

**INQUIRY INTO MANAGEMENT OF PUBLIC LAND IN
NEW SOUTH WALES**

Name: Mr Peter Rutherford

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As the area of public land dedicated as parks and reserves has increased, revenue generated from the sale of forest products has diminished and not been offset by increased revenue from parks user charges. Forestry activities and royalties from the sale of forest products has helped fund many community service activities, including access for fire control and tourists, ensuring the availability of fire fighting equipment and trained fire fighters, predator control programs and domestic firewood collection.

Politically driven expansion of parks and reserves systems has caused significant social disruption to regional and remote communities, as job and economic losses associated with closure of harvesting, log processing and timber manufacturing companies have not been offset by tourism and other promised offsets.

Budgetary pressures for government to increase expenditure on education, health and public safety result in reduced funds being available. Consequently, there is less funding for active management of public land to ensure conservation values in parks and reserves are maintained and threatening processes, such as weeds and predation by feral animals do not degrade conservation values.

Over 220 years of European settlement has resulted in significant changes in the structure and in some cases, the species composition of large parts of the NSW native forests estate. These and other changes are impacting on fire frequency, intensity and scale. These collective changes are in turn impacting on native biodiversity.

Land managers in the United States of America, faced with similar issues have recognised that active land management, including regrowth management need to be undertaken at a landscape scale to reverse the unintended changes resulting from European settlement. Consequently large scale commercial thinning programs are being implemented to address fire management issues.

Recommendations

1. A review the promised economic benefits of expanded parks and reserves made as part of the justification for expanded parks and reserves on the NSW north and south coasts, the Pilliga and the Riverina red gum forests must be undertaken. The outcomes of the review should then be used to inform future government funding support to affected communities and to benchmark future socio-economic reports if any government wishes to again expand the parks and reserves system based on fanciful socio-economic studies.
2. Current volunteer programs on public land must be greatly expanded to target weed and feral animal control, where these pests are impacting on neighbouring landowners or the conservation values of parks.
3. Ongoing monitoring and active management of rare and threatened species must be undertaken across all parks and reserves to ensure the loss of a koala population, which had been “protected” from logging in the South East National Park is not repeated elsewhere in the NSW parks and reserves system. This information should help prioritise predator control programs.
4. In consultation with Aboriginal communities and experts in past Aboriginal land management practices, demonstration areas should be established within existing parks and reserves and/or on Aboriginal managed land where traditional fire and land management practices are reinstated. The results of these demonstration areas can then be used to guide wider management reform across the forested lands of NSW.
5. Additional research work be undertaken determine if commercial or non-commercial thinning of regrowth forests, on crown land and private property can be used to enhance fire management objectives and catchment water yield and to help offset the socio-economic costs associated with the expansion of parks and reserves on the NSW north coast and in the Riverina.

Submission on the Management of Public Lands in New South Wales

General Purpose Standing Committee No 5
Parliament House
Macquarie Street
SYDNEY NSW 2000

Summary

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Background

It has been evident since the conclusion of the Regional Forest Agreement (RFA) process, that the creation of new national parks and other reserves through change of the tenure of state forests or through the purchase of private property has been driven by eco-politics¹, rather than environmental conservation. Passive parks management has not always resulted in positive biodiversity outcomes for threatened species.

Deficiencies in the management of public land in NSW include:

- A lack of understanding by most land management authorities of the changes to forest structures and species composition in the 170 – 220 years of European settlement due to the breakdown in Aboriginal land management practices. Inappropriate management practices can have subtle but quite detrimental impacts on the conservation of threatened species.²
- While significant biological information has been gathered from areas subject to harvesting for wood products, there is no comprehensive and ongoing biodiversity surveys being undertaken across all government land tenures to ensure park and reserve management is delivering the necessary biodiversity outcomes.
- There is long-term evidence to show that even threatened species of flora and fauna, can co-exist with other forest uses, including harvesting for forest products. For many bird, mammal and reptiles, predation by exotic predators is the key threatening process, not harvesting.
- When justifying the creation of more national parks, successive governments have underestimated the impacts of timber industry job losses on small rural communities in the medium to long-term. Replacement jobs, particularly in tourism have been overstated and the impacts of forest conversion are masked for 1 to 2 years by government funded payouts.³

¹ <http://theland.farmonline.com.au/news/state/agribusiness-and-general/general/reess-last-act-new-national-park-for-river-red-gums/1695846.aspx>
<http://www.smh.com.au/nsw/a-portrait-of-power-without-glory-20110930-1l1ha.html>
<http://www.parliament.nsw.gov.au/prod/parlment/hansart.nsf/V3Key/LA20100519056>

² *The Eucalypts of Victoria* A. W. Howitt, F.G.S., F.L.S – Transactions of the Royal Society of Victoria 1890 Pages 109 – 113.

³ [http://www.rrgea.org/?file=home&smid=1#Carr's green legacy is a black mark](http://www.rrgea.org/?file=home&smid=1#Carr's%20green%20legacy%20is%20a%20black%20mark)

- Governments have also ignored the loss of revenue generated through commercial activities in state forest and the contribution of some of this revenue to the cost of land management. When budgetary conditions tighten, or short-term “adjustment” funding is exhausted land management capacity is reduced.
- Lack of revenue to effectively manage the national park estate is then reflected within increasing problems from weeds, pest animals and inappropriate fire regimes, which run counter to properly maintaining the biodiversity values of the parks estate.⁴

4. <http://www.environment.nsw.gov.au/sop04/sop04ch5.htm>

River Red Gum Forests in the Southern Riverina

The red gum forests of the Murray River valley have a long history of use for firewood for river boats, domestic and industrial heating and for sawn timber production.

In 1895, A. W. Howitt⁵ wrote of the Southern Riverina red gum forests:

“In contrast to the lamentable destruction of valuable forests on the Victorian bank, I observed that on the New South Wales bank of the Murray the forests, from above Echuca, to at least, all the way down, had been preserved.”

Howitt also noted that in 1892-93, the Murray River Sawmill Company at Echuca was buying logs from the crown forests. So harvesting for saw logs, sleeper cutting, as well as firewood, to supply steam power to the river boats was well established by the late 1800s.

In both A. W. Howitt's report and the Third Progress Report of the Victorian Royal Commission 1899⁶, it was noted that the prolific regrowth resulting from the annual flooding of the river flats needed to be thinned to ensure the health and growth of the forests was not retarded.

It is widely recognised by those who have worked in and managed the red gum forests that river regulation has greatly altered the flooding patterns that created and maintained healthy red gum forests for thousands of years prior to European settlement and up until the middle of the 20th century. River regulation has diminished the health of the forests by flooding parts of the forests for excessive time, at the wrong time of the year. It has also denied most of the forest the annual flooding that occurred prior to river regulation.

Photographic evidence was gathered during the drought that shows the red gum forests in parks and reserves, that are no longer thinned for timber production, were more prone to death and die back than state forest, where tree numbers were reduced though commercial harvesting. **Converting state forests to national parks has not addressed the fundamental red gum forests conservation issues. With the expectation of diminished river flows in future, unmanaged forests in parks and reserves are at greater risk of death and disease, with consequent impacts on biodiversity, than if they remained open to timber harvesting.**

The inordinate haste of Nathan Rees¹, in his last hours as premier to commit 42,000 hectares of state forest to national park highlights the eco-political nature of conservation reserve decisions, before and since the RFA process was completed.

5 Report by Mr A. W. Howitt on the Present and Future Supply of Victorian Eucalypts and on the Possible Establishment of an Export Trade in Timber 22nd March 1895.

6. Third Progress Report of the Royal Commission on State Forests and Timber Reserves – The Redgum Forests of the Barmah and Gunbower: Their Resources, Management and Control 15th March 1899.

I don't propose to comment on the NSW north coast, or Yanga or Toorale Stations. It is sufficient to say that these dedications have followed a similar pattern to the red gum parks dedications relying on:

- Overestimation of the economic benefits that will flow from tourism and other proposed economic investment to replace lost timber industry jobs; and
- Underestimation of the impacts on local and regional economies flowing from the loss of timber industry and support service jobs.

Resulting in:

- An outsourcing of most of the social monetary costs (unemployment benefits) from state government to federal government; and
- Imposing social impacts, such as reduced population, aging population, smaller or closed schools and reduced health, banking and other services on local government and remote rural communities.

Adherence to Management Practices.

The following extract from the NSW Government State of the Parks Report 2004⁷ would appear to summarise this issue. The repeated claims by former NSW premiers and environment ministers that the forests are being “saved” by changing tenure from state forests to national park is nothing more than political rhetoric. See paragraph 1 of the summary.

Chapter 5. Managing Pressures on the Park System

Part of the role of the NPWS in managing the NSW park system is to protect the values within each park against threats or threatening processes that might contribute to a decline in the condition of those values. While there is a large range of different threats to park values the most commonly reported threats across the NSW park system are weeds, pest animals and inappropriate fire regimes (Table 9).

Table 9
Most commonly reported threats to park values
(Data source (ii); n = 639)

Threat	Proportion of parks noting this threat (%)	Proportion of the area of the NSW park system noting this threat (%)
Weeds	72	91
Pest animals	57	87
Inappropriate fire regimes	46	59

Given the radical change in frequency of intense wildfires following the breakdown in aboriginal fire management, it is likely that this report actually understates the areas affected by inappropriate fire regimes and only focuses on those areas decimated by wildfires in the past decade, not those areas being harmed by lack of fire.

Pages 109 to 113 of the Transactions of the Royal Society of Victoria 1890² clearly describe the change in forest structure and species composition in the Gippsland that occurred following the cessation of regular Aboriginal burning. This paper also records one of the earliest reports of severe defoliation of Gippsland red gum forests, as pupae numbers were no longer held in check by regular burning of leaf and bark litter.

Too many land managers and policy makers do not seem to understand that the heavily stocked forests with significant understorey vegetation are in many instances an artefact of European management, or lack of management. They consequently ignore the role of Aboriginal and lightning fires in the evolution of the Australian biodiversity over tens of thousands of years, to the detriment of many plant and animal species.

7. <http://www.environment.nsw.gov.au/sop04/>

Models for Management on Public Land

Policies that support active management of all public land must be developed to ensure the land is managed in a sustainable manner in the long term.

Fire

It is only after 3 million plus hectare wildfires in the past decade, decimating 50% of Victoria's public land and costing over 170 human lives and the lives of several hundred million birds, mammals and reptiles, has there again been any serious focus on the managing of fuel levels across broad areas of forests in Victoria and other states.

All the lessons of fire exclusion being an unsustainable position in most Australian forests have been learnt time and again for over a century. Over time, the lessons are forgotten and eco-politics and self interest reinstate passive management systems. In the end, a no fuel reduction burning philosophy brings tragic results for both our biodiversity and human populations.

Australia is not unique in this area, as the USA is currently trying to manage the consequences of over a century of fire exclusion from forest ecosystems that had evolved with regular fire from native American and lightning sources. The US appears to be more advanced than Australia in dealing with management of regrowth stands, including those in national parks, through the use of fuel reduction burns and reducing the number of trees on each hectare by mechanical thinning.

Water

The state and federal governments have made commitments to increase environmental flows. Studies have taken into account the effects of farm dams and plantations on catchment water flows and are in the process of increasing regulation in these areas.

The impact of fire regrowth following the massive bushfires of the past decade have largely been ignored by the policy makers and regulators. Dr Richard Benyon of the CSIRO stated "Understanding the long-term impact of fires on water yield from major catchments is critical to understanding the long-term security of water supplies to cities, farms and the environment,"

The CSIRO also stated "Initially, the loss of vegetation as a result of the fires meant the burnt areas used less water so there was more entering streams because it was not being used by the trees, however, this short-term effect does not last. As the forest grows back and the young trees consume more water, substantial reductions in water yield from the catchment can be expected over coming decades."⁹

8. <http://www.nps.gov/yose/parkmgmt/firemanagement.htm>

<http://www.treesearch.fs.fed.us/pubs/28272>

9. <http://www.csiro.au/Organisation-Structure/Divisions/Ecosystem-Sciences/BushfireImpact.aspx>

Management of regrowth forests in Australia, using fuel reduction and mechanical thinning, to optimise biodiversity, water and fire management is an area requiring additional research and the establishment of large scale “demonstration forests.”

In the US, an increasing volume of material derived from thinning for fire management is being used for commercial purposes. It would be a big change from the lockup and leave management currently applied to much of Australia’s parks and reserves, but the concept needs to be examined carefully, as it may have strategic use in helping to restore forest species and structure to pre-European condition in some reserve areas in national parks and other crown land.

Biodiversity

The focus of most so-called environmental non-government organisations (ENGOS) on a total closedown of harvesting in native forests for sawlog production, to supply logs to manufacture pulp and paper, to provide logs for poles, bridge and fencing timbers and firewood has allowed governments to ignore the impacts of other threatening processes for decades.

In the last 10 years, programs in Western Australia, Victoria and New South Wales have shown that for most small mammals, reptiles and ground or shrub nesting bird species, predation by feral foxes, wild dogs and cats is the key threatening process.

Baiting for foxes and wild dogs has resulted in a rebound (increase) in populations of rare and threatened species, even in forests with significant sawlog and pulpwood harvesting operations. It has been noted that owing to the placement of baits under the soil to ensure species such as quoll are not impacted by baits, populations of feral cats have increased in some situations, presenting an ongoing threat to a wide range of birds mammals and reptiles.

While it is a controversial area of public policy, conservation hunting is a useful supplement to the baiting of feral predators, particularly to address the issue of feral cats. Conservation hunting also has a role in controlling other feral animals, including pigs, goats and deer.

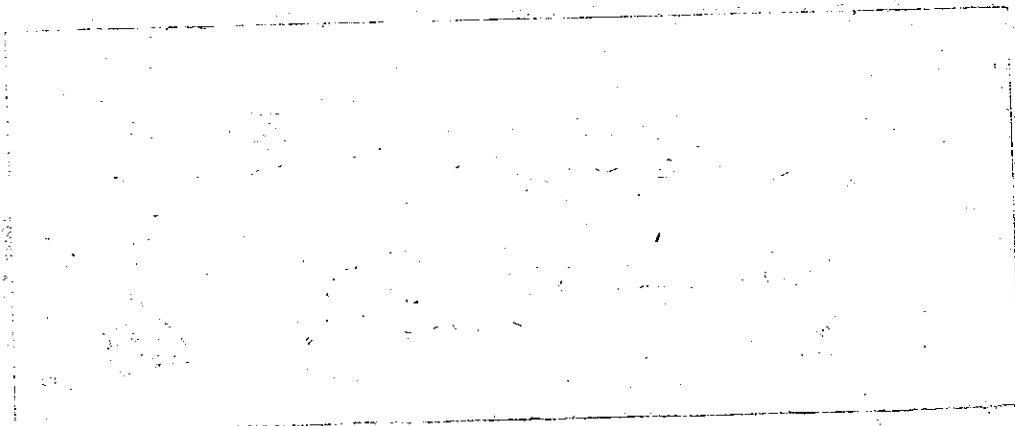


Southern brown and long nosed bandicoots and lyrebirds can co-exist with native forests harvesting. They cannot co-exist with high numbers of feral predators.

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27 July 2012

THE
EUCALYPTS OF VICTORIA

By A. W. Howitt, F.G.S., F.L.S.



REPRINTED FROM THE TRANSACTIONS OF THE ROYAL SOCIETY OF VICTORIA FOR 1890.

INFLUENCE OF SETTLEMENT ON THE EUCALYPTUS FORESTS.

The influence of settlement upon the Eucalyptus forests has not been confined to the settlements upon lands devoted now to agriculture or pasturage, or by the earlier occupation by a mining population.

It dates from the very day when the first hardy pioneers drove their flocks and herds down the mountains from New South Wales into the rich pastures of Gippsland.

Before this time the gramminivorous marsupials had been so few in comparative number, that they could not materially affect the annual crop of grass which covered the country, and which was more or less burnt off by the aborigines, either accidentally or intentionally, when travelling, or for the purpose of hunting game.

These annual bush fires tended to keep the forests open, and to prevent the open country from being overgrown, for they not only consumed much of the standing or fallen timber, but in a great measure destroyed the seedlings which had sprung up since former conflagrations.

The influence of these bush fires acted, however, in another direction, namely, as a check upon insect life, destroying, among others, those insects which prey upon the Eucalypts.

Granted these premises, it is easy to conclude that any cause which would lessen the force of the annual bush fires, would very materially alter the balance of nature, and thus produce new and unexpected results.

The increasing number of sheep and cattle in Gippsland, and the extended settlement of the district, lessened the annual crop of grass, and it was to the interest of the settlers to lessen and keep within bounds bush fires which might otherwise be very destructive to their improvements.

The results were twofold. Young seedlings had now a chance of life, and a severe check was removed from insect pests. The consequences of these and other co-operating causes may be traced throughout the district, and a few instances will illustrate my meaning.

The valley of the Snowy River, when the early settlers came down from Maneroo to occupy it, as for instance, from Willis downwards to Mountain Creek, was very open and free from forests. At Turnback and the Black Mountain, the mountains on the western side of the river were, in many parts, clothed with grass, and with but a few large scattered trees of *E. hemiphloia*.

The immediate valley was a series of grassy alluvial flats, through which the river meandered. After some years of occupation, whole tracts of country became covered with forests of young saplings of *E. hemiphloia*, *pauciflora*, *viminialis*, *amygdalina*, and *stellulata*, and at the present time these have so much increased, and grown so much, that it is difficult to ride over parts which one can see by the few scattered old giants were at one time open grassy country.

Within the last twenty-five years many parts of the Tambo valley, from Ensay up to Tongio, have likewise become overgrown by a young forest, principally of *E. hemiphloia* and *macrorhyncha*, which extend up the mountains on either side of the valley. This dates especially from the time when the country was fenced into large sheep paddocks, when it became very important that bush fires should be prevented as a source of danger to the fences, and even when fire occurred the shortness of the pasturage checked the spread.

Similar observations may be made in the Oneco district, namely, that young forests of various kinds of Eucalypts are growing where a quarter of a century ago the hills were open and park like. In the mountains, from Mount Wellington to Castle Hill, in which the sources of the Avon River take their rise, the increase of the Eucalyptus forests has been very marked. Since the settlement of the country, ranges, which were then only covered by an open forest, are now grown up with saplings of *E. obliqua*, *E. sieberiana*, and others, as well as dense growths of *Acacia discolor*, *A. verniciflua*, and other arborescent shrubs. These mountains were, as a whole, according to accounts given me by surviving aborigines, much more open than they are now.

In the upper valley of the Moroka River, which takes its rise at Mount Wellington, I have noticed that the forests are encroaching very greatly upon such open plains as occur in the valley. I observed one range, upon which stood scattered gigantic trees of *E. sieberiana*, now all dead, while a forest of young trees of the same species, all of the same approximate age, which may probably be twelve years, growing so densely that it would not be easy to force a passage through on horseback. Again, at the Caledonia River, as at the Moroka, the ranges are in many parts quite overgrown with forests not more than twenty years old. The valleys of the Wellington and Macalister Rivers also afford most instructive examples of the manner in which the Eucalyptus forests have increased in the mountains of Gippsland since the country was settled. The forest in these valleys, below 2000ft. above sea level, is principally composed of *Eucalyptus polyanthema*, *E. macrorhyncha*, with occasional examples of *E. melliodora* and *E. stuartiana*; while *E. viminialis* occupies the river banks and moist flats. I noticed here that *E. melliodora* and *E. macrorhyncha* formed dense forests of young trees, apparently not more than twenty-five years old. In some places, moreover, one could see that the original forest had been composed, on the lower,

undulating hills and higher flats of a few very large *E. melliodora*, with scattered trees of *E. polyanthema* and *E. macrorhyncha*. At the present time the two latter have taken possession, almost to the exclusion of *E. melliodora*. In other places *E. polyanthema* or *E. macrorhyncha* predominate; but, on the whole, I think the latter will ultimately triumph over its rivals, unless the hand of man again intervenes.

Such observations may also be made in Western and Southern Gippsland, but, of course, with reference to different species of Eucalypts.

In the great forest of South Gippsland many places can be seen where there are substantially only two existing generations of trees; one of a few very large old trees, the other of very numerous trees which are, probably, not older than 30 to 40 years, and, in most cases, certainly not half that period. The older trees of this second growth do not, I suspect, date further back than the memorable "Black Thursday," when tremendous fires raged over this tract of country. It may also be inferred, from the constant discoveries during the process of clearing of blackfellows' stone tomahawks, that much of this country, now covered by a dense scrub of gum saplings, *Pomadouris apetala*, *Aster argophylla*, and other arborescent shrubs, that the country was at that time mainly an open forest.

I might go on giving many more instances of this growth of the Eucalyptus forests within the last quarter of a century, but those I have given will serve to show how widespread this re-forestation of the country has been since the time when the white man appeared in Gippsland, and dispossessed the aboriginal occupiers, to whom we owe more than is generally surmised for having unintentionally prepared it, by their annual burnings, for our occupation.

The age of the new forests does not, however, depend merely on the general observation that they have sprung up since the settlement of the country in 1840.

I have been enabled to make some direct observations, which show the size of certain trees of known age, and which will serve as comparison for the general growth of the forests.

In 1864 the discovery of auriferous quartz reefs in the Crooked River district, caused a township, which is now called Grant, to be formed on the summit of the mountains, near the sources of Good Luck Creek. In part of the Government reserve, upon which the warden's quarters and police camp stood, and which was cleared of timber, a few young *E. amygdalina* trees grew, and were permitted to remain. One of these was lately kindly measured for me by Mr. W. H. Morgan, M.M.B., who found it to be 56ft. high and 10ft. in girth 3ft. above the ground. This tree is an example of very many others of the same species now growing on the surrounding ranges. At Omeo, in the Government reserve, a number of young *E. viminalis* are

now 60ft. high, which in 1863 were only small saplings under 5ft. in height. On the road from Sale to Port Albert, which was formed somewhere about 1858-59, there are numerous places where *E. viminalis* and *E. muelleriana* and other species are now growing, upon the ditches formed at the sides of the road. Those, for instance, at Lillies Leaf are on an average about 30ft. high.

These instances show how the occupation of Gippsland by the white man has absolutely caused an increased growth of the *Eucalyptus* forests in places. I venture, indeed, to say with a feeling of certainty, produced by long observation, that, taking Gippsland as a whole, from the Great Dividing Range to the sea, and from the boundary of Westernport to that of New South Wales, that, in spite of the clearings which have been made by selectors and others, and in spite of the destruction of *Eucalypts* by other means (to which I am about to refer), the forests are now more widely extended and more dense than they were when Angus M'Millan first descended from the Omeo plateau into the low country.

I have spoken just now of the destruction of *Eucalypts* by other means than the hand of man, for clearing his holdings, and the following are the facts I have gathered concerning the subject:—

About the year 1863-4 I observed that a belt of Red-gums which extended across the plains between Sale, Maffra, and Stratford were beginning to die. Gradually all the trees of this forest, as well as in other localities, perished. At that time my attention was not drawn to the investigation of the cause. Later, however, probably about 1878, I observed the Red-gum forests of the Mitchell River Valley to be dying, just as those at Nuntin and elsewhere had died years before. I then investigated the subject, and found the trees were infested with myriads of the larvæ of some one of the nocturnal *Lepidoptera*. These devoured the upper and under epidermis of the leaves, thus asphyxiating the tree. Some 75 per cent. of that forest died that year, and subsequently almost all the surviving trees died also. Since then I have observed the same larvæ at work, some of which, when kept until they had passed through their several metamorphoses to the perfected insect, were pronounced by Professor M'Coy to be examples of *Urubra lugens*. Whether this insect has in all cases been the agent in destroying the red-gums I cannot affirm. Probably not wholly, but I am satisfied that the greater part of the Red-gum trees which have died in Gippsland from obscure causes have been killed by its agency.

The inference may be drawn from the above observations of forests having been killed by infesting insects, that each species of *Eucalypt*, or at any rate each group of allied species, will have attached to it some particular insect which preys upon it rather than upon any other *Eucalypt*.

If this is so, we ought to find some one tree selected for destruction out of a number of species, and it is the case with the Red-gum, for it falls a victim to *Urubra lugens*, whilst its neighbours the White-gum (*E. viminalis*), the Swamp-gum (*E. gunnii*), and the Yellow-box (*E. melliodora*) are untouched and in vigorous health.*

I feel little doubt that this will explain why it is that in many parts of the country, at all elevations above sea level, certain tracts of dead forest are to be found. Twenty-five years ago I noticed that during the course of three years all the White-gums (*E. viminalis*) in part of the Omeo district died, whilst *E. pauciflora* and *E. stellulata* remained alive.

I have said that in my opinion the increased growth of the Eucalyptus forests since the first settlement of Gippsland has been due to the checking of bush fires year by year, and to the increase thereby of the chance of survival of the seedling Eucalypts, and to the same cause we may assign the increase of the leaf-eating insects which seem in places to threaten the very existence of the Red-gum.

Bush fires, which swept the country more or less annually, kept down the enormous multiplication of insect life, destroying myriads of grasshoppers and caterpillars, which now devastate parts of the Gippsland district, spoiling the oat crops, and eating the grass down to the ground.

The ravages of the larvae of Lepidoptera are at present greatly aided by the sickly state in which many of the Red-gum forests in Gippsland now are. The long-continued use of the country for pasturage, and the trampling of the surface of the ground by stock, has greatly hardened the soil, so that rain which formerly, in what I may call the "normal state" as regards Eucalypts, soaked in, now runs off. In the course of successive droughty seasons the soil of such places becomes thoroughly dry and hard, so that the Red-gum is deprived of much moisture which it otherwise would have in reserve. The trees are wanting in vigour, and thus unable to withstand the attacks of insect pests.

The effects produced by man's interference with the balance of nature, by settling new countries, is not only of great scientific interest, but is also of importance in showing us how and why it is that the labours of the graziers and farmers are being carried on year by year under the increasing attacks of insect pests.

The subject is a tempting one, but to pursue it further would be foreign to the subject of these Notes, which is the "Eucalypts of Gippsland."

* I have observed, however, in some localities *E. melliodora* and *E. piperita* have been slightly attacked by *Urubra lugens*.

REPORT BY MR. A. W. HOWITT ON THE PRESENT AND FUTURE SUPPLY OF VICTORIAN EUCALYPTS, AND ON THE POSSIBLE ESTABLISHMENT OF AN EXPORT TRADE IN TIMBER.

MEMORANDUM.

1. In compliance with the wish expressed by the Honorable the Minister of Lands, I have now the honour to submit a memorandum on Victorian Eucalypts, on the present and future supply of and on the possible establishment of an export trade in such timber.

The Eucalypts herein referred to I have placed in their relative order of merit in reference to suitability for works of construction where density of body, toughness of grain, and durability when exposed to weather or placed in or under the ground is required.

2. Classification of Victorian Eucalypts.

	Botanical Names.	Local Names.
1st Class—Eucalyptus	<i>tereticornis</i> ...	Gippsland redgum.
	" <i>rostrata</i> ...	Murray River redgum.
	" <i>leucoxylon</i> ...	{ (a) Ironbark. (b) Spotted box, bluegum, white ironbark.*
	" <i>odorata</i> ...	Bairnsdale grey box.
	" <i>Muelleriana</i> ...	Yellow stringybark.
	" <i>melliodora</i> ...	Yellow box, yellow jacket.
	" <i>globulus</i> ...	Bluegum.
2nd Class—	" <i>obliqua</i> ...	Messmate, stringybark.
	" <i>goniocalyx</i> ...	{ (a) Spotted gum. (b) Black box, black butt, apple tree.*
	" { (a) <i>hemiphloia</i> (b) <i>variety albens</i> }	{ Grey box.
	" <i>polyanthema</i> ...	Red box.
3rd Class—	" <i>botryoides</i> ...	Mahogany.
	" <i>capitellata</i> ...	Head-flowering stringybark, mountain stringybark red stringybark.
	" <i>piperita</i> ...	White stringybark.†
	" <i>macrorrhyncha</i> ...	Common stringybark, red stringybark.
	" <i>Sieberiana</i> ...	{ (a) Mountain ash, greentop, silvertop, white ironbark, bastard ironbark. (b) Woolly butt, mountain ash.
4th Class—	" <i>viminalis</i> ...	{ (a) River whitegum. (b) Cabbage gum.
	" <i>amygdalina regnans</i> ...	(a) Blackbutt, mountain ash. (b) Peppermint gum.
	" <i>Gunnii</i> ...	Swamp gum.
	" <i>Stuartiana</i> ...	Appletree, white box.

3. Timber of the First Class.

The Redgum, as I have noted, is of two varieties, which are distinguishable by slight botanical differences and by the usually larger size of the leaves of seedlings and young saplings in the Gippsland variety (*E. tereticornis*). I have placed this variety first, because I have reason to believe that the timber is harder and denser than that of the Murray River redgum (*E. rostrata*).

The Gippsland redgum is confined almost entirely to that part of the colony. I have only observed it elsewhere, in isolated instances, in the extreme north-eastern district.

The Murray River redgum is spread over the remainder of the colony, excepting in the higher ranges and certain coast tracts.

The redgum forests of Gippsland have suffered for 30 years from the attacks of the larvæ of a moth which devours the upper and under surfaces of the leaves, and thus ultimately kills the tree. Whole forests, for instance at Nuntin and Lindenow, have, within my knowledge, been thus killed. Ring-barking has also been generally done on purchased and selected land. Much timber has been cut for various purposes, so that at the present time the available redgum timber is restricted in area and in amount. The only State Forest or timber reserve with redgum is, so far as I know, a small area near Bairnsdale.

To the north of the Dividing Range the principal redgum areas are on the River Murray, at Barmah and Yielima above and at Gunbower below Echuca. In the former there are 61,500 acres, and in the latter 70,000 acres. Smaller areas exist higher up and lower down the Murray, and also on the Goulburn River, and these, in my opinion, ought without delay to be permanently reserved as State Forests. When the Forest Branch was attached to the Mining Department I endeavoured, but ineffectually, to get this done.

Below Swan Hill there were at one time extensive forests of redgum along the river, and especially in the large bends liable to flood. These forests were, however, ring-barked and killed by pastoral occupants, contrary to the strenuous protests of the Conservator of Forests.

When I descended the Murray, nearly three years ago, from Swan Hill to Mildura, I observed with great regret not only this destruction of most valuable timber along the Victorian bank of the river, but also that occupants in places were then engaged in destroying the young trees, which would in time have replaced the former forest.

It will be seen from my correspondence with the Department of Lands that I endeavoured not only to have the redgum areas converted into State Forests, in order that the timber might be protected, but also that the destruction of young trees by grazing occupiers should be put a stop to. My efforts in this direction also were unavailing.

In contrast to the lamentable destruction of valuable forests on the Victorian bank, I observed that on the New South Wales bank of the Murray the forests, from above Echuca at least, all the way down, had been carefully preserved.

The results of our wasteful system and of the wise system of the New South Wales Government as regards the redgum forests will be shown by the following facts:—At that time (1892-3), under the

* It must be stated that when any particular Eucalypt is thus marked in the list it is merely inserted as a variety under its proper botanical designation, but not because it belongs to the class in which it is placed.

† There are strong reasons for believing that this Eucalypt will have to be removed from *E. piperita* as determined by the late Baron v. Mueller and placed as *E. eugenoides*.

regulations under the *Land Act* 1890, the Murray River Sawmill Company at Echuca had obtained 1,600 logs of redgum from a special area of 1,000 acres in the Yielima Forest for the sum of £31, while the same number of logs on the New South Wales side of the river would have brought in a royalty of £700. The company had during that year paid to the New South Wales Government the sum of £1,565 8s. for royalty and £47 for licence-fees in respect of redgum timber.

These facts go to show the manner in which our redgum forests have been cut out at a nominal charge, and also the large revenue which ought to have been obtained from them if managed in an intelligent manner in the interests of the whole community.

At the present time the redgum forests are barely, if at all, able to supply our own wants, much less to yield any surplus for export.

The only other redgum area in the control of the Government is in the Victoria Valley. It is not of any great area, nor are the trees numerous compared with acreage, but what were there were of excellent quality.

The Tucker Village Settlement at Wonwondah was permitted to operate on this forest on a royalty charge. I understand now that the best of the timber has been cut out and used, but that no royalty has been paid for it.

In the remainder of the western district the best redgum which I have seen is on private lands on the Upper Glenelg and Wando rivers.

It will be seen from the preceding statements that for the present the redgum forests at any rate under State control are practically cut out, and that any other source of supply must be looked for in private lands and scattered timber on Crown lands. Most of the former has, however, been ring-barked, and is therefore to some extent deteriorated as well as hard to work.

In my opinion, the proper course to take in regard to redgum areas will be (1) to make State Forests of all remaining patches of redgum forest which are still Crown lands, especially on the Murray and Goulburn rivers and in Gippsland; (2) to complete the thinning-out of the young forests in the 30,000 acres of young forest in the Barmah, Yielima, and Gunbower forests, which were not thinned in 1892; (3) to carefully protect all redgum areas; (4) to make the royalty system of payments apply to all redgum areas, and also at the same time, if possible, to all timber in State Forests of whatever kind.

The scale of royalty should be adjusted to the value of the timber for commercial purposes, and to the locality whence obtained and the difficulties of transport.

The Ironbark is of two varieties, botanically speaking, but in practice there is no difficulty in distinguishing between them.

That variety of *E. leucoxylon* which is universally known as "Ironbark" * grows especially in the neighbourhood of Bendigo, Maryborough, Costerfield, Chiltern, and other places to the north of the Great Dividing Range. At the places named there are State Forests and timber reserves, but with the exception of the forest between Costerfield and Rushworth, the ironbark is practically cut out.

In Gippsland it is found in many parts, for instance Toongabbie, Bairnsdale, Bruthen, and the Lakes' Entrance, but nowhere in such amount as to form the greater part of the forest. It is in places nearly cut out. Young forests are, however, growing up in the localities referred to north of the Dividing Range.

The second variety of *E. leucoxylon* is suitably termed white ironbark, and it probably represents the variety of this tree from which Baron von Mueller named the species "*leucoxylon*." Outwardly it has the appearance of a "white gum," and the wood is light coloured. It is locally called "grey gum," "spotted box," and "blue gum." The wood is inferior in quality to the "Ironbark," is used in some places as posts, and I saw it cut for railway sleepers near Heathcote a few years back.

This tree is not found, so far as I have observed, to the east of Melbourne in the south, or of Rushworth in the north.

It is plentiful in the State Forests and timber reserves of Bendigo, Maryborough, Wedderburn, Heathcote, &c. It is of comparatively little value, and need not be preserved where other and better Eucalypts can replace it.

The Bairnsdale Grey Box (*E. odorata*) † is one of our most durable, and, from the large size obtainable, one of the most valuable of our timber trees. Until I examined its characters critically, and until its botanical peculiarities were investigated at my instance in collections which I forwarded to Baron von Mueller, it was not identified by him with the above-named species, and was considered locally as "yellow box" (*E. melliodora*), to which it has a slight superficial resemblance.

It grows only in Gippsland, especially on limestone formations, commencing to the westward of Bairnsdale, and extending beyond Lake Tyers. Unfortunately, it grew principally upon lands which were required for settlement, and consequently immense quantities of this tree have been ring-barked. It is still found growing on some private lands, on some unalienated Crown lands in the neighbourhood of Lake King and in the Cunningham State Forest.

The greatest care should be taken to preserve this timber, for the reason that where works of construction require great durability and strength combined with length of material, there is no Victorian Eucalypt to compare with it.

The Yellow Stringy Bark (*E. Muelleriana*) was until about five years ago merely regarded as a "stringy bark." I had observed its use in South Gippsland for fencing in 1860, and I found that 30 years afterwards the fences with posts of this timber were still sound. I satisfied myself that the tree had not been botanically described, and I named it after Baron von Mueller in slight recognition of his great work on the Eucalypts. Subsequently, the late Mr. Commissioner Hodgkinson carried out a series of tests as to its strength, &c., and the timber is now recognised as being of very great value.

It grows principally in the tract of country lying between Sale and Tarraville, commencing at a point about 20 miles from the former place where the "white stringybark" (*E. piperita*) abruptly ceases to grow. Northwards it extends towards Tom's Cap. A second area is at the Nine-mile Creek, between Alberton and Toora. These areas are in themselves not large, and have been lessened so far as the supply of this tree is affected by alienation of the land. A small timber reserve, however, is reserved near Wonwrou.

* It must always be remembered that "Ironbark," as applied to Victoria, indicates a different tree from that known by this name in New South Wales or Queensland.

† Baron v. Mueller shortly before his decease renamed this tree *E. Bosistana*.

Small colonies of this tree occur about 3 miles out of Toongabbie on the Walhalla-road, between Bairnsdale and Mount Taylor, along the Insolvent Track, and at one place on the Tambo Valley-road. But none of these areas are of sufficient size to be of much economic value.

The Yellow Box (*E. melliodora*) grows in a scattered manner over almost the whole of Victoria, low lands and high lands alike, but nowhere exclusively as a forest.

It is exceedingly tough and interlocking in fibre, and is of great durability. It is well distinguished in character, and is not likely to be mistaken or substituted for any other Eucalypt than *E. odorata*, with which it was formerly confounded.

Yellow box appears to me well adapted for use for street blocks, and therefore for export.

The Bluegum (*E. globulus*) is so well known that it would appear at first sight that no mistake could well be made in regard to it. Yet this tree has undeservedly come to be in bad repute, probably by reason of the substitution of inferior timber. In the Warragul district I have seen *E. Gunnii* (the swamp gum), which is one of our most worthless timbers, cut for sale as "bluegum." *E. Viminalis* (the river whitgum) has also within my knowledge been similarly substituted.

Very commonly the spotted gum (*E. gonicalyx*) has been and may be still disposed of under the names "bluegum" or "bastard bluegum" for the true "bluegum" (*E. globulus*). At Mirboo North I observed quantities of wheel spokes split from spotted gum sent away as "bluegum."

The bluegum areas probably afford a larger supply than any of the other areas of first-class timber.

There is only one "bluegum" (the *E. globulus*) throughout the colony, and the varieties I have met with have been so only as regards the size and ruggedness of the fruit.

This tree grows plentifully in parts of Gippsland, for instance, from Neerim southwards through Poowong to Jumbunna and westward to Carrajung. It is found on the north-eastern shores of Lake King, at Lake Tyers, in the Cunninghame State Forest, at Apollo Bay, and many other places, but I cannot now recall any State Forest where it is found excepting that at Cunninghame. It is found also in the high mountains of the Great Dividing Range, on the sources of the Goulburn, Ovens, Mitta Mitta, and even in the higher alps, as at Mount Livingstone, where it is known as "ribbony gum."

The Eucalypts which I have now enumerated are all those which in my opinion can be placed in the first class under the conditions as to durability which I have named.

(4) *Timber of the Second Class.*

The Messmate (*E. obliqua*), also locally called stringybark, grows in almost all parts of Victoria excepting the northern areas from the sea-coast up to about 4,000 feet above the sea.

It is found extensively in Gippsland, in the Cape Otway Ranges, and generally in the mountains of the Dividing Range.

It also occurs, so far as I remember, in the Ballarat, Creswick, and Bullarook Forests. Although a fairly durable and useful timber, it has generally the fault of being more or less full of gum veins, and is thus unsuitable for many purposes.

The Spotted Gum (*E. gonicalyx*) occurs in two botanically different varieties which in practice cannot be mistaken for each other. The one distinguished in my list as variety (a) is confined to Gippsland, but possibly may also grow in the Otway Ranges.

It has been found suitable for rails, decking, for mine timber, but is not very durable underground. The tree grows commonly together with messmate (*E. obliqua*) and less commonly with bluegum (*E. globulus*).

The variety (b) grows in two localities in the Gippsland mountains and very generally throughout the other parts of the colony. It is not necessary to refer to it further than to say that it is used in places for "round posts" for fencing where better timber is not to be obtained; otherwise it appears to be a worthless timber.

The Grey Box is met with in two varieties (a) in the northern and north-eastern district. It is a principal constituent of the State Forests and timber reserves in the neighbourhood of Bendigo, Maryborough, Wedderburn, and Heathcote, and is a useful and durable timber. But it has a fault in being, when of any size, almost invariably pipy and hollow, and for this reason I have placed it in this class. The second variety (b), distinguished botanically as "Albens" from the mealy aspect of its foliage, grows almost exclusively in the Tambo Valley, between the Fainting Range and Bindi, and in the valley of the Snowy River, about Turnback, Deddick, Gattamurra, &c. I have also observed it in places in the north-eastern district. It does not grow to any considerable size, and is subject to the same fault as variety (a), otherwise it appears to be a durable timber and suitable for the same purposes.

The Red Box (*E. polyanthema*) grows in places all over Victoria. The timber is, however, as a rule, rather small, the boles and limbs crooked, in some places so much so, for instance, in the Havelock State Forest, as to be of no value but for firewood. In parts of Gippsland it is larger, but there it often becomes so hollow as to be a mere shell. Although the wood is hard and durable these defects cause it to be of little economic value.

Grey box and red box are suitable for street paving, and spotted gum may also be suitable, but its durability in the ground is not great. Considerable quantities would be available for export if the trees are carefully selected.

(5) *Timber of the Third Class.*

I have placed at the head of this class the so called "Gippsland mahogany" (*E. botryoides*). I have done this for the reason that I have not any satisfactory evidence that it can be placed higher, although locally it seems to be well thought of. It is confined to certain localities near the coast of East Gippsland, not extending on the main-land west of the mouth of the Mitchell River, but in the sandy tracts between the lakes and the sea at least as far as Seacombe. In this part, however, as also generally in the sandy coast lands the timber is small. Timber of size for milling purposes grows, I think, only about the Snowy River.

I have placed in this class as a group the "Stringybarks," known botanically as *E. capitellata* (the mountain stringybark), *E. piperita* (white stringybark), and *E. macrorrhyncha* (the stringybark of the north-eastern districts).

E. capitellata grows to large size in mountain districts, for instance, Moondarra, Wandin Yallock, and elsewhere in the Yarra watershed. In the western district the tree has usually a dwarfed habit.

E. piperita.—The white stringybark forms forests in Gippsland, for instance, at Toongabbie, between Stratford and Bairnsdale, Bairnsdale and Buchan, at the Lakes Entrance, in Croajingolong, and it also occurs throughout the mountainous districts. It grows to a good size, is free from gum veins, and is a useful timber. Its western limits are probably Traralgon and Woodside. The common stringybark of central and north-eastern Victoria (*E. macrorrhyncha*) is of less value as a timber tree than the kinds described. I may note in regard to the stringybarks that I have become aware of attempts to pass off the timber of *E. capitellata* (mountain stringybark) for *E. Muelleriana* (the yellow stringybark).

The Mountain Ash (of Gippsland) (*E. Sieberiana*) has also two marked varieties; (a) the rough barked kind, known also by the trivial names of gumtop, silvertop, bastard ironbark, white ironbark, which grows from near the sea-level to an elevation of about 3,500 feet, where it abruptly ceases. Above that grows the flaky-barked variety, (b) known also as mountain ash or woollybutt. The variety (a) is found extensively as the main forest tree in many parts of Gippsland, as at Walhalla, Wilson's Promontory, the Omeo-road, Gelantipy, &c. It also grows in places on the northern face of the divide. The variety (b) grows in the high alpine regions very extensively, forming in parts the whole forest. I have also observed a slightly varying form growing on the summit of Mount Macedon, where formerly it was used for milling purposes. I believe it is quite cut out; but there are strong growths of young trees, which should be preserved, not only because, for some purposes, this tree gives a useful though not durable timber, but because it is adapted to that mountain as its natural habitat, and will in time and with care re-forest it.

The rough-barked variety is not a durable timber, nor so well adapted for some purposes as even the "woollybutt" variety, which is long in fibre and free from gum veins.

(6) Timber of the Fourth Class.

I have placed the river whitegum first in this list, simply because in regard to all the other eucalypts which are included in this class there is very little choice so far as durability is concerned. Of this species there are two marked varieties, one of which is specially found in the alluvial flats and gullies of rivers, following their course up to the very sources in the mountains. The second variety, known as "cabbage gum," grows specially on the mountainous and high alpine regions, where it attains great size. It also occurs to the north of the Great Dividing Range, in the valleys, on rising ground, of the Ovens, Goulburn, and other rivers. This tree has everywhere a deservedly bad name, as decaying readily.

Under the name of "mountain ash" or blackbutt, *Eucalyptus Amygdalina* Regnans forms extensive forests in south-west Gippsland and in the Yarra and Plenty ranges. Palings are split from it, and it is extensively used for saw-mill purposes. When properly seasoned and used for inside or protected work it is a very useful timber, but it is wholly unsuited for purposes where the timber is required to be on or in the ground.

I have observed this wood cut and sent away as bluegum, and also supplied and used for fencing purposes in the railways, probably under the designation of stringybark.

Lately I have observed from statements in the press that shipments of "mountain ash" are being sent to Europe. This trivial name leaves it uncertain whether the timber referred to be *E. Sieberiana* or *E. Amygdalina* Regnans.

But whichever it may be it is not in either case a timber which can be compared except unfavorably with any of the first-class or second-class timbers.

The *Eucalyptus Amygdalina* (variety b) includes a considerable number of so-called "peppermint gums," "bastard stringybark," &c. These are almost invariably worthless as timber trees, with one exception, which may be included in this class, growing in the Creswick and Smythesdale districts, and in the Ballarat Forest where it has been used for saw-mill purposes.

The Swamp Gum (*E. Gunnii*) grows in most parts of Victoria in creeks and swampy flats of mountainous districts and in Gippsland. At Warragul I saw it some years back cut for sale under the name of "bluegum." It is one of the most worthless of our timbers for general use.

E. Stuartiana (Apple tree) grows to great size in parts of Gippsland, and is also found in the north-eastern district. It is without exception the most worthless of the Victorian Eucalypts, yet, some years back, I saw it cut for bridge building, and within the last five years I saw it cut for saw-mill purposes in Gippsland under the name of "white box."

As to the few other Eucalypts which grow in Victoria, they are either very limited in extent or are not likely to be used for any purpose of construction. For instance, *Eucalyptus pauciflora*, the "Snow Gum," *Eucalyptus stellulata*, the "Black Sallee," which are mainly alpine, and *Eucalyptus pulverulenta*, known as silver-leaved stringybark, apple tree, apple box, &c.

(7) Conclusion.

Some conclusions may be drawn from the preceding statements. Our first-class Eucalypts are few in number, the areas upon which they grow are limited, and the supply from such areas has in the past been so recklessly drawn upon by splitters, sawmillers, and timber getters, that at the present time, as far as I can see, we can do no more than barely supply our own wants. I see no sufficient margin at the present, or even in the near future, for any extensive export of first-class timbers. Indeed, our future supplies are questionable, unless immediate steps be taken to protect our remaining gum forests, and to encourage the growth of suitable young trees.

I have already made some recommendations regarding the redgum areas at page 2.

The forests of the ironbark areas might be improved by periodical thinning, on the area system which was established when the Forests branch was attached to the Mines Department.

This system was applied to forests mostly in the neighbourhood of mining centres, and consisted in granting blocks to be thinned out under a small licence-fee, and under the supervision of the foresters. By adopting the practice I established the work can be done sufficiently well to produce a good forest; the cost of supervision is covered by the fees, and a considerable amount of local employment is given.

Thinning out by day labour, and selling the proceeds, is too expensive a process to be considered.

The establishment of a village settlement in the neighbourhood of such a forest requiring thinning might answer, since a considerable amount of employment would be thus found for the settlers.

I may now say that this system of thinning should be applied to all forests wherever practicable. That is to say, wherever there is a local market for the young timber and fallen branches and logs, and even in such cases as the redgum forests of Barmah, Yielima, and Gunbower, where no such local market exists.

As to Bairnsdale grey box, the State Forest at Cunninghame, and all Crown lands where this tree grows, should be carefully looked after, in order that there should be no destruction of the young trees.

The area under State control carrying yellow stringybark, yellow box, and bluegum should be also carefully protected. The same may be said of the areas carrying second-class timbers.

The value of areas carrying inferior timber depends on the locality and also on the presence of other and more valuable Eucalypts amongst them. There is, however, a tendency in the young forests for the young forms of certain Eucalypts to preponderate, and in foresting this requires attention, since these are not always such Eucalypts as it is desirable to grow, being of inferior or even worthless species. The rule should be, therefore, that wherever there are timbers of several classes growing thinning should be carried out so as to give the better timbers the preference. In all cases, in fact, care should be taken to thin out not only the superfluous young trees of good kinds, but in every way to encourage their propagation as against the inferior or worthless kinds.

The observation of many years has shown me that wherever there has been or are Eucalytus forests there is a tendency for a young forest to spring up. This may be reasonably attributed to the increasing freedom from bush fires. The young seedlings escape and grow out of reach of any ordinary fires. The more this process goes on the less inflammable material there is in the shape of grass and herbage. I have watched this process for 30 years, and it may be seen by any one who makes the necessary observation even in any long railway journey.

As therefore young forests are growing up in all parts, it is only necessary to care for them in an intelligent manner to insure an ample supply of mature timber in the future for building, fencing, mining, and general works of construction and repair.

In concluding, I may point out that, in my opinion, all State Forests and timber reserves, excepting those which were examined and of which the boundaries were definitely fixed when under the control of the Mining Department, should be without delay examined, reported upon, and set apart permanently.

Of some such areas the whole is not required; some have not timber of value or are not accessible, and there may be, on the other hand, tracts of timber-bearing country which ought to be made into State Forests. When this has been done all such State Forests should be worked on a well-defined system in the interest of the whole colony, and not in the interest of any locality or section of the community, for the forests are the property of the whole community and not of any part of it.

It will be seen from the files of correspondence in the Forest branch that I endeavoured so far as in me lay to have the State Forests examined and proclaimed. I regret to say that in this I could not succeed. There will be found also a draft Bill and regulations for regulating State Forests, which I believe would form the basis of a satisfactory dealing with this important question.

As to the export of Eucalyptus timber, I may now point out that, as our supply of first-class timber is very short, and as in very many saw-mill districts there are no Eucalypts of the first order of merit, there will naturally be a tendency to ship such timber as can be supplied. So long as the timber is shipped under the local designations there cannot be any certainty as to its real quality. From what I have said it will, I think, be pretty clear that we may expect to find inferior timbers sent out under wrong names or names simulating the names of first-class trees. If this were done the export trade might be irretrievably ruined.

The course which I venture to recommend is that the Forest branch should adopt a list upon which the various Eucalypts would appear in their order of merit as timber trees, after the manner of the list in the beginning of this paper.

Persons desirous of shipping timber might, if they so desired, have their timber inspected and stamped with a number corresponding to the botanical name of the tree, than which there is no other certain designation.

Preferably, this should be done at the mill or in the forests before the removal of the timber if cut there. But since there is no difficulty in knowing with certainty the botanical name of each Eucalypt in any given area the marking could be done at the shipping place under such conditions as would obviate error.

If this course were followed purchasers in distant countries would be able to rely upon obtaining any particular kind of Eucalyptus. If they purchased without the Government brand it would be at their own risk.

I may finally refer to wood blocks for paving. Some only of the first-class timbers are used here. It would, I think, be very advisable for experiments to be carried out, not only as to the suitability of the others, but also of the most promising of the second and third class Eucalypts of Victoria, of which we have a comparatively good supply.

The recently introduced plan of applying tar or asphalt to the blocks in position may be found to produce such beneficial effects that these other timbers could be used for blocking purposes, with a somewhat less durability but at a less cost.

I have authority for saying that Mr. A. C. Mountain, city surveyor, Melbourne, who has unrivalled experience, would be willing to investigate practically the suitability of such timbers, if supplied to him true to name.

A. W. HOWITT,
Secretary for Mines.

22nd March, 1895.