Inspector-General for Emergency Management (IGEM) Inquiry into the 2019-20 Victorian Fire Season.
Phase 1: Community and sector preparedness for and response to the 2019-20 summer season

To:
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By email: igem@igem.vic.gov.au

Date: 30 April 2020

Gippsland Environment Group Inc (GEG) appreciates the opportunity to provide comment to the IGEM Fire Inquiry into the 2019-20 Victorian fire season.
GEG was established in 2005 and incorporated in January 2006.GEGInchas approx 30 members based in Bairnsdale and the surrounding community. The group continues to advocate for the protection of the East Gippslandenvironment. Many GEG members and their families were personally affected by the 2019-20 bushfires in East Gippsland.

Terms of Reference addressed:

1. **In considering effectiveness of Victoria's operational response to the 2019-20 fire season, IGEM should particularly consider: planning and response mechanisms to protect biodiversity threatened by bushfire**

A) The destruction of Cape Conran Coastal Park caused by escaped backburns.
The Cape Conran Coastal Park (11,700 ha) in East Gippsland is part of the largest contiguous protected area on the south-east coast of mainland Australia. The park is listed under the International Union for the Conservation and Natural resources (IUCN) as Category II (National Parks) which are managed primarily for ecosystem management and appropriate recreation.

Cape Conran Coastal Park protects almost 50 species of threatened fauna including the nationally endangered Long-nosed Potoroo, Southern Brown Bandicoot, Smoky Mouse, Spot-tailed Quoll and Eastern Bristlebird; and at least 40 species of threatened flora including the nationally endangered Bonnet Orchid and Leafless Tongue Orchid. Extensive heathland areas provided habitat for the threatened fauna such as the Ground Parrot.

This summer approximately 95% of the Cape Conran Coastal Park was destroyed, not by the bushfires but by a series of ignited firebreaks (or backburns) which repeatedly escaped. A significant portion of that area was burnt after DELWP's first Biodiversity Bushfire Response Workshop held on 11th January 2020 had identified the

necessity for immediate protection of all unburnt habitat[1]. DELWP's *Biodiversity Response and Recovery* report also identified that in Victoria within the mapped fire extent as of the 11th Jan, the Eastern Bristlebird had lost 42% of modelled habitat; the Ground Parrot 21%; Long-nosed Potoroo 32%; Smoky Mouse 22%; and the Southern Brown Bandicoot 25%. Yet DELWP continued to deliberately burn extensive areas of unburnt habitat in Cape Conran CoastalPark.

On 24th January, GEG wrote to Minister for Environment Lily DÁmbrosio (see Attachment 1:*GEG to Min Env 24.1.20*) regarding our concerns about continued 'burning out' of unburnt areas of the park and other forested areas of East Gippsland. We have not received a response to date.

Background: By late December 2019/early January 2020 the Snowy complex bushfire was burning in forest north of the Princes Highway between Orbost and Cann River but had not burned south of the Highway (except for a small spot-fire near Mt Raymond which was soon extinguished). In early New Year 2020a firebreak was ignited (authorised or unauthorised?) in Cape Conran Coastal Park, from Pearl Point on the coast in an arc around to Sydenham Inlet Rd, ostensibly to protect Bemm River township from any bushfire front that may approach from the northwest. However the firebreak escaped and burned north then west driven by the prevailing strong easterly wind.

Over the next ten days to two weeks the western section of the park was burnt including right down into wetland vegetation on the northern edge of Dock Inlet, a unique freshwater lagoon and Special Protection Area[2] (SPA); through the Glossy Black Cockatoo habitat SPA at the head of Dock Inlet catchment; and further west down to the beach. In a series of failed attempts to contain the westerly spread of the fire through the park DELWP then proceeded to light backburns further west (i.e. closer to Conran cabins and Marlo township), off Gravel Rd, and then along East YeerungTk, and then off the Yeerung walking track that runs from the Yeerung Bridge to the coast.

On 19th January 2020 Orbost DELWP and Marlo CFA held a community fire information session at the Marlo CFA fire shed, which was attended by approximately 50-60 people. DELWP announced they were planning to light another backburn closer to Marlo that afternoon, along the Cabbage Tree-Conran Rd, to try to stop the fire's progress from Yeerung River (just east of Cape Conran) towards Marlo (it was approx 15kms away at that stage).

At the meeting a GEG member, concerned about elderly relatives at Marlo, queried the wisdom of DELWP putting more fire into the landscape closer to Marlo when previous backburns further east had repeatedly failed (see Attachment 2:*Transcript 19 Jan 2020 Marlo-part 1*). DELWP rejected GEG concerns, stating that the section to be burnt (from Cabbage Tree–ConranRd east to Yeerung River) was between an area to the north, burnt in

[1] *Victoria's bushfire emergency: Biodiversity response and recovery* DELWP 23 Jan 2020 , Appendix 4
[2] Special protection areas details see Cape Conran Coastal Park Management Plan, Parks Victoria, 2005, Fig 2

2018 and another to the south, burnt in a planned burn in 2019- and so those areas "wouldn't burn"!

That afternoon of 19th Jan 2020 DELWP/FFMV ignited the backburn off Cabbage Tree-Conran Rd. Within ten days that fire was immediately north of Cape Conran cabins. A few days later it burnt to the south (through the mid-2019 planned burn) and west (across the Cabbage Tree-Conran Rd), destroying millions of dollars of park infrastructure at East and West Cape, as well as habitat and structures on private land, and culminated in an emergency warning on 31Jan-1 Feb to evacuate Marlo (see Attachment 3: *Cape Conran Coastal Park DELWP backburn history*).

At Cape Conran, the ranger station, the ranger's house, two cabins, the campground, and infrastructure such as walkways, toilet blocks and shelters were destroyed; as well as decades of Southern Ark's work to recover the local population of potoroos and bandicoots.

The fire then burnt into peat swamps to the west of Cabbage Tree-Conran Rd (north of the Marlo-Conran Rd), severely impacted air quality, creating a serious health hazard in Marlo and surrounds for many weeks.

Sometime soon after the fire burned through West Cape, a massive fire break was dozed from the Marlo-Conran Rd down to Point Ricardo at the western end of the park (through another Special Protection Area implemented specifically to prevent erosion of the significant parallel dune system), and kilometres of roadside habitat also cleared along the Marlo-Conran Road within the park.
See Cape Conran Coastal Park photos at:
https://docs.google.com/presentation/d/1qxRcPIGjHjivdtuaKH6AsH99TjSJs5jP8oB8uOOTnX4/edit?usp=sharing

Despite DELWP's confirmation at the Marlo community fire meeting on 19th Jan that they had lit a number of backburns in the park, and their announcement that they planned to light up another one on Cabbage Tree-Conran Rd that afternoon, they later denied any responsibility. In response to questions from journalist Amber Irving-Guthrie on ABC Gippsland on 3rd and 4th Feb 2020, DELWP denied the Conran fire was caused by their back-burning operations. The ABC Gippsland Facebook page of the story (3.2.20) quoted DELWP Regional Controller Andrew Costigan as saying it was caused by lightning. On 7 Feb DELWP posted a video of the fire damage at Cape Conran on their Facebook page. It includes one image with the caption 'Gippsland bushfires hit Cape Conran' (see Attachment 4: *DELWP FB 7Feb 2020 'bushfire' caption*).

The destruction of invaluable threatened species habitat and protected areas in Cape Conran Coastal Park was due to a series DELWP/FFMV backburns not bushfire.

If the firebreak lit at Bemm River in early New Year 2020had been immediately contained, Cape Conran Coastal Park would have remained unscathed. Ironically the seeming disregard

for, or lack of priority or capacity, to protect ecological and Indigenous cultural values, actually resulted in heightened risk to human life and destroyed a major East Gippsland tourism asset with serious ramifications for the local economy.

- DELWP has failed to adapt its fire fighting strategies to the extreme conditions of climate change.
- It is evident back burns now pose a very serious risk to biodiversity and the practice must be reviewed.
- Increased resourcing for the protection of biodiversity during bushfires is urgently required.
- The destruction of Cape Conran Coastal Park was a bushfire response disaster and must be thoroughly investigated.

B) Excessive roadside clearing post-bushfires

1/ Hazardous tree removal

Excessive post-bushfire clearing in burnt forested areas along East Gippsland roads caused a major additional loss of habitat. Whilst there was an urgent need to remove 'hazardous trees' in order to re-open the Princes Highway and other local roads the scale of roadside tree clearing amounted to uncontrolled linear logging. Local conservation groups and individuals were so shocked by the apparent lack of environmental oversight and transparency of process that in early March they submitted a dossier of information and photos to the Office for Conservation Regulation (OCR) for assessment. An OCR investigation is now underway[3].
A version of the photo compilation may be accessed at:
https://docs.google.com/presentation/d/1sQLQVCB677PB2F4ahvTEFqhgEx6Hjv1ifmaxGNB3J5g/edit#slide=id.g7eb79c8e4f_1_283

It is of serious concern that hazardous tree assessment is often carried out by machinery operators with no ecological knowledge, or by arborists, and not by ecologists. Information from local industry employees suggests that less than 20% of trees felled along burnt sections of the Princes Highway and other secondary roads were actually hazardous.
The felling of so many solid trees by VicForests contractors (subcontracted to DELWP) under the guise of 'hazardous' tree removal may in fact have extended the period the Highway was closed.

The IGEM must investigate whether the DELWP/VicForests Bushfire Management Agreement (BMA), which permitted VicForests to source a level of 'allocation' from roadside timber (see Attachment 5 – *VicForests post fire timber recovery* accessed 14.2.20), drove the widespread tree felling and destruction of habitat, in excess of that required to remove any 'hazardous trees'.

[3] https://www.theage.com.au/national/victoria/conservation-watchdog-investigates-is-bushfire-tree-removal-overzealous-20200305-p5476c.html

GEG submitted (3.3.20) an FOI to DELWP to obtain a copy of the DELWP/Vic Forests BMA but the release date has been twice extended at DELWP's request so at this stage we are unable to provide the IGEM with a copy

The massive roadside clearance of habitat trees, including flowering eucalypts and other flora, will have ramifications not only for biodiversity and threatened species but also for beekeepers whose state forest nectar resources have been largely destroyed by the fires.

In future any post-fire roadside clearing must be thoroughly integrated with an independent ecological assessment of 'hazardous trees' and much clearer regulation.

2/Bruthen to Cowarr firebreak – Mt Alfred State Forest (unburnt forest)

Approximately 40% of forest in the Tambo Forest Management Area (Gippsland FMP) was burnt in the 2019-20 bushfires yet roadside clearing of the Cowarr to Bruthen firebreak in Mt Alfred State Forest, north of Bairnsdale, resumed immediately it was safe to re-enter the forest.

Despite the catastrophic loss of habitat and threatened species in the fires there appears to have been no re-evaluation by DELWP of the cumulative impact on biodiversity of roadside clearing in the unburnt Mt Alfred State Forest.

Post-bushfire roadside clearing of the Cowarr to Bruthen firebreak has destroyed habitat along roadsides adjacent to Special Protection Zone 822, the Melwood Rainforest Educational Area, and traversing Special Protection Zone 824.

These areas are part of the Comprehensive, Adequate and Representative (CAR) reserve system established under the Regional Forest Agreements. In November 2019 the Victorian Government's RFA Scientific Advisory Panel (SAP) concluded that: *the CAR reserve system has not adequately protected biodiversity and under current management arrangements will not provide adequate protection in the future.* The SAP report[4] pre-dates the catastrophic biodiversity losses of the 2019-20 bushfires but DELWP still allowed further destruction tooccur in unburnt CAR reserve areas in Mt Alfred SF.

<u>Impact on Special Protection Zone 824 and Melwood Rainforest Educational Area</u>.

SPZ 824 (Gippsland FMP) was designated for EVC protection (Lowland Forest, Warm Temperate Rainforest, Dry Valley Forest, Lowland Herb-rich Forest), Powerful Owl, Eastern Horseshoe Bat, Rainforest Site of Significance. Sooty owls have also been recorded in the SPZ 824. The adjacent Melwood Rainforest Education Area contains Musk Gully (Warm Temperate Rainforest) a Rainforest Site of Significance, and is known habitat of Sooty owls.

Approximately four kilometres of roadside trees through SPZ 824 and adjacent to the Melwood Rainforest Education Area (EA) have been felled as part of the Cowarr to Bruthen

[4]Regional Forest Agreements, Scientific Advisory Panel (SAP), *Scientific Advice to support Regional Forest Agreement Negotiations,* Final Report 20 November 2019, p14.

firebreak. By mid-March solid logs felled within the SPZ and EA were stacked for removal. Large old hollow bearing trees that provided significant habitat for Yellow-bellied Gliders, Greater Gliders, large forest owls and bats and other species were felled and pushed aside. Tree limbs and debris were pushed up into the edge of the SPZ and Melwood Rainforest EA increasing the fire danger to adjacent reserve areas. Soil was dozed to the edge of escarpment and into gullies above Warm Temperate Rainforest.

Impact on Special Protection Zone 822

SPZ 822 was designated (Gippsland FMP) for EVC protection (Lowland Forest, Lowland Herb-rich Forest) and Giant Burrowing Frog.

Roadsides trees were felled along Cox Boundary Track and Parkers Rd and deep drains dozed along the edge of Special Protection Zone 822. The Action Statement (FFG) for the nationally endangered Giant Burrowing Frog identifies sediment in waterways as a threat to the species. Dozing to fell trees and construct drains has dramatically disturbed soil causing a serious risk of sediment contaminating the gullies after heavy rainfall. A grove of yellow-bellied glider sap trees at the junction of Cox Boundary and APM Tk was also impacted.

Impact on habitat of threatened Greater Glider.

Stony Creek Rd is known habitat of the nationally threatened Greater Glider (listed May 2016). The Greater Glider is also listed under the Flora and Fauna Guarantee Act (June 2017). Gippsland Environment Group has observed their decline in the Mt Alfred State Forest over the past decades[5] due to widespread logging across the Stony Creek valley, and the elimination of remnant roadside hollow trees by planned burns and roadside clearing.

GEG had previously reported to DELWP Forest Reports (10th July 2017) that Greater Gliders were present at the edge of scheduled coupe 735-510-0021 (Stoney Creek Rd). At the same time we also wrote to the Minister for Environment requesting that the Minister intervene to protect the species (then recently FFG listed) in Gippsland FMA. However this coupe was logged for firewood in Spring 2018. VicForests retained a 30-40 metre buffer between the coupe and the roadside. That buffer has now been significantly reduced in width due to the recent clearing of the Cowarr to Bruthen 'firebreak'. Many rare large hollow bearing trees have now been felled along Stony Ck Rd. The EPBC Conservation Advice identifies loss of hollow bearing trees as of catastrophic consequence for Greater Gliders.

On 11th February 2020 in response to the bushfires the Commonwealth government identified the Greater Glider as one of 113 animals[6] requiring urgent management intervention. Yet the Victorian authorities continued to permit the destruction of Greater Glider habitat along Stony Creek Rd and other roads in Mt Alfred State Forest.

A DELWP/FFMV senior fire officer overseeing the roadside clearing on Mt Alfred Rd informed GEG (pers com. 20.3.20), that the logs were going to Fennings Timber in

[5] Conservation Advice *Petauroidesvolans* Greater Glider, Threatened Species Scientific Committee 2.5.2016

[6] See: http://www.environment.gov.au/biodiversity/bushfire-recovery/research-and-resources#a2

Bairnsdale for firewood. However unlike a standard logging coupe none of the logs stacked for removal (including solid mill-able trees) along SPZ 824, SPZ 822 and Melwood Rainforest EA were tagged or bar coded, making it impossible to calculate and account for the total volume of timber removed from these public reserves.

Map and photos may be accessed via Google doc:
https://docs.google.com/presentation/d/1lq7a4RkM_RCBuj1rziPdDgAqfl3Af8owLDUCuyc9oQI/edit#slide=id.g76f0a1a64a_0_70

The wholesale roadside clearing in East Gippsland post-bushfires has been shocking and even more so to witness it along roadsides adjacent to and traversing supposedly protected unburnt areas, without any post-bushfire assessment of the cumulative impact on threatened species or accountability regarding volumes of timber removed. The legality and regulation of this roadside clearing must be reviewed.

C) Salvage logging should not be permitted in bushfire affected forests

On 27 April Vicforests announced (email bulletin 27.4.20) it was beginning salvage logging in fire affected forests. Salvage logging will set back the fire recovery process in forests for hundreds of years, compounding the impacts of both fire and logging. Extensive scientific research over the past 20 years *shows that so-called post-fire 'salvage logging' is the most damaging form of logging in native forests*[7].

2. **Consider all the challenges and implications arising from increasingly longer and more severe bushfire seasons as a result of climate change**

It is very evident to East Gippsland residents that climate change is increasingly drying out the landscape and severely exacerbating the risk of more frequent, larger and extreme bushfires. In the past 60 years bushfires in the Australian Alps have increased in magnitude from 100,000 ha (post 1939), to 1 million ha in 2003 and 2006-7, to more than 10 million ha this year[8].

According to the Bureau of Meteorology[9]:

> *2019 was the warmest and driest year on record for Australia as a whole, and spring was also the driest on record nationally. Record low rainfall for the year occurred over large areas of inland Australia...The very dry conditions continued through December. It was the driest December on record nationally, with rainfall below average nationwide apart from western Tasmania and parts of Western Australia*.

As a priority the Victorian Government must commit to more effective climate change mitigation strategies and targets to prevent bushfires like those of summer 2019-20 becoming a near annual occurrence.

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[7] *Post-bushfire logging makes a bad situation even worse, but the industry is ignoring the science*, David Lindenmayer, ABC News online 29 Jan 2020https://www.google.com.au/amp/s/amp.abc.net.au/article/11903662

[8] Zylstra, P., The Unlearned Country. Meanjin 20.1.20

[9] *Special Climate Statement 73-extreme heat and fire weather in December 2019 and January 2020,* BOM, 17 March 2020,p4

In light of the 1.4 million hectares of Victorian forest burnt in the bushfires, an immediate halt to native forest logging is a critically important step: our forests are far more valuable for carbon storage, biodiversity habitat, and undisturbed water catchment, than as woodchips.

In East Gippsland the extreme dry spring and summer of 2019-20 came on top of three years of below average rainfall. There is now a smaller and smaller window of opportunity to undertake planned burns. GEG is aware of a number of DELWP/FFMV planned burns in Mt Alfred State Forest including near private land that could not be safely undertaken over the previous two autumns due to the severe dryness of conditions.

It is also evident that the traditional fire fighting strategy of fighting fire with fire i.e. using backburns to establish a control line in the face of an approaching fire front, is now highly dangerous under the changed climatic conditions and in the case of Cape Conran Coastal Park, resulted in widespread ecological and economic damage as well as threatening the lives of Marlo and Marlo Plains residents. There are a number of anecdotal reports of other DELWP/FFMV firebreaks and backburns escaping this summer. Whether due to lack of resources or to DELWP policy to pull back crews after hours, or a cavalier attitude to lighting up forest, or crews not knowing what else to do, in a climate change affected landscape the practice of backburning is putting lives and nature at risk. Regarding the Conran fire the fall-back response by DELWP/FFMV was to continue to light backburns even when previous backburns in the park had repeatedly failed.

A review of the effectiveness of DELWP/FFMV backburning operations during the 2019-20 bushfires should be undertaken. Backburn area should be mapped and calculated separately from bushfire extent. An assessment of the 2019-20 Gippsland bushfire zone must be instigated to calculate the extent to which backburns potentially contributed to a massively increased total bushfire area.

3. **Consideration of the adequacy of existing administrative and funding mechanisms in place at a state level to support the operational response** *and* **In considering the timeliness and effectiveness of activation of Commonwealth assistance and Commonwealth resource availability**

There is an urgent need for increased capacity for control of bushfire, including aerial response, at the point of ignition.

On November 21st 2019 dry lightning triggered a number of bushfires across East Gippsland including one east of Bruthen, and another west of Buchan near Timbarra. Both these fires soon had major resources allocated to fight them due their proximity to townships. However another fire had started at the same time in more inaccessible mountain country near the old mining area of Marthavale on the headwaters of the Nicholson River (Marthavale-Barmouth Spur fire), north of Bairnsdale. There were no aerial resources available to attack the fire and only minimal on-ground resources: as the fire grew to 1000ha one vehicle attended and as it multiplied in area only three vehicles were available. This fire took an unprecedented run of 25km during the night of 19 – 20 December, travelling from near Mt Baldhead, in a line

south-east all the way to the Ash Range just north of Bruthen, quadrupling in size overnight. Ten days later on 30th December that same fire threatened the city of Bairnsdale and burnt through the townships of Clifton Creek and Sarsfield.

A significant increase in secure state and federal funding is required to enable bushfires to be fought in both remote and populated areas before the fire becomes uncontrollable. Victoria's fleet of 50 aircraft should be expanded and strategically deployed across the state to ensure effective aerial control of fires at the point of ignition in remote areas.

4. **Review of all opportunities and approaches to bushfire preparedness including different methods of fuel and land management (for example 'cool burning', mechanical slashing, integrated forest management, traditional fire approaches) to protect life and property as well as ecological and cultural**

Between 2003-04 and 2016-17 the Gippsland region accounted for the largest area of planned burns in Victoria. The Snowy district in East Gippsland had more planned burning than any other district[10]. However in East Gippsland there is still a popular view that more planned burning will prevent bushfires. This perception has been encouraged by statements from some local DELWP staff (for example see Attachment 6: *Transcript Marlo community meeting – part 2*) but it is not supported by the science.

During this summer's unprecedented bushfires senior fire officers in both Victoria (CFA Chief Officer Steve Warrington[11]) and NSW (RFS Commissioner Shane Fitzsimmons[12]) clearly stated that planned burning is neither a 'silver bullet', nor a 'panacea'. Research shows that effectiveness of any planned burning program is considerably reduced under severe fire weather conditions. And it is the impact of extreme fire weather (due to climate change) that fire managers now have to deal with to ensure human safety.

Many scientific papers have questioned the efficacy of large-scale fuel reduction burns. Research by Price and Bradstock[13]concluded that:

> *An increase in fuel treatment, such as prescribed burning may reduce crown fire risk but it has been shown that fire severity in these fires was not reduced by recent burning (reduced fuel) under very severe weather.*

To be most effective prescribed burning (and other fuel reduction processes such as slashing) must be carried out close to towns and other assets. In another paper[14]the authors state that:

[10] Victorian Commissioner for Environmental Sustainability, State of Environment Report 2018, Scientific Assessments Part III – Fire(Fi)

[11]ABC news:https://www.google.com.au/amp/s/amp.abc.net.au/article/11849522

[12]https://www.google.com.au/amp/s/amp.theguardian.com/australia-news/2020/jan/08/hazard-reduction-is-not-a-panacea-for-bushfire-risk-rfs-boss-says

[13] Price, O., Bradstock, R. (2013) Landscape scale influences of forest area and housing density on house loss in the 2009 Victorian bushfires. PLoS One, 8 (8), e73421-1-e73421-6

> *The results suggest that recently burnt areas (up to 5-10 years) may reduce the intensity of fire but not increase the chance of effective suppression under severe conditions. Since house loss was most likely under these conditions (67%) effects of prescribed burning across landscapes on house loss are likely to be small when weather conditions are severe. Fuel treatments need to be located close to houses in order to effectively mitigate risk.*

However research[15] has also shown that fuel reduction burns are only effective in reducing fuel loads for between 3-5 years and *in extreme weather, even 1-year old patches have a low likelihood of stopping unplanned fires*. Other studies[16] support this finding concluding that: *The influence of prescribed burning on subsequent fire behaviour diminished within 2-10 years*.
In fact a study by Cary et al[17]found that weather and ignition control were the key risk factors. Their research demonstrated that: *year-to-year variation in weather and the success of ignition management consistently prevail over the effects of fuel management on area burned in a range of modelled ecosystems.*

What seems to be never mentioned by local media and DELWP staff is that fuel levels in many ecosystems are known to actually increase just a few years after a fuel reduction burn i.e. planned burning increases the subsequent risk of bushfire in the short-medium term. Research by Dixon et al[18] found that:

> *Overall, fuel hazard was higher in forests and woodlands burned 6-12 years previously than those unburned for at least 96 years*, and
> *Frequent burning can maintain forest understorey in an early successional 'shubby' state, leading to higher overall fuel hazard than forests where a lack of fire is associated with senescence of shrubs.*

This research highlights the importance of facilitating and protecting long unburnt forest ecosystems as a means of reducing bushfire risk. Between 2007 and 2017 areas that have no fire history reduced by 11% (834,000 hectares)[19].

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[14] Price, O., Bradstock, R., (2012) The efficacy of fuel treatment in mitigating property loss during wildfires: Insights from analysis of the severity of the catastrophic fires in Victoria, Australia. Journal of Environmental Management, Vol 113,30 Dec 2012
[15]Price, O Bradstock, R., (2010) The effect of fuel age on the spread of fire in sclerophyll forest in the Sydney region of Australia. International Journal of Wildfire 19 (1) 35-45; doi.org/10.1071/WF08167
[16] Wilson, N., Cary,G. And Gibbons, p. (2018) Relationship between mature trees and fire fuel hazard in Australian forest. International Journal of Wildland Fire 2018, 27, 353-362
[17] Cary, G., Flannigan, M.D., Keane.,Bradstock, R.A., Davies, I.D., Lenihan, J.M., Li, C., Logan,, K.A. & Parsons, R.A.(2009) Relative importance of fuel management, ignition management and weather for area buned: evidence from five landscape-fire succession models. International Journal of Wildland Fire, 18 (2), 147-156.
[18]Dixon K, Cary G, Worboys G, Seddon J, and Gibbons P. (2018).A comparison of fuel hazard in recently burned and long-unburned forest and woodlands.International Journal of Wildland Fire. July 2018.
[19] Commissioner for Environmental Sustainability Victoria, State of Environment Report 2018,Scientific Assessments Part III Fire (Fi)

However DELWP does not systematically monitor the stages of regeneration of understorey vegetation following prescribed burns. This risk factor is not included in DELWP's PHOENIX RapidFire modelling analysis.

DELWP also does not monitor the relative flammability of the species that recolonise the landscape after a planned burn**,** even though a major study has shown *that plant traits were more important for predicting flame height than was surface fuel load* and that *Conventional approaches to modelling fire behaviour based on the mass of surface litter and simple measures of above-ground fuel strata may therefore be unable to predict aspects of fire behaviour that arise from variations in forest composition.*[20]

Planned burning has significant impacts on biodiversity. According to the 2018 Victorian State of Environment Report[21] , in 2017, 54% (4,119,000 hectares) was found to be below Tolerable Fire Interval (TFI). This means that, pre-2019-20 bushfires, more than half of Victoria's native vegetation was already in a state *where another fire would threaten the persistence of that vegetation type on that site, because for example, many key plant species will not have set seed to replace themselves. Only 20% of native vegetation assessed was found to be within the required TFI.*
Planned burning also reduces the abundance of critical habitat such as tree hollows and fallen hollow logs. For the past fifteen years GEG has raised concerns about DELWP's lack of pre- and post planned burn monitoring and under resourcing for biodiversity protection. Thousands of trees have been felled along roadsides in parks and reserves in pre-planned burn operations but despite requests from GEG for DELWP to include an ecologist in the team undertaking 'hazardous' tree assessment we have been repeatedly informed they do not have the staff.

DELWP still does not incorporate the risk of harm to biodiversity in residual risk calculations. The impact on biodiversity must be included in DELWP planned burn risk management. A strategic planned burn program must incorporate evaluation of both ecological and flammability outcomes.

GEG is also concerned that Vicforests logging, which is now increasingly occurring at the interface between public and private land, has increased the bushfire threat to local townships and communities. A number of scheduled coupes within Mt Alfred State Forest near Bairnsdale abut private land.

A study by Taylor et al[22] of areas burnt in the 2009 Black Saturday bushfires clearly showed that regenerating logged forests increase the fire risk. The study found that:

[20]Zylstra P, Bradstock R.A, Bedward M, Penman T.D, Doherty M.D, Weber R O, Gill A.M, Carey G.J (2016) Biophysical Mechanistic Modelling Quantifies the Effects of Plant Traits on Fire Severity: Species, Not Surface Fuel Loads, Determine Flame Diminsions in Eucalypt Forest. PLoS ONE 11 (8): e0160715.doi:101371/journal.pone.0160715
[21] See footnote 19
[22] Taylor, C, Lindenmayer D, & McCarthy, M. (2014) Victoria's logged landscapes are at increased risk of bushfires. The Conversation 25 August 2014.

extensive logging can increase the severity of bushfires in mountain ash forests. We found that the risk of "crown" fires, which burn severely and spread rapidly through the forest canopy, is greatest inmountain ash forests that have been regrowing for about 15 years. Before the 2009 fires, these young trees were established following clearfell logging.

Studies by Zylstra[23] of mapped fire records of the Australian Alps National Parks over the past 58 years showed *that regenerating Ash forests have burnt eight times as often as mature forests*. Another report[24] by Zylstra identified that:

Apart from low, dry open woodland where there was insufficient data to detect a trend, all forests were most likely to experience crown fire during their period of regeneration. The implications of this are significant for the Alps, as increasing fire frequency has the potential to accelerate by producing an increasing flammable landscape, and *recently burnt forests have been on average more flammable than mature forests, consistent with historic observation and the mechanistic understanding arising from plant growth and species' change*.

However the bushfire risk posed by regenerating logging coupes is not included in DELWP's PHOENIX RapidFire risk modelling nor is it considered as part of integrated forest management.

The scientific evidence shows that after disturbance by either fire or logging, forests are prone to subsequent high-severity fires (typically crown-scorching fires) therefore:
GEG recommends that the IGEM Inquiry include a review of:

- Planned burn history within the 2019-20 bushfire zone to assess to what extent planned burns may have exacerbated bushfire severity.
- The impact of widespread logging (including a forest age assessment) across East Gippsland on the severity and extent of the bushfires.

GEG also recommends that to reduce the flammability of the landscape, Victoria needs to set targets to protect and maintain the long-unburnt forest and unlogged forest.

Thank you for taking the time to read this submission

Yours sincerely
John Hermans Vice-president Gippsland Environment Group Inc

Louise Crisp Committee member

[23]Zylstra P, Forests not Fuels, NPA ACT Symposium 2017: Bushfire Management – Balancing the Risks.
[24]Zylstra P, Flammability Dynamics in the Australian Alps, Austral Ecology, 43, pp578-591.

Marlo Community Fire Meeting – CFA, DELWP
Sunday 19th January 2020
Marlo Fire Brigade IT room
Part 1: DELWP/CFA Presentation re: current fire situation

Orbost DELWP 1:
0:40 … there's only 2 areas of fire we've got any concerns about around the Orbost, Marlo, Cabbage Tree, the whole lot and one's at Cape Conran just above the Cape Conran cabins. The other piece of fire ...we've got a little bit of concern about … is just at the back of the Brodribb Mill.

3:18
… There's a CFA team working on Gravel Road at the moment, blacking it out. This spot that went over the highway, we've blacked it out, it's completely secure…
…so all the way around Orbost out to Simpson's Creek we haven't really got any concerns about any of the fire edge besides that little bit at Broddy and this little bit at Yeerung

4:15:
DELWP: now over the next day we've got south-easterly winds forecast so an easterly airflow, goes souwest tonight and we'll blow it back on itself
so in the immediate future no real issues for Marlo
…We can't predict the weather out 7 days…

6:10:
…No issues in the next 4 day period…
…We'll get a 100 meter edge along the Conran-Cabbage Tree Rd. Once we've got a consolidated edge we'll bomb it out with aircraft and capsules, put some more fire into the environment and burn it out. All good?

GEG : I'm just wondering about the risk of adding more fire into the Cabbage Tree-Conran Road when that live fire edge at Yeerung is actually the end result of a back burn on the west side of Bemm River…So how are you going to control that if you put more fire in that.

DELWP: Well that's where the fire has come from – from Bemm River.

GEG: Yeah cos that was a back burn you lit at Bemm River.

DELWP: It's all burnt up here…and this is all burnt.

GEG: And then you lit another back burn up East Yeerung. …So now it's heading out of that area….

DELWP: No we didn't light another back burn at East Yeerung

GEG: That's what it says on the advice.

MARLO CFA Captain: That was last Wednesday, for the second containment line.

GEG: Yeah and you could see it really clearly on the map. So the concern is that if you put more fire closer to Marlo,you're going to end up with the same thing happening with a strong easterly.

DELWP2: What Gary was saying is the fire's here, right, so we've got the um… so down here, this section here was burn- was a fire 12 months ago, 18 months ago,, this one here was less than 12 months ago… so these two spots here won't burn, right? So we've got to do… this is the active fire edge, we'll put a burn through there and through there cos these patches here, haven't been burnt, ok?

GEG: Yeah but the risk is if it keeps heading west…

8:21
DELWP2: Scotty can I just add a bit here. We have to have had a go in the bush to try and put it out and to try and back burn. But we know from our experiences in 03 and 06/07 and 14 that our ability to put fire out in the bush, is not very good at all. We didn't win very much in any of those years… Where we need to come back to and where we are going to come back to is the forest grass interface… Where if the fire comes out into the grass here, we've got lots of strike teams, lots of aircraft, lots of things we can do, good things in the grassland out there that we potentially can't do in the forest. And that's why we're back out to there, that's the strategy.

DELWP 2: I guess to talk strategies around that, is that we're currently in an easterly air flow.

GEG: Yeah.

9:20
DELWP 2: We won't be trying to burn this until the winds swing around from the west which will blow it back in on the fire itself. We'll consolidate those lines and that's our best chance of stopping this thing. On the next easterly airflow it'll keep on creepin, it'll keep on creepin. Eventually it'll blow out there. So our best line of defence is to consolidate those lines on the next westerly airflow and block out that bit of land where it can escape over that road. So there is risk involved in any back burn, but to put it in context, that's also a back burn from the highway from Gravel Road all the way down tied it into the fire scale (?). So that's what we did the other day to stop this running into Cabbage Tree.
So we can sit around and do nothing and just let it come to us and have very little chance of stopping it or we can put a bit of fire in there … on the right conditions and push the fire back towards here.

10:40 **GEG :** Wouldn't it be possible to put that out at Yeerung with some aerial assistance, some Phoscheck?

DELWP: No no

GEG: Why?

DELWP 1: You've got the river system the creek system in through here which you can't operate any machines in there because it's too rocky and too steep. So what you're going to do is create erosion and dramas into the future.

GEG: What about water bombing?

DELWP 1: Water bombing that's too intense and there hasn't been any real fire history in this area that'll slow it up.

11:10
DELWP 1: If you want to talk tactics with water bombing we use water bombing on asset protection and we use it to hold fire for a little while to bide us time to get ground crews in, to put a containment line around it. Water bombing won't put fire out.

11:42
DELWP 2: Can I just give you a bit of information here too please. We are in the driest period on record. It hasn't been drier in the last 36 months, since records have been kept. It has never been drier. We measured a fuel moisture content out there the other day of 4.8 %. I haven't seen 4.8 % since I was up in the Mallee for goodness sake. 4.8% means that even a tiny little glowing ember drops in and re-flames. We have no hope in the bush at all. All right? We're out to the forest grass interface.

12:20
DELWP 2: Like I say aircraft are only as good as the crew that are put in on the ground behind it. And once you get a certain amount of fire in the environment, I used the terminology before with the last group, it's like pissing into the wind. You put water and retardant and stuff on it and you won't put fire out. The last Wednesday night down here in the Yeerung we called in for helicopter assistance to have a look from the air to tell us what was happening down on the coast here, cos we couldn't see anything. The chopper come over and told us we have 6 to 8 metre flame height. So we had two helitaps sucking out of the Yeerung, dumping it on that fire. They couldn't do anything. And they had less than a minute turn around. So when you've got those winds coming off the ocean and 6- 8 metre flame heights, there's not much you can do. When that happened we actually pulled out of East Yeerung track because it was too unsafe for our crews so we pulled out to the Conran-Cabbage Tree road and started doing asset protection in Cape Conran itself. When the winds died down we moved back in and found that we were right, that it hadn't breached our line.

GEG: It has now though...

13:53
DELWP 2: Thewind that night, it was only supposed to be 10-15 souwesters come through, we had 25-30k winds come through.

Public: From the fire?

DELWP 2: No from the souwest which was not predicted. So therefore our weather forecast – you can have all the information you want but unless they can tell you what is happening on the ground, you've just got to suck it and see and work with the conditions that you've got.
…that's a shot out of the chopper at 12.20 today… that's at Conran…

14:40
DELWP 1: So the trouble is aircraft are good but once the winds change they get smoked in and they can't fly, once again it gets too dangerous for them and we're back to the good old ground observers.

I guess I can only reiterate that you won't put that fire out with an aircraft and our best line of defence is to consolidate some line here, back it up with some bombing out from the aircraft and once we've got a kilometre deep into there, we'll be sittin pretty. That's the only bit of fire we've got to worry about so I think that's our best strategy.

PUBLIC 2 : When's the westerly due?

DELWP: Tonight

Public 2: Oh so you'll be doing it overnight

DELWP: Yep

15:45
PUBLIC 3: I know this is a silly question but is there any chance of the fire spotting over the Yeerung to coastal (?) …

DELWP: Yep. Yeah we've got crews sittin at the launch there. At the moment this is spotting ahead of itself. We were going to light off the walk trail not sure if you're aware of the walk trail - we were going to light off that walk trail this morning to close off that gap, but when crews got in there they were coming under ember attack - and spot fires were startin around em tryin to light it up, so they had to get out of there - and crews are actively in this side at the moment jumpin on anything that might get going on that side.

16:22

DELWP: So to the question of why we don't stop it here…
If we burn it right out to the Conran-Cabbage Tree road that sets us up for the rest of the year, the rest of the summer. Right? If we stop it in here, we've still got all this that potentially can burn. All through Conran to Bemm River, we've got

peat. So we're gonna be babysittin this for the next 12 months.

DELWP2 : That's the other complicating factor. If we bring it out to a solid control line, set it up now we can forget about it. There's peat swamps all out in this Dock Inlet area and they'll continue to burn for the rest of the year can't physically put them out, so…

Anyway that's the information Scotty asked me to come and present on the current fire situation - I don't think we've got anything to worry about in the foreseeable future as far as forecast weather goes. The time is still to be vigilant and we'll be working pretty hard to consolidate that line and keeping it to the east of Conran-Cabbage Tree Road.

Public3 : Do you reckon you'll back burn that before Wednesday?Cos Wednesday we've got another hot day coming on.

17:45
DELWP: yeah we'll be havin a good crack at it this afternoon into this evening.

Public3 : Yeah cos tomorrow they're predicting rain, so

DELWP: Yeah yep that's been hindering us… cos of the recent moisture we haven't been able to get it to burn, now it's …(?) into burn and we've got an easterly airflow we don't want to get a spot in the cabins, into this heathland below, I'm not sure, Andrew's property there… you've got a big heathland and then Mick Loughran's (?)

18:21
Public3 : Do you know what direction the wind is on Wednesday?

DELWP: I'll have it here. I haven't got it right in front of me…

DELWP2: The trouble is we may know which way the wind's coming from but you always get that sea influence around half 3 of an afternoon and whether that's a souwesterly or a soueasterly we don't know - and when you get into the bush you have all the different gully systems and valleys. That'll change the fire on the ground as well. So over a week ago we moved the decision from putting back burns in during the day and we've had good success with one of them. And the very next day we had a soueaster come through – we only lit 200 metres and then we went and tracked it cos we had spot fires goin over our lines so we ceased it and went to burning of a night time which the RHs went up and it was set better for burning out at night than what it was during the day – so during the day we were consolidating it and holding it and burning out of a night time with extra crews.

19:41
Public 4:… I'd value an opinion about holiday makers and their families coming into Marlo for a week or two weeks.

DELWP: If it was me I wouldn't be comin in ere yet. It's all right for the Gippsland Shire to turn around and say yeah everyone come back, it's all good, it's all good, but what did we work out? It was less than 21 and a half kms from Conran to Marlo. You get a good easterly blow and it's on our back door in no time.

Public: The embers will blow that far.

DELWP: That's right. Trying to evacuate people outa there, it's a nightmare. So I'd be holding off until we do get it all consolidated and then it'll be all good. It is a kick in the guts for all the shops here, cos they've lost all their Christmas trade which is gonahurt not only Marlo, Orbost, Lakes Entrance, everyone. We are really gona struggle through the year to get things back up again.

24:00
DELWP :I just want to add to one question that this gentleman had. It's pretty much a souwesterly airflowfor the next couple of days then it does go noreast and then straight back to souwest again…

Gippsland Environment Group Inc
PO Box 320 Bellbird Rd
Clifton Creek Vic 3875

RE: DELWP response East Gippsland bushfires 2019-20

1. **Elimination of remaining unburnt habitat**
2. **Back burns massively increasing extent of bushfires**
3. **Roadside tree destruction**
4. **Inappropriate DELWP behaviour**

Dear Minister,

The 2019-20 Victorian bushfires have burned approximately1.4 million ha and destroyed vast areas of threatened species habitat potentially pushing many species to extinction[1].

1. DELWP elimination of remaining high value unburnt habitat refuges.

Gippsland Environment Group is very concerned about DELWP's continued 'burning out' of any remaining unburnt habitat in fire affected areas of East Gippsland. These unburnt areas are critical refuges for the survival of many species and for the re-colonisation of burnt areas yet unfortunately they are targeted for burning by DELWP. There seems to have been no consultation with biodiversity experts by DELWP/FFMV regional Incident Controllers. This is despite the government's publicly stated concerns about catastrophic biodiversity impacts from the bushfires including major losses of threatened species and their habitats.

Back-burning operations are still underway in Cape Conran Coastal Park along the Conran-Cabbage Tree Rd and old Coast Rd. These back burns are proceeding to eliminate all previously unburnt vegetation.

The fire in this area was deliberately lit weeks ago on the west side of Bemm River township, ostensibly to protect the town from any bushfire that might cross the Princes Highway driven by a north westerly wind. The township back-burn escaped containment lines and burnt north, then west driven by a strong easterly wind, burning through Dock Inlet and towards the Yeerung River just east of Cape Conran cabins. A second DELWP back-burn was lit on Wednesday 15th January along East Yeerung Track to attempt to control the fire but it also escaped west. On Friday 17th January a third back-burn was lit along Gravel Rd but the

[1] https://www.wildlife.vic.gov.au/__data/assets/pdf_file/0034/449746/Victorias-bushfire-emergency-Biodiversity-response-and-recovery-Version-1-23-January-2020.pdf

strong easterly wind then threatened to drive the fire across the Yeerung into Cape Conran and then Marlo.

At a community meeting at Marlo CFA shed on Sunday 19th January, Orbost DELWP and Marlo CFA announced they planned to burn an unburnt area between the Cabbage Tree-Conran Rd east to the Yeerung River that afternoon. This was the last remaining unburnt block between the Cabbage Tree-Conran Rd and the Yeerung River. It is sandwiched between Banksia woodland to the north, burnt by a 2018 farm burnoff that had escaped, and a DELWP prescribed burn in 2019 to the south which had also escaped and almost burnt out Cape Conran cabins. The Vic Emergency website advice states (23.1.2020) that active monitoring continues along the Cabbage Tree - Conran Rd *following the burning out which recently occurred in that area*.

As a consequence of this series of escaped back-burns, and then elimination of the remaining unburnt section, DELWP (rather than any bushfire), has now effectively burnt the whole of the environmentally significant Cape Conran Coastal Park from the Cabbage Tree-Conran Rd east to Bemm River township.

This area was significant habitat for threatened species such as long-nosed potoroo, long-footed potoroo, and long-nosed and southern brown bandicoot. The Southern Ark baiting program targeting foxes at Cape Conran had led to a remarkable recovery of the resident bandicoot and potoroo population. DELWP has now incinerated nearly all of their habitat. The Cape Conran Coastal Park also contains significant stands of black sheoak (*Allocasuarina littoralis*) the main food source of the endangered Glossy Black Cockatoo. A key stand of sheoaks at Dock Inlet (which had been excluded from annual planned burns) has also most likely been destroyed.

The back burning destruction of the Cape Conran Coastal Park is unfortunately not an isolated incident. It is clear from many anecdotal local reports that it is standard DELWP procedure to 'burn out' any remaining green habitat. In addition the Vic Emergency website, especially over the past week, has continued to advise of 'burning out' operations.

Gippsland Environment Group urgently recommends that the Minister ensures ecologists and biodiversity scientists are immediately integrated into DELWP's ongoing fire suppression planning operations to ensure that any remaining high value threatened species habitat is not destroyed in the coming weeks.

It is also vitally important that any planned burns in East Gippsland in Autumn 2020 are assessed by an independent team of ecologists in light of the post-fire biodiversity extinction crisis the state now faces. For example, the Snowy District planned burn schedule for 2019-20 includes a massive 2000 ha planned burn in nationally significant Cabbage Tree Palms Flora Reserve, immediately adjacent to the Cape Conran Coastal Park.

2. **Did DELWP back burning operations cause a huge increase in the extent of fire-affected lands?**

It is of concern that a number of the major fire runs that have occurred may have been caused by back burning operations.

Marthavale-Barmouth Spur fire north of Bairnsdale (started by lightning strike on 21 Nov 2019). This fire took an unprecedented run of 25km during the night of 19 – 20 December, travelling from near Brookville, south east all the way to the Ash Range just north of Bruthen, quadrupling in size overnight. Apparently a back burn had been lit at Brookville by ground crew who weren't given approval to light up until late in the day. By then conditions

were unsuitable with a strong north-westerly blowing, but they were told to light it anyway. This back burn then burnt all the way to Bruthen, crossed the Alpine Highway and joined up with the Six Mile fire that had burnt from the east side of Tambo River north of Bruthen.
It would also appear (from the Vic Emergency website map at the time and local information) that just prior to Christmas another back burn was lit south of the Marthavale-Barmouth Spur fire, along Howitt Spur Tk. The Vic Emergency mapping showed this back burn gradually burning north and east to reach the main Marthavale-Barmouth Spur fire. It would appear that this back burn, at its most north-westerly point, (which was the latest section to be lit), was the **source of the major conflagration that burnt out Clifton Creek and Sarsfield on 30th Dec 2019.**
Ensay. According to local reports it would appear a back-burn was lit east of Ensay beyond Hammonds Rd, Reedy Flat. Farmers had bulldozed a firebreak at the farm/bushland interface to protect their properties. After light rain the fire had died down and was no longer threatening the area, but a back burn was lit into the bush which then burnt up Mt Wong and a large area towards Bentley Plain and Mt Nugong.
Tamboon. On Jan 14th 2020 Tamboon residents were forced to take refuge on the beach. A few days previously the Vic Emergency website had advised that DELWP were undertaking back burning operations in the Furnell-Tamboon area. At the time Tamboon residents were forced to take shelter, the Tamboon fire was the only emergency fire warning in East Gippsland. Was the Tamboon incident a consequence of another back burn operation gone badly awry?
Bemm River. See details in point #1 above.

Gippsland Environment Group recommends that the government undertake a review of back burning operations undertaken during the 2019-20 fires and the relative effectiveness or otherwise of back burns in restricting the spread of bushfire and the risk to communities.

3. **Roadside tree destruction is contributing to another major loss of habitat in East Gippsland.**

Post-bushfire tree clearances along East Gippsland roads are causing an additional major loss of habitat. Authorities are responding to the urgent community need to re-open fire-affected roads and already at least 800 kms have been 'treated'. However, as a consequence of current DELWP processes pertaining to roadside clearing, thousands of solid old trees are being unnecessarily felled due to a lack of ecological qualifications by those making the assessment of 'hazardous' trees. The assessment of hazardous trees is carried out by arborists or machinery operators with no ecological knowledge, not by ecologists. Information from two local industry employees suggests that possibly only up to 20% of trees that have been felled were actually hazardous. The massive roadside clearance of habitat trees, including flowering eucalypts and other flora, will have ramifications not only for biodiversity and threatened species but also for beekeepers whose state forest nectar resources have been largely destroyed by the fires.

Gippsland Environment Group recommends that the Minister ensures that DELWP require fire-affected roadside trees be assessed by independent ecologists, not just by arborists or VicForests contractors who may have a commercial imperative.

4. **DELWP staff - inappropriate promulgation of personal agenda**

At a DELWP community fire information meeting at the Marlo CFA fire shed on Sunday 19th January 2020, DELWP staff and the local CFA Captain gave an informative presentation on the status of surrounding bushfires with the main focus on the two active fire sites closest to Marlo at Brodribb River and Yeerung River.

Following the main presentation, after which many of the audience left, a DELWP employee was available to answer general questions on road access etc. The [redacted] proceeded to forcefully provide his personal, ill-informed and unscientific view in support of massively increasing the area of annual planned burns and the clearing of a firebreak 100m wide along the Princes Highway from Orbost to the border. **(Audio is attached).**

Everyone acknowledges the huge effort DELWP employees have contributed to the bushfire fighting effort and the stress they have been under. Nevertheless promotion of a personal and ill-informed view at a public meeting has the potential to increase division in the community and is a completely inappropriate action by a government employee.

Gippsland Environment Group recommends that the Minister ensure regional DELWP fire staff are informed by the latest science[2], rather than hearsay and myth.

Yours sincerely

John Hermans
Vice-President, Gippsland Environment Group
[redacted]

Bumpy Favell
Secretary, Gippsland Environment Group
[redacted]

Date: Friday 24th January 2020.

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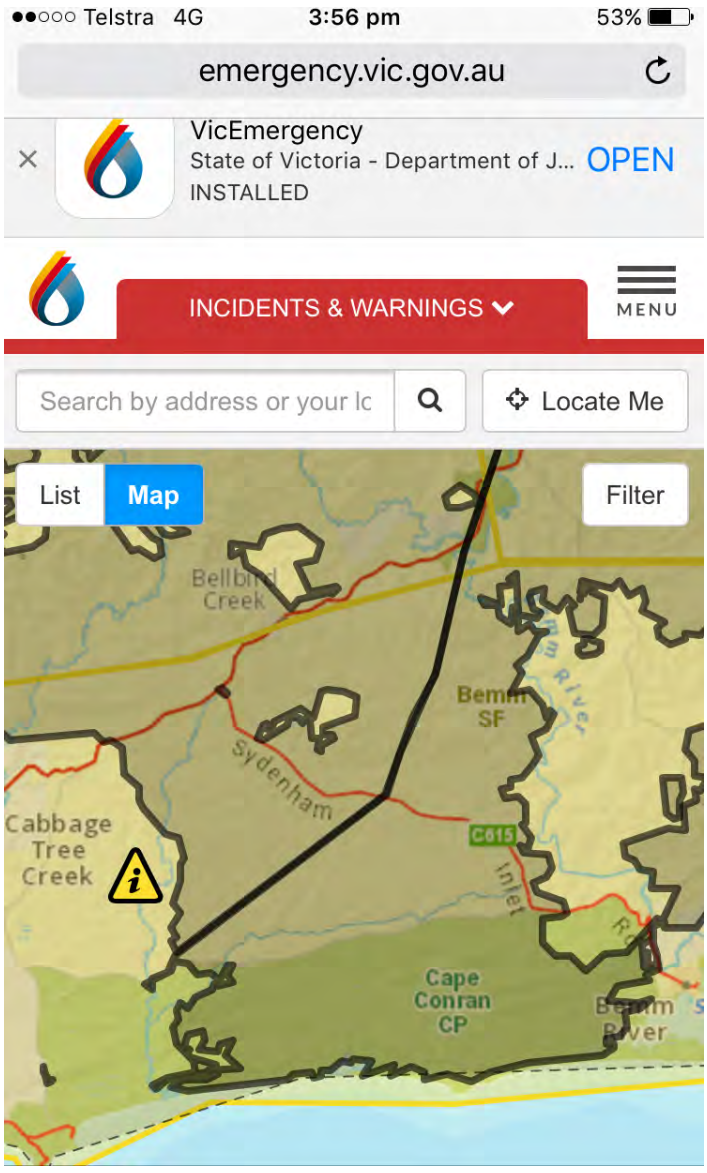
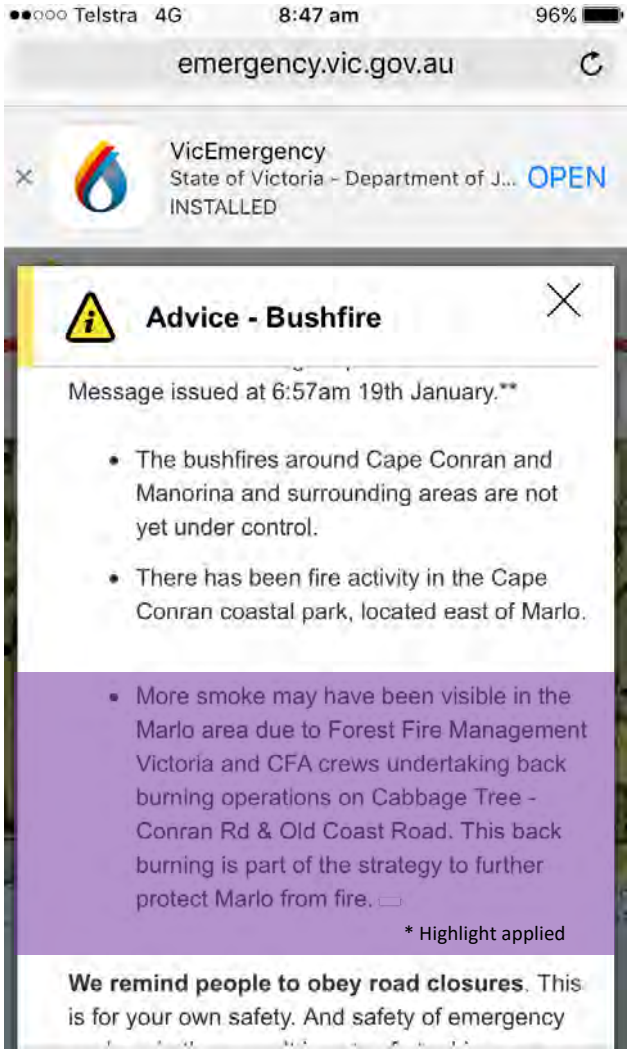
[2] For example: Kelly M. Dixon, Geoffrey J. Cary, Graeme L. Worboys, Julian Seddon and Philip Gibbons. (2018) **A comparison of fuel hazard in recently burned and long-unburned forests and woodlands.** International Journal of Wildland Fire. July 2018;
Philip J. Zylstra. (2018) **Flammability dynamics in the Australian Alps.** Austral Ecology (2018);
Zylstra P, Bradstock RA, Bedward M, Penman TD, Doherty MD, Weber RO, Gill AM, Carey GJ. (2016). **Biophysical Mechanistic Modelling Quantifies the Effects of Plant Traits on Fire Severity: Species, Not Surface Fuel Loads, Determine Flame Dimensions in Eucalypt Forests.** PLoS ONE 11(8): e0160715. doi:10.1371/journal.pone.0160715
Owen F. Price A B and Ross A. Bradstock A. (2010) **The effect of fuel age on the spread of fire in sclerophyll forest in the Sydney region of Australia.** International Journal of Wildland Fire 19(1) 35-45 https://doi.org/10.1071/WF08167 ;
Owen F. Price, Trent D. Penman, Ross A. Bradstock, Matthias M. Boer and Hamish Clarke. (2012) **Biogeographical variation in the potential effectiveness of prescribed fire in south-eastern Australia.** Journal of Biogeography (J. Biogeogr.) (2015) 42, 2234–2245;
Greg J. Holland, Michael F. Clarke, and Andrew F. Bennett. (2017) **Prescribed burning consumes key forest structural components: implications for landscape heterogeneity.** Ecological Applications, 27(3), 2017, pp. 845–858.
Lindenmayer DB, Blanchard W, McBurney L, Blair D, Banks S, Likens GE, et al. (2012) **Interacting Factors Driving a Major Loss of Large Trees with Cavities in a Forest Ecosystem**. PLoS ONE 7(10): e41864. https://doi.org/10.1371/journal.pone.0041864

Cape Conran Coastal Park - DELWP backburn history

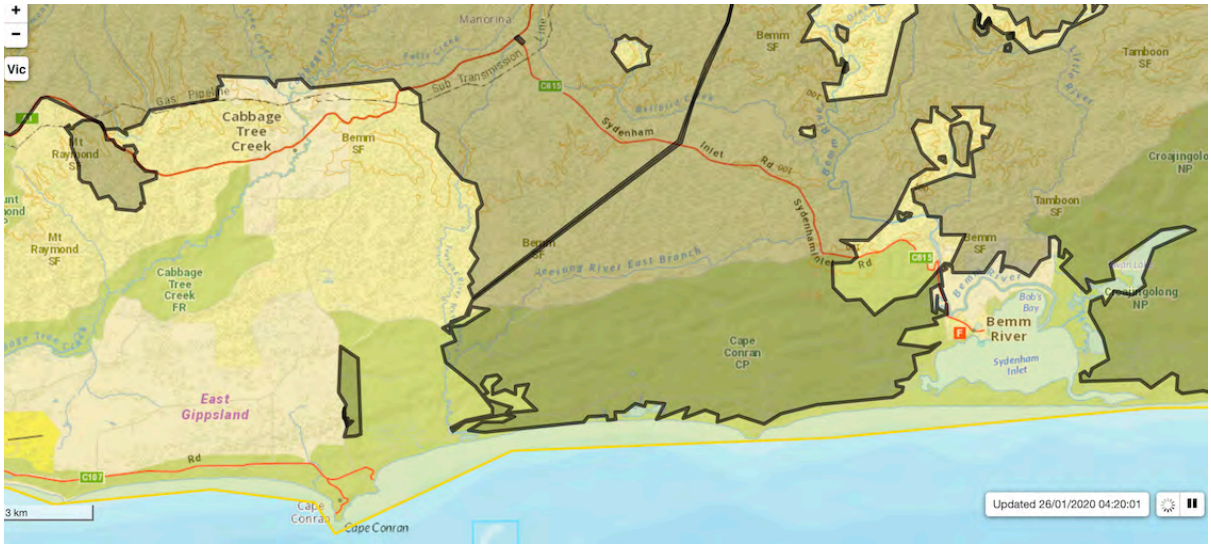
Conran - Cabbage Tree Road, 19 January - 4 February 2020

Sunday 19 January 2020

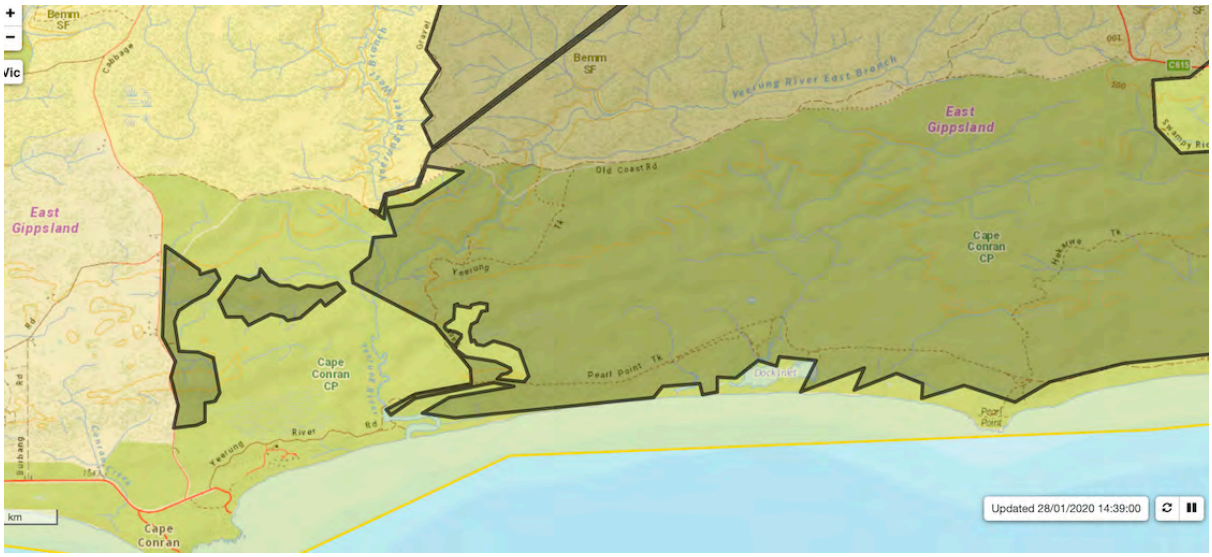




Sunday 26 January 2020



Tuesday 28 January 2020



Advice - Bushfire

Issued Yesterday at 3:19 PM.

This **Advice** message is being issued for Bellbird Creek, Bemm River, Bete Bolong, Bete Bolong North, Brodribb River, Cabbage Tree Creek, Cann River, Cape Conran, Club Terrace, Combienbar, Corringle, Errinundra, Furnell, Hilo Crossing, Manorina, Marlo, Murrungowar, Newmerella, Noorinbee, Nurran, Orbost, Simpsons Creek, Tabbara, Tamboon, Tamboon South, Tonghi Creek, Waygara, Wingan River, Yalmy.

** This **Advice** message replaces the **Advice** message issued 26th January.**

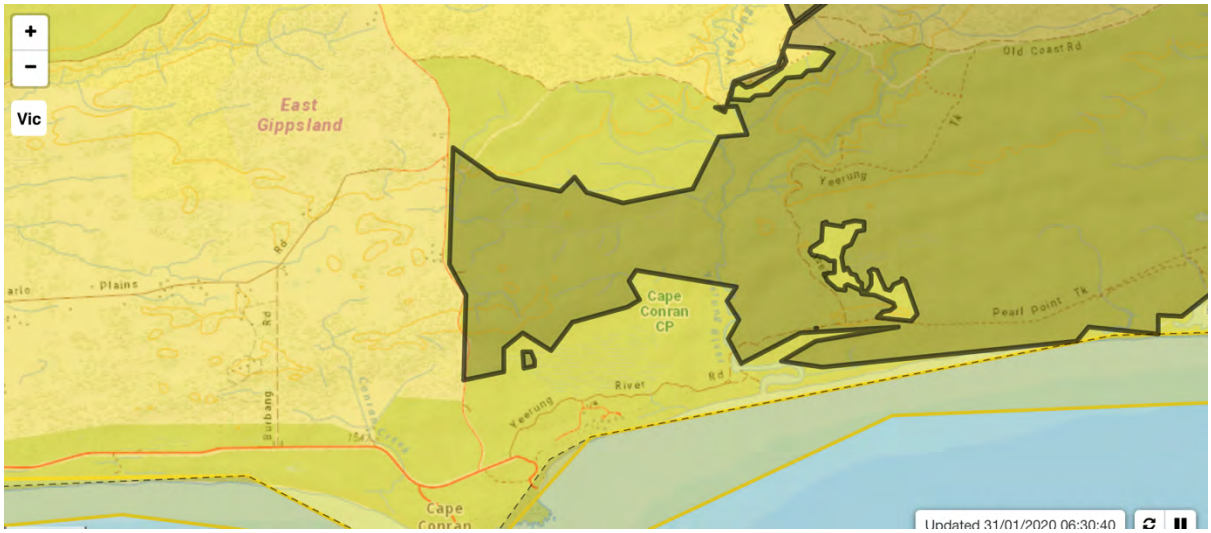
- **Crews are currently conducting a burnout operation in the Tamboon South area. Increased smoke will be visible a majority of the day and into the night.**
- The burnout operations conducted yesterday to clean up fuel along the Cabbage Tree - Conron road is being patrolled by crews.
- Burning out operation conducted in Bemm River was successfully completed. Smoke my linger in the area. Crews will continue to patrol the area.
- Bushfires around Cape Conran, Manorina and surrounding areas are not yet under control.
- There is minor fire activity in the Cape Conran coastal park, located East of Marlo. Crews will continue to monitor these areas.
- Crews continue to work with Australian Defence Force personnel on road access.

* Highlight applied

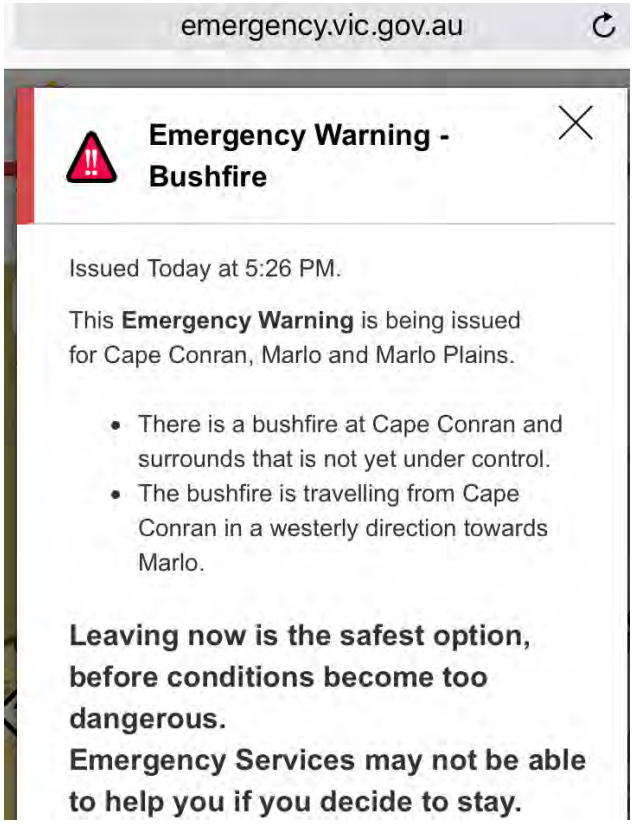
There is currently no threat to you, but you should plan for what you will do if the situation changes. Stay informed, alert and monitor conditions outside.

Friday 31 January 2020

6.30am

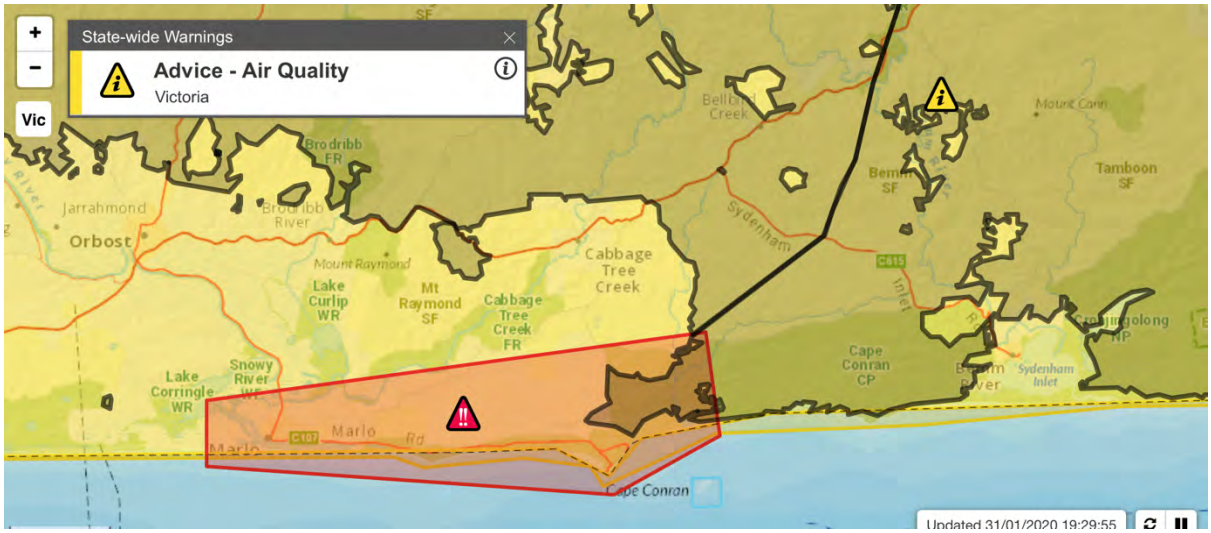


5.26pm

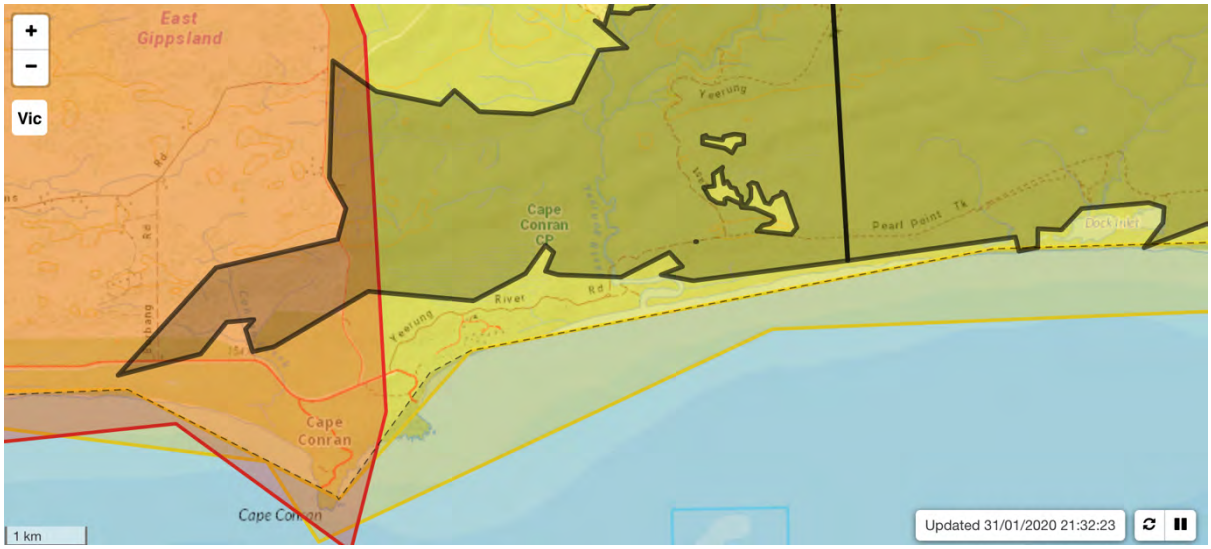


Friday 31 January 2020

7.29pm

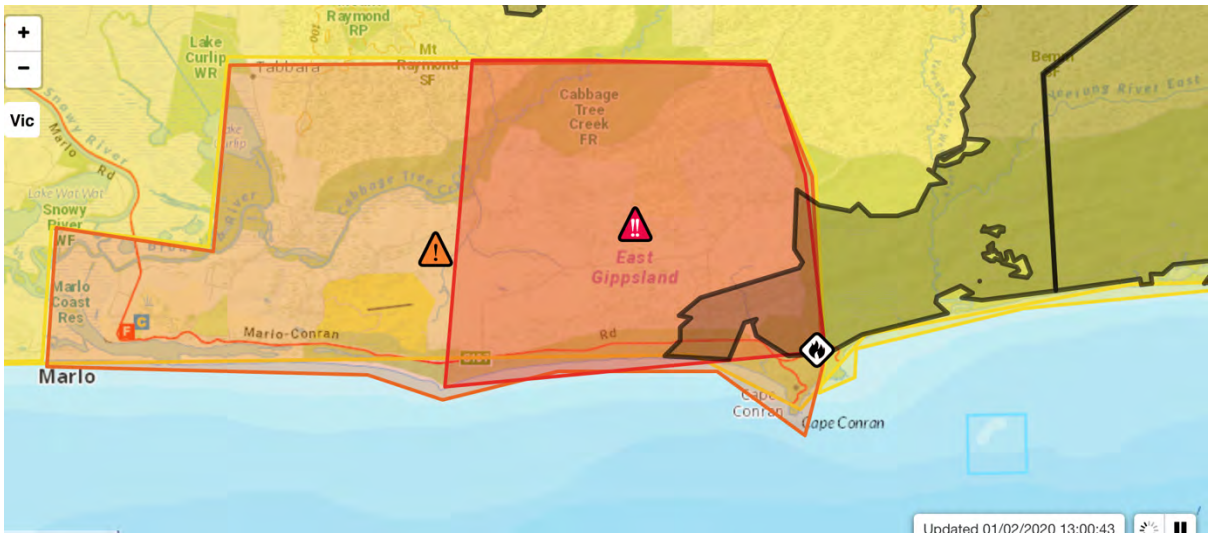


9.32pm

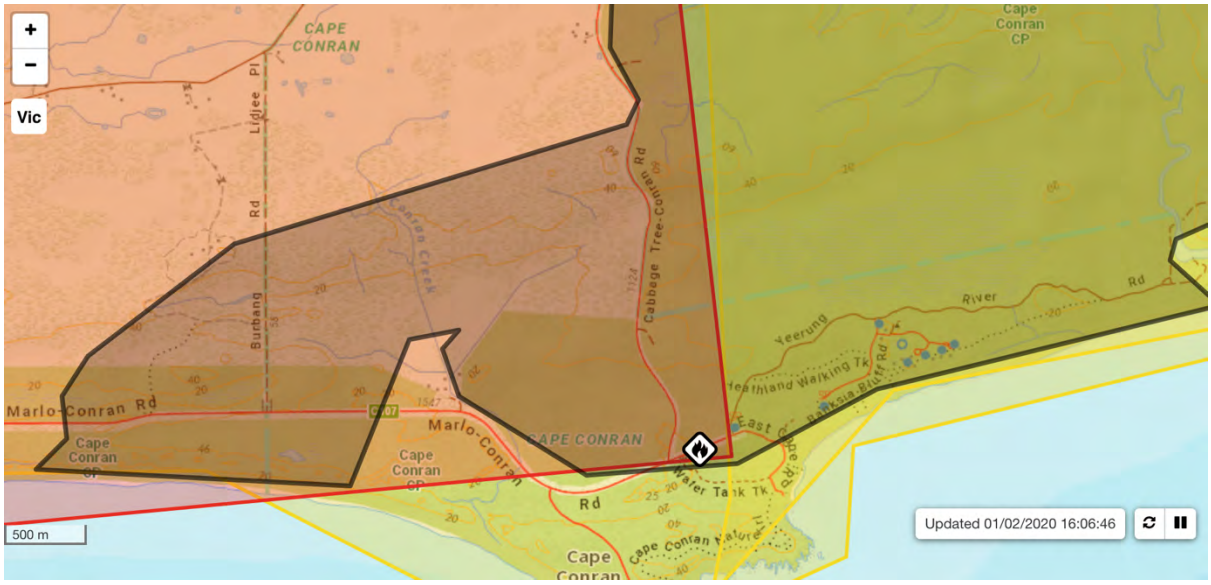


Saturday 1 February 2020

1pm



4.06pm



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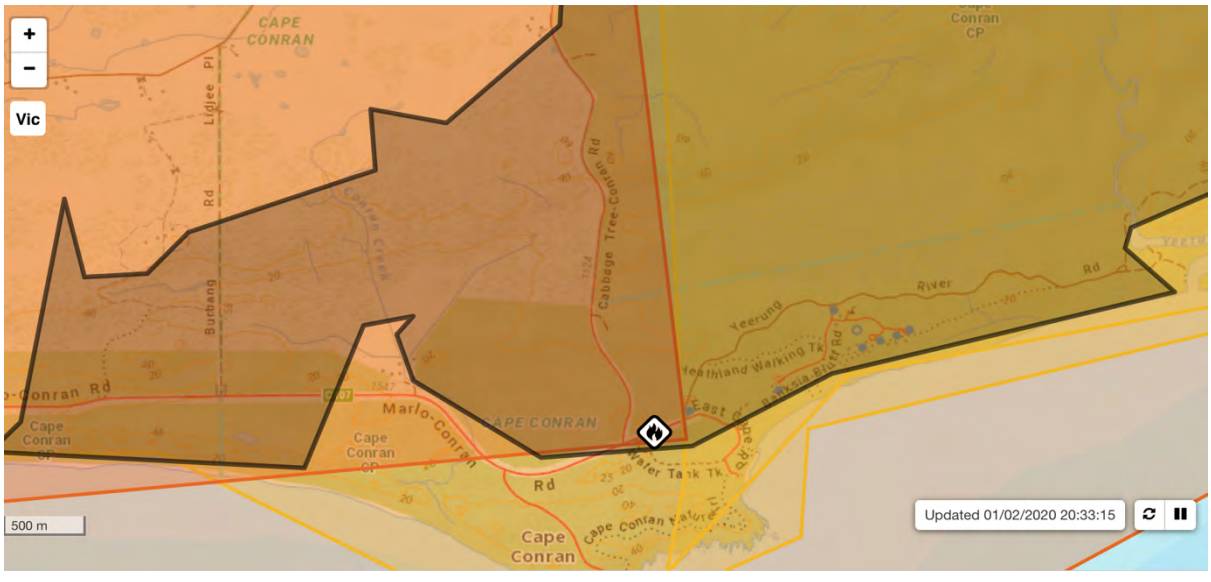
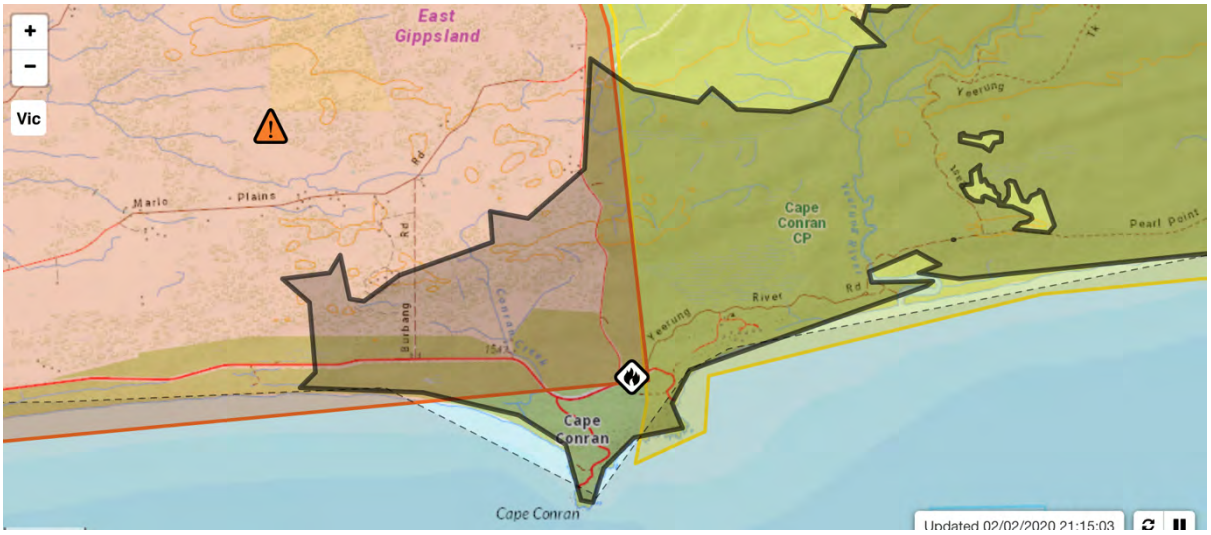
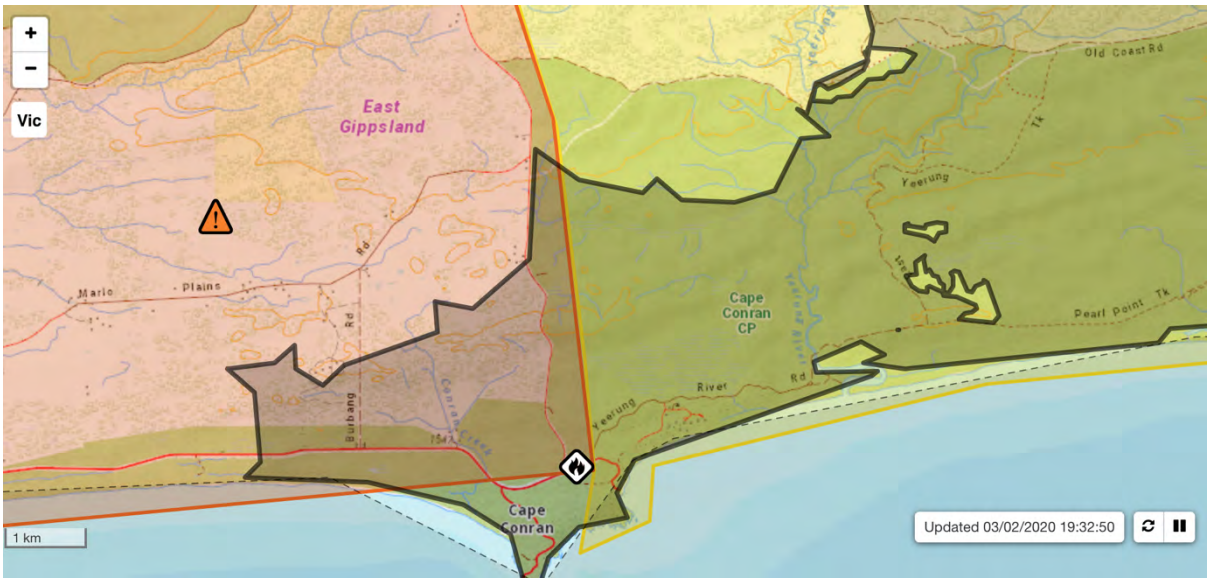


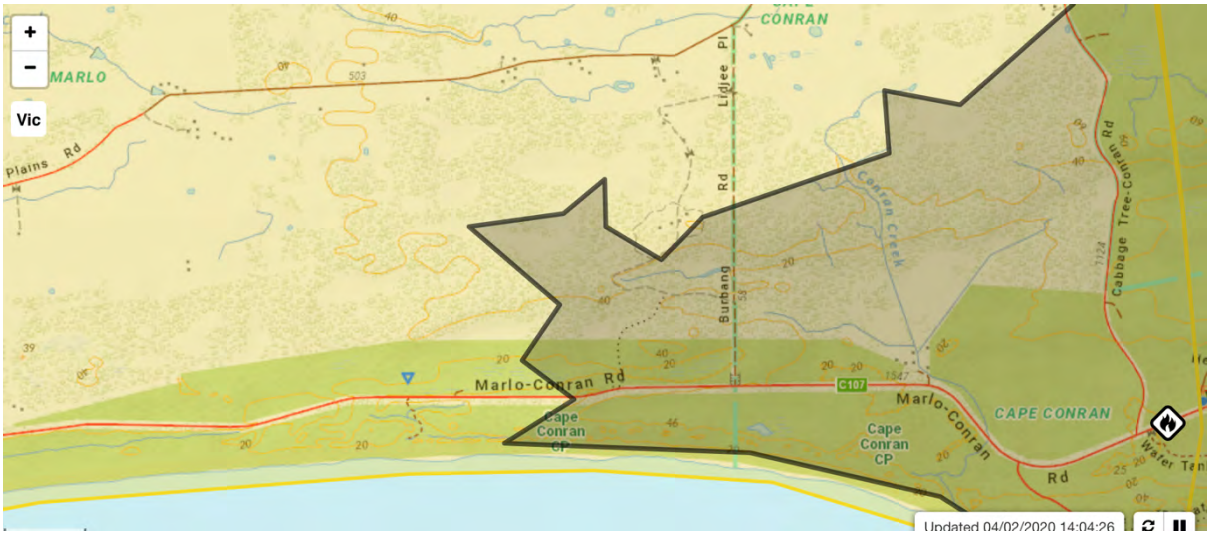
Sunday 2 February 2020



Monday 3 February 2020



Tuesday 4 February 2020



VicForests starts post-fire timber recovery

VicForests has been instructed by the DELWP Chief Fire Officer to remove timber created as a by-product of fire recovery operations along the Princes Highway and the strategic fuel break between Cowwarr and Bruthen.

Timber removed as part of these fire recovery works will be made available to VicForests to provide to local operators and communities for firewood and other community uses, fence restoration, timber processing and replacing lost timber stocks.

These works will also form part of VicForests' commitment to provide employment to contractors and employees due to the bushfire impact on coupes (http://www.vicforests.com.au/static/uploads/files/020720-media-release-vicforests-backing-contractors-003-wfrkjjogzcii.pdf). VicForests is proud to take this opportunity to help support recovering communities and industry by utilising and making available valuable timber resources that might otherwise be wasted.

Critically, each hectare of fire recovered timber proportionately reduces VicForests' 'green' or unburnt area harvesting plans.

The work follows significant hazardous tree removal along the Princes Highway after the East Gippsland fires.

Utilising this timber felled during bushfire recovery operations greatly reduces future fire risk and aids immediate fire recovery and protection efforts by removing a large volume of fuel.

VicForests' ongoing assistance in fire suppression and prevention is undertaken in accordance with the Bushfire Management Agreement (BMA) with DELWP. Under this BMA, DELWP has engaged VicForests' contractors to assist with removing trees.

Transport for Victoria, the road authority for the Princes Highway, has authorised the DELWP Secretary to exercise powers allowing the clearing, removal and disposal of hazardous vegetation from the road and road reserve on the Princes Highway in East Gippsland (this occurs under clause 2(b) of Schedule 6 to the Road Management Act 2004)

VicForests has been instructed by the DELWP Chief Fire Officer to remove the resulting timber.

VicForests also has an agreement with DELWP to remove and utilise timber following the Gippsland Fires. As part of this agreement VicForests has been assigned all rights, title and interest in the timber upon its removal. The decisions to fell, remove and dispose of vegetation through road-clearing activities have been made independently of VicForests.

VicForests will provide DELWP with monthly reports on the quantities of recovered timber, how the timber is utilised, and will notify the department once recovered timber is exhausted and allocations are complete.

ABOUT US
Our Organisation (/about-vicforests/our-organisation)
Our Values (/about-vicforests/our-values-4)
Corporate Reporting (/about-vicforests/corporate-reporting-1/corporate-reports)
Careers (/about-vicforests/careers-2)
Legal (/legal/terms-of-use)

WHAT WE DO
Planning & Protecting Biodiversity (/planning-1/planning)
Supplying Our Industry (/supplying-our-industry-1/supplying-our-industry)

Telstra 4G 10:34 am 73%

facebook.com

DELWP Gippsland
Yesterday at 14:22 ·

The Australian Defence Force have provided valuable support for our crews and the community with the use of their specialist and professional drone operator.

Here is a short video of the fire damage at the popular Cape Conran Coastal Park.

Parks Victoria staff will be undertaking damage assessments and will provide updates on future plans.

Forest Fire Management Victoria
CFA (Country Fire Authority)
Defence Australia
ABC Gippsland
WIN News Gippsland
9 News Gippsland
Eyewatch - East Gippsland Police Service Area
Love East Gippsland
Cape Conran Coastal Park
Gippsland FM
Radio Gippsland FM 104.7
9th Regiment, Royal Regiment of Australian Artillery