Blackboys Tell An Interesting Story

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IN NATIONAL Parks, Reserves, and on private property in south-western Australia, grasstrees are under termite attack, rotting, breaking off, and toppling over, due to vast accumulations of thatch.

Had grasstrees been covered by heavy thatch when Europeans first arrived, there would have been little reason to call them 'blackboys', since the black stems would have been largely hidden. Only rarely would they have produced a flower stalk, usually weak and twisted, quite unlike a spear. More likely popular names with British settlers would have been 'greybeards', or 'haystack trees'. Early sketches and paintings consistently show them, quite clearly, as recently burnt, with black stems, little thatch, and a prominent flower stalk, like a spear.

As a rule of thumb, a grasstree thatch fire lasts as long in minutes as it has been unburnt in years. A three-year-old thatch will flare for only a few minutes, doing little damage to the green crown. A thirty-year-old thatch will burn for half an hour or more, reaching an incandescent thousand degrees Celsius.

Such fierce thatch fires often kill the grasstree immediately, because the protective mantle of old leaf bases is rotted away. Where dead eucalypt leaves, or casuarina needles have formed a 'birds nest' in the green top, the rot is exacerbated, the green top is reduced in size and vigour, and the eventual fire may completely burn the green top. If the grasstree survives the immediate fire effect, it is forced to live on starch reserves until a new top can grow. Complete replacement of the top can take a year, and the plant may die in the meantime if its starch is exhausted.

If grasstrees are burnt every few years, when the thatch is small, they flower and seed profusely, the protective mantle remains intact, the green top remains largely unburnt, nutrients in the thatch are recycled as ash, and a host of small plants, such as sundews, germinate around the base. The needles become obviously greener, longer, and thicker. These things are well known to people who work in the bush, but seemingly unknown to urban environmentalists and some botanists.

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There is a serious conservation problem with these friendly old icons of the bush. Although still plentiful, the possibility of mass collapses and local extinctions cannot be ruled out. Grasstrees are like the Miner's Canary—they are warning us that something is amiss in our bushland.

The reason for grasstree decline is, actually, concealed beneath the charcoal on their stems. If this is carefully cleaned off, annual growth rings and old fire marks are revealed. These show that, before European settlement, and for some decades after, even up to the First World War, south-western Australian dry forest and woodlands were burnt regularly, at two to four year intervals. This frequent burning was due to a combination of lightning fires trickling over vast areas for months, deliberate Noongar burning, and European settlers mimicking Noongar burning. It kept the bush green and healthy.

Over the past few decades, due to a combination of poor scientific advice and misinformed, urban-based opposition to prescribed burning, fire intervals on public land have stretched out to decades. The grasstrees, and the vegetation in general, are clearly suffering. Recent fierce, destructive wildfires in long unburnt bush make it plain that indefinite fire exclusion is a foolish, unachievable idea. Such fires have killed thousands of native animals and leave a blackened moonscape.

The grasstree research has spanned the last decade and, from the outset, has come under attack from Greens and from some biologists opposed to prescribed burning and in favour of blanket fire exclusion. Initially, it was suggested that the stem marks were not caused by fire at all, but by drought, parrot attack,

insects, fungi, stress, etc. I wondered when someone would suggest that little green men, armed with ray guns, had been zapping the stems.

It is hard to see how drought, for example, would occur every two to four years before European arrival, at suddenly increased intervals after two severe measles epidemics among Noongars, be rare during the two world wars, then occur only every few decades recently. If it did, then the climate gurus have some serious repositioning to do. These imaginative suggestions subsided when an intensive three-year research project by a team at Curtin University showed, beyond reasonable doubt, that the marks are caused by fire.

In a remarkably co-ordinated fashion, the Green attack then switched to saying that although grasstrees may have burnt frequently, the rest of the bush did not. Noongar people lit only the grasstrees, without igniting the rest of the bush, for 'cultural reasons'. It is true that Noongar people hold the *balga*, as they call it, in some reverence, and there were traditions and ceremonies associated with it. Yet Noongar Elders, at three separate meetings, confirmed that the general fire frequency was two to four years in the dry woodlands and forests. When I showed an old *balga* stem, with three-year fire marks, to a woman Elder, she said 'Why are you telling us what we already know?' This was backed up by descendants of early settler families, and the journals and letters of early explorers or officials. Besides, grasstrees are so inflammable that it is nearly impossible to light one in dry weather without starting a running fire.

Another line of attack is the hackneyed old debating trick of inventing some preposterous proposition, then claiming it as your opponent's point of view. How could every square metre of the jarrah forest burn every three or four years? That is not, of course, what happened. Within the jarrah forest (and other types) are thousands of fire refuges, such as rock outcrops, swamps, moist shady creek banks, etc. The frequent burning surrounded, but did not enter, these refuges. In fact, it protected them. Blanket fire exclusion leads to fiercer fires, which do burn out the refuges. This piece of fire behaviour seems beyond the understanding of many Greens. They start shouting when attempts are made to explain it to them.

In John Forrest National Park, near Perth, a three-year study of grasstree fire-marks showed pre-European fire frequency of three to four years on the gravelly ridges, two to three years on the mid-slope, and every two years on the clayey valley bottoms and scarp face. It is rather difficult to see how this can be explained by 'cultural' ignitions.

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A more sensible explanation is that gravelly ridges carry jarrah forest, which produces enough leaf litter to carry a fire every three to four years. Marri trees, which grow on the mid-slopes, produce rather more aerated litter, which will carry a fire every two to three years. Wandoo trees grow on the clayey bottoms and scarp face, and produce little litter. But, within living memory, the clay areas carried extensive kangaroo grass, which will carry a summer fire every two years, and thrives on such a fire regime. It declines if burnt in spring, or at longer intervals, because it smothers under its own thatch. There are only small remnant patches of kangaroo grass now. Under long-term fire exclusion, we are losing a beautiful native grass.

Grasstree research offers a way to short-circuit the endless task of investigating the life cycle of every plant, animal, fungus, and microbe. Greens do not like this, as it spoils their game of invoking the Precautionary Principle. They say that we should not burn until it can be shown that burning does not harm biodiversity. If asked to define biodiversity, they have some trouble. They don't realize that biodiversity is an immeasurable concept, not a precise scientific parameter. Are we supposed to wait until biologists have finished investigating the effects of fire on an unmeasurable concept? Meanwhile, the bush rots and devastating, unplanned fires occur.

Correctly interpreted, the Precautionary Principle says that we should not impose new-fangled, alien, muddle-headed fire-exclusion policies on vegetation that is, obviously, adapted to renewal by frequent, mild fire. We should restore and maintain something like traditional Aboriginal burning. With a mosaic of frequently burnt vegetation, unstoppable wildfires, like those in the eastern states two summers ago, cannot occur. Noongars know that. The *balga* is both Miner's Canary and Rosetta Stone. We must wait for our urban environmentalists, and eco-babbling biologists, to grow a little, intellectually speaking. Until that happens, more plants, animals, and even humans, will be incinerated.

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