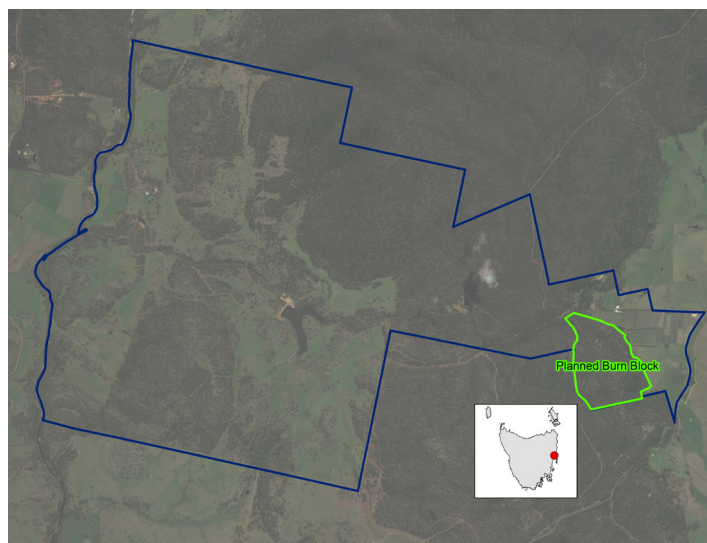


Planned burns near vineyards – don't be tainted.

Lindy Bull, Freycinet Vineyard



Freycinet vineyard – facts & figures

- 1460 ha property
- 35 ha vineyard, olives, and other assets (houses and sheds)
- Remaining land is pasture or native vegetation
- Very little burning done for over 20 years
- Property adjoins Permanent Timber Production Zoned Land (PTPZL)

Aim of the burn

To reduce fuel hazards in bush adjacent to the vineyard.

Background

35 ha white peppermint woodland located west of the vineyards.

The majority of the burn unit was on a steep east facing slope, with the understorey dominated by bracken. A rough track comprised the eastern boundary of the unit, contouring at the base of the steeper slopes (section A) (slopes of 30–70%). The fuel hazard in this area was extreme. The unit flattened out on top and then sloped gently to the west down to a gravel road (slope of 10%). The fuel hazard in this section of the unit was high. To the north the unit was bounded by rough farm tracks, with a small area burnt in 2014.

To the south the unit was unbounded, and a dozed fire break was recommended before the burn could be done safely.

Due to the close proximity with state forest, Forestry Tasmania were approached for assistance in conducting this burn. The location of this burn unit was strategic for them and they were able to provide support for the burn.

The window for suitable conditions for this burn was made challenging due to the proximity to vineyards. Wine grapes are extremely vulnerable to smoke taint during the autumn months, which is typically the ideal time in which to undertake planned burning. However, this vulnerability combined with the risk of a summer wildfire burning the vineyard means that managing fuel loads around vineyards is critical for risk mitigation. This case study provides an example of managing the risks of planned burning around vineyards.



The burn after lighting line 4, along the bottom of the hill



Asset protection during the burn

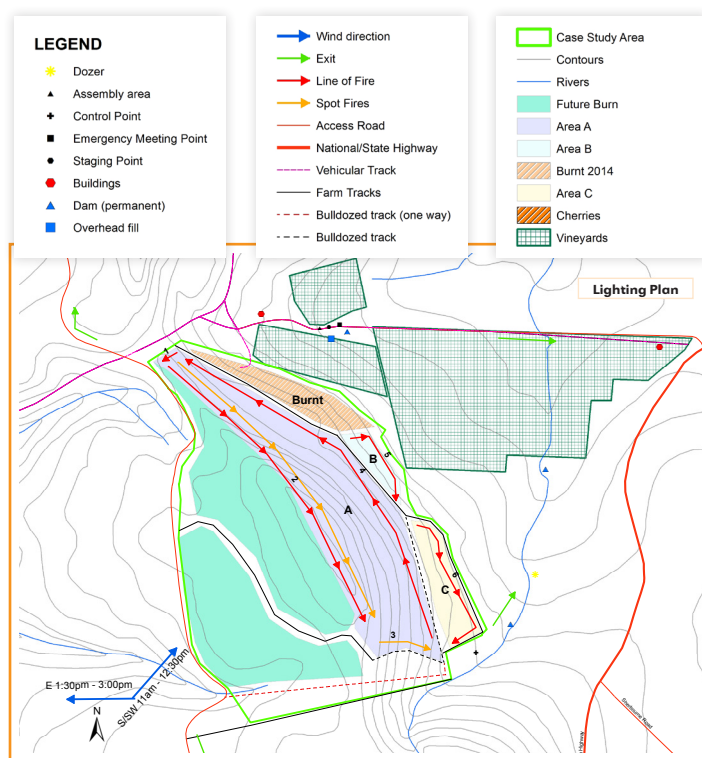


The burn unit was the hill in the background, with the northern boundary in the saddle between the hills. Note the proximity to the vineyard

"The kestrel weather monitor that was used during the burn to measure humidity and wind speed and direction was really useful. It gave you the exact information you needed for your site and I felt more in control knowing what's going on with the weather. It would also be a really valuable tool for spraying, so I think a good investment to get one for the farm." Bruce Bresnehan, Livestock Manager.

Key considerations for this burn:

- Burning could only be done outside the grape growing season – after harvest is completed in autumn, or in spring. The grape harvest is strongly influenced by weather conditions and can finish as late as the end of April;
- Due to the very narrow window of opportunity for autumn burning, a spring burn was planned. The heavy fuels in the unit, which would smoulder after a burn, meant that secure boundaries were required around the perimeter of burn unit. This would help to prevent escapes in the months following the burn;
- A bulldozed fire break to mineral earth was required along the southern and eastern boundaries before the burn could be conducted;
- The extreme to very high fuel hazard combined with steep slopes would act to increase fire intensity so other factors such as wind speed and fuel moisture needed to be kept at minimum levels;
- Neighbouring properties to the south could be at risk in the event of an escape – preferred wind direction was south-west to bring the fire out to secure boundaries;
- Resources additional to those on the farm were required for the burn.



Burn day – 18 September 2015

5–6 days prior to the burn the unit received some light rains (5–10mm). 3–4 days prior to the burn a stable high pressure system was influencing the weather pattern, with sunny clear days.

The forecast for the day of the burn was ideal, with maximum temperature of 15°C, wind 15km/hr WSW, in the morning swinging to easterly in the afternoon (10km/hr). The forecast for the days following the burn was for similar weather.

The burn was resourced as follows:

- 2 x 400L slip-on foam inducted units each manned by two people;
- Water refill point from paddock dam 5 min drive away across paddock and 10 min from overhead fill point at the tasting centre;
- Bulldozer in position on standby; and
- UHF hand held and vehicle radios.

Lighting teams

1 x lighting team – two people with a drip torch each. The two fire fighting units were mopping up and patrolling behind the lighting team.



The dozed southern boundary

The burn plan

- Prioritise areas within burn unit – it was a large area and unlikely the small team would be able to achieve all sections.
- Secure vulnerable boundaries.
- Light first the small section of the northern boundary. This area patrolled and then blacked out to protect tanks and water pipes being stored here.
- Light continuous line of fire on ridge top with the second lighter staggered behind and spot lighting 30–50m below. Monitor fire behaviour to confirm lighting pattern for remainder.
- Light the southern boundary, using one line of spots. This boundary had a slight bend in it creating potential for escapes (fire from the two sides of the corner could draw together, outside the unit boundary). This section was lit slowly to keep intensity down, and patrolled carefully to monitor for spotting across the fire break.
- Light from the eastern boundary and let uphill slope carry the fire to the area at the top of the ridge, which is already burnt.
- The burn was started at 11.45am and was finished by 2.45pm.



Lighting along the eastern boundary (line 4). The fire behaviour was elevated due to the easterly wind and the slope, however the boundaries at the top of the hill and along the southern edge were secured

“This fuel reduction burn at Freycinet Vineyard during spring demonstrated to me and the staff that it is possible to safely burn at this time of the year on the East Coast. We need to continue to explore these opportunities to reduce fuel loads on our properties away from the autumn grape harvest times.”

Lindy Bull, owner Freycinet Vineyard.



The Forestry Tasmania team patrolling the southern boundary

After the burn

Conducting spring burns is typically higher risk than autumn burns due to the potential for fire to smoulder in heavy fuels over spring and summer and potentially flare up during periods of high fire danger (strong winds and low humidity). The risks were managed at Freycinet by:

1. having secure boundaries (to mineral earth);
2. smouldering fuels within 30m of the boundaries were fully extinguished then monitored and patrolled for 2–3 days following the burn;
3. ensuring that any unburnt fuels in the burn unit were not likely to be ignited post-burn by smouldering heavy fuels; and
4. the burn was subsequently checked on days of high fire danger and/or strong winds, until sufficient rainfall completely extinguished all fuels. Tasmania experienced a statewide total fire ban only two weeks after the burn (Saturday 3 October 2015). However, thorough follow up post-burn, as outlined above, ensured that there were no flareups.



One hour after lighting – note only the heavy fuels are still alight



Lighting line 2 – across the top of the ridge

Weather conditions during the burn

Weather conditions were monitored regularly before and during the burn.

Time	Relative Humidity	Wind	Temp
11.45am	61%	SW @ 5–10km/hr	16°C
12.30pm	64%	S @ 10–15km/hr	15°C
1.30pm	70%	E @ 10km/hr	13.5°C
1.45pm	71%	E @ 10km/hr	13.5°C
2.45pm	70%	E @ 10km/hr	15°C



Taking a break and watching how the fire behaves is critical to ensure the burn goes safely and according to plan

Key learnings

- Planned burning and vineyards are compatible. With thorough preparation and planning and communicating with vineyards as to the progress of harvest, autumn burns are possible as long as everything is ready to go as soon as harvest is complete and the weather conditions are suitable. However, where boundaries permit, spring burns may provide a bigger window of opportunity.
- Spring burns can be safely conducted in areas where there are heavy fuels, providing the boundaries are secure (to mineral earth), smouldering fuels within 30m of the boundaries are fully extinguished, then monitored and patrolled for 2–3 days following the burn and subsequently checked on days of high fire danger and/or strong winds, until sufficient rainfall has completely extinguished all fuels.
- Be prepared to light slowly on vulnerable edges, to minimise fire behaviour.
- Be flexible and be prepared to adapt lighting plan to the conditions. In this instance the wind direction change was forecast and the burn had been planned around the forecast weather.