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# 'Folk-Ecology' in the Australian Alps: Forest Cattlemen and the Royal Commissions of 1939 and 1946

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## ABSTRACT

Folk-ecology is a term more commonly used by anthropologists describing small-scale subsistence societies. I use the concept to explain the environmental understandings of the forest cattlemen or 'bushmen' of Victoria's alpine forests, in particular their understanding of fire-ecology in alpine and mountain ash landscapes on which they based their use of fire. Confident in their local knowledge, mountain cattlemen challenged the dominant scientific understandings of the environment held to by foresters and ecologists of the time. I argue in this paper that the basis of these cattlemen's use of fire to manage the land was their understanding of the practices during the 'pioneering' period of European settlement and of Aboriginal people before that. This peculiar view of the 'natural' state of the environment made it difficult for many of them to see their own environmental impacts. Information from ecologists and foresters that often highlighted the existence of environmental problems was dismissed as merely the 'theoretical' understandings of those who had not experienced the landscape as intimately as the high-country bushmen.

## KEYWORDS

Local knowledge, folk-ecology, fire management, Victoria, alpine grazing, forestry.

...the landscape did not lie about like a shattered watch, its pieces inert and scattered, but like a deeply traumatised yet still living entity that somehow continued to function and that masked, often for decades, the full extent of its damages and infections...The European era had to end, if only from its own exhaustion and excess.

Stephen J. Pyne, 1991<sup>1</sup>

What manner of people caused this destruction? They were not greedy and ignorant as is too often stated; many of them had a background of hundreds of years of good British farming... but it was beyond human achievement to assess Australia correctly. It was more a new planet than a new continent

Eric Rolls, 1997<sup>2</sup>

## INTRODUCTION

These quotations frame different aspects of the environmental history of Australia. Stephen Pyne paints a picture of the destruction caused by alien farming practices being forced onto an unsuited Australian landscape. This is the picture of the Australian bush commonly painted by environmental historians: a burnt and eroded victim of rapacious European settlers and land-management, of ignorance and unsustainability and of cataclysmic change. In contrast, Eric Rolls makes the important point that the farmers, graziers and bushmen were not deliberately destructive or villainous. They observed their environment and developed and adapted practical knowledge to help them to exploit it most effectively. In settler societies around the world, the earliest European invaders pushed beyond the bounds of 'civilisation' and were forced to come to terms with new and different landscapes from which they tried to live and profit. In most of these societies, settlement outpaced scientific understandings of the new environments so settlers created their own, often complex, bodies of knowledge about local landscapes based on observation of the land, its effect on the condition of their animals and their traditions of the past.<sup>3</sup> This essay is a case study of these understandings, the 'folk-ecology' that forest cattlemen of the Australian Alps developed for the rugged and isolated landscape in which they lived.

The Australian Alps in the south eastern corner of Australia constitute the continent's major alpine environment. While comprising only 0.3 per cent of the land mass, their ecological and cultural significance far exceeds this small figure. Below the snow line, the mountains are covered by wet-sclerophyll forests dominated by the highly valued eucalyptus alpine ash (*Eucalyptus delegatensis*) and mountain ash (*Eucalyptus regnans*). These forests stretch south and west onto the foothills of the Alps in Victoria, clothing the catchments of the main Victorian rivers so important for urban water supply and agricultural irrigation.

Rich summer grasslands, valuable (and highly flammable) forest timbers, and the proximity to Melbourne's water supply have combined to create a European history where pastoralists, foresters, timber-workers, and water supply engineers have competed for control of the land.<sup>4</sup>

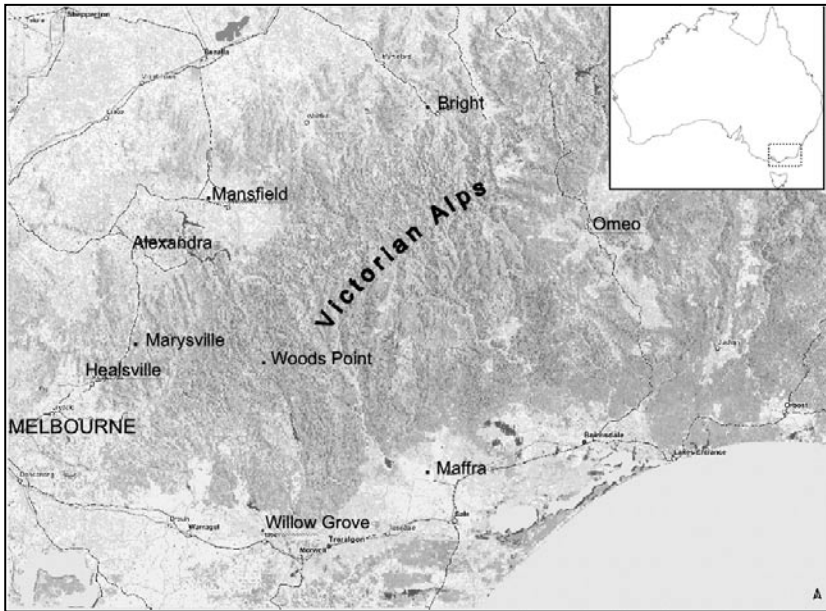


FIGURE 1. The Victorian Alps showing forested areas. Adapted from Victorian Department of Sustainability and Environment, <[http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/os\\_dse\\_mapshare](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/os_dse_mapshare)>.

Folk-ecology or folk-biology are terms more commonly used by anthropologists describing small-scale subsistence societies:<sup>5</sup> one does not frequently encounter them in historical discourse. However, historian Thomas Dunlap has looked at the folk-biology of settler societies in Australasia and North America and in his book on history of the mountain ash forests of Victoria, Tom Griffiths also commented on the 'folk reality' revealed in a 1939 Royal Commission. Similarly, Stephen Pyne's exhaustive work on the fire history of Australia described the folk-*practices* of graziers.<sup>6</sup>

I want to use the concept of folk-ecology as a way of examining how rural land-managers saw their local environment, why they used methods now seen as destructive, and why mountain graziers were (and still are) in conflict with proponents of scientific land management. There has been a tendency among

environmental historians to judge past farmers, graziers and bushmen harshly, but such judgements can only be valid in the context of contemporary knowledge of problems, causes and practical remedies.<sup>7</sup> This essay aims to map out this contemporary knowledge in some detail. There was a belief, among bushmen, that fire was an inevitable part of the Australian environment and this justified their burning practices. The origins of this view can be traced back to bushmen's perceptions of 'the early days' of European settlement. There were contemporary warnings that cattle grazing and fire were degrading the alpine environment but these came from ecologists and foresters. The grazier's world-view made it difficult for them to accept they had caused this damage to the environment and for those who had 'direct experience' of the land to accept the 'theoretical' and 'impractical' ideas about the environment put forward by scientists.<sup>8</sup>

*'A full scale enquiry into Australian bush culture'*

Black Friday was 13 January 1939 when the bush-fires ravaging South Eastern Australia culminated in a day of devastation and loss of life.<sup>9</sup> After the fires had cooled, recriminations began. Foresters blamed graziers for illegally burning-off in dangerous conditions and graziers accused the Victorian Forests Commission of not carrying out enough protective burns. The newspapers, depending on their orientation, cited the criminal irresponsibility of graziers or the professional incompetence of the Forests Commission.<sup>10</sup> In this context a Royal Commission was launched into 'the Causes of and Measures Taken to Prevent the Bush Fires of January 1939'. The Commissioner was Judge Leonard B. Stretton, who would go on to conduct two more Royal Commissions into bushfire related issues. The transcripts of evidence from this commission provide a wide-ranging review of attitudes towards fire in Australian rural communities; Griffiths described it as 'nothing less than a full scale enquiry into Australian bush culture'.<sup>11</sup> Within its pages the tensions that existed between millers and timber-workers, between foresters and graziers, and between city and bush are played out. This Commission questioned the sustainability of Australian fire practices and has been seen as a watershed in the environmental history of Australia.<sup>12</sup>

The issues raised in the 1939 report were taken up again by Stretton in the 1946 Royal Commission 'to enquire into forest grazing'. It was established in an international context of growing concern over soil conservation and land degradation that had developed from an awareness of the massive ecological damage caused by poor farming practices, most spectacularly in the 'Dust Bowl' of the USA and the dry north-west of Victoria.<sup>13</sup> This Royal Commission was given wider terms of reference and looked at rural people's attitudes towards their local landscapes and the signs of environmental damage that were appearing around them. Stretton's report became an influential document for post-war utilitarian conservation groups.<sup>14</sup>

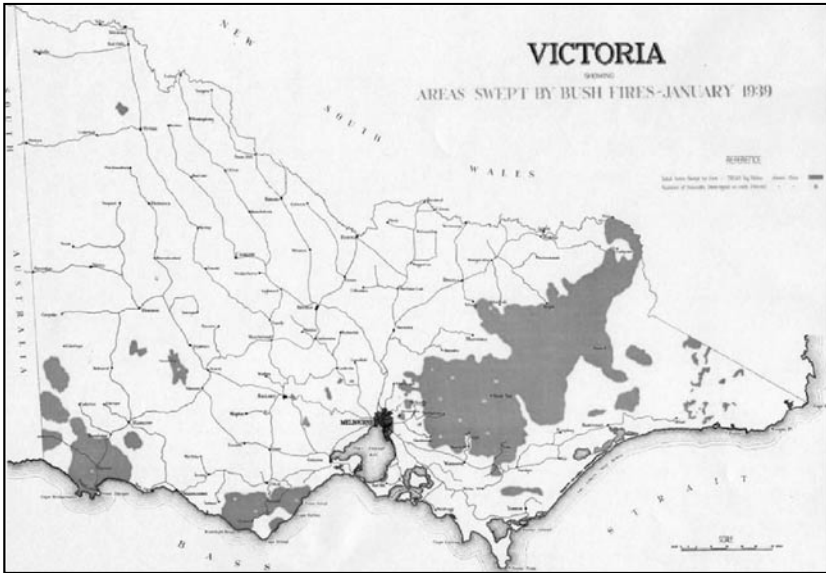


FIGURE 2. Areas Affected by the 1939 Black Friday Bushfires. Victorian Department of Sustainability and Environment, 'Black Friday 1939 Victorian Bushfires' <<http://www.dse.vic.gov.au/DSE/nrenfoe.nsf/LinkView/C4BCA40C95A4C061CA256D960014420D8AC9C23269FA53B4CA256DAB0027ECC4>>.

Both these sets of transcripts provide an insight into graziers' folk-practices and understandings that would otherwise come to us through the critical lens of foresters' reports.<sup>15</sup> Graziers gave reasons for their fire practices to the Royal Commissions and explained, or explained away, the emerging evidence of land degradation. Although they give voice to a group largely absent from the historical record, the Royal Commissions, like any investigations with political origins, were subject to powerful vested interests. Stretton was well aware of this; in his 1939 report he admitted: 'the truth was hard to find... Much of the evidence was coloured by self interest. Much of it was quite false. Little of it was wholly truthful'.<sup>16</sup> Graziers feared they could be held responsible for Black Friday so emphasised the protective aspects of their fire practices and were reluctant to admit their use of fire to improve pasture. The 1946 Royal Commission was less politically charged and those who gave evidence were more willing to openly discuss their land-management practices, although the Commission was plagued by rumour that its recommendations would deny pastoralists their grazing licences. As a result, some graziers attempted to present their land-management practices in conservationist terms.<sup>17</sup>

*The 'bushman' of the high country*

From very early in the European history of Australia, graziers were attracted to the high-rainfall grasslands of the Australian Alps and by the early nineteenth century had occupied the open woodlands and treeless plains with huge but isolated snow leases where they practised transhumance cattle grazing. Gradually, as more accessible land was subdivided for closer settlement, these cattlemen relied more upon the high plains and as the dependence on this landscape increased, so did their use of fire to promote grass growth and clear the forest understorey. In time, the landscape of the Australian Alps and the challenges it posed to graziers became central to their identity as 'bushmen' and their long occupation on grazing leases made them think they had a right to use the land.<sup>18</sup> Bushmen had the most intimate work relationship with the alpine environments. They generally lived and worked away from settlements and considered themselves practical men with a wide range of experience and knowledge of their occupation and environment. They often had long family associations with these districts, their parents or grandparents being the some of the earliest pioneers. For those who gave evidence to the Commissions, 'bushman' was also a label given to the most experienced and was a title held with pride. Representatives of the Forests Commission of Victoria, the Melbourne Metropolitan Board of Works (MMBW), ecologists and scientists also gave evidence to the Royal Commissions. They tended to be proponents of modern, 'enlightened', utilitarian land-management, based on scientific principles, and so were generally allied against graziers' traditional practices and ways of thinking. Despite this, they bickered frequently with each other over their differing views of how much management should be applied to forests. For example, the MMBW strongly advocated total exclusion of fire and 'natural' succession of forests, mainly because of its concern for water quality. However, they were similar in their official conception of the 'natural' condition of the Australian environment and their adherence to the influential ecological succession theories of the American prairie ecologist Frederic Clements.<sup>19</sup> These factors distinguished them from folk-ecologists.<sup>20</sup>

## FIRE

Burning-off irreversibly changed the spread, density and species composition of plant communities in forest and alpine areas.<sup>21</sup> The problems of fire control, fire-weeds, and fuel reduction were central concerns of the Royal Commissions in both 1939 and 1946. The majority of evidence given to the Commissions was about fire practices and the conflicts between foresters and graziers centred on their vastly different views of how fire could be managed. Graziers saw it as inevitable and necessary, while foresters saw it as human-induced and preventable. Bushmen conceptualised the period of early European settlement as a time

that established a template of an 'original', 'natural' or 'normal' condition for the environment, which in turn strongly influenced how they judged the conditions of their own time. By contrast, foresters invoked 'science' rather than 'history' as the authority for their expertise.

### *Fire's place in the environment*

Graziers distinguished between two types of fire; uncontrollable bushfire and their own 'burning off'. This dualistic view can be seen in the seemingly contradictory comment by the grazier John Findlay: 'it has never had a fire in it until now... I burned it whenever it would burn'.<sup>22</sup> Findlay distinguished between the uncontrollable bushfire that threatened European settlement and the burning he carried out to prevent it. He also illustrates the ambivalence many rural people felt towards fire. On the one hand, it was their most powerful tool, something they believed they could control and something that allowed Europeans to better exploit their environment. On the other hand, fire was an uncontrollable force that destroyed their fences, killed their flocks and herds and denuded their pasture.

Many graziers also saw fire as an inevitable part of Australian life. Harry Treasure, an 'old bushman' from a famous grazing family, stated: 'I firmly believe that it would be impossible to absolutely prevent fires altogether'.<sup>23</sup> Almost all the high country graziers who gave evidence to the Royal Commissions shared his view. They believed forests would inevitably have fires, either caused by humans or by lightning or other 'natural' causes. This assumption encouraged a blasé attitude to the existence of fire in the landscape: their familiarity with it bred complacency. John Findlay summed up this fatalistic view: 'you have to control nature and man both, and I do not see how it is possible to do it'.<sup>24</sup>

### *Fire practices*

Burning practices also show most sharply the divisions between the folk-ecology of the bushmen and scientific-forestry. The reasons graziers gave for their burning practices fall into three categories; burning for protection from bushfires, burning to improve pasture and burning to clear land. Graziers believed a forest left in a 'dirty filthy condition' was a menace to the surrounding country that would eventually ignite in a bushfire. In the context of the Black Friday bushfires, graziers emphasised the protective role of their fires. Justifications for protective burning were based on the belief that fire was an inevitable threat in Australian life. John Bussel stated, 'It would be better if burning could be abandoned altogether, but I think that is impossible. A light burning here and there, now and then cleans up a certain amount of rubbish and prevents a heavy fire like that of 1939'.<sup>25</sup> Black Friday was frequently invoked as a warning of what would occur if forests were left unburnt. The blame for this was often placed squarely onto the Forests Commission, whose practice at the time was



not to burn forests. They were condemned for ‘refusing to burn and clear up the floor of the forest’.<sup>26</sup> Graziers believed burning was the only way to reduce the ferocity of bushfires, a view James Treasure expressed most clearly: ‘We have to adopt the method of immunisation with the menace itself.’<sup>27</sup>

In reality, the major reason graziers burnt the forests was to encourage new grass growth, called ‘sweet feed’ or ‘green pick’, which flourished in the nutrient-rich ash after a fire.<sup>28</sup> Some brave individuals admitted to this practice, such as John Findlay who burned ‘to get good grass’, and George Purvis who made it plain, ‘I never made any secret of the fact that we burn our leased land in order to get good feed for cattle.’<sup>29</sup> The final reason for burning was to make the land more open and suitable for grazing. Again, George Purvis claimed, ‘if you take over a forest block, there is only one way to clear it, and that is with fire and the axe’.<sup>30</sup> Similarly, Andrew Finn, a lifelong stockman who gave evidence in Corryong, claimed that on the alpine plains in the Mt Jagungal area of New South Wales, fire was explicitly used to clear up scrub and convert long unpalatable grass to ‘excellent grass about 6 inches high’.<sup>31</sup>

#### *The early days of European settlement*

These views and practices were based on assumptions about what the Australian environment was like in the ‘early days’. Many of the graziers who justified and defended their use of fire based this on the example set by the pioneers of their district. The environmental conditions inherited from pioneering practices were often seen as the ‘natural’ and ‘normal’ state of the environment. Reliance on ‘traditional knowledge’ was common among graziers. A forester in the 1930s had complained that ‘old ideas and practices are accepted without question’, and the former grazier Percy Weston confidently cited the ‘information at my disposal – that is, the opinions of the oldest residents in my district’.<sup>32</sup> Fire was seen by graziers as a primordial component of the Australian environment because it had been used by early pioneers and even earlier by Aboriginal people. Foresters and scientists at this time tended to see fire as something introduced to the environment and therefore outside it.

The reference point for the ‘early days’ described by graziers differed depending on the location of settlement. Some places, like Omeo, had been occupied by graziers for more than a hundred years, while other areas deep in the rugged forests had been settled in the memory of older bushmen. Despite this, there were remarkable similarities in how graziers thought their predecessors had managed the land. A characteristic account was given by grazier Neil Gow of Wandiligong near Bright. His story began with prospectors working in the hills between the 1860s and 1890s who lit fires frequently, ‘anywhere it would burn’.<sup>33</sup> In other areas, these early settlers were timber-splitters or bullockies. Edward Leeder from Marysville recalled timber-splitters lighting fires in the mountains to protect their timber palings, he said ‘they burned patches of

scrub...but would not do the forest much harm'.<sup>34</sup> The condition of the country at this time was often described in positive terms. Ovens Valley grazier William Blair remembered, '50 years ago when it had the appearance of a park and most of it was grassy... there was plenty of grass'.<sup>35</sup> The good conditions were nearly always linked to the burning regime these pioneers carried out. Reginald Barnewall from Alexandra described the early settlers 'course of systematic burning ...The fires were light and the country was clear'.<sup>36</sup> John Findlay, the self-declared 'first white man' in the forests around Rubicon, claimed that cattle runs were always 'burnt whenever they would burn' and 'the floor of the forest was as clean as a whistle'.<sup>37</sup> When asked whether the early forests were 'in a natural condition', Edward Leeder answered 'Yes, the ridges had been burned, the splitters kept them clean'.<sup>38</sup> The success of this early burning regime was usually attributed to the expertise of bushmen. Clarence Poole from Ten Mile near Woods Point summed this up clearly: 'their properties were periodically burned off and the fire was never destructive to the forest or other properties, because those men knew when to burn'.<sup>39</sup>

The final stage in this story of the 'early days' was the suppression of fire in the forests, a move that resulted in the accumulation of scrub, leading to destructive bushfires. Blame for this was placed on the much despised Forests Commission, who had limited the extent of forest burning soon after their formation in 1918.<sup>40</sup> Edward Leeder in 1939 declared: '[the bushfires] killed big stretches of mountain ash which were beautiful'.<sup>41</sup> Such professed concern for the safety of the forests may have been influenced by some graziers' desire to portray themselves as friends of the forests during the politically charged 1939 Royal Commission. However, the pervasiveness of this concern suggests a genuine appreciation of the forests destroyed on Black Friday.<sup>42</sup> The Forests Commission's practice of limiting burning, a 'primitive' method of forestry, was seen by some graziers as the end of an early 'golden' period of thick grass, open woodlands and frequent burning-off.<sup>43</sup> Such views of the 'early days' became the template against which the present was judged: the present was plagued by rabbits, thick scrub and destructive bushfires.

### *Aboriginal burning*

Griffiths has commented that the language used by forest workers in the 1939 Royal Commission: "burning to clean up the country" — was uncannily like that of Aboriginal people'.<sup>44</sup> Some graziers drew on the connection between Aboriginal burning and their own practices to defend their use of fire. In 1939, the bushman Peter O'Mara argued the thick undergrowth of ash forests 'did not exist in the graziers' time or the aboriginals' time' because 'they kept the floor of the forest clear'. He claimed Aboriginal man did this 'so that he could spear kangaroo and wallaby'.<sup>45</sup> Alfred Saxton, a former sawmiller and farmer from north Gippsland, showed a similar understanding of Aboriginal fire use: 'I

believe aboriginals fired periodically to get feed to bring game'. He suggested 'if a tribe of aboriginals had been let loose in that forest and had carried on in their old ways, they would have preserved that forest'.<sup>46</sup> In 1946, William Kelly, a farmer and Shire President from Maffra, argued 'fires were continuous in those days' because of Aboriginal occupation.<sup>47</sup> These examples were unique in the evidence given and the impression from the transcript pages is that those in the courtroom were surprised by the examples and did not take them seriously. After O'Mara's comment, Stretton quipped: 'you would be in favour of taking the Forests Commission out of the forest and putting in a tribe of blackfellows to look after it?'<sup>48</sup>

The surprising thing about these extracts is that they foreshadow ideas about 'the sophisticated environmental stewardship of Aboriginal people' described in Rhys Jones' famous study of 'firestick farming' thirty years later in 1969.<sup>49</sup> In these extracts there seems to be a clear understanding of what constituted Aboriginal burning that is remarkably close to current understandings.<sup>50</sup> Aboriginal burning was used to prove a point. The question of what occurred 'before the white man' recurred frequently in the Commission's evidence because the fire regime of this period was sought as a possible solution to Victoria's destructive forest fires. Scientific resource-managers ignored or downplayed Aboriginal occupation and confidently referred to this period as the 'original' state of the forest to which they aimed to return their forests by excluding fire.<sup>51</sup> In the face of this, graziers wanted to provide an ancient precedent for their burning regime, presenting a picture of 'a big fire sweeping the country from end to end before the white man went there'.<sup>52</sup> Human use of fire, they argued, was part of the 'natural' and 'normal' state of the environment. This connection was explicitly made by Percy Weston: 'in the days preceding settlement by the white man, there existed a natural balance, which the aborigine, who is acknowledged to have possessed a "fire conscience" which shames the present generation, played no small part in preserving'.<sup>53</sup> Aboriginal burning, it was argued, had protected the forests for hundreds of years. In essence, the Aboriginal burning example was used to justifying the practices of the graziers giving evidence to the Royal Commission.

On the surface, the burning regimes of Aboriginal people and graziers appeared to be remarkably similar. Both aimed to promote landscapes favourable for production of food and both burned grasses to promote green pick for animals (be they marsupials or sheep and cattle). European burning – especially by nomadic splitters, prospectors and bullockies – may have had a similar environmental result to Aboriginal mosaic burning. The difference lay in the use of the land that was burned. Aboriginal people burned to distinguish between different native flora and conformed to the natural rhythms of Australia. Graziers' burning was confined to specific places and times, determined by introduced species that did not conform to Australian conditions.<sup>54</sup>

On this matter, the views of 'educated' men on the Commission differed greatly from those of the bushmen. In the scholarly opinion of the time, Aboriginal people were depicted as part of pristine nature and assumed to have had little environmental impact.<sup>55</sup> In contrast, graziers saw Aboriginal people as having significant but not destructive impacts on the environment. This difference can be seen most sharply in an exchange between the farmer William Kelly and the forestry representative Geoffrey Dyer. Dyer attempted to lead Kelly into admitting aboriginal people were too few in number to have much environmental effect and that 'the black man was far more interested than the white settler in conserving the natural resources of the country'. Kelly disagreed on all of these points arguing aboriginal people 'would probably burn more than we do now' and that 'the black man would burn without any thought of the future'.<sup>56</sup> Dyer presented a picture of the 'noble savage' while Kelly showed a more realistic appreciation of human impact on the environment. Despite such testimony, Aboriginal people did not easily fit into the idea of a scientific wilderness and Stretton ignored them in his reports.

### *Scientific wilderness*

The question of what fire regime had existed 'before the white man' shows most sharply the difference between folk and scientific perspectives. Scientific forestry tended to downplay human disturbance, a perspective that could be described as scientific wilderness. The evidence given to the 1939 Commission by the Chief Inspector of Forests for the Commonwealth of Australia, Charles Edward Lane-Poole, was the most authoritative account of this perspective. Lane-Poole, the quintessential imperial forester in training and temperament, concluded 'fires in the blackman's country were very small in comparison with those of our day' and he argued fires were less frequent and of low intensity during that time.<sup>57</sup> He was typical of many of his scientifically trained colleagues in his adherence to Clementsian ecological succession theory. They believed that if fire was excluded from forests they would 'succeed' to a 'climax' fire-proof state of 'thinner shrubs as the tree canopy increases'.<sup>58</sup> Lane-Poole assured the Commission 'we can prevent fires anywhere ... it is simply wrong to regard fires as inevitable'.<sup>59</sup> The 'natural' or 'original' state of the forests was assumed to be almost without fire, and mainly without humans. The significant influence of ecological theories on these 'expert' witnesses is consistent with the greater status and authority that was accorded to ecological conservation at the time in Australia and internationally.<sup>60</sup> Maisie Fawcett, an ecologist from the Botany School at the University of Melbourne had been sponsored by the Soil Conservation Board to study the erosion and ecology of the alpine catchment for the economically important Murray River.<sup>61</sup> Her evidence and that of the scientifically trained foresters ultimately carried more weight with the Royal Commission than the bushmen. Stretton's 1939 report stated: 'When the early

settlers came to what is now this State, they found for the greater part a clean forest. Apparently, for many years before their arrival, the forest had not been scourged by fire. They were in their natural state. . . . But the white man introduced fire to the forests.<sup>62</sup> Griffiths has persuasively concluded that Stretton outlined an historical and ecological vision of pre-*European* Australian nature that was 'stable and relatively unmodified by humans', a view that was common to his generation.<sup>63</sup>

This view of bushfire as an alien, unnatural element in the environment was also widespread at this time. In popular culture, bushfire was commonly depicted as a military struggle between humans and fire. Editorials from *The Argus* described the 'onslaughts of the firefighters' who were 'those great hearted men who cheerfully battle with the elements' and when 'fire threatens fare forth to fight it'. In these accounts, fire was presented as an avoidable tragedy and hope was always expressed fires would be prevented in the future.<sup>64</sup> The general view of fire was that of the senior foresters, a dangerous alien element in the environment. Pyne suggests that such ideas had become deeply ingrained in English thinking, originating in eighteenth century changes to English farming that rejected the use of fire as dangerous, chaotic and uncivilised.<sup>65</sup>

## SEEING HUMAN IMPACTS

Graziers were generally reluctant to admit environmental changes caused by their land-management were destructive. This was based on their understanding of the dynamics of the environment, especially the notion of a fire cycle.

### *The fire cycle*

In his report from the 1939 Royal Commission, Stretton gave a clear description of the problem with European burning practices in south-eastern Australian forests:

The white man introduced fire into the forests. They burned the floor to promote the growth of grass and to clear it of scrub which had grown where, for whatever reason, the balance of nature had broken down. The fire stimulated grass growth; but it encouraged scrub growth far more. Thus was begun a cycle of destruction which can not be arrested in our day. The scrub grew and flourished, fire was used to clear it, the scrub grew faster and thicker, bushfires, caused by the careless or designing hand of man, ravaged the forests; the canopy was impaired, more scrub grew and prospered, and again the cleansing agent, fire, was used.<sup>66</sup>

Stretton clearly saw the cause and effect of the fire cycle based on the evidence he had heard from foresters, timber workers, farmers, bushmen and graziers.

Graziers and bushmen were more reluctant to see changes in the environment as part of this sort of fire cycle.

In the 'early days' of settlement, the environment was said to have had 'the appearance of a park'; the floor of the forest was 'as clean as a whistle' and open enough that 'one could drive a mob of sheep anywhere'.<sup>67</sup> This later changed to a thick, scrubby and dirtier condition of which graziers frequently complained.<sup>68</sup> The change was noticed by most graziers because it affected the livestock-carrying capacity of their land. William McCoy, a grazier from Ensay, contrasted the '3000 head of cattle' capacity in 1907 with the 'little more than 500 or 600 cattle' in 1939.<sup>69</sup> A more sophisticated observation was made by Harry Treasure. After the bushfires, he said, 'there will be more grass than we know what to do with' which would last 'for one season, but each year the undergrowth will grow up more' until 'in a few years later it will make an enormous litter on the ground and grazing will be practically nil'.<sup>70</sup> There was a divergence of views on the cause of this 'dirty' condition. John Langtree explained that 'a slow burn will not bring up more undergrowth, but a heavy burn will'.<sup>71</sup> This distinction was also shown in the comments of John Findlay that, 'the fire of the graziers is not the fire that kills trees'<sup>72</sup> and of Buxton grazier Maurice Keppell who blamed 'heavy fire' for the originally 'almost park-like' landscape to have 'thickened up considerably'.<sup>73</sup>

The closest most graziers came to Stretton's notion of a fire cycle was an admission that poor practices by inexperienced graziers may have caused damage. Most of the graziers who gave evidence considered themselves experienced and conscientious bushmen who would use fire wisely and knew the country intimately. John Cameron from Mansfield claimed to 'never have known a grazier who would light a dangerous fire' and Andrew Finn, a stockman, emphasised that 'judgement was used with the burning'.<sup>74</sup> Correct burning according to Weston ensured a harmless 'slow' or 'light' fire when done at the correct time of year. He explained: 'If you burn during the spring and summer you attack the natural grass covering and promote the growth of bracken and scrub. If you burn in the autumn you kill the growth of bracken and scrub.'<sup>75</sup> Stretton was influenced by this distinction in his 1946 report where he commented, 'the permitted grazier of long standing behaves somewhat better than the newcomer'.<sup>76</sup>

### *Finding other causes*

Graziers and bushmen suggested other causes for the observed changes. The link between rabbits and flammability of environments was a common one among those who gave evidence. Arthur Pearson, a stock agent from Omeo, blamed rabbits as 'the first factor' while 'bushfires formed the final factor'.<sup>77</sup> Similarly, Percy Weston claimed 'there are two main causes – the misuse of fire, and over-grazing, for which the rabbit is totally to blame'.<sup>78</sup> Another response was to deny that change was human induced at all and claim the effects of the fire

cycle were 'natural'. William Blair, an Ovens Valley grazier, claimed the drying out and less snow on alpine grass-plains (usually ascribed to fire) was rather 'the seasonal cycle'. He claimed he could not see any ecological change other than 'seasonal conditions'. A similar comment was made by Whitfield grazier Herbert Swinburne who simply gave the cause as 'nature'.<sup>79</sup>

Unlike the foresters and Stretton, bushmen regarded a frequently burnt environment as the 'natural' state and did not see humans as agents of destruction. This is illustrated by grazier Michael McNamara's statement that 'many years ago, *before this "fire business" was started*, it used to be burnt according to our ideas'.<sup>80</sup> The benevolent environment of the 'early days' was an example from which to take methods that could 'bring the country back to normal'.<sup>81</sup> In contrast to this, many graziers blamed destructive bushfires on the abandonment of these traditional burning practices by the Forests Commission.

Folk understandings of human impacts were also based on bushmen's own observation and casual experimentation. A good example of this was Percy Weston's explanation of bracken fire ecology: 'If you burn in the autumn you kill the growth of bracken and scrub. Their growth only takes place during the summer months. They are dormant for the six months during the winter, as far as I can see. When that growth receives a set back, the grass covering, without any competition, has a chance to make a headway'.<sup>82</sup> Comments on the fire ecology of various plant species were common throughout the Royal Commission transcripts. Anthony Mangan observed 'after a hot fire seedlings germinate' while Fredrick Barton observed 'fires help the bracken'. Charles Lumdsen clearly articulated the close relationship between autumn burning, soil moisture, ground covering and rainfall runoff in very similar terms to Weston.<sup>83</sup>

Graziers tended to downplay or even deny signs of degradation in their local environment or they ascribed causes for them that were outside their own environmental footprint. What Stretton described as a fire cycle – a destructive downward spiral – was for them not a cycle at all but rather the *abandonment* by inexperienced foresters and government officials of sound burning-practices in favour of 'locking up' the forests. Environmental problems were not the long-term effects of inappropriate and excessive exploitation, but were aberrations, caused by rabbits and inexperienced men, that could be overcome by returning to practices associated with the 'early days'. In this context, Griffiths' claim that the Black Friday bushfires were 'a culmination of a century of white settlement and environmental practice' gains additional resonance.<sup>84</sup>

## FOLK VERSUS SCIENCE: FIRE ECOLOGY

The regeneration of mountain ash forests requires a hot fire that kills mature trees and causes their seeds to be released to germinate in the rich and insect free ash bed on the forest floor. David Ashton, an ecologist who devoted his life to

studying these trees, described this process as a 'miracle of timing'; if the forests were burned too soon (up to 15–20 years old) the trees died without producing seeds. If the forest was without fire for hundreds of years it was overtaken by cool temperate rainforest.<sup>85</sup>

The Royal Commissions paid particular attention to the effect of fire on mountain ash forests because this was a valuable timber, but also one that posed great fire danger by growing thickly in often rugged terrain. The transcripts of evidence show a rich body of folk-understanding of the relationship between mountain ash and fire; one that did not accept the authority of science. Edward Leeder observed it was 'killed by intense fire' but also observed that 'after smaller fires ... the mountain ash would always come up'.<sup>86</sup> Peter O'Meara, a bushman and timber-getter, claimed 'they are delicate timbers, and will not stand the slightest fire. Those timbers will not stand trampling or being knocked about'.<sup>87</sup> The vulnerable period of young mountain ash trees when the entire tree population would be wiped out if burnt by fire was also understood by many bushmen. John Findlay described the situation after a fierce fire: 'I saw saplings 10 to 12 ft high, so that shows it will grow again. However, if the fire had gone through it before the trees were matured enough to drop seeds, there would have been no young forest'.<sup>88</sup> According to this folk-knowledge, bushmen advocated light burning of mature ash forests claiming these fires did not damage the trees.<sup>89</sup> There were also some who advocated not burning ash forests at all and instead burning the surrounding less valuable (usually messmate, *Eucalyptus obliqua*) forests.<sup>90</sup> These examples show a practical understanding of the effects of fire on forests, one that utilised knowledge about forest ecology to harvest timber and burn the forests to allow grazing.<sup>91</sup> A forester observed of cattlemen that 'although they know the practical side of the job from A to Z ... there is no attempt to probe into things and find out the why and wherefore'.<sup>92</sup> Similarly, a passing comment by Maisie Fawcett about a plant species that 'is one of the few alpine plants to which the cattlemen have paid sufficient attention to give it a name' also shows an assumption that people who used their environments tended to only be interested in useful plants and landscapes.<sup>93</sup>

The transcripts reveal understandings as much ecological as utilitarian. The anthropologist Scott Atran has also observed that for many societies in close contact with the natural environment general folk-understanding extends beyond useful plants and animals.<sup>94</sup> There are examples in the Royal Commission transcripts of bushmen who provided sophisticated explanations of the how and why of ecological relationships. A good example is from Alfred Saxton, who we have already heard from regarding Aboriginal burning. He commented:

There is no question about it, the eucalypt is a fire plant. It comes from the seed. It is a query even among forestry officers and bushmen as to actually whether the seed floats down after the fire or whether it is there beforehand. Generally the bushman's idea is that it is also in the ground, and that is my idea.<sup>95</sup>



This comment hints at an ecological understanding. Saxton's comments suggest there was a body of knowledge and discussion among bushmen about the fire-ecology of the eucalypt. This was not just confined to how quickly it could be burned or how soon it could be harvested. Other bushmen observed the role of fire in the germination of eucalyptus seeds, and others again gave sophisticated explanations of the relationship between bracken, fire and soil erosion.<sup>96</sup>

Alfred Saxton went on from his explanation of eucalypts to tell a story that gives an indication of how folk-ecological knowledge was acquired:

a settler that I knew was walking over a paddock that had been burnt years before. He noticed a square iron plate lying on the ground. He did not know how it got there, but he picked it up and threw it aside. The space where it had been was left uncovered. There had been a good fire over the ground. Some months afterwards that square came up in native oats. You may get a fire that brings up the native oats. We imagine that when there is a certain amount of dampness in the ground, when a fire goes over it, it brings up the native oats. That would have to be burnt if you wanted a growth of forest or for seedlings to come up later.<sup>97</sup>

This story shows most clearly the basis of folk-ecology in common day-to-day observation. Casual experimentation like this was also practised by Percy Weston who told the Commission 'I have carried out tests in the last two years just to see how vulnerable a young tree is to fire'.<sup>98</sup> Weston and Saxton were perhaps unique in the sophistication and interest they showed in studying their environment, but both were old experienced bushmen whose common-sense observations were respected among the rural community.

The most significant difference between forestry and folk views of mountain ash fire-ecology was the reluctance of officials to see any role for fire in the process. Rather, they emphasised the danger posed to mountain ash by fire. The fierce opponent of burning Alexander Kelso declared 'even a small fire does destroy the mountain ash sooner or later'.<sup>99</sup> However, there were also some foresters, most often in the field like Adrian Beetham, who claimed it would be desirable to use 'light fires' to keep down scrub so long as it did not harm timber.<sup>100</sup> Pyne has described this apparently contradictory practice as something most foresters considered 'wrong and dangerous' but temporarily necessary in Australian conditions. Tensions that had existed between practical and 'educated' foresters in the early days of Australian institutional forestry from the 1910s to 1920s still resonated in the 1930s and 1940s.<sup>101</sup> In fact, the Forests Commission representatives on the 1939 Royal Commission were frequently concerned that some junior or field foresters might contradict official Forests Commission policy.<sup>102</sup> The Commission's reluctance to tolerate fire was based on its adherence to the Clementsian ecological succession model which argued that plant communities would succeed to a stable 'climax community', becoming increasingly stable with each stage.<sup>103</sup> Lane-Poole claimed that fire would restart the succession therefore preventing a stable community.<sup>104</sup> These strong scientific frameworks

set limits on how foresters, even traditional 'practical' ones, could construct theories about the ecology of their local landscapes. They relied less upon their own observations about the local environment because they were trained by an institution with a systematic and organised school of thought.<sup>105</sup>

### *Authoritative Forms of Knowledge*

To understand why differences existed between the observations made by scientific and folk forms of knowledge it is worth referring to Atran's general observations of the relationship between science and common-sense beliefs. Atran distinguished common sense, which he defined as a human's 'spontaneous apprehension of living kinds', from speculative thought systems (which could include scientific or religious knowledge) that he saw as not 'spontaneously elaborated' and not always in apparent accordance with common sense.<sup>106</sup> Dunlap applied this theory further suggesting the observation inherent in scientific thought may not be visible to non-specialists and may even appear wrong.<sup>107</sup> The distinction provides a plausible model for the differences between folk-ecology and scientific forestry. It also provides a starting point from which to analyse the views bushmen held towards scientific knowledge and it provides the beginning of an explanation why science was not considered authoritative by most bushmen.

Alfred Saxton's explanation of fire-ecology suggested 'It is a query even among forestry officers and bushmen as to actually whether the seed floats down after the fire or whether it is there beforehand'.<sup>108</sup> Saxton did not see science as an authoritative explanation of the environment. He viewed it as on-par with, or even inferior to, the folk-ecology theory. When Maisie Fawcett gave evidence to the Royal Commission in Omeo 1946 this scepticism was evident. During her evidence on the early stages of erosion and its relationship to fire, she was interrupted by an objection from one of the cattlemen present.<sup>109</sup> Those who gave evidence, following her, disputed almost all of her claims and the grazier John Gibson made a pointed observation that the 'so called experts' didn't know the country as well as he did.<sup>110</sup> In the view of many bushmen, scientific knowledge was the theoretical and impractical basis of foresters' poor fire management. Edmund Cornwall, a bushman from Noojee, criticised '*impractical* forest men' who copied their practices and views 'from a conference on *theoretical* forestry in America' while Alfred Webb, a dairy farmer from Willow Grove, complained of foresters that 'they will not know the conditions when they are educated in a college'.<sup>111</sup>

Atran's conclusions provide an insight into this scepticism of science. He observed that lay people only accept modifications of folk-biological knowledge if the scientific alternative 'proves compatible with everyday common sense realism'.<sup>112</sup> Dunlap suggested the people who had direct experience with their environments would be less likely to accept the explanations of scientists.<sup>113</sup>

Bushmen placed the highest value on 'practical common sense; the highest praise graziers paid to each other was to label them a practical bushman. John Cameron when asked if he agreed with the preceding evidence of the graziers William Lovick and John Bostock, answered he did, simply because they were 'practical bushmen'.<sup>14</sup> Graziers and bushmen rejected scientific explanations from elsewhere in favour of their home-grown folk-ecology.

## CONCLUSION

The folk-ecology of cattlemen in the Australian Alps was based on a particular conception of the 'early days' of pioneer settlement in Victoria. Fire practices and ecological knowledge were drawn from a period they considered 'natural' and 'normal', an imagined landscape of open forest and pastures, which fire had an important ecological role in maintaining. This knowledge challenged the evidence of environmental degradation and the remedies suggested by ecologists. In contrast, scientific forest management at this time imagined a 'natural' environment, which largely excluded fire and which regarded it as an introduced and destructive element in the landscape. In hindsight, these folk-understandings of the role of fire are in many ways closer to current scientific understandings of Australian fire-ecology. It is significant that Stretton was sufficiently influenced by folk-ecology to advocate a new direction in Australian fire management: one that accepted the presence of fire in the Australian landscape and committed itself to its use in fire management.

## NOTES

<sup>1</sup> Stephen J. Pyne, *Burning Bush* (New York: Henry Holt and Coy, 1991), 276.

<sup>2</sup> Eric C. Rolls, 'The Nature of Australia,' in *Ecology and Empire*, ed. Tom Griffiths and Libby Robin (Melbourne: Melbourne University Press, 1997), 40.

<sup>3</sup> Thomas R. Dunlap, *Nature and the English Diaspora* (Cambridge: Cambridge University Press, 1999), 24.

<sup>4</sup> Tom Griffiths, *Forests of Ash* (Melbourne: Cambridge University Press, 2001).

<sup>5</sup> Douglas L. Medin and Scott Atran, 'Introduction', in *Folkbiology*, ed. Douglas L. Medin and Scott Atran (Cambridge, Mass.: The MIT Press, 1999), 5.

<sup>6</sup> Dunlap, *Nature and the English Diaspora*, 23–7, 139–40, Griffiths, *Forests of Ash*, 137; Pyne, *Burning Bush*, ch. 12.

<sup>7</sup> John Bradsen, 'Soil Conservation: History, Law and Learning', in *Environmental History and Policy, Still Settling Australia*, ed. Stephen Dovers (Oxford: Oxford University Press, 2000), 273–4.

<sup>8</sup> Dunlap, *Nature and the English Diaspora*, 140.

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<sup>9</sup> See Paul Collins, *Burn: The Epic Story of Bushfire in Australia* (Sydney: Allen & Unwin, 2006), ch. 1; Griffiths, *Forests of Ash*, ch. 10; W.S. Noble, *Ordeal by Fire: The Week the State Burned Up* (Melbourne: Jenkin Buxton, 1977); Pyne, *Burning Bush*, 309–14.

<sup>10</sup> E.g. *The Age* newspaper (editorial 12 Jan 1939, 10) labelled some graziers as 'potential murderers' while Stretton on 28 February 1939 threatened journalists of *The Sun* newspaper with expulsion from proceedings if they continued to vilify the Forests Commission. Leonard Stretton, Comments, Transcript of evidence, 'Royal Commission into the Causes of and Measures Taken to Prevent the Bush Fires of January 1939', (1939), 1102.

<sup>11</sup> Griffiths, *Forests of Ash*, 140.

<sup>12</sup> *Ibid.*, viii; Pyne, *Burning Bush*, 312, 325.

<sup>13</sup> Bradsen, 'Soil Conservation: History, Law and Learning', 278.

<sup>14</sup> For example, its conclusions on soil erosion were taken up by the 'Save the Forests Campaign', C.E. Isaac, *An Inseparable Trinity* (Melbourne, 1950).

<sup>15</sup> For example B.U. Byles said of the graziers that 'their stock of fundamental knowledge about the grass lands from which they get their living is practically nil', B.U. Byles, 'A Reconnaissance of the Mountainous Part of the River Murray Catchment in New South Wales', *Commonwealth Forestry Bureau, Bulletin* 13 (1932): 26. D.H. Thompson commented that farmers had 'an astonishingly limited knowledge of the bush around them', quoted in Griffiths, *Forests of Ash*, 137.

<sup>16</sup> Leonard E. B. Stretton, 'Report of the Royal Commission into the Causes of and Measures Taken to Prevent the Bush Fires of January 1939', (1939), 7.

<sup>17</sup> Leonard Stretton, Comments, Transcript of evidence, 'Royal Commission into Forest Grazing', (1946), 221. The 1946 Royal Commission was also partially initiated because of pressure from the Save the Forests Campaign which at times was highly critical of forest grazing practice. See: C.E. Isaac, *An Inseparable Trinity*; for criticism: Alfred Douglas Hardy, Transcript of evidence (1946), 313–16.

<sup>18</sup> Peter Brian Cabena, 'Grazing the High Country: An Historical and Political Geography of High Country Grazing in Victoria, 1835–1935' (unpublished MA thesis, University of Melbourne, 1980), 112; Griffiths, *Forests of Ash*, 33.

<sup>19</sup> Michael G. Barbour, 'Ecological Fragmentation in the Fifties', in *Uncommon Ground*, ed. William Cronon (New York: W. W. Norton & Company, 1995); Donald Worster, *Dust Bowl: The Southern Plains in the 1930s* (New York: Oxford University Press, 1979), 201.

<sup>20</sup> See: Reginald Edward Torbet (MMBW), Transcript of evidence (1939), 2340–5; Charles Lane-Poole (FC), Transcript of evidence (1939); Peter Gell, 'Forest Ecology and Ecologists', in *Created Landscapes, Historians and the Environment*, ed. Don Garden (Carlton: The History Institute, 1992), 90–92, Griffiths, *Forests of Ash*, 140.

<sup>21</sup> Pyne, *Burning Bush*, 199–209, 212–15.

<sup>22</sup> John Findlay, Transcript of evidence (1939), 500.

<sup>23</sup> Harry Treasure, Transcript of evidence (1946), 2.

<sup>24</sup> John Findlay, Transcript of evidence (1939), 502; Stephen Pyne placed emphasised this fatalism: Pyne, *Burning Bush*, 204, 248.

<sup>25</sup> John Henry Bussel, Transcript of evidence (1946), 232.

<sup>26</sup> A motion passed by the Graziers Association in Mansfield, 'News', *Mansfield Courier*, 17 Feb 1939.

- <sup>27</sup> Letter from J. Treasure, Transcript of evidence (1946), 17.
- <sup>28</sup> Pyne, *Burning Bush*, 212–15.
- <sup>29</sup> John Findlay (Rubicon), Transcript of evidence (1939), 509; George Purvis (Willow Grove), Transcript of evidence (1939), 989; by 1946 there was more willingness to explain the reasons for burning: see Hedley Gordon Stoney (Mansfield), Transcript of evidence (1946), 270.
- <sup>30</sup> George Purvis, Transcript of evidence (1939), 1006; see also Griffiths, *Forests of Ash*, 35–6.
- <sup>31</sup> Andrew Burnett Finn, Transcript of evidence (1946), 168; Pyne treats these practices more generally: Pyne, *Burning Bush*, 213.
- <sup>32</sup> Byles, 'A Reconnaissance of the Mountainous Part of the River Murray Catchment in New South Wales', 26.; Percy George Weston, Transcript of evidence (1939), 1437; see also D.H. Thompson's observation of 'a tradition of fire', 'Forests Fire Prevention and Control in the Cann Valley Forest District', Diploma of Forestry Thesis (Victoria), (1957), 1.
- <sup>33</sup> Neil Gow, Transcript of evidence (1946), 212–13.
- <sup>34</sup> Edward Leeder, Transcript of evidence (1939), 408; see also, Joseph Smedley, Transcript of evidence (1939), 411; Thomas William Irvine, Transcript of evidence (1939), 250–1.
- <sup>35</sup> William Blair, Transcript of evidence (1946), 205.
- <sup>36</sup> Reginald Barnewall, Transcript of evidence (1946), 284.
- <sup>37</sup> John Findlay, Transcript of evidence (1939), 507, 499.
- <sup>38</sup> Edward Leeder, Transcript of evidence (1939), 407.
- <sup>39</sup> Clarence George Henry Poole, Transcript of evidence (1939), 775.
- <sup>40</sup> Griffiths, *Forests of Ash*, 44.
- <sup>41</sup> Edward Leeder, Transcript of evidence (1939), 402.
- <sup>42</sup> For example, John Findlay, Transcript of evidence (1939), 498; William Francis Lovick, Transcript of evidence (1939), 699; Similar sentiments from an earlier time are common in the collection of settlers accounts: *The Land of the Lyre Bird – A Story of Early Settlement in the Great Forest of South Gippsland*, (Drouin, 1998), 269; pointed out in Griffiths, *Forests of Ash*, 35.
- <sup>43</sup> On forestry, see Pyne, *Burning Bush*, 21–22.
- <sup>44</sup> Griffiths, *Forests of Ash*, 140.
- <sup>45</sup> Peter O'Mara, Transcript of evidence (1939), 1130.
- <sup>46</sup> Alfred Saxton, Transcript of evidence (1939), 1047.
- <sup>47</sup> William Kelly, Transcript of evidence (1946), 383.
- <sup>48</sup> Peter O'Mara, Transcript of evidence (1939), 1133.
- <sup>49</sup> Rhys Jones, 'Fire-stick farming', *Australian Natural History* 16 (1969); Tom Griffiths, 'Judge Stretton's Fires of Conscience', *Gippsland Heritage Journal* 26 (2002): 17.
- <sup>50</sup> A.M. Gill, R.H. Groves and I.R. Noble, *Fire and the Australian Biota* (Canberra: Australian Academy of Science, 1981), ch. 3; Pyne, *Burning Bush*, ch. 6, 8. There remains significant debate as to the *extent* of aboriginal use of fire. See D.M.J.S. Bowman, 'Tansley Review No. 101: The Impact of Aboriginal Landscape Burning on the Australian Biota', *New Phytologist* 140 (1998).

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- <sup>51</sup> E.g. Barber, Transcript of evidence (1939), 1450; Kelso, Transcript of evidence (1939), 1455.
- <sup>52</sup> Leslie George Gambold, Transcript of evidence (1946), 239.
- <sup>53</sup> Percy George Weston, Transcript of evidence (1939), 1437–8.
- <sup>54</sup> Pyne, *Burning Bush*, 148, 140, 184.
- <sup>55</sup> Griffiths, 'Judge Stretton's Fires of Conscience', 14, 17
- <sup>56</sup> William Kelly, Transcript of evidence (1946), 383–4.
- <sup>57</sup> Lane-Poole, Transcript of evidence (1939), 2375, 3276–7.
- <sup>58</sup> Lane-Poole, Transcript of evidence (1939), 2383–4; Griffiths, *Forests of Ash*, 141, Griffiths, 'Judge Stretton's Fires of Conscience,' 14.
- <sup>59</sup> Lane-Poole, Transcript of evidence (1939), 2329–30.
- <sup>60</sup> Libby Robin, 'Radical Ecology and Conservation Science', *Environment and History* 4, 2 (1998): 191–208, doi: 10.3197/096734098779555691.
- <sup>61</sup> Linden Gillbank, 'Scientific Exploration of the Botanical Heritage of Victoria's Alps', in *Cultural Heritage of the Australian Alps*, ed. Babette Scougall (Canberra: Australian Alps Liaison Committee, 1992), 224.; Stella Grace Maisie Fawcett, Transcript of evidence (1946), 127
- <sup>62</sup> Leonard E.B. Stretton 'Report of the Royal Commission', (1939), 11.
- <sup>63</sup> Griffiths, 'Judge Stretton's Fires of Conscience', 17.
- <sup>64</sup> *Argus*, 11 January 1939, 3, 10; see also, *The Age*, 16 January 1939, 12; *The Argus*, 20 January 1939, 2; editorials, *The Sun News Pictorial*, 16 and 21 January 1939; see also Pyne, *Burning Bush*, 254, 248.
- <sup>65</sup> Stephen J. Pyne, 'Frontiers of Fire,' in *Ecology and Empire*, ed. Tom Griffiths and Libby Robin (Melbourne: Melbourne University Press, 1997), 21–2. Arguably, little has changed.
- <sup>66</sup> Leonard E. B. Stretton, 'Report of the Royal Commission', (1939), 11; an almost identical description of this cycle was again made in Leonard E.B. Stretton 'Report of the Royal Commission to inquire into Forest Grazing', (1946), 18; on the fire cycle see also: Pyne, *Burning Bush*, 132–3, 204.
- <sup>67</sup> Examples from Bright: William Blair, Transcript of evidence (1946), 205; from Rubicon: John Findlay, Transcript of evidence (1939), 499; from Thornton: Reginald John Barnewall, Transcript of evidence (1946), 286.
- <sup>68</sup> Eg: Fredrick Alexander Ross, Transcript of evidence (1946), 248; Herbert John Robert Swinburne, Transcript of evidence (1946), 236.
- <sup>69</sup> William Douglas McCoy, Transcript of evidence (1939), 1206.
- <sup>70</sup> Harry Lewis Treasure, Transcript of evidence (1939), 1181.
- <sup>71</sup> John Samuel Langtree, Transcript of evidence (1939), 1204.
- <sup>72</sup> John Findlay, Transcript of evidence (1946), 289.
- <sup>73</sup> Maurice Francis Keppell, Transcript of evidence (1946), 294.
- <sup>74</sup> John Alexander Cameron, Transcript of evidence (1946), 276; Andrew Burnett Finn, Transcript of evidence (1946), 167–8.

<sup>75</sup> Percy George Weston, Transcript of evidence (1939), 1450–1450A, see also William Francis Lovick, Transcript of evidence (1946), 263; Peter O’Meara, Transcript of evidence (1946), 328

<sup>76</sup> Leonard E. B. Stretton ‘Report of the Royal Commission’, (1946), 15. Even the fiercely anti-grazing forester Alfred Douglas Hardy conceded ‘most graziers probably value the forests’, Transcript of evidence (1946), 307.

<sup>77</sup> Arthur Mervyn Pearson, Transcript of evidence (1946), 114.

<sup>78</sup> Percy George Weston, Transcript of evidence (1939), 1438.

<sup>79</sup> William Francis Blair, Transcript of evidence (1946), 205, 209; Herbert John Robert Swinburne, Transcript of evidence (1946), 236. See also Leonard E. B. Stretton ‘Report of the Royal Commission’, (1946), 18; Byles, ‘A Reconnaissance of the Mountainous Part of the River Murray Catchment in New South Wales,’ 19; Pyne, *Burning Bush*, 213. Note: there is possibly much that is accurate in Blair’s description. Ruth Lawrence has identified changes in the moisture of the environment of the Bogong High Plains, with a drier period from the 1890s to the mid 1940s that corresponds with the most intense fire period. Ruth Lawrence, ‘Environmental Changes on the Bogong High Plains, 1850s to 1980s’, in *Australian Environmental History: Essays and Cases*, ed. Stephen Dovers (Melbourne: Oxford University Press, 1994), 187.

<sup>80</sup> Michael McNamara (from Omeo), emphasis mine. Transcript of evidence (1946), 150.

<sup>81</sup> Reginald John Barnewall, Transcript of evidence (1946), 285.

<sup>82</sup> Percy George Weston, Transcript of evidence (1939), 1450–1450A.

<sup>83</sup> Anthony Mangan, Transcript of evidence (1946), 203; Fredrick John Barton, Transcript of evidence (1946), 302; see also, William Henry Whitehead, Transcript of evidence (1946), 180; Charles Gordon Lumdsen Transcript of evidence (1946), 220.

<sup>84</sup> Griffiths, *Forests of Ash*, 135.

<sup>85</sup> David Ashton, ‘Fire in tall open forests’, in Gill, Groves and Noble, *Fire and the Australian Biota*, 348–62.

<sup>86</sup> Edward Leeder, Transcript of evidence (1939), 405.

<sup>87</sup> Peter O’Meara, Transcript of evidence (1946), 327.

<sup>88</sup> John Findlay, Transcript of evidence (1939), 500.

<sup>89</sup> Joseph Smedley, Transcript of evidence (1939), 411; Edward Leeder, Transcript of evidence (1939), 402; Thomas Wilmont, Transcript of evidence (1939), 527; William Lovick, Transcript of evidence (1939), 696.

<sup>90</sup> George Clifton Purvis, Transcript of evidence (1939), 1007; Alfred Saxton, Transcript of evidence (1939), 1042; Carl Lamont Wraith, Transcript of evidence (1946), 194.

<sup>91</sup> Many of the bushmen had been timber-getters, sawmillers, or would harvest the timber that existed on their own land.

<sup>92</sup> Byles, ‘A Reconnaissance of the Mountainous Part of the River Murray Catchment in New South Wales’, 26.

<sup>93</sup> Stella Grace Maisie Carr, ‘Upper Hume Catchment. Ecological Report 1940–47’ (Melbourne University, c.1947), 10.

<sup>94</sup> Scott Atran, *Cognitive Foundations of Natural History* (Cambridge/Paris: Cambridge University Press/Editions de la Maison des sciences de l’homme, 1990), 216.

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- <sup>95</sup> Alfred Saxton, Transcript of evidence (1939), 1048.
- <sup>96</sup> For fire germination of seeds see: Evan Evans, Transcript of evidence (1946), 224; Anthony Mangan, Transcript of evidence (1946), 203; Percy Weston, Transcript of evidence (1939), 1450–1450A.
- <sup>97</sup> Alfred Saxton, Transcript of evidence (1939), 1049.
- <sup>98</sup> Percy George Weston, Transcript of evidence (1939), 1458b.
- <sup>99</sup> Alexander Edward Kelso (MMBW), Transcript of evidence (1939), 110.
- <sup>100</sup> Adrian Herbert Armstrong Beetham, Transcript of evidence (1939), 641–2.
- <sup>101</sup> Pyne, *Burning Bush*, 252–4, 256, 250.
- <sup>102</sup> FC representatives Alfred Oscar Lawrence and E.H.E. Barber expressed this throughout the 1939 Royal Commission. eg: Stretton warned the FC about coaching and placing hand-picked witness before the Commission. Transcript of evidence (1939), 353; also, Stretton commented that many young foresters were cautious in their evidence for fear of harming their career chances in the FC. Leonard E. B. Stretton 'Report of the Royal Commission', (1939), 7.
- <sup>103</sup> Griffiths, *Forests of Ash*, 141; Griffiths, 'Judge Stretton's Fires of Conscience,' 14.
- <sup>104</sup> Charles Lane-Poole, Transcript of evidence (1939), 2383–4.
- <sup>105</sup> On the effect of institutional scientific thinking on environmental understanding, see James C. Scott, *Seeing Like a State* (New Haven: Yale University Press, 1998), ch.8.
- <sup>106</sup> Atran, *Cognitive Foundations of Natural History*, 263–4.
- <sup>107</sup> Dunlap, *Nature and the English Diaspora*, 139.
- <sup>108</sup> Alfred Saxton, Transcript of evidence (1939), 1048.
- <sup>109</sup> This was indicated by a brief recorded comment or reprimand in the transcripts (which I cannot recall). Stella Grace Maisie Fawcett, Transcript of evidence (1946), 124–31.
- <sup>110</sup> Patrick John Kelly, Transcript of evidence (1946), 144; Michael McNamara, Transcript of evidence (1946), 150; John Douglas Gibson, Transcript of evidence (1946), 147, 154, 156 (Fawcett comment).
- <sup>111</sup> Edmund Cornwall, Transcript of evidence (1939), 1139, emphasis mine; Alfred Joseph Webb, Transcript of evidence (1939), 1025; see also Alfred Saxton, Transcript of evidence (1939), 1042; Allam Murray Dobson, Transcript of evidence (1939), 518–20; and Claude Staff who complained about foresters who were too young, too inexperienced or who followed impractical regulations too closely, Transcript of evidence (1939), 1031–2.
- <sup>112</sup> Atran, *Cognitive Foundations of Natural History*, 7.
- <sup>113</sup> Dunlap, *Nature and the English Diaspora*, 140.
- <sup>114</sup> John Alexander Cameron, Transcript of evidence (1939), 701; similar examples see: Clarence George Henry Poole, Transcript of evidence (1939), 773; William George Reed, Transcript of evidence (1939), 711.



