>	<b>Tabulam</b>	<b>Casino</b>
October 11	3mm		
October 12	22.8mm	20mm	10mm
October 13	3.8mm		1.6mm
October 15	4.6mm		
October 17			13mm
October 18	5.4mm		

**Sunday October 13**

***RFS Tweet    Long Gully bushfire Contained***

The Long Gully Rd Fire, which started on 5 September has been contained. The fire, which last Tuesday flared & breached containment lines under strong gusty winds, has burnt out more than 74,000 hectares. Crews will continue to patrol the fireground & mop up any hotspots #nswrfs

## Wednesday October 16

### *Canberra Times on line*

Firefighters have confirmed 64 homes were razed in bushfires that swept through northern NSW last week, with more than 150 outbuildings also destroyed.

The Busbys Flat and Drake fires are still burning and are currently at advice level, one week after blazes swept through the area south of Casino.

The NSW Rural Fire Service on Wednesday said it had completed most inspections of fire-affected areas and confirmed 64 homes were lost.

The RFS said 44 homes were destroyed by the Busbys Flat blaze and 19 in the Drake fire, which claimed the lives of Bob Lindsay, 77, and his wife Gwen Hyde, 68. In addition, 153 outbuildings and seven other facilities were destroyed.

RFS Commissioner Shane Fitzsimmons said there had been more than 5000 bush and grass fires across NSW this season, with a million hectares of land burnt out.

## Sunday 27 October, 2018

### *RFS Tweet Long Gully Fire OUT*

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 **NSW RFS**   
@NSWRFS

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**Comment** Terminology needs better definition. When its spread stops, it is CONTAINED. When its margins are blacked-out to suitable depth, it is CONTROLLED. When there are no hot spots in the blacked-out section it is SAFE. Perhaps they mean the fire is SAFE. Hot spots deep within the 74,000 ha may not be OUT for weeks more.

## Conclusion

This fire was avoidable. If only the fire agency had stopped it dead at 19ha on the 5<sup>th</sup> September. But, it did not, and no doubt had its reasons. Let's hope they were good reasons because the consequence was that it grew to an unstoppable fiery perimeter of 70km by the evening of the 6<sup>th</sup> in a dry forest interspersed with farming properties and settlements, that were now endangered through a government decision that was no fault of their own. They let it grow and indeed encouraged it to grow to a perimeter of 100km, and it was not stopped until the rains of mid-October.

But it surprisingly escaped at Ewingar Creek on the 8<sup>th</sup> October and caused two deaths and even more property loss. The RFS had created a huge perimeter and created a liability for it to patrol till all of it was safe. Was the RFS patrolling this part of the perimeter then? Did they know about its condition on or before that day? I their answers to either or both questions are NO, their liability may descend into negligence.

The point is this. It does not matter what bushfire suppression strategies are employed. The outcome is what matters. This outcome is disastrous because it was avoidable.

It was avoidable if the fire was stopped according to best practice forest bushfire principles on the 4<sup>th</sup> September. It was avoidable if the Ewingar Creek was being patrolled on the 8<sup>th</sup> November. It was avoidable if the local residents were all properly prepared to self-defend against a severe bushfire attack.

This leads into my theory that self-defence can complement suppression and save houses. If each property and settlement were prepared at base level 101 for a severe bushfire attack and occupants prepared for active self-defence, the danger flames would be kept well away, the people would safely extinguish the small spot fires, the fire attack wave would come and go like a hail storm and they would resume their interrupted activities.

This did not happen here because there is no catalyst to make it happen. The fire agencies have their policies and procedures but they do not include organising the local properties for self-defence. They do however include disaster-response policies like trust us and obey our instructions if a fire occurs. Their instructions are typically evacuation related, a strategy that can exacerbate house loss rate. At the same time, fire agencies are aware their capability to protect houses in unprepared surroundings under severe bushfire attack is more a hope than a reality. Meanwhile, individual property owners are not encouraged by any authority to consider self-defence as an option. The missing catalyst is a government level goal of zero house loss in severe bushfire attack. Indeed, a towards zero goal would be useful. That would re-focus the fire agency policies and procedures and encourage property owner focus on preparedness and self-reliance.

Meanwhile, back to the disaster. People don't usually sue fire agencies, so they will probably cop it sweet. Fire fighters were putting themselves on the front line to do what they could. Insurers will pay out the least they can get away with. Some people are uninsured. Houses

and sheds will be rebuilt by local tradies. Some people will have mental trauma for years. However, life loss is the worst. There is no recovery.

If people know the fire agencies play these games of chance and know the fire agencies physically cannot protect most properties in the runaway fire's pathway, would they self-protect?

In this level of severe bushfire attack, the fire agency is virtually helpless, despite a massive force of 74,000 volunteers and massive budget. The latest published house loss rate for the current RFS policy model this fire season is around 20%. It is much lower than the house loss rate under the then CFA policy model in the Black Saturday fires of Victoria in 2009 (average 39%, range by fire 14 – 60%, but individual towns were higher, eg, Marysville 90%).

In the first hundred years of Victoria's history, there was no fire agency. **In those days, rural people let fires run in the surrounding bush for weeks and months because there was no law or mechanism to extinguish them.** Communities and properties prepared to self-protect each year for when severe weather invigorated these fires into infernos and pushed one their way. They watched the smoke. They had no forecasts, no fire brigades, no fire maps, no phones. They sent a messenger on a fast horse off to the next town – “there's one comin' your way”. They teamed up and fought together.

The choice today for the citizen is this - rely on the fire agencies policies in NSW and you have a 20% chance of house loss, or complement it with self-protection and aim for a zero chance of house loss.

## POSTSCRIPT

### Where is the Long Gully Fire??

The Long Gully fire is missing from the Google map. We have included it as the blue line below.

Google now includes the Ewingar escape with the Busbys Flat fire, despite the Ewingar escape running into Busbys (see below).

The Ewingar tongue (blue arrow) escaped from the Long Gully fire on 8 October and ran into the Busbys Flat fire as shown in red outline.

### Is it contained yet ??

The map below shows that both the Ewingar escape and the Busbys Flat perimeters have grown considerably since the rains of mid-October, including a thousand extra ha between 13<sup>th</sup> and 19<sup>th</sup> of November (see red circle).

RFS seems to tolerate uncontrolled perimeters in forest areas but at the same time warns the public to enact their plans when each severe weather day is forecast.

Their apparent policy of letting fires burn the forests into the summer months till the rains come is risking property loss. [Is this done with or without approval of forest managers?]

- If the rains come before the next severe weather day, risk is forgiven.
- Every day the rains are delayed, the drier the drought, the worse the outcome when each next severe weather day comes.

**This seems a high-risk strategy for unprepared rural houses because the fire agencies well know their capacity to protect assets and suppress severe weather bushfires is very limited. But if forewarned about their strategy, rural properties can prepare themselves for self-defence and defeat the bushfire threat.**

