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# Forest Conservation and the Reciprocal Timber Trade between New Zealand and New South Wales, 1880s–1920s

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## ABSTRACT

A substantial inter-colonial timber trade between hardwood-scarce New Zealand and softwood-scarce New South Wales developed in the late nineteenth century. The northern coastal area of New South Wales, that colony's main timber-producing district, supplied mainly ironbark (*Eucalyptus paniculata*, *E. crebra* and *E. siderophloia*) for use in New Zealand's railways, bridges and wharves. North-eastern New South Wales was also that colony's most important dairying district, and kahikatea (*Dacrycarpus dacrydioides*), a New Zealand softwood timber, was imported for the manufacture of butter boxes. The magnitude of this two-way trade created domestic timber shortages on both sides of the Tasman Sea, and stimulated conservation efforts from the early years of the twentieth century. Anticipated shortages of kahikatea also forced the New South Wales dairying industry to seek alternatives, including the arguably less suitable indigenous hoop pine (*Araucaria cunninghamii*), for its butter boxes.

## KEYWORDS

Timber trade, New Zealand, New South Wales, ironbark, kahikatea, butter boxes, hoop pine, forest conservation

## INTRODUCTION

Diminishing timber resources had become a matter of concern in both New Zealand and New South Wales by the early years of the twentieth century. In both places, Royal Commissions were established to consider the future use and management of the native forests. In New South Wales, the Royal Commission of Inquiry on Forestry commenced its hearings in July 1907 and reported in November 1907 (interim) and October 1908 (final). One of its specific tasks was to consider whether any restriction should be placed upon the export of any classes of timber, referring particularly to ironbark and tallow-wood, the State's most valuable hardwoods. In New Zealand, the Royal Commission on Forestry met from February 1913 and reported later in the same year. Among other things, it considered whether or not the export of white pine timber to Australia for use in the manufacture of butter boxes should be wholly or partially prohibited. Thus, the need for the conservation of the timber resources of each place was highlighted by the development of export trade with the other.

Consideration has been given elsewhere to the influence of land clearance for settlement, and the consequent destruction and waste of timber, on the development of forest conservation measures in both places.<sup>1</sup> The timber trade, however, has rarely been considered in this way. Cutting timber for export was undoubtedly very much less important than land settlement as a source of deforestation in both New Zealand and New South Wales, but it did focus attention disproportionately on timber use and potential timber famine, and therefore had a disproportionately great influence on the advance of conservation thought. This idea is explored here through the examination of two major aspects of the trans-Tasman timber trade.

The first aspect is the export from New South Wales of heavy hardwood timbers for railways, bridges and wharves. New South Wales hardwoods were exported to many countries throughout the British Empire, but New Zealand was by far the most important destination. The second aspect is the importation to New South Wales of softwood timber, mostly from New Zealand, for the manufacture of boxes in which to export butter, principally to the United Kingdom. The north coast district of New South Wales, which was the State's major source of hardwood timber for export and its major producer of butter, and therefore its major user of butter boxes, is the principal vantage point for the following discussion.

## NORTH COAST HARDWOODS TO NEW ZEALAND

The north coast district of New South Wales was characterised at the end of the 1890s as 'the principal timber district' of the colony, and in it could be found:

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in larger variety and profusion, the principal eucalypts and other timbers of commercial value, referred to generally as hardwoods, as well as a large variety of figured and ornamental timbers, frequently referred to as soft-woods in contradistinction to the hardwoods, and known under the general classification of brush timber.<sup>2</sup>

The district extended northward from Sydney to the Queensland border and inland for up to 50 miles. Eighty mills were at work, producing 54.5 million superficial feet (Sft) of timber, as well as minor products such as piles, sleepers, spokes and staves. The second timber district in importance was the south coast, where 28 mills turned out a relatively minor 5 million Sft of timber, principally hardwood. In the inland Murray River district, eight mills produced about 1.25 million Sft of timber, and another five mills in the adjoining colony of Victoria operated within it, producing perhaps another 3.5 million Sft. The main timber there was *Eucalyptus rostrata* (known then to commerce as the Murray red gum), a valuable and extensively used hardwood.<sup>3</sup>

Of the hardwood timbers of the coastal districts, ironbark undoubtedly was the most sought after. Ironbark was not a single species, but rather a suite of species having similar properties, notably their extreme hardness, toughness and durability. In northern New South Wales these species were *Eucalyptus paniculata* (white or grey ironbark), *E. crebra* (narrow-leaved red ironbark) and *E. siderophloia* (broad-leaved red ironbark).<sup>4</sup> Ironbark, which had been described as the 'king of New South Wales hardwoods', was highly valued for purposes where strength and durability were required, primarily for piles, for beams and girders in bridges and other engineering works, and for railway sleepers.<sup>5</sup>

Because ironbark was at the time by far the most important hardwood in the coastal districts, it is the focus of this section, but much of the following discussion and analysis also applies to several other hardwood timbers, notably tallow-wood, blackbutt and turpentine.<sup>6</sup> Tallow-wood (*Eucalyptus microcorys*) was considered to be the second most important hardwood in coastal New South Wales. It is restricted in range to the north of the State and southern Queensland, between the coast and the higher altitudes of the Great Escarpment. The limits of its distribution are near Newcastle in the south, and around Maryborough and Fraser Island in the north.<sup>7</sup> Blackbutt (*Eucalyptus pilularis*) is also restricted to the zone between the coast and the escarpment, but has a slightly wider latitudinal range than tallow-wood, extending from Fraser Island in south-eastern Queensland, to near the Victorian border in the south.<sup>8</sup> Turpentine (*Syncarpia glomulifera* syn. *S. laurifolia*) occurs along the coast from southern New South Wales to far northern Queensland in several disjunct areas, but with the main distribution in New South Wales and southern Queensland, south of Gympie. It was highly sought after for use as wharf piles, as it had the fortunate property of resisting the attack of marine borers.<sup>9</sup>

*Hardwood Beginnings*

In the earliest years of New South Wales the hardwoods of the colony were not greatly prized, unlike the less plentiful softwoods such as red cedar (*Toona ciliata*). As long as red cedar was available, there was little incentive to use hardwoods which, although stronger and more durable, had the disadvantage of being much more difficult to work. This feature of the New South Wales hardwoods was commented upon in 1770 by James Cook, who wrote that ‘most of the large Trees in this Country are of a hard and ponderous nature and could not be applied to many purposes’.<sup>10</sup> Nevertheless, hardwoods became widely used as they were ideally suited to some applications, and in others no alternative was available; they comprised many species with a wide range of properties (Table 1).

TABLE 1. Life of principal New South Wales hardwoods used (a) as railway sleepers, and (b) in bridge and wharf construction.

Timber	Life in years	
	(a)	(b)
Ironbark ( <i>E. paniculata</i> ; <i>E. crebra</i> ; <i>E. siderophloia</i> )	25	30–45
Grey gum ( <i>E. propinqua</i> ; <i>E. punctata</i> )	22	30–40
Murray red gum ( <i>E. rostrata</i> )	20	n.a.
Tallow-wood ( <i>E. microcorys</i> )	20	20–25
White stringybark ( <i>E. eugenoides</i> )	18	n.a.
White mahogany ( <i>E. acmenoides</i> )	18	20–30
Grey box ( <i>E. hemiphloia</i> )	18	20–40
Blackbutt ( <i>E. pilularis</i> )	16	20–30
Turpentine ( <i>Syncarpia laurifolia</i> )	16	n.a.

Source: (a) ‘Suitability of New South Wales timbers for railway construction’, Appendix B, ‘Report of the Forestry Branch for the period 1 January 1904 to 30 June 1905’; ‘Timber supply in relation to Public Works’, Appendix F, ‘Report of the Forestry Branch for the period 1 January 1906 to 30 June 1907’. (b) ‘The export of New South Wales hardwoods’, Report of the NSW Department of Public Works, 1903–04, 79.

By the late 1860s a small hardwood industry had developed in northern New South Wales, cutting and sawing timber for both local use and shipment to Sydney, the colonial capital. In 1871 on the Clarence River, the main north coast port (and used here as an exemplar), at least one mill was processing hardwood. At Selman’s, near North Grafton, about twenty men were employed, turning out 30,000 Sft a week in ‘cedar, pine, ironbark, and spotted gum, which are obtained and used for the most part in the neighbourhood’.<sup>11</sup> Locally, hardwood

had uses many and varied; on the farm and station, these plentiful timbers were indispensable for fencing and construction.

Although most of the hardwood milled in the Clarence River district in the 1860s and 1870s was for local use, some was certainly being shipped to Sydney. In 1867, for example, 130 'girders and piles', undoubtedly of hardwood and probably of ironbark, were included in the exports of the Clarence River. The export of girders and piles from that river occurred on a regular basis from 1875.<sup>12</sup>

The export of north coast hardwood sections for construction accelerated in the 1880s in line with demand created by the boom in public works, particularly railway construction and port improvement in New South Wales and Victoria. This was added to by the demand for railway sleepers and construction timbers from within and outside the British Empire. It was abetted by a government policy, instituted in the 1880s but pursued more vigorously in the 1890s, of encouraging both the local use and the export of native hardwoods. This policy was actively supported by programmes of testing, experimentation, certification and marketing.

It is not known exactly when inter-colonial export shipments (as opposed to coastwise shipments to Sydney) of hardwood from the north coast district commenced, nor what quantities were initially being sent. In October 1886, however, the Royal Commission on Water Conservation was told in Grafton that the hardwood of the Clarence River district was being 'sent to New Zealand as fast as possible for the Harbour Trust Works there'.<sup>13</sup> In addition, Messrs. Davis and Hunter, proprietors of a sawmill on a tributary of the Clarence River and of another on the Richmond River, had contracts in 1887 for the supply of 4.5 million Sft of timber to Victoria for the Melbourne Harbour Trust. 'For two years', it was reported, 'they have been cutting and shipping, having no less than six large vessels constantly trading between the Richmond and Clarence Rivers, and Melbourne.'<sup>14</sup> Clarence River trade statistics prepared for the Royal Commission on Water Conservation show a dramatic increase in shipments of 'girders and piles' and 'timber' from 1885, compared to the earlier years of the decade, and this is consistent with the trade with New Zealand and Victoria commencing about 1885.<sup>15</sup>

As the New South Wales export timber trade was increasing in the 1880s, the import trade grew faster; the value of timber imported into the colony grew nine-fold from 1875 to 1885. Imports in 1880 amounted to £269,000 in value, of which 46 per cent came from overseas, and 29 per cent from America. More significantly, timber imports exceeded exports by £232,000.<sup>16</sup> The growing imports, especially the outpouring of Douglas fir timber (*Pseudotsuga menziesii*; termed Oregon pine in Australia) from the north-western United States, had a depressive effect on the New South Wales timber export trade, as well as the internal trade in native timbers. Although the quantity of timber exported from New South Wales increased greatly from 1875 to 1885, its value diminished

slightly. For example, 7.1 million Sft in 1875 was worth £50,000, while 10.9 million Sft feet (50 per cent more) in 1885 was valued at £58,000 (only 15 per cent more).<sup>17</sup>

In response to the general depression in the New South Wales timber industry, sawmill proprietors met in Sydney in 1887 and adopted a petition for presentation to the Minister for Mines aimed at securing financial backing to help to develop a hardwood export trade with the mother country, other European countries and India.<sup>18</sup> The petition pointed out, among other things, that the 'home countries' were almost destitute of durable timber for paving streets, for railway sleepers and for docks.

By that time the colonial hardwood timbers had already been brought to the notice of the British people at exhibitions such as the Colonial and Indian Exhibition, held in London in 1886. In 1883, a collection of 116 specimens of indigenous timbers had been prepared, together with notes on their habitats and uses, for the Calcutta International Exhibition.<sup>19</sup> Professor W.H. Warren was engaged to test Australian timbers and prepare a catalogue giving the fullest details of each species.<sup>20</sup> The government had thus not been remiss in gathering and disseminating information about Colonial timbers, but little export trade appears to have resulted. This position soon changed.

Hardwood timber exports from the Clarence River increased markedly in 1888 compared with the previous year. The number of girders and piles shipped increased by 74 per cent to 2,057, and the quantity of sawn hardwood more than trebled to 1.3 million Sft. For the year to 30 June 1889 a total of 1,284 piles and girders, 1.6 million Sft of sawn hardwood and 72,733 railway sleepers were among the exports from the Clarence to Victoria and New Zealand.<sup>21</sup> These items accounted for most of the hardwood shipped, very little going coastwise to Sydney.<sup>22</sup> Much of the timber exported at the time was for use in the construction of wharves and other harbour improvements.<sup>23</sup>

The growth in exports in the late 1880s was short-lived. Whereas the value of rough timber (the principal item) exported from New South Wales increased each year from 1886 to 1888, it declined after 1888.<sup>24</sup> In 1890 the Director-General of Forests drew attention to the large surplus of imports over exports in the area of forest products and suggested that the colony, 'with its immense resources, should endeavour in every possible way to meet this [domestic] demand ... with material from our own forests'.<sup>25</sup> In addition, the promotion of New South Wales timbers overseas continued. Among the exhibits at the 1893 Chicago Exhibition were hewn railway sleepers of ironbark timber, and an ironbark sleeper which had already been in use for twenty-five years.<sup>26</sup> The same year some hundreds of specimens of timber including railway sleepers, gun stocks, polished pieces, finished and unfinished walking sticks, and an inlaid table were sent to the Imperial Institute in London. Also, some 'private persons' endeavouring to open up

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a trade in wood-paving blocks and railway-sleepers sent specimens of timber to England, Germany and British Columbia.<sup>27</sup>

*The Export Boom*

In 1895, the Premier and Colonial Treasurer, George Reid, recognised that the future prosperity of New South Wales rested in great measure on finding markets for the surplus products of the colony. Accordingly, he established a Board for Exports composed of a number of businessmen with long experience and close association with the various products of the colony. Representing timber on the board was Sydney timber merchant and politician Alexander Kethel. One of the new Board's first acts was to arrange a meeting in January 1896 of representatives of the timber industry which considered how best to promote the export of indigenous timbers.<sup>28</sup> Its principal recommendation was to appoint an expert officer to 'inspect, classify, grade, and, if desired, measure' all timber intended for export. This, it was considered, would facilitate the placement of New South Wales timbers on the markets of the world. It was anticipated that not less than 4 million Sft of timber would be exported from New South Wales to Europe during 1896, and that a small charge for inspection and branding would pay the salary of the expert inspector.<sup>29</sup>

By 1897 the boom in the export timber trade was in full swing. 'Most of the mills [were] working full time, and there [had] been no lack of employment for timber getters'. 'A large proportion' of the coastal timber was now cut to export orders, and there appeared little doubt that the trade was a growing one.<sup>30</sup> Earlier in the year, Walter Campbell, then responsible for the Forestry Branch in his capacity of Chief Inspector of Agriculture, saw 'every prospect of a large trade arising with Great Britain and other European countries and, perhaps, with the United States and Africa'.<sup>31</sup>

During 1899, the Forest Branch was able to report increased activity in the coastal timber trade, a slight advance in timber prices and an increase in forest revenue. Export to European markets was gradually increasing, there being a large demand for first quality hardwoods. Inter-colonial export was 'assuming large proportions', the New Zealand market alone absorbing from 3 million to 4 million Sft a year, principally of coastal ironbark. This, the branch remarked, was 'the most useful timber in the Colony's possession for public works and constructive purposes'.<sup>32</sup>

By 1902, the export trade had grown in value to £124,000, representing an increase of 63 per cent over the previous year.<sup>33</sup> New Zealand took 43.2 per cent, mainly ironbark girders, piles, sleepers and heavy timber for bridge and wharf construction; Victoria took 33 per cent, mainly Murray red gum; and Germany took 6.5 per cent, mainly blackbutt and other hardwoods for street wood-blocks.<sup>34</sup>



*Hardwood Shortage*

The 1902 timber export statistics were encouraging to those promoting the trade in indigenous hardwoods, but the import statistics told another story. Imports were valued at £509,000.<sup>35</sup> Moreover, comparison with import figures for 1901 showed that the demand for foreign softwood timbers was still increasing, demonstrating 'the necessity of establishing a system of forestry [in New South Wales] which will include the growth and production of exotic, as well as the conservation of indigenous timbers'.<sup>36</sup>

Even the 'encouraging' export figures had a negative side to them. In 1900, Henry Deane, the Engineer-in-Chief for Railway Construction in the Department of Public Works, claimed that in the coastal area the ironbark forests within reasonable distance of rail or water carriage had become 'more or less exhausted'. He added that in less accessible coastal regions there may still have been 'a considerable area of such forests' but it was 'only a matter of time for them to be worked out under the present system'.<sup>37</sup> Richard Baker, curator of the Sydney Technological Museum, shared Deane's concern, saying 'there can be no doubt about it, we have got to the end of our tether as regards the ironbark supply'.<sup>38</sup> This problem had been foreseen by Walter Campbell who cautioned in 1897 that 'in a very few years all timber of any value will be cleared off'. 'The quantity of really good, sound, hardwood timber available in the Colony is generally very much over estimated.'<sup>39</sup>

The response to the ironbark shortage came in two parts. The first was the decision of the Forests Branch in 1900 to increase royalties in an attempt to conserve this valuable timber.<sup>40</sup> The new arrangement immediately provoked a hostile reaction from the timber industry. In June 1900, a deputation of representatives of the various timber districts of the colony met the Secretary for Lands, Thomas Hassall, to ask him to cancel the regulation and to allow a conference of timber-getters, teamsters and others interested in the industry to make suggestions about alternative timber regulations and new forestry laws. If the new regulation was enforced, the deputation warned, many people who had entered into contracts for the supply of railway sleepers especially, under the old royalty rates, would either 'throw them up or carry them out at a loss', resulting in the loss of employment, closure of sawmills, and the ruin of the industry.<sup>41</sup>

Hassall's response to the delegation was to agree to waive the new regulations until the end of the year<sup>42</sup> and, although he would not call a conference, he would provide a room and facilities in Sydney where delegates might meet to 'consider how the forestry laws could be made to suit the industry'. He would be happy to receive the recommendations of such a meeting which would 'no doubt be of use to him in framing such an Act and regulations as would overcome a good deal of the difficulty that was now being experienced'.<sup>43</sup> A conference of timber delegates subsequently met in Sydney on 26 October 1900. It submitted to the Secretary for Lands a list of resolutions covering a broad range of forestry reform issues.

It is a measure of the importance of ironbark that of the thirty-three resolutions of the conference, five dealt specifically with this class of timber, and a great deal of discussion at the conference centred on measures to eke out the remaining ironbark supply, and on the question of timbers which might be used as substitutes for ironbark. These resolutions included a submission that the arrangement for the payment of royalty on ironbark timber, now to come into force on 1 January 1901, would result 'in the disorganization of the whole timber trade of the Colony'.<sup>44</sup> Hassall quickly resolved the matter by cancelling the royalty increase.<sup>45</sup>

The government next took action on the question of ironbark royalties in 1902. New regulations were brought into operation on 1 July.<sup>46</sup> These featured a uniform system of royalty charges on timber from all timber reserves and other Crown lands, abolishing the distinction between royalty and fixed licence fees in the 1895 regulations. In this respect, they more broadly put into place the changes proposed specifically with respect to ironbark in 1900.

The shortage of hardwoods in New South Wales had several causes. One, the over-use and inappropriate use of the best hardwoods, undoubtedly contributed. Ironbark was highly valued for purposes where strength and durability were required, but the government, in calling for tenders, invariably specified ironbark, even where other timbers, equally suitable or better for the purpose, could be obtained in abundance at a lower price.<sup>47</sup> Another important factor, but one that is not discussed here, was the general destruction of timber on new areas of settlement.

It was widely believed in the early years of the twentieth century that the timber-getters and timber merchants of the State were 'too busy exporting our timbers to deal with the home demand'.<sup>48</sup> The export trade accelerated through the early years of the century, reaching a peak in 1906–7 when some 51 million Sft of rough timber was exported. During the nine years 1906 to 1914 a quantity of 305 million Sft of rough timber was exported, with a value of £2.5 million. This was 92.3 per cent of the total value of timber exports from the State for the period. New Zealand was the largest destination, taking nearly 100 million Sft (32.7 per cent). The development of the trade with New Zealand is illustrated by the fact that in 1898–9, 99 per cent of the sleepers used by the New Zealand Railway Department were of New Zealand timber, but in 1908–9, 68 per cent were of Australian timber.<sup>49</sup>

Less important export destinations were India, the United Kingdom, Germany and Fiji (Figure 1). These countries consistently purchased large volumes of New South Wales timber, and several other countries took large amounts on a less regular basis. For example, it was reported in 1903 that Allen Taylor and Co. had entered into a contract with a South African railway builder for the supply of 470,000 railway sleepers, and this is reflected in a burst of exports to Cape Colony in 1903 and 1904.<sup>50</sup> Although India was a large and regular customer for New South Wales hardwood, two extraordinary years — 1906 and 1907 — contributed

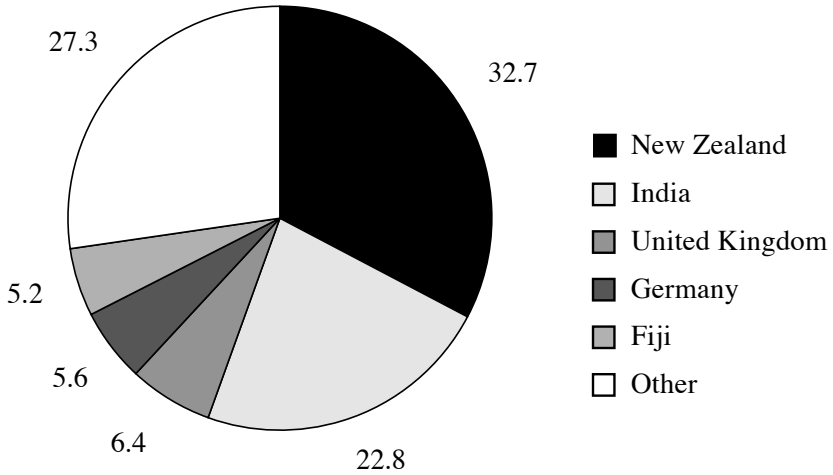


FIGURE 1. Exports of rough timber, New South Wales, 1 July 1905 to 30 June 1914; Principal destinations (Total = 305,410,000 super. feet).

*Sources:* Based on figures published in forestry annual reports.

greatly to the peak in the graph of quantities exported. In these two years India alone received over 40 million Sft of New South Wales timber, mainly in the form of hewn hardwood railway sleepers. The overall decline after those years is principally due to the return of Indian orders to more normal levels.

It is not possible from the aggregated statistics to determine what proportion of the rough timber exports was hardwood, nor how much was ironbark, nor how much came from the north coast forests. Only an insignificant amount, however, can have been softwood, as the State at that time was a large importer of softwood. Hoop pine was the only significant local softwood, its production was declining, and it was never largely exported beyond the Australian colonies. As ironbark was the timber preferred by the State's overseas customers for wharf and railway uses (as it was within the State), its proportion was probably high. The importance of north-eastern New South Wales as a timber-producing region has already been established by reference to timber output and the number of mills operating at the end of the 1890s.

Although total timber exports declined after 1907, the volume taken by New Zealand was maintained at around 12 million Sft per annum until the First World War. After the war, the New Zealand trade resumed, but that to other major pre-war destinations did not. In this way New Zealand became the destination for over 80 per cent of New South Wales rough hardwood exports in the early 1920s (Figure 2).



FIGURE 2. Exports of rough timber, New South Wales, 1 July 1905 to 30 June 1924; Total and New Zealand.

Notes: New Zealand figure for the year 1905–06 does not include unsawn logs. No figures are available for the year 1917–18 due to wartime restrictions on their publication.

Sources: Based on figures published in forestry annual reports.

## NEW ZEALAND SOFTWOODS TO NEW SOUTH WALES

While New South Wales hardwoods were being exported to New Zealand, a reciprocal trade was occurring in New Zealand softwoods, based on sawn timber, principally kauri (*Agathis australis*), rimu (*Dacrydium cupressinum*, which eventually replaced kauri as the principal general purpose timber), and kahikatea (*Dacrycarpus dacrydioides*), commonly known as white pine.

Kahikatea grew widely throughout New Zealand on low-lying or swampy land. James Cook encountered it in 1769 whilst exploring the North Island river which he named the Thames, now called the Waihou. One of these 'lofty trees' was 19 feet 8 inches in girth, 89 feet 'from the root to the first branch', and was 'streight as an arrow and taper'd but very little in proportion to its length, so that [Cook] judged that there was 356 solid feet of timber in this tree clear of the branches'. Many other trees of the same sort were seen, 'all of them very stout', and several taller than the one measured.<sup>51</sup> The timber from these immense and plentiful trees later proved to lack durability, so it was not much

used for building, but it was admirably suited for making butter-boxes because it did not taint the butter.

The development of an export butter industry in Australia was a phenomenon of the late nineteenth century. In New South Wales, an export trade was commenced around 1890, facilitated by the development of refrigerated shipping for meat export in the 1880s. In the early 1890s the State was both an importer and an exporter of butter. Only during the spring and early summer months was production larger than the local requirements, while during the remainder of the year butter had to be imported, chiefly from New Zealand, to meet the local demand, principally that of the Sydney market. By 1893, importation had practically ceased, and a surplus of more than 2 million pounds was available for export. In 1904 more than 20 million pounds of butter (38 per cent of total production) was exported from New South Wales.

Dairying in the other eastern Australian States, and in New Zealand, developed in a similar fashion. In Victoria, the most important Australian butter-producing State, a Government-assisted export trade began in 1889. Exports were little more than one million pounds in 1890, but reached more than 40 million pounds (two-thirds of total production) in 1904. Exports from Queensland were insignificant before 1900, but rose to nearly 10 million pounds in 1904.<sup>52</sup> Exports from New Zealand began earlier than from Australia. Around 4 million pounds was despatched annually by the end of the 1880s, rising to 35 million in 1904.

The export butter trade of Australia and New Zealand was carried on almost entirely with the United Kingdom (Figure 3). By 1904, Australian and New Zealand butter represented over 18 per cent of the total imports into London, and as much as one-third during the winter months. Increasingly, Australasian butter was being made expressly for the export trade, salted and coloured to suit the taste of the particular market, and close attention was being paid to the maintenance of standards in manufacture and shipping, particularly the method of packing and the form of box.

In New South Wales, dairying was one of the first industries to receive the attention of the Board for Exports, created in November 1895 to promote the interests of the colony's producers in 'British, Colonial and Foreign Markets'. Early in 1896 the Board published regulations for the shipment of butter to London in the forthcoming season.<sup>53</sup> In order to economise space in transit, uniform sizes were adopted for packages; butter boxes were to have internal dimensions of 12 inches by 12 inches, by 12 inches deep, and were to weigh not more than 11½ pounds. Each box would contain 57 pounds of butter, which would allow for shrinkage of 1 pound during the voyage (and therefore for 40 boxes to the ton). Mildew affected the butter where imperfectly seasoned timber was used, so well-seasoned timber was specified. Badly-nailed, indistinctly-branded, second hand or soiled boxes would not be shipped. Moreover, the regulations specified 'New Zealand white pine, or other timber approved by the Board', for the manufacture of the boxes.<sup>54</sup>

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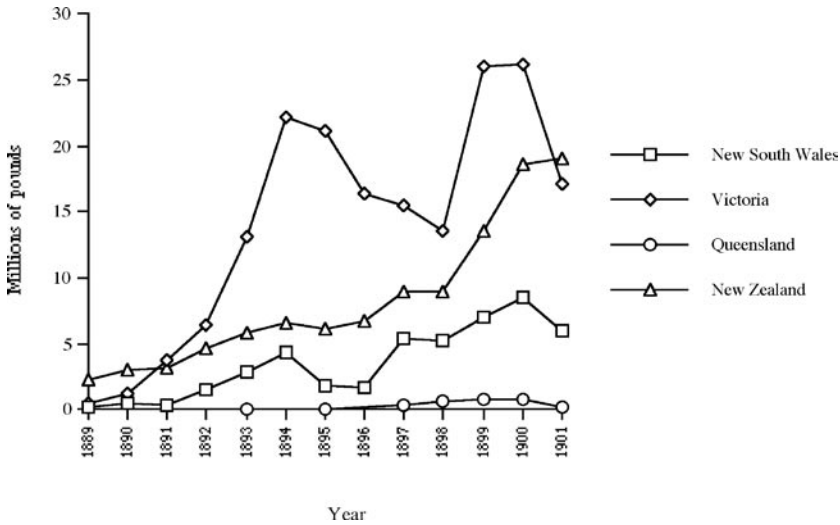


FIGURE 3. Exports of butter to the United Kingdom from the three eastern Australian mainland States (New South Wales, Victoria and Queensland) and from New Zealand, 1889 to 1901.

Sources: Based on figures published in *A Statistical Account of the Seven Colonies of Australasia*, no. 9, 1901–02.

In 1900, 3 to 4 million Sft of white pine was imported into New South Wales from New Zealand annually, ‘almost exclusively ... for the making of butter boxes’.<sup>55</sup> A duty on white pine imports was a topic of considerable debate by the new Australian Federal Parliament in 1902, and during the hearings of the Royal Commission on Customs and Excise Tariffs in 1906.<sup>56</sup> It was argued that New Zealand timber should enter free of duty because it was used almost exclusively for butter boxes, and that to place a duty on it was to tax the butter export trade, an industry that the States were endeavouring to foster. Such reasoning prevailed, and exemption was granted to ‘New Zealand pine, undressed’.<sup>57</sup>

Queensland was well endowed with hoop pine, *Araucaria cunninghamii*, which was used for all that State’s butter boxes. The Tariff Royal Commission was told that Queensland butter companies had been using Queensland timber for export purposes for several years, and that there were at least 3 billion Sft of pine available in Queensland, enough also to supply the southern States. A substantial sawmilling industry had developed under Queensland’s protective Colonial tariff, so that imports were negligible, in stark contrast to New South Wales and Victoria.<sup>58</sup>

Southern interests defended their position by claiming that Queensland hoop pine was a 'splendid timber' that was 'wasted when put into butter boxes', whereas New Zealand white pine was 'inferior stuff, fit only for boxmaking'. More significantly, vested interests in New South Wales also fostered prejudice against the use of hoop pine.<sup>59</sup> For example, one of Sydney's largest box manufacturers, Austral Box and Timber Company Limited, railed that: 'If factories are so foolish as to entertain Queensland timber they will rue it, as it is not inodorous, and besides which is considerably heavier than a white pine box, and we could use our Richmond pine, but that would be just as absurd'.<sup>60</sup>

During the first two decades of the twentieth century, New Zealand pine accounted for about 30 per cent of the value of timber imported into New South Wales each year, eclipsing North American oregon as the most important undressed softwood (Table 2).<sup>61</sup> Although the figures in Table 2 include kauri and rimu in

TABLE 2. Imports of undressed New Zealand pine to New South Wales, 1905–06 to 1921–22.

Year ended 30 June	Quantity (super. feet)	Total Value		Value (£/1,000 s.ft)
		(£)	(%)	
1906	38,346,631	185,409	29	4.8
1907	39,267,337	200,950	28	5.1
1908	40,233,997	236,705	26	5.9
1909	47,545,416	303,769	30	6.4
1910	39,590,115	245,187	28	6.2
1911	44,373,417	266,340	26	6.0
1912	48,851,763	279,900	24	5.7
1913	34,993,082	215,416	15	6.2
1914	38,787,546	238,039	17	6.1
1915	42,764,527	257,286	22	6.0
1916	36,764,874	228,424	26	6.2
1917	42,044,303	276,912	29	6.6
1918	32,070,829	247,644	30	7.7
1919	31,177,031	323,598	29	10.4
1920	34,076,568	401,200	27	11.8
1921	35,086,584	506,587	24	14.4
1922	24,616,824	337,377	23	13.7

*Notes:* From January 1912, figures include only kahikatea (New Zealand white pine) and rimu. Column 4 is the proportional contribution of undressed New Zealand pine (as a percentage) to the total value of timber imports to New South Wales from all sources

*Sources:* Forestry annual reports.

addition to kahikatea, the latter comprised the vast majority of New Zealand pine imported during the period represented. For example, more than half of the 38 million Sft of undressed New Zealand pine imported in 1906 would have been kahikatea. From January 1912, the figures include only kahikatea and rimu, the latter probably in relatively small quantities. The growth in imports of New Zealand white pine must be viewed in the context of the growth of dairying in the Australian colonies, in particular the growth of butter exports. In New South Wales, total production of butter more than doubled from 1905 to 1925 (Figure 4), and during that period, overseas exports were typically around 30 per cent of production, most of that going to the United Kingdom.

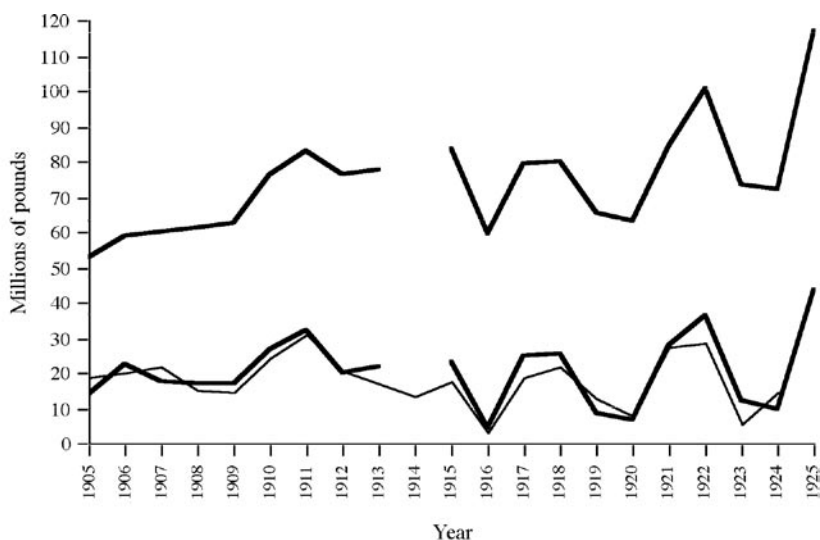


FIGURE 4. Production of butter in, and exports of butter from, New South Wales, 1905 to 1925.

*Notes:* Heavy lines are total production (upper) and total overseas exports (lower); fine line is exports to the United Kingdom. From 1916, the years are from 30 June (except for exports to the UK which are calendar year throughout). During the period, NSW butter was typically around 5 per cent of total UK butter imports.

*Sources:* NSW Yearbooks.

The Tariff Royal Commission was also told that about 95 per cent of the butter boxes used in New South Wales were made from New Zealand pine, and that about 60 per cent of the white pine imported was used for that purpose.<sup>62</sup>



The balance was used in the manufacture of packages for other products (such as fruit, meat, wine and whisky; perhaps 25 per cent), and for purposes other than box-making (such as shelving, lining and flooring; perhaps 15 per cent). The main argument against a duty on New Zealand white pine was that it was used primarily for the export of butter, but supporters of the duty claimed, probably correctly, that large quantities of the pine, imported ostensibly for making butter boxes, were being used for other purposes.

### *Hoop Pine and North Coast Dairying*

The north coast district of New South Wales, as well as being the source of much of the State's hardwood timber, also contained a major softwood resource. The natural range of the hoop pine extended southward from Queensland into northern New South Wales, and the species was especially plentiful in the Richmond River district. Indeed, hoop pine had replaced red cedar as the principal softwood timber harvested in New South Wales by the end of the 1860s.

The north coast also became the most important dairying district in New South Wales. Although dairying expanded during the 1890s along most of the north coast from the Hunter valley to the Queensland border, the most remarkable growth occurred in the northernmost coastal county, the County of Rous, reflecting the concentration of dairying on the brush (rainforest) lands of the Tweed and Richmond Rivers. This single county in 1908 accounted for more than one-third of the butter production of the State, and this rose to nearly 42 per cent in 1913.

Despite the local availability of hoop pine, most of the butter boxes used by north coast factories in the early years of the twentieth century were made in Sydney of imported New Zealand white pine. In fact, several Sydney-based box companies (of which Austral Box and Timber Co. Limited and Union Box and Packing Case Co. Limited were notable) supplied the requirements of most of the New South Wales industry. Fears that supplies of New Zealand white pine might soon become exhausted under the increasing demands stimulated the investigation in New South Wales of the properties of hoop pine as an alternative.

A first-class butter box timber had several required characteristics. First, it must not impart taste or odour to the butter. This quality was lacking to some extent in all timber, especially if not seasoned, but the problem could usually be overcome by paraffining the wood, and inserting parchment paper. Second, the ends of the boxes, at least, should be single pieces. This required boards up to 13½ inches wide, cut from trees of mean diameter not less than about 1½ feet. The wood was also required to be knot-free. Third, a light timber was required, so that the box would not exceed 11½ pounds in weight. Additional weight would add to the cost of carriage of the empty boxes, and potentially to

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the sea carriage of the butter. Fourth, light-coloured wood was preferred so the package would look attractive, and so the brand would show clearly. Finally, the wood should be easy to nail, and should hold the nails securely. New Zealand white pine fulfilled all these requirements.

Comparative tests of specimens of Richmond River hoop pine and New Zealand white pine were carried out by the Government Chemist and reported in the *Agricultural Gazette of New South Wales* in 1902. By that time hoop pine had already been used to some extent for several years for butter box manufacture in the Tweed and Richmond River districts where it had been found not to taint the butter 'in the slightest degree'. The only 'fault' reported was that boxes made from hoop pine were a little heavier than those of the same size made from the New Zealand timber, but this could be overcome simply by using thinner sections of hoop pine, which was considered to be a 'far stronger' timber. This was confirmed by the 1902 tests, and others reported in 1906.<sup>63</sup>

Similar investigations were carried out, with similar results, in Queensland, but for different reasons. These were stimulated not by fears of exhaustion of New Zealand pine, but by adverse criticism of Queensland pine by southern importers and users of the New Zealand article. As well as scientific comparison of the timbers, more than 130,000 hoop pine boxes of Queensland butter for overseas shipment were inspected, and no instance of injury to the flavour of the contents was discovered.<sup>64</sup>

Despite its favourable properties, hoop pine failed to supplant New Zealand white pine for butter box manufacture in New South Wales. It continued to be used to a limited extent for that purpose in the Richmond and Tweed River districts, but its main use was for higher-value products such as flooring and lining. From the point of view of the hoop pine sawmills, the influx of white pine was a severe setback, but from the point of view of the indigenous resource it was a blessing. As early as 1907, concern was being expressed at the increasing scarcity of the hoop pine in New South Wales. In that year the Royal Commission on Forestry raised the subject as a matter of urgency in its interim report.<sup>65</sup> Hoop pine, it was pointed out, was 'the only noted softwood which is largely used for building purposes in the eastern part of New South Wales, and the quantity standing reasonably accessible is very small'. There was a keen and increasing demand for the timber for both local use within the 'populous and prosperous' north coast districts of Grafton, Casino, Lismore and Murwillumbah, and for export. Already, however, the timber in those districts had been 'largely cut out'. Two decades later, noting a marked decrease in the hoop pine cut for 1928 compared to 1927, the Forestry Commission commented that 'the hoop pine trade must, of course, gradually diminish as the meagre supplies remaining become exhausted'.<sup>66</sup>

## TO SECURE THE FUTURE

The magnitude of the hardwood export trade from New South Wales became a matter of considerable anxiety in the early years of the twentieth century. The push to open markets overseas was said to have backfired as it became increasingly difficult within the State for government departments and private firms to obtain sufficient quantities of timber to meet their own requirements. The two most valuable hardwoods, ironbark and tallow-wood, were becoming increasingly scarce, necessitating the use of inferior timbers in the construction of buildings and other works.

When another conference of timber-getters met in Sydney in 1905 to consider the question of forestry laws and regulations, the export of hardwood was considered to be an important factor contributing to the sorry state of the industry.<sup>67</sup> Edward O'Sullivan, a former Secretary for Public Works and for Lands, said that New South Wales had 'an immense mine of wealth in [its] forests' but 'for years past [the industry] had been allowing the New Zealand Government to rob them of the best of their hardwood timbers'. Other delegates pointed out that 'the way things were going, they would, in a few years, be looking for timber in New South Wales instead of having abundance'.<sup>68</sup>

The hardwood supply was one of the three issues dealt with as a matter of 'vital importance' by the Royal Commission of Inquiry on Forestry in its 1907 interim report, and a great deal of evidence bearing on the subject was heard.<sup>69</sup> Some blamed the Government-assisted export trade for the hardwood shortages, and called for restrictions. An immense quantity of hardwood, estimated at nearly 500 million Sft (or 750 million Sft in the log after allowance for waste in hewing and sawing) and consisting principally of ironbark and tallow-wood, would be required during the next ten years by the Public Service alone. The Department of Public Works required 21.6 million Sft of hardwood each year; the Railway Commissioners used 400,000 sleepers a year (13 million Sft) for renewals on existing lines,<sup>70</sup> and a further 7 million Sft for use in bridges, buildings and rolling stock; the Sydney Harbour Trust used annually about 1,500 piles and additional ironbark girders and sawn hardwood amounting to nearly 2 million Sft a year; and the construction of the 310 mile North Coast Railway from Maitland to South Grafton was expected to consume 31 million Sft of ironbark sleepers and girders.

In the face of the evidence of future requirements and current shortages the Royal Commission recommended that the export of ironbark and tallow-wood, the two most valuable hardwoods, be prohibited for a period of ten years. Although several witnesses suggested that increased royalty might limit the export, the Commission was convinced that prohibition of export of ironbark and tallow-wood was necessary 'to save those timbers for our own use'.<sup>71</sup> This was consistent with steps being taken in Victoria at the time to prohibit the

export of red gum and grey box in order to satisfy the demand for sleepers by its Railway Department.<sup>72</sup>

This was not the first occasion on which export restrictions had been recommended. Such an idea was mentioned at the 1900 Forestry Conference, but delegates were urged to remember that 'we import a large quantity of kauri and white pine annually from New Zealand, and it is possible that New Zealand might retaliate with a duty on these timbers'.<sup>73</sup> The Government Statistician, Timothy Coghlan, in 1901 considered the remaining supply of ironbark in New South Wales and concluded that 'it does not follow that there is any appreciable supply of this wood available for export to Europe' after allowing for local public works and for New Zealand and the Commonwealth. 'As a matter of fact', Coghlan added, 'the export of ironbark, as well as tallow-wood and red mahogany, is to be deprecated, for these three woods are becoming very scarce, and the remaining supply may well be retained for home consumption.'<sup>74</sup>

Most of the recommendations of the Royal Commission were given expression in the first New South Wales *Forestry Act* in 1909. The exportation of ironbark and tallow-wood was not prohibited, as preventing waste was considered to be a more useful aim; the amount of timber involved was held to be 'only a fraction compared with the enormous quantity ... that is wasted through ringbarking and clearing'.<sup>75</sup> Nevertheless, the ironbark controversy in particular, and threat of hardwood famine in general, were key issues in the move towards forestry reform in New South Wales at the beginning of the twentieth century.

New Zealanders felt a similar anxiety about the supply of timber for butter box manufacture, and in 1913 their Royal Commission on Forestry considered prohibiting the export of kahikatea to conserve supplies for the dairying industry. What basis existed for this anxiety is unclear. The Royal Commission itself stated: 'How long the white pine will last at the present rate of consumption we cannot say, since we possess no reliable data as to the area occupied by that tree.' When the Australian tariff was being reviewed by a Royal Commission seven years earlier, Queensland interests had quoted a New Zealand Department of Lands report in which it was estimated that the total quantity of available white pine was only about 1.7 billion Sft (compared to the three billion Sft of hoop pine available in Queensland). In evidence to the same inquiry, a representative of the Austral Box and Timber Company rejected the 'bogy of scarcity' that had been brought forward. He had been assured by the New Zealand Prime-Minister, Richard Seddon, that the supply of white pine at present rates of consumption would last at least 100 years, a fact for which Seddon could vouch 'officially'.<sup>76</sup> The annual export of white pine from New Zealand at that time was probably around 50 million Sft, which implies a total supply of five billion Sft, considerably in excess of the figure cited by the Queenslanders, but broadly consistent with estimates published in 1907 by the New Zealand Department of Lands. These indicate a quantity of 3.9 billion Sft of kahikatea – 1.3 billion on Crown lands and 2.6 billion on private and native lands.<sup>77</sup>

The reasons for the decision not to prohibit the export of white pine were several, but an abundant supply was not one of them.<sup>78</sup> Perhaps most importantly, and ironically, the low, swampy coastal land on which the main kahikatea forests grew was valuable for farming purposes; when drained and grassed, it was admirably suitable for dairy farms, and the Royal Commission concluded that the trees ought to be removed forthwith and the land occupied.

A related consideration was that if export were disallowed, much kahikatea would be burnt in the course of land settlement. The timber was used exclusively in New Zealand for butter-boxes and other packaging, but in Australia it had other uses, allowing the whole contents of the log, excluding waste, to be exported. If such export were disallowed, either the price of box timber would have to be raised to such a price as to allow 60 per cent of the log output to be rejected, or sawmillers would cease to convert white pine, leaving it to be eventually felled and burned.

Only Australia and New Zealand used kahikatea for butter boxes; other butter-producing countries such as Denmark, Canada and Siberia used other timbers. Evidently, kahikatea was not the only timber with the required characteristics. Although little trial had been made of substitutes, the Royal Commission was sure that it would be possible to find one, first of all in an imported timber, and later in timber, such as *Pinus radiata*, grown in New Zealand. Finding and providing a substitute for white pine was a matter of 'great importance to the state', and an 'exhaustive series of experiments with regard to the capabilities of various timber for butter-boxes' was recommended.

A final consideration in the decision not to restrict the export of white pine was the importation of Australian hardwood. New Zealand obtained much valuable hardwood timber from Australia, and were the white pine trade to be prohibited, it was feared that Australia might retaliate by restricting the export of her hardwoods. The impasse was broken, however, in 1918, when the New Zealand government introduced regulations to control the exportation of native timber, initially focused on white pine.

Information was collected from New Zealand's 277 sawmills in order to estimate the total output and the total domestic consumption of white pine for the year to the end of July 1919. It was anticipated that about 36.5 million Sft would be required (including 9.9 million for butter boxes and 9.3 million for cheese crates), and that this amount represented about 60 per cent of total estimated output. From the beginning of December 1918, each sawmill had to supply 60 per cent of its output of white pine to the New Zealand market, leaving 40 per cent available for export. The system of fixing the export quota was soon altered to one where each sawmill was allotted a definite quantity to be supplied to the New Zealand market, a permit to export being given for timber produced in excess of that quantity.<sup>79</sup> The immediate result of the enforcement of the new regulations was that the difficulty long complained of in procuring supplies of white pine for domestic use disappeared.

Late in 1920, New Zealand farmers began to experience a slump in demand for exports, and this indirectly affected sawmills, many of which either closed or were put on part-time operation because markets could not be found for their products. Although the export controls were continued, they were no longer necessary. Tougher export restrictions were implemented in 1922, though to attempt to conserve the slow-growing indigenous forests, not to ensure supplies of timber for domestic use. These too were unnecessary, as exports generally failed to reach the quotas that had been set. In 1928, the New Zealand government repealed all regulations restricting the export of timber.<sup>80</sup>

By that time, both New Zealand and New South Wales had created State forest services, staffed by professional foresters, to administer dedicated forest reserves, free of political control. In New South Wales, the Forestry Commission was created in 1916 under a new *Forestry Act*, and in New Zealand, the State Forest Service was created in 1921 under the *Forests Act*. Both were the products of decades of conflict principally between the interests of utilitarian conservation and those of land settlement, but, as the foregoing demonstrates, the timber industry, and especially the timber export trade between the two places, played a significant role in their eventual achievement. The perception on both sides of the Tasman Sea that timber exports contributed substantially to domestic shortages and to rapid resource depletion, stimulated conservation efforts. As in the parallel battle against forest destruction caused by land settlement, the achievement of effective conservation measures was hampered, however, by economic considerations. Not the least of these was the reliance of each State on timber imports from the other, and the resulting fear that the restriction of exports by either would bring about retaliatory restrictions by the other – a tendency to mutual depletion, mutually assured.

## NOTES

<sup>1</sup> For example: B.J. Stubbs, 'Land Improvement or Institutionalised Destruction? The Ring-barking Controversy, 1879–1884, and the Emergence of a Conservation Ethic in New South Wales', *Environment and History* 4 (1998): 145–67, doi:10.3197/096734098779555628; W. Frost, 'Australia Unlimited? Environmental Debate in the Age of Catastrophe, 1910–1939', *Environment and History* 10 (2004): 285–303, doi: 10.3197/0967340041794295; G. Wynn, 'Destruction under the Guise of Improvement? The Forest, 1840–1920', in E. Pawson and T. Brooking (eds.), *Environmental Histories of New Zealand* (South Melbourne: Oxford University Press, 2002), 100–16.

<sup>2</sup> R. Dalrymple-Hay, 'The Timber Trade of New South Wales', *Agricultural Gazette of New South Wales* 10, 9 (1899): 865–6.

<sup>3</sup> Botanical names and common names are those current in the period, although some have changed subsequently. Imperial units are used throughout. One superficial foot (Sft) refers to the volume of a piece of timber 12x12x1 inches (304.8x304.8x24.5mm). One million Sft of sawn timber = 2360 cubic metres.

<sup>4</sup> A fourth species, *E. sideroxylon* (Mugga, or red ironbark) was considered inferior to the others.

<sup>5</sup> J.H. Maiden, 'Useful Australian Plants. No. 3. Ironbarks', *Agricultural Gazette of New South Wales* 4 (1894): 751–61; New South Wales (hereinafter NSW), Department of Lands, 'Report of the Forestry Branch for the period 1st January 1904, to 30 June 1905', *Parliamentary Papers*, 1905, vol. 3: 10.

<sup>6</sup> J.H. Maiden, 'Notes on the Commercial Timbers of New South Wales', *Agricultural Gazette of New South Wales* 6 (1895): 815–43; R.T. Baker, *The Hardwoods of Australia and their Economics* (Sydney: Technological Museum, 1919); D.J. Boland, M.I.H. Brooker, G.M. Chippendale, N. Hall, B.P.M. Hyland, R.D. Johnston, D.A. Kleinig and J.D. Turner, *Forest Trees of Australia* (Melbourne: Nelson Wadsworth and CSIRO, 1984).

<sup>7</sup> J.H. Maiden, 'Useful Australian Plants. No. 10. The Tallow-wood', *Agricultural Gazette of New South Wales* 5 (1894): 289–97.

<sup>8</sup> J.H. Maiden, 'Useful Australian Plants. No. 13. The Blackbutt', *Agricultural Gazette of New South Wales* 5 (1894): 681–8.

<sup>9</sup> J.H. Maiden 'Useful Australian Plants. No. 12. The Turpentine-tree', *Agricultural Gazette of New South Wales* 5 (1894): 463–7; J.H. Maiden and J.V. de Coque, 'Report on Turpentine Timber, with Especial Reference to its Resistance to Cobra (Teredo)', *Agricultural Gazette of New South Wales* 6 (1895): 735–43; Anon, 'Turpentine Timber for Wharf Piles', *Agricultural Gazette of New South Wales*, 3 January 1905, 79–82.

<sup>10</sup> J.C. Beaglehole (ed.), *The Journals of Captain James Cook on his Voyages of Discovery, I. The Voyage of the Endeavour, 1768–1771* (Cambridge: Cambridge University Press, 1955), 393.

<sup>11</sup> *Town and Country Journal*, 8 April 1871, 426.

<sup>12</sup> 'Principal exports from the Clarence River by sea in the years 1857–1867 to July 1, 1886 (from shipping reports)', Appendix to evidence on northern rivers, NSW, 'Royal Commission – Conservation of Water, Third and Final Report of the Commissioners', Legislative Council, *Journal* 42 (1887): 186.

<sup>13</sup> 'Royal Commission – Conservation of Water', 139, evidence of William Goodyer, 26 October 1886.

<sup>14</sup> *Town and Country Journal*, 22 January 1887, 185.

<sup>15</sup> 'Royal Commission – Conservation of Water', Appendix 2 to evidence on Northern Rivers. The available statistics are ambiguous on this point, so this is a tentative interpretation only.

<sup>16</sup> *Sydney Morning Herald*, 27 November 1880, 7.

<sup>17</sup> NSW, Department of Mines, 'Forest Branch Annual Report [for 1886]', Legislative Council, *Journal* 43 (1887–88): 47. Monetary values have been rounded.

<sup>18</sup> *Northern Star* (Lismore), 1 June 1887, citing *Sydney Morning Herald*, 23 and 24 May 1887.

<sup>19</sup> NSW, Department of Mines, 'Annual Report of the Forest Branch [for 1882 and 1883]', Legislative Council, *Journal* 36 (1883–84): 25, 28–31.

<sup>20</sup> 'The Strength and Elasticity of New South Wales Timbers of Commercial Value', by W. H. Warren (Whitworth Scholar; Member of the Institution of Civil Engineers, London; Professor of Engineering at the University of Sydney) in 'Forest Branch Annual Report [for 1886]', 2–16. Warren's report was prepared to accompany the timber exhibits in the

New South Wales Courts at the Adelaide Jubilee Exhibition (1887) and the Melbourne Centenary Exhibition (1888).

<sup>21</sup> The statistical reporting period changed from calendar years in 1889, and no data are available for the first six months of that year. After 1889, years referred to herein are years ending 30 June.

<sup>22</sup> NSW, Parliamentary Standing Committee on Public Works, 1890, 'Report ... relating to the proposed improvements to the entrance of the Clarence River', Legislative Council, *Journal* 47 (1890), 'Summaries of Clarence River shipping', Appendix A. A separate summary of the Clarence River trade for the year 1888–9 has 2,287,690 feet of sawn hardwood timber, 3,000 piles and girders, and 43,000 sleepers leaving the Clarence River by sailing vessels, i.e. to New Zealand and to Victoria. See 'Report ... relating to the proposed improvements to the entrance of the Clarence River', evidence of Richard Cooke, Secretary to the Clarence, Richmond, and Macleay Rivers Steam Navigation Company Limited, 30 October 1889.

<sup>23</sup> 'Report ... relating to the proposed improvements to the entrance of the Clarence River', evidence of John See, 29 October 1889.

<sup>24</sup> NSW, 'Annual Progress Report of State Forest Administration in New South Wales for the year 1891', Legislative Council, *Journal* 50 (1892–3): 33.

<sup>25</sup> NSW, 'Annual Progress Report of State Forest Administration in New South Wales for the year 1890', Legislative Council, *Journal* 49 (1891–2): 40.

<sup>26</sup> NSW, 'Annual Progress Report of State Forest Administration in New South Wales for the year 1892', Legislative Council, *Journal* 50 (1892–3): 10.

<sup>27</sup> NSW, Department of Agriculture and Forests, 'First Report [for 1893]', Legislative Council, *Journal* 52 (1894): 17.

<sup>28</sup> NSW, 'Report on Agriculture and Forestry to 31st December 1897, Legislative Council', *Journal* 57 (1898): 37–9, 49–50.

<sup>29</sup> 'Report on Agriculture and Forestry to 31st December 1897', 49–50.

<sup>30</sup> NSW, Department of Lands, 'Eighteenth Annual Report of the Department of Lands being for the year 1897 [incl. Forest Branch report for half year ended 31 December 1897]', Legislative Council, *Journal*, 57 (1898): 13.

<sup>31</sup> 'Report on Agriculture and Forestry to 31st December 1897', 5.

<sup>32</sup> 'Forest Branch', in NSW, Department of Lands, 'Twentieth Annual Report of the Department of Lands being for the year 1899', Legislative Assembly, *Votes and Proceedings*, 1900, vol. 3: 15.

<sup>33</sup> A total of 16.8 million Sft of this was rough timber, representing nearly 86 per cent of the value of the 1902 timber export trade.

<sup>34</sup> NSW, Department of Lands, 'Report of the Forestry Branch for the year 1902', Legislative Council, *Journal* 65 (1903): 8–9.

<sup>35</sup> The principal item was rough timber – 73,129,539 Sft, valued at £375,953. Of this, some 23.7 million Sft came from New Zealand; 3.6 million Sft from Canada; and 23.7 million Sft from the United States of America.

<sup>36</sup> 'Report of the Forestry Branch for the year 1902', 8–9.

<sup>37</sup> NSW, Department of Lands, *Forestry Conference, Friday 26th October, 1900* (Sydney: 1901), 57–8.

<sup>38</sup> *Forestry Conference*, 34.



<sup>39</sup> 'Report on Agriculture and Forestry to 31 December 1897', 5.

<sup>40</sup> NSW, *Government Gazette*, 16 May 1900, 3781; *Sydney Morning Herald*, 18 May 1900, 8. Australia, New Zealand, Canada and western USA are unusual in that much of the forest was on Crown/State not private or communal land. In New South Wales, the colonial government first reserved areas of Crown land for timber supply in the early 1870s, and in 1878 first charged royalty on some timber removed from some reserves.

<sup>41</sup> *Sydney Morning Herald*, 29 June 1900, 7.

<sup>42</sup> A notice to that effect appeared in NSW, *Government Gazette*, 30 June 1900, 5087.

<sup>43</sup> *Sydney Morning Herald*, 29 June 1900, 7.

<sup>44</sup> *Forestry Conference*, 49–51.

<sup>45</sup> NSW, *Government Gazette*, 17 November 1900, 9012.

<sup>46</sup> Timber and Quarry Regulations, NSW, *Government Gazette*, 2 April 1902, 2591–6.

<sup>47</sup> *Forestry Conference*, 6, 50, 53. Henry Deane, whose department (Public Works) was the largest user of ironbark of any, thought another reason for the depletion of the timber might be that no opportunity was given for young trees to grow up and replace those cut down. He blamed the conditions under which the forests were leased for pastoral purposes, and the practice of burning the undergrowth to promote the growth of grass.

<sup>48</sup> W. L. Vernon, 'Preservation of New South Wales Timbers', Appendix G, 'Report of conference on conservation and supply of timbers in the state of New South Wales'; Appendix A, NSW, Department of Lands, 'Report of the Forestry Branch for the period 1 July 1906 to 30 June 1907', *Parliamentary Papers*, 1907 (2nd session), vol. 1.

<sup>49</sup> New Zealand, 'Report of the Commission on the timber and timber-building industries', *AJHR* 1909, H24, xiv.

<sup>50</sup> *Sydney Morning Herald*, 6 June 1903, 7.

<sup>51</sup> Beaglehole, *The Voyage of the Endeavour, 1768–1771*, 205–7. See also G. Park, *Nga Uruora: Groves of Life* (Wellington: Victoria University Press, 1995), chapter 1.

<sup>52</sup> Queensland, 'Annual Report of the Department of Agriculture and Stock for 1905–06', *Parliamentary Papers* 1906, vol. 2, 103.

<sup>53</sup> These regulations also applied to cheese, but cheese production in NSW, mainly confined to the south coast, was insignificant compared to butter, and little was exported.

<sup>54</sup> 'Report on Agriculture and Forestry to 31 December 1897', 37, 40–1.

<sup>55</sup> *Forestry Conference*, 31.

<sup>56</sup> The Commonwealth of Australia was formed on 1 January 1901 by the federation of six self-governing colonies. Among the many colonial responsibilities transferred to the Commonwealth under the Australian Constitution was trade and commerce with other countries, including the imposition of customs duties.

<sup>57</sup> This maintained the *status quo* in New South Wales and Victoria where under the Colonial tariffs such timber had been imported free of duty. In Queensland, however, there had been a duty of 4 shillings per 100 super. feet upon New Zealand pine, and Queensland timber industry interests strongly opposed the exemption.

<sup>58</sup> Australia, 'Royal Commission on Customs and Excise Tariffs', *Commonwealth Parliamentary Papers* 1906, vol. 5, Minutes of Evidence, 541–7.

<sup>59</sup> 'Royal Commission on Customs and Excise Tariffs', Minutes of Evidence, 561, 570–2.

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<sup>60</sup> Queensland, 'Annual Report of the Department of Agriculture and Stock for 1904–05', *Parliamentary Papers* 1905, vol. 2, 8. 'Richmond pine' refers to *A. cunninghamii* growing in the Richmond River district of northern New South Wales.

<sup>61</sup> NSW, Department of Lands, 'Report of the Forestry Branch for the period 1st July 1905 to 30th June 1906', *Parliamentary Papers*, 1906, vol. 1, 6. In the year 1905–06, for example, about 22 million sft of undressed oregon, mainly from Canada, was imported into New South Wales. This represented 18 per cent of the total value of timber imports to the State from all sources. By comparison, about 38 million sft of undressed New Zealand pine was imported in the same year, representing 29 per cent of the total value of timber imports.

<sup>62</sup> 'Royal Commission on Customs and Excise Tariffs', Minutes of Evidence, 567, 571 and 575. Estimates of the proportion of imported New Zealand white pine used for butter boxes varied from 'a little more than half' to 'about 65 per cent'. Evidence to the New Zealand Royal Commission in 1913 suggested that it may have been as little as 40 per cent.

<sup>63</sup> Anon., 'Timber for Butter Boxes', *Agricultural Gazette of New South Wales* 13 (1902): 314–315; F. B. Guthrie, 'Timber for Butter-boxes', *Agricultural Gazette of New South Wales*, 2 March 1906, 290–1.

<sup>64</sup> 'Annual Report of the Department of Agriculture and Stock for 1904–05', 8–10; 'Royal Commission on Customs and Excise Tariffs', Minutes of Evidence, 548–9; *Richmond River Express*, 6 March 1906.

<sup>65</sup> NSW, 'Royal Commission of Inquiry on Forestry, Interim report, 26 November 1907', *Parliamentary Papers*, 1907 (2nd session), vol. 1.

<sup>66</sup> NSW, Forestry Commission, 'Report of the Forestry Commission for the year ended 31 December 1928', *Parliamentary Papers*, 1928–29, vol. 1, 4.

<sup>67</sup> Others were ringbarking, the opening of timber reserves to settlement, and the lack of a separate department to manage forestry.

<sup>68</sup> 'Our timbers', *Sydney Morning Herald*, 15 March 1905, 5.

<sup>69</sup> 'Royal Commission of Inquiry on Forestry, Interim report'.

<sup>70</sup> During the ten years from 1894 to 1903 inclusive, 2,302,378 sleepers were used for renewals on New South Wales Government railways, an average of 230,238 sleepers per annum, on an average mileage of open lines of 2,703 miles, that is, about 85 sleepers per mile of line, or about 4 per cent of the sleepers on the road. This gave an average life of twenty-five years for the whole. A considerable proportion of the sleepers replaced were originally 'first class Ironbark', however, giving an average life somewhat higher than could be expected in the future as less durable timbers were used in place of increasingly scarce ironbark. Report by Mr James Fraser, Engineer-in-Chief for Existing Lines, New South Wales Government Railways, under date 5th January, 1905, on Timbers used for railway Construction, in NSW, Department of Lands, 'Report of the Forestry Branch for the period 1st January, 1904, to 30 June 1905', *Parliamentary Papers*, 1905, vol. 3, 13.

<sup>71</sup> 'Royal Commission of Inquiry on Forestry, Interim report'.

<sup>72</sup> See Victoria, Legislative Assembly, *Parliamentary Debates*, No. 6, 562.

<sup>73</sup> *Forestry Conference*, 31.

<sup>74</sup> T. A. Coghlan, *Wealth and progress of New South Wales 1900–1901*, 13th issue (Sydney: NSW Government Printer, 1902), 651.

<sup>75</sup> New South Wales, Legislative Assembly, *Parliamentary Debates*, 29 July and 5 August 1909, 915, 1079.

<sup>76</sup> 'Royal Commission on Customs and Excise Tariffs', Minutes of Evidence, 547, 571.

<sup>77</sup> New Zealand 'The timber industry in New Zealand in 1907', *Annual Journal of the House of Representatives* 1907, C4, 1–2. Sawn, undressed timber exports from New Zealand are aggregated until 1913. In that year, white pine constituted 70 per cent of exports of this class of timber. The same is assumed here to have applied in 1906 when total sawn, undressed exports were 74 million super. feet.

<sup>78</sup> New Zealand, *Report of the Royal Commission on Forestry together with minutes of proceedings and of evidence* (1913).

<sup>79</sup> New Zealand 'Third annual report of the Board of Trade', *AJHR* 1919, H4, 5–6.

<sup>80</sup> W. C. Ward, *Dominion Sawmillers Federation Incorporated, 1917–1967: 50 Years A History* (Wellington: Dominion Sawmillers Federation, 1967), 102–110; M. M. Roche, "'New Zealand Timber for the New Zealanders": Regulatory Controls and the Dislocation of the Pacific Rim Timber Trade in the 1920s and 1930s', in R. Le Heron, M. Roche and M. Shepherd, *Geography and Society in a Global Context*, New Zealand Geographical Society Conference Series no. 14 (1987).