Fire, Flogging, Measles and Grass

Nineteenth Century Land Use Conflict in South-Western Australia

David Ward[1]

10th Vict. No. 15. 1847

Occupiers may cause fires Between 1st February and 1st of April, not extending beyond limits of his land

III. AND be it enacted, that it shall be lawful for such occupier of land as aforesaid to cause any such fires to be made at any time between the first day February and the first day of April in each year as shall not extend beyond the limits of the land so occupied by him as aforesaid

Native, or lad under 16 Years, may be flogged in lieu of other punishment

IV. AND be it enacted, that where the person unlawfully causing such fire as aforesaid shall be an Aboriginal Native of this colony or a boy under the age of sixteen years, it shall be lawful for the convicting Justices at their discretion, in lieu of other punishment, to order he be publicly flogged, receiving any number of lashes not exceeding fifty

An Essay on Human Ecology

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Summary

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David Ward

A search in the Battye Library has revealed a correspondence from the 1840s on the topic of Nyoongar (Aboriginal) use of fire in south-western Australia.

The early British settlers at York had complained to the newly installed Governor, Andrew Clarke, that the Nyoongars were burning their crops and sheep runs. He wrote to his magistrates and other senior public servants for advice on how to prevent the fires.

While some of the replies are legalistic and punitive, others show some understanding of the importance of fire to the Nyoongars. Frequent burning, and burning in strong winds are mentioned, as are "great harvests" of game.

It is known that measles epidemics in 1860 and the early 1880s reduced the Nyoongar population and caused abandonment of their culture and language by most of the survivors. Other epidemics of diphtheria, whooping cough, venereal disease, and influenza also took their toll right up to the end of the First World War. Recent research into fire marks on old grasstree stems suggest that this decline in the Nyoongar population caused a marked decline in bushfire frequency at many places in the south-west. As fires became less frequent, so each fire became more destructive, due to increased fuel levels, especially where the dead matter was augmented by logging debris.

While some may hastily dismiss the letters as "anecdotal", they are, nevertheless, a quarry of scientific insights for those with the open-mindedness and imagination that are the mark of the best scientific minds. The letters also raise a few knotty questions for those interested in environmental philosophy. For example, what is "nature", and how do we "conserve" it? Was Nyoongar burning and hunting "natural"? If it killed large numbers of animals, was it "conservation"? Might temporary local reductions of animal numbers, combined with increased supply of nutrients and trace elements released by fire, have led to greatly increased fecundity in the surviving animals? What if frequent fires reduced parasites and pathogens, so improving the health and survival of the surviving host animals and their offspring? Did a reduction in fire frequency following the decline in the Nyoongar population lead to reduced fecundity of some animals due to disease, or malnutrition, or lack of native grass tussocks for shelter or nest material?

Over 200 years ago, David Hume said that "History is not only a valuable part of knowledge, but opens the door to many parts, and affords materials to most of the sciences". I hope the reader will see the wisdom of Hume's insight.

-oOo-

The bush fires (which this year have been most extensive) are caused by the natives, either accidentally or intentionally. If the latter, it is for the purpose of driving the animals and reptiles into one spot, or the margin of some river or swamp, where they become an easy prey. The burnt ground, too, sends up in the rainy season a sweeter crop of grass which attracts the kangaroo.

Reverend John Ramsden Wollaston, Picton Journals 1841-1844.

Conflict over land use is common today. Some of our most contentious political and economic issues are between interest groups promoting various uses such as conservation, farming, recreation, forestry and water catchment. Before Europeans arrived in south-western Australia, the indigenous Nyoongar people used the land in a distinctive way, which involved the knowledgeable use of fire as a management tool. The arrival of Europeans with very different traditions led to conflict.

The importance of frequent fire in the land use and culture of the Nyoongar people has been set out in scholarly fashion by Sylvia Hallam[1], Neville Green[2], and others. Amongst a wealth of historical references, Hallam noted Lt. Bunbury's[3] estimate of two to three years between bushfires in the parts of the south-west that he had visited in the 1830s. Hallam also noted Major Mitchell's perceptive comment of 1848[4], based on observations in other parts of Australia, that "Fire, grass, kangaroos, and human inhabitants, seem all dependent on each other for existence...". Green drew on observations from the 1830s by the surgeons Scott Nind and Alexander Collie to amplify the links between hunting techniques, vegetation, deliberate use of fire, land ownership, and seasonal migration between the inland and the coast.

A general fire frequency of a similar order was suggested by the Colonial Botanist of Western Australia, James Drummond[5]. Writing to Sir William Hooker at Kew in 1844, he remarked that Australian plants seemed to benefit from fire every three to four years. At about the same time, John Gilbert[6], the naturalist, reported dense thickets of *Melaleuca* on flats and around swamps north of York. He said that in order to capture banded hare wallaby (*Lagostrophus fasciatus*) and tamar (*Macropus eugenii*) "the natives are in the habit of burning these thickets at intervals of three years, and thus destroy very great numbers; this in fact appears the only plan they could very well adopt for capturing both the Marnine [hare wallaby] and Tamar...".

There were probably parts of the south-west which were less used by the Nyoongar, and so less frequently burnt, but the open, grassy places that attracted Europeans were the result of frequent Nyoongar burning which encouraged grass growth and so increased kangaroos and other animals. These grassy areas were on the coastal plain to the west of the jarrah forest, on the inland, eastern side of the jarrah forest, and along rivers such as the Swan, Murray, Hotham, Williams, Collie, Preston and Blackwood which traverse the jarrah forest. As late as the 1880s native grasses were still abundant in some places. For example Mr. Don Walter, whose father arrived in 1880, described the country as follows[7]. "At that time the nature of the forest differed from the present day. It was truly park-like in appearance, especially the redgum and blackbutt country sloping down to the Blackwood and other south-west rivers. The bracken fern was not a problem as it was quite sparse in its growth, and the river hills were covered in lush native grasses which were very palatable and nutritive to the cattle ... for about two years, when it transpired that the native grasses would not stand up to sustained stocking."

In the summer of 1846 the settlers at York had suffered grievous losses of corn and grazing from fires. Governor Andrew Clarke had been appointed less than a month before, so he asked the Colonial Secretary to write to all Resident Magistrates and Protectors of Natives for their views on

what could be done to prevent or diminish the damage. His circular, and their replies, are given below[8].

Circular 17 February 1846

Residents and Protectors of Natives

Sir

His Excellency the Governor having heard with much regret of the serious damage and loss of property which the settlers, especially in the York District and the past season, have sustained by fires made either or otherwise by the natives, is very desirous of adopting some measure which would, if it did not entirely put a stop to these fires, at all events have the effect of making them less frequent.

With this view His Excellency wishes you to consider the subject and offer such suggestions thereupon as your experience may dictate.

I have the honor to be ...

(Signature missing on microfilm, but Peter Broun was then Colonial Secretary)

The first reply was from Revett Henry Bland, the Protector of Natives at York. He blamed the settlers themselves for some of the fires, but pointed out that it was Nyoongar custom to burn in summer, and that this burning had a number of benefits. He could find no evidence of malicious intent.

York March 2nd. 1846

Sir

I have the honor to acknowledge receipt of your circular of 17th. February on the subject of Bush Fires, and wishing any suggestions with a view to their prevention for the future.

I fear His Excellency will find it a very difficult subject to deal with, and impossible wholly to prevent, it has always been the custom of the Natives to fire the country during the summer season for a variety of purposes, first to assist them in hunting, it also clears the country of underwood, which if not occasionally burnt, would become an impenetrable jungle, infested with snakes and reptiles.

The principal fires in this District that occurred during the earlier part of the present season, originated either from the Settlers themselves, or from the Natives setting fire to hollow trees to dislodge the opossum. December and January being their principal season for hunting them, they have never been accustomed, and are unable in most cases if they wished, to put the fires out, and when the tree falls, the grass ignites and is so extremely dry that the fire will run for many miles, until either a road or some bare spot checks its progress. The principal fire at the Toodyay where three fields of wheat were burnt, originated from a Settler burning a tree near his house.

I consider it an advantage that portions of the country should be burnt every year, provided it is not done till late in the summer, the feed is always better where the dead grass has been previously burnt off.

When I first settled in the District, and got acquainted with the Natives, finding myself much inconvenienced by the bush fires, I commenced the practice of giving them presents of flour and clothing when the first rains set in, provided they had not fired the country during the summer, I found this plan succeed (sic) to a certain extent, and it was followed up by the Government, who through me used to give them presents until two or three years since, when it was discontinued I believe for want of funds.

I have made every enquiry in the District both personally, and through the Police, as to the origin of the fires this season, and do not think that in any one instance they have originated through any malicious intent, the evil however requires some remedy, as the law at present only applies to cases of burning crops of corn, stacks, buildings etc.

It would be hard to debar the Native the food Providence has placed at his disposal, by preventing the use of Fire, without which he cannot procure it. I have no doubt a great deal may be done by rewarding them with Flour and Clothing, to induce them to give up this practice until later in the season, and by passing an act of Council to punish them, when they can be proved to have done it with a decided intent to injure the Settler, and also to prevent Settlers themselves from making fires for clearing, or other purposes, until the corn has been all harvested.

I have the Honor to be, Sir,
Your Obedient Servant
R.H. Bland
Protector of Natives

A day later, Captain Richard Goldsmith Meares[9], the Resident Magistrate at York, put pen to paper. He saw clearly the clash between Nyoongar and European land use.

York, March 3rd 1846

Sir

In reverting to your letter of the 17th. February Inst. wherein His Excellency the Governor expresses a wish that I should consider the subject of the Natives firing the bush and to offer any suggestion which might be adopted to prevent the recurrence - even in part - of the very serious damage sustained in the York District by this practice. It seems necessary to premise in the first instance that when this Territory was taken from the Aborigines and by Act of Parliament they were created British Subjects - "no equivalent for them having been reserved" - it would appear the intention was that they should still maintain themselves as in their primitive state - if so - they burn for their food - whereas the existence of our Flocks and Herds depends on what to us is thus annually irretrievably destroyed and the whole district is now groaning under the ruinous spoliation: some impute it to the Squatting Act which has of late caused a new occupation and thus as it were driven them from their second resource - the first being the old settled Districts. Here are three parties; the Government, the Natives, and the Settlers: the Government let to A.B. [Any Body?] 4000 acres of land for one year having previously paid ten pounds for a License, the next day the whole of these Lands are fired and burned bare by the Natives: the Lambing has commenced, the sheep die, and the farmer is ruined: now it would certainly appear that these lands should be protected by the Government itself - but hitherto the battle has been fought by the new owners against the old ones: The Settlers have adopted a custom of giving at Harvest Time, from each farm, one bushel of wheat to each Tribe "provided they do not burn the run" as also gleaning of the fields: to both which advantages they are [reckless?]; and on this ground we at present stand.

Now it strikes me that whatever is done for these people should come through some higher Authority than the owner of each farm - the proprietors might give in their quota in kind to be deposited for distribution in the hands of a proper officer of the Government who I should say were equally bound with the Settlers to pay in a bountiful [mite?]: all the Tribes have their Chiefs although I believe not very commanding ones but still they might be selected, encouraged, and made very useful in holding control over the rest by investing them with authority to receive from the Government officer and distribute although in the officer's presence and to distinguish them with some mark of favour - if they deserved it - some pains might be taken to educate each Chief in our language so that they might become interpretors and know and understand amongst themselves gradually as the light may break in upon them that we are trying to render them ultimate service and which Time will teach them to appreciate. If we are to keep Flocks it is quite clear that the Lands must be preserved and not fired: and thus the immediate attention of the Natives should be called to the subject, to warn them against solitary confinement and Rottnest, and that for the future, in no one instance will firing the country be overlooked for they laugh at our idea of letting a fire escape them if they wish to put it out, and the wheat collected would I should imagine be more than equivalent to what they would otherwise obtain by those [?] burnings and would also come at the very period when they perform their destructive operations being in January and February.

If I have written my opinions rather freely I beg to assure His Excellency they are the thoughts of an Old Settler who has the prosperity of the Colony most dearly at heart.

I have the Honor to be Sir
Your most obedient Humble Servant
Richard G. Meares
Resident

On the same day, Charles Symmons, Protector of Natives in the Swan Valley, wrote the following balanced letter. He had a great interest in Nyoongar ways, and remarked that burning was, for them, a "most ancient and cherished" privilege.

Perth March 3rd. 1846

Sir
I have the honor to acknowledge the receipt of your letter dated the 17th. of February Inst., expressive of His Excellency's wish that I might endeavour to suggest some measures for the putting a stop to the fires kindled in the bush by the Natives, or at least rendering them of less frequent occurrence.

In reply, I must first beg leave to draw His Excellency's attention to the fact that although by far the larger proportion of bush-fires are occasioned by the Natives, yet that many originate in the wilful or careless conduct of the Settlers themselves. The smouldering ashes of a woodcutter's fire - the chance spark from his pipe are all sufficient means of combustion amongst vegetation parched to tinder by the summer heat. I merely allude to these facts to show the necessity of making some restrictive enactments for the white man as well as for the black.

As regards the Aborigines, I need scarcely point out to His Excellency, that, as in all cases connected with an interference in native habits and feelings - the question of the best means of remedy is one of considerable difficulty.

My knowledge of the Native character renders me extremely sceptical as to the success of any remedial plan for checking one of their most ancient and cherished privileges - but, as in all my transactions with this singular people, I have never been discouraged by the failure of measures which must in the first instance be purely experimental - so, in this case - let some plan of operation be devised - and should it fail - we can only recommence de novo.

I should suggest therefore to His Excellency the practicability of informing the Natives in all the settled Districts of the determination henceforward of the Government to put a stop to their custom of indiscriminately firing the bush, and that on no pretence whatever are they to commence their burning operations before the beginning of the month of March - after which period they may be allowed to do so - the immediate vicinity of the Settlers' homesteads being rigidly excepted. That, provided such regulations be observed on the part of the Natives, the Settlers and the Government combined, should undertake on the 1st. of March of each year to distribute in their

several districts through means of the Protectors and the Resident Magistrates, such gratuities of flour as may at once suffice the cupidity of the Natives and convince them of the policy of compliance with our regulations.

I consider this plan as at least worthy of consideration (however much it may be modified or enlarged) it having been found effectual in the neighborhood of some farms in the York District, where the Shepherds affirm that by this gratuity they could calculate with tolerable certainty on the period for the native firing of the bush.

It will be for the Law Officers of the Crown to determine as to the nature and extent of the penalty to be enforced on the infringement of any arrangements of this nature which may be entered on between the Aborigines and the Government.

I must, in conclusion beg to recall to the attention of His Excellency the equal necessity of legislative restriction in the case of the Settlers and their farm laborers.

I have the honor to be Sir, Yr very Obednt Servnt
Chas Symmons, Protector of Natives

Lt.-Colonel John Molloy wrote from the Vasse. He was the leader of the party which had settled at Augusta in 1830, but he had moved in 1839 to the grassy (i.e. then frequently burnt) country around present day Busselton. His wife, Georgiana, was knowledgeable about the Aborigines and their fires, having spent a lot of time in the bush in their company searching for seeds to send to the collector James Mangles in London[10]. Molloy's understanding of the benefits to the vegetation of the frequent and traditional Nyoongar burning shows in his letter.

Vasse 17th. March 1846

Sir

I have to acknowledge the receipt of the circular of the 17th. Ult. In reference to its contents I must confess my utter inability to offer an opinion as to any effective means of controlling the incendiary propensities of the Natives. Speaking of this district I should say we have not suffered any great inconvenience from Bush fires, the Natives carefully abstaining from their practice until after the harvest is fully accomplished an event to which they look forward with a degree of pleasurable anxiety.

A stern command not to destroy the pasturage with a threat of banishment from the habitations of the Settlers has its effect and so far from Bush fires being generally offensive I believe the opinion prevails in this quarter that they are not only necessary but salubrious.

There are doubtless measures of prevention capable of adoption such as individuals taking the initiative in burning when the country is not in a forward combustible state and fires can be easily arrested, perhaps they would require encouragement to effect the formation of a barrier belt around points requiring protection.

Finally the prospect of Reward by holding out to the Natives the enjoyment of a General Corrobory throughout the district when the distribution of about three pounds of flour to each native on a named day might be offered to them provided a proper degree of abstinence ... should have been observed this would not as far as I can be permitted to form an estimate be a consideration to the proprietors but of a trifling nature.

I have the honor to be Sir
Your most Obedt Servant
J. Molloy
Resd Magistrate

Francis Corbet Singleton was the Resident Magistrate for the Murray District. Writing from his 10,000 acre farm at the junction of the Murray and Dandalup Rivers, he mentions the importance of burning to the Nyoongar in obtaining food, and tells us that the most successful fires for killing animals were those impelled by a strong wind. Like John Gilbert, he noted that animals were "captured in extraordinary numbers".

The use of fast moving fire by Aborigines to kill large numbers of small animals has been noted in more modern times[11]. Further, Aborigines in Arnhem Land still burn light fuels under strong wind conditions when they wish to avoid damage to tree crowns or fruits. The flattened flames and fast moving fires do little damage, whereas a slow moving fire in still conditions and in the same fuel may reach, and scorch, the tree crowns. We could still learn much about fire from Aboriginal people.

Interestingly, he also says that half the country to the west of the Darling Range was burnt each year, so that any one place would burn biennially. This suggests that native grasses were an important fuel component, since shrubs or tree leaf litter alone will not usually burn that frequently.

The land at the junction of the Murray and Dandalup Rivers was described as a rich, grassy plain of about 4,000 acres by a Mr Carter in 1834[12].

Dandalup March 7 1846

Sir

I have the honor to acknowledge the receipt of your circular concerning the damage sustained by the Settlers through the means of Bush Fires; and requesting me to forward for the information of His Excellency such suggestions as might present themselves to my mind.

In reply to the same I would first observe that my experience of the evil alluded to has been confined to this District; which is of a character totally different to that of the Districts eastward of the Range.

In those parts of the Territory a Bush fire will, as has been proved during this season, extend for many miles, not only burning up all vegetation and thereby causing severe damage to the flocks and herds, but utterly destroying the property of several of the Settlers.

In this District it is quite otherwise - the major part of the country to the Westwd of the range being sandy these districts are only partially burnt; and as a general rule I would remark that the vegetation will only burn once in two years - Further; It appears to be about one half of the sandy land burns over by the fires annually; the graziers are therefore fortunately secure in having the other portion for the sustenance of their flocks and herds. The herbage, unless it has been burnt in the previous summer becomes exceedingly hard, and is usually refused by the stock - The fires are never general and if not intentionally lighted by the Europeans for the purpose mentioned, are kindled by the Natives for the purpose of more effectually securing their game; which is captured in extraordinary numbers where a strong wind impels the fires.

I think I may with safety say, that since I have resided in this district no damage has occurred from Bush fires where common precaution has been made use of to prevent the calamities supposed to attend a fire of that nature...

[A lengthy discussion of domestic fires, smoking, and the law has been omitted]

...To frame a statute forbidding the Natives to fire the bush would I fancy prove abortive; and could such a law be carried out in practice

I should conceive it to be an unjust one. The Aborigines look forward to the summer season with the same feelings as Europeans - To both it is the time of harvest - It is then that they gather in by means of these fires their great harvests of game; and altho' in many districts they have been bribed (or paid) for not setting fire to the bush, I look upon it as unjust to demand them to abstain from securing their game or their means of subsistence in a manner which they find to be the most effective.

As well might we compel them to desist from smoking opossums out of trees, on the grounds of such a practice injuring our timber, as to enforce the former rule because our sheep lack feed.

That the scarcity of feed for stock is a most serious consideration I am fully and most sensitively alive to; but upon looking in the district in all its [bearings?] which I have been able to picture to myself, I regret to say that I am unable to conceive a remedy against that practice which consumes the support of our flocks.

At present I can see no method by which His Excelly. could secure to the flock owner that indispensable article; and I fear that so long as we shall be visited by early and long protracted summers any legislation upon that part of the subject now considered will be found not only to be difficult but impracticable.

[A discussion of domestic fires and insurance has been omitted]

I have to regret Sir that His Excelly. will have derived but little information from me on this important subject, more especially as I have given it my best attention, and I shall rejoice to learn that measures suggested by others more capable of forming an opinion upon it have met with the Governor's approbation; which, by being put into practice, will prevent, or at least check an evil so loudly and generally complained of by the Settlers in the districts "over the Hills".

I have the honor to be Sir
Your obed. Servt.
Francis Corbet Singleton
Resident

At Bunbury relations with the Nyoongar seem to have been amicable. George Eliot, the Resident Magistrate there, like Molloy at the Vasse, regarded fire as a benefit rather than an evil. He offered the following thoughts:

Resident's Office, Bunbury March 9th 1846

Sir,

I beg to acknowledge the receipt of a Circular from your Office of the 17th Ulto requesting me to offer any suggestion experience may dictate on the subject of the prevention of fires made accidentally or otherwise by the Natives in the Bush.

In answer thereto I beg to state that the only means I am aware of for that purpose would be for the Government to offer a Reward to be given at the commencement of the Rainy Season to the Natives of the districts that have been least burnt. Such a measure would probably partially prevent burning the Country and would also perhaps induce the Natives to stop those fires that come from a distance. At the same time I must observe that in my opinion every Settler ought at the beginning of the dry season to burn a strip of country in the immediate neighbourhood of his homestead by these means he would be perfectly secure from Bush Fires and by merely giving up a day or two's work probably save his property from destruction.

I am not myself at all averse to the practice of burning the Country inasmuch as it produces better food for the stock and also destroys an enormous number of Reptiles and Insects which would in a few years were it not for the fires increase to such a degree as to render the country almost uninhabitable.

In this District the Natives if they wish to burn any swamp or piece of country in the Vicinity of dwellings always come first to ask my permission.

I remain Sir,
Your obedt Servant
George Eliot
Resident

Captain John Scully, Resident Magistrate at Toodyay, was brief. Perhaps he was preoccupied with other matters, since he returned to Ireland in the following January[13]. He could find no evidence of malicious intent by the Nyoongars.

Toodyay March 10 1846

Sir,

I have the honor to acknowledge the receipt of your letter of the 17th Ult. and in reply thereto beg leave to state for the information of His Excellency the Governor that I have considered the subject of your letter [?] "that His Excellency is desirous of adopting some measure that would have the effect of preventing a recurrence of the Bush Fires", [and?] appears to me that the great difficulty in the way is, the fact of the English Law with regard to injuries to property being inapplicable to the circumstances of the colony, for there is no proof that these fires were caused with a malicious intent. I would therefore suggest that an Act of Council should be passed giving Magistrates the power of awarding Compensation in proportion to the amount of the Loss sustained by a Bush Fire and in case the party convicted of having caused this fire, whether by accident or otherwise, should refuse or neglect to comply with the order then the Magistrate to have the power of committing for a certain period the party offending to hard labour in a house of correction.

I have the honor to be Sir
Your obedient Servant
John Scully
Resident Magistrate

In November another letter, written by his clerk, was received from Captain Meares at York. Obviously frustrated at the delay, he wrote to enquire what steps were being taken. The Nyoongar had already started their burning season. The "Mr Drummond" referred to was the son of the Colonial Botanist, James Drummond. The Nyoongar had some respect for him because he knew their ways, and had, in accordance with Nyoongar tradition, tracked down and killed his brother's murderer.

York 6 November 1846

Sir

His Excellency the Governor having issued a Circular dated 17th February on the subject of the Natives firing the bush and several persons having applied to me to know if the Government have issued any orders to that effect I have thought it advisable to speak to Mr Drummond in the absence of Mr Bland, and also to represent that

they have already commenced this abominable practice so dreadfully destructive to the flocks the last season - The corn is all as yet on the ground and the country is so dry that if there is not some cautioning notice and some threat and perhaps some promise of rewards in Wheat after harvest from the Farmers to induce them to desist there is no knowing or [guessing?] what will be the results this year when the crops over here will not average one half the usual return - There is no doubt I think that Mr Drummond of whom the Natives are in great awe can do very great service if urged to do so by the authorities and this is the general opinion.

I have the Hon...
Signed R G Meares
Resident

Finally, there was a letter dated 10 December 1846, from George Fletcher Moore, by then Colonial Secretary, to the Advocate General.

Colonial Secretary's Office, Perth, 10th December 1846

Sir

I am directed by the Governor to submit to your consideration the enclosed communications on the subject of bush fires with a view to your considering whether it would be practicable or proper to prepare any Legislative enactment for the purpose of checking or regulating in any way the practice of burning the natural vegetation.

I have the honor to be Sir Your Obedient Servant
G F Moore
Colonial Secretary

The outcome was "An Ordinance to diminish the Dangers resulting from Bush Fires", passed by Council on the 2nd. September 1847 on the authority of Frederick Chidley Irwin, Governor and Commander-in-Chief. The advice of those with some understanding of the social and ecological importance of fire to Nyoongars was ignored. In this ordinance anyone setting fire to grass, stubble, shrub, or other natural vegetation between the first day of September and the first day of April could be fined up to fifty pounds. If such person were an Aboriginal Native or a boy under the age of sixteen then they were to be flogged, receiving any number of lashes not exceeding fifty. The right of appeal extended only to those fined ten pounds or more.

It would be interesting to investigate, through court and prison records, the enforcement, or otherwise, of this law. If the law was effective in reducing Nyoongar fire frequency, at least in some places close to then settlement, then there may have been consequent changes in native vegetation and animal populations.

For example, the grass shown on the cover of this document is known in Australia as kangaroo grass (*Themeda triandra*). It is also native to South Africa, where it was traditionally burnt by both Khoisan hunter-gatherers and invading Bantu cattlemen. South African research suggests that this grass thrives best on biennial burning, and tends to diminish and eventually disappear if unburnt for long periods[14]. Have kangaroo grass and other native grasses, such as wallaby and bandicoot grasses (*Danthonia* spp.) diminished in south-western Australia over the past 150 years due to cessation of frequent Nyoongar fire, combined with grazing by fenced European stock, and the advent of rabbits? If so, then this may have seriously affected those native animals which depended on native grasses for food or shelter, and which were themselves a source of meat and skins to the Nyoongar.

Eliza Brown, in a letter from York to her father in England, dated March 1843[15], wrote that the coming rain would "at once" provide "plenty of grass for all descriptions of stock". Her husband Thomas clearly knew the effect of fire in promoting the native grasses, for in a letter dated October 1843 Eliza described his satisfaction at the burning of Mount Matilda in the previous February. She told her father that the fire would ensure "a much more luxuriant crop of grass" and supposed that to be the reason why "the Natives are allowed to pursue their custom". However, by October 1850 Thomas was forced to shift his stock north to Champion Bay "for a year at least as the York and Toodyay districts have been overstocked and the land requires rest for the feed to recover itself". Was it overstocking only that caused the grass to decline, or had there also been a decline in grass regeneration due to a decline in Nyoongar fire frequency following the flogging edict?

It would also be valuable to compare the effect of the Settlers' attempt to reduce fire frequency by flogging with the effect of various subsequent introduced disease epidemics, such as the measles outbreaks of 1860, 1861, 1883 and 1884[16]. There is evidence that these outbreaks alone killed many Nyoongar[17]. According to Daisy Bates, the words *jangga meenya bomunggur* were still in use in the early 1900s, meaning "the smell of the whiteman is killing us"[18]. The survivors of these epidemics largely abandoned traditional life[19], which included firing the bush in the season they knew as *peeruk* or *birok*. For example the North Dandalup group were, according to some old settlers, almost wiped out by measles in 1860[20]. A present day Nyoongar elder, Mr Jo Walley, says that the Dandalup people used to travel, in winter, up the Dandalup Rivers and across to the catchment of the Hotham River, up as far as Wandering. There was little European presence in that area before 1860, and fire marks on ancient grasstrees near creeks at Dryandra Woodland show an abrupt change in fire frequency from every second year prior to 1860, to every ten years or so after[24].

Despite laws and disease, Janet Millett[21] could still remark in the 1860s at York that "In that month (February), which corresponds to August in the north, the dryness of the Western Australian forest has reached its culminating point, and the sight of trees on fire is so much of an everyday matter as to excite little attention."

In the 1870s at Jerramungup, Ethel Hassell[22] observed the *man carl* dance of late summer, which was the prelude to both men and women spreading out over the countryside and burning large areas. She also described how Nyoongars sometimes fired their huts when they moved camp, and walked off, leaving the fire to spread where it would. At a conservative estimate, there were over a thousand Nyoongars in family groups of 5 to 10 people spread over the south-west, coming together in larger groups when food was locally plentiful[23]. If they only moved camp a few times each year, this alone could have caused hundreds of fires every year.

This is an essay on human ecology, that is to say the study of interactions between people and their environment. Clearly the effect of Nyoongar burning on the plants and animals of the south-west of Australia falls within that area of study. If Nyoongars were as active in burning the bush as the above historical evidence suggests, then they must have had a great effect on those plants and animals. That effect greatly diminished when the Nyoongars were almost wiped out by imported disease epidemics, another important aspect of human ecology. The European settlers, in their turn, brought about great changes in vegetation and animals through clearing, logging, and probably through a change in fire regime. This raises the question of what precisely we mean by the words "natural" and "conservation". Was the south-west corner of Australia "natural" before Europeans arrived? If not, what are we aiming to "conserve"? These questions sometimes lead to dogmatic answers, often involving that other high-sounding, yet vague, term "biodiversity".

When confused, humans often seek peace of mind in simplistic dogma, yet history teaches us that dogma leads to polarisation and conflict. The historical perspective helps us to see the need to define our terms more clearly, and clearer definitions can be a first step toward resolving land use conflict through more intelligently structured research programs. A structured way of mapping out research programs has been suggested elsewhere[24].

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References

1 Sylvia J Hallam, "Fire & Hearth", Australian Institute of Aboriginal Studies, Canberra, 1975.
2 Neville Green, "Nyungar-The People", Creative Research, Perth, 1979.
3 W. St. Pierre Bunbury & W P Morrell (editors) "Early Days in Western Australia, Being the letters & journal of Lieut H W Bunbury, 21st Fusiliers", Oxford University Press, London, 1930.
4 T.L. Mitchell, "Journal of an expedition into the interior of tropical Australia, in search of a route from Sydney to the Gulf of Carpentaria", Longman, London.
5 Lachlan McCaw, personal communication based on a letter from Drummond to Sir William Hooker at Kew in 1844.
6 Ian Abbott, personal communication based on Gilbert's notebook and an entry in Gould's "The Mammals of Australia", 1863.
7 E.G. Hall "Bridgetown Oral Histories", OH 12 Don Walter, Bicentennial Heritage Programme 1963 (Held in Bridgetown Library)
8 Colonial Secretary's Records, Volume 152, folios 49-63, Battye Library, Perth, Western Australia.
9 J.E. Deacon, "Captain Richard Goldsmith Meares and his Times", Early Days, Journal of the Western Australian Historical Society, Volume 10, 1948.
10 Alexandra Hasluck, "Portrait with Background", Oxford University Press, London, 1966.
11 C.D. Haynes, M.G. Ridpath & M.A.J. Williams, "Monsoonal Australia: Landscape, ecology and man in the northern lowlands", Balkema, Rotterdam, 1991.
12 Ronald Richards, "The Murray District of Western Australia", Shire of Murray, 1978, p.80.
13 Rica Erickson (editor), "Bicentennial Dictionary of Western Australians pre 1829-1888, UWA Press, 1988.
14 N.C. Pollock & Swanzie Agnew, "An Historical Geography of South Africa", Longmans, London, 1963.
15 Peter Cowan (editor), "A Faithful Picture - the letters of Thomas & Eliza Brown at York in the Swan River Colony 1841-1852", Fremantle Arts Centre Press, 1977.

16 Andrew Cliff, Peter Haggett & Matthew Smallman-Raynor, "Measles - An Historical Geography of a Major Human Viral Disease", Blackwell, Oxford, p.123.
17 Paul Hasluck, "Black Australians: A Survey of Native Policy in Western Australia, 1829-1897", Melbourne University Press, 1942.
18 Daisy Bates, "The Passing of the Aborigines", John Murray, London, 1938.
19 Jesse E. Hammond, "Winjan's People", Imperial Printing Company, Perth, 1933, p.70.
20 Mr W. Pollard, North Dandalup, 1974, and others, quoted by Ronald Richards in "The Murray District of Western Australia", Shire of Murray, 1978, p.19.
21 Mrs Edward (Janet) Millett, "An Australian Parsonage, or, the Settler & the Savage in Western Australia", Edward Stanford, Charing Cross, London, 1872.
22 Ethel Hassell, "Notes on the ethnology of the Wheelman tribe of south-western Australia", ed. D S Davidson, Anthropos, v.31: 679-711, 1936.
23 Sylvia J. Hallam, "Fire & Hearth", Australian Institute of Aboriginal Studies, Canberra, 1975.
24 David J. Ward, "Mapping Questions and Answers in Human Ecology", publicly defended Master's Thesis, Department of Human Ecology, Vrije Universiteit Brussel, 1992.

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