

14 THE COLLATERAL COSTS OF DBCA'S PRESCRIBED BURNING



FACTS ABOUT PRESCRIBED BURNING AND WILDFIRE IN SOUTH-WEST FORESTS

Costs and losses from prescribed burning:

1. Human health costs
2. Losses to the agricultural industry
3. Losses to the tourism industry
4. The carbon cost of greenhouse gas emissions
5. Ecosystem damage costs

The *Conservation and Land Management (CALM) Act 1984* gives the Department of Biodiversity, Conservation and Attractions (DBCA) the power to undertake planned burns on the lands controlled by the Act but does not mandate it. There is no legislation that compels DBCA to prescribe burn but planned burning is one of the functions of the director general. The *CALM Act 1984* exonerates people and the State from any liability for damage caused by fire management and prescribed burning.

The *Walpole Wilderness and Adjacent Parks and Reserves Management Plan 2008* (a statutory instrument under the *CALM Act 1984*) states that in wilderness areas prescribed burning can only be undertaken for biodiversity conservation.¹ In prescribed fire plans for burns in Walpole Wilderness, DBCA typically states, for example in the FRK 099 prescribed fire plan, *'This burn will provide Nornalup townsite, surrounding rural properties and Munda Bidli Trail users protection from bushfire.'*² Thus, prescribed burns in Walpole Wilderness do not comply with the *CALM Act 1984*. DBCA is also authorised by its Minister (or delegate) to 'take' (kill) or 'disturb' any number of listed threatened fauna and flora during prescribed burns. The current prescribed burning program is devastating ecosystems and adding to Western Australia's greenhouse gas emissions.

This fact sheet discusses economic losses due to prescribed burning, including the costing of some of the environmental impact.



Hollowed out tingle tree still burning two weeks after completion of prescribed burn. Source: Luscombe-Pedro.³

1. Human health costs

Borchers Arriagada, in his PhD, estimated deaths, hospital admissions and emergency department attendance due to poor air quality from prescribed burns over the period 2002–2017 to be:

- ~21 premature deaths
- ~140 hospitalisations for cardiovascular and respiratory problems
- ~63 emergency department visits with asthma.⁴

The estimated annual health cost for 2017 for excess hospital admissions and emergency department attendance was \$24.1 million (\$30.1 million in 2024 dollars).⁴ This does not include the cost of human suffering and loss of life.

2. Losses to the agricultural industry

Such losses might be a crop burnt by an escaped prescribed burn, a crop tainted by smoke or, in the case of beekeeping, degradation of forest leading to reduced income.

Beekeeping

In Western Australia, beekeepers reported concerns that prescribed burning is often conducted at the wrong time of year, is done too frequently and is not communicated sufficiently with the beekeepers.⁵ Beekeepers suggested that current practices result in the destruction of valuable honey production sites as prescribed burns can damage or destroy flowering plants that are critical for honey production and the effects can last for many years.⁵ For example, beekeeper 3 stated, *"in the face of a changing and drying climate, I genuinely believe we need a complete rethink of whether prescribed burning is even appropriate"*, and suggested that *"prescribed burns should be limited or eliminated in areas far from human habitation or major assets."*⁶

White & Day observed that the single biggest factor depressing the value of DBCA apiary sites is prescribed burning. Their models estimated a 26% reduction in value of apiary sites in jarrah forests that had undergone prescribed burning in a 10-year period compared with those that had not.⁷ Their research showed that the industry is probably losing about \$30 million per year (about 30% of its revenue; \$35.8 million in 2024 dollars) to prescribed burning, and recommended an adaptive burning policy

that avoids burning when high-value flowering events occur, such as jarrah (*Eucalyptus marginata*) flowering (typically November to January).

Some beekeepers provide pollination services to horticultural industries as well as canola growers, mainly on the Swan Coastal plain, and in the jarrah forest and Warren regions. The pollination industry is at least as profitable as honey production, but accurate losses from prescribed burning could not be estimated due to insufficient data.⁷

Wine production

In south-west Western Australia, grapevines flower around November and the grapes grow over summer until harvested between February and May. Smoke sensitivity is low around flowering, low-medium from when grapes are pea-sized to veraison (when the grapes start ripening) and high after veraison. Smoke taint can lead to the loss of entire crops. There have been notable losses in revenue in the eastern states and Western Australia, with an estimated \$1.6 billion lost from smoke taint from prescribed burns and wildfires during the last 20 years.^{8,9}

In 2012 two vineyard owners tried unsuccessfully to sue the Department of Conservation and Land Management (now DBCA) for damage to wine grapes caused by smoke from a prescribed burn in the Warren National Park between veraison and harvest (the most sensitive period for smoke taint). The appeal was lost because two of the three judges found that no duty of care was owed by the respondents (CALM) to the appellants. In this case the vineyard owners had lost their entire crop valued at \$620 000 (\$870 000 in 2024 dollars).

Despite the advances in understanding the impact of smoke on grapes, data to determine the losses due to smoke taint from WA's prescribed burns are not available. Similarly, data on losses in other agricultural enterprises are also not available.



Prescribed burning in NSW caused millions of dollars of losses to wine producers <https://www.abc.net.au/news/2025-03-26/winemaker-says-hazard-reduction-burn-destroyed-grapes/105096772>

3. Losses to the tourism industry

Smoke from prescribed burns near Walpole around the New Year in 2025 caused tourists to cancel their accommodation resulting in losses to accommodation providers and other tourism operators.¹⁰ Commercial walk tour operators have reported cancelling planned walks because the walk area was prescribed burnt. However, no data are available to quantify the losses to tourism.

4. Carbon cost of greenhouse gas (GHG) emissions

GHG emissions from prescribed burns are not included in reported emissions because it is assumed that the carbon emitted will be re-absorbed as the vegetation recovers and regrows (Fact Sheet 7). This is not the case for GHG emissions from burning peatlands or excessive tree falls following prescribed burns. Fact Sheet 13 reported estimates of about 87 000 trees, in excess of natural attrition, falling following 2024-25 prescribed burning in the south-west forest regions (115 962 ha) with consequent GHG emissions of approximately 1.3 Mt. Using the shadow carbon price of \$70/tonne, this amounts to a carbon cost of A\$91 million.¹¹ Estimates of the area of peatland burnt by prescribed burns are not available, so GHG emissions from peatland burns cannot be estimated.

5. Ecosystem damage cost

Damage to forest ecosystems leads to loss of biodiversity and ecosystem services, such as atmospheric regulation and water catchment protection that are critical to human wellbeing and survival.¹²

Taye *et al.* undertook a meta study to estimate the value of the ecosystem services provided by forests.¹³ The average value for secondary (disturbed) forests was of the order of 100 000 USD/ha/year (in 2017 dollars; equivalent to 130 470 AUD/ha/year in 2024). Taye *et al.* give conservative estimates of ecosystem services. In particular they do not include estimated damage costs for biodiversity losses. Considering the recent annual prescribed burn areas of more than 100 000 ha in the south-west forest regions (101 632 ha in 2023-24 and 115 962 ha in 2024-25), it is reasonable to assume that the ecosystem service damage cost, using Taye *et al.*'s estimates would amount to hundreds of million dollars each year while the forest is recovering from the prescribed burn.

Prescribed burns have serious impacts on biodiversity, compromising forests for decades, as observed by beekeepers among others, and pushing threatened species closer to extinction.^{5,6,7} The value for biodiversity loss cannot be estimated.

Collateral costs of prescribed burning in the south-west forest regions

	A\$millions (2024)
Health costs	
Hospital admissions & emergency department attendance	30.1
Agricultural industry losses	
Honey producers	35.8
Pollination services	~30
Wine producers	nd
Tourism industry losses	nd
Carbon cost of excessive tree falls	91
Ecosystem service damage cost	>100

nd = not enough data to estimate cost

Prescribed burning causes tens of million dollar losses to agriculture and tourism, increases WA's health costs as well as damaging ecosystems and contributing to climate change.

References

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Tree falls in south-west forests following prescribed burns lead to millions of tonnes of GHG emissions as the trees rot or are burnt in successive fires.³



Peat burns in WA release millions of tonnes of GHG emissions.¹⁴

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