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Saviour to Scourge: a history of the introduction and spread of the camphor tree *(Cinnamomum camphora)* in eastern Australia

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Introduction

The 50th year commemorative book of Wyrallah Road Public School, in Lismore, New South Wales, records the lopping of camphor trees bordering the school grounds as a 'milestone' for 1999. In similar spirit, at Bexhill Public School near Lismore, on World Forestry Day, 26 March 2004, children were told about the need to remove camphor trees and replace them with native species. Palmwoods State School received a Queensland Arbor Day Award in 2005 for the removal from its grounds of an old camphor tree and the transformation of the stump into an artistic wood carving. It is highly incongruous that trees planted in school yards many years before to provide shade and shelter for children, and to beautify their environment, are now being destroyed, not because they are old and unsafe or have grown inconveniently big, but because of a prevailing attitude akin to revulsion which has developed towards the species. The foregoing are just a few examples of the present-day quest for the elimination of camphor trees from the landscape—a quest which is pursued with as much zeal and vigour in parts of eastern Australia as that to reinstate the region's lost rainforest.

The camphor tree or camphor laurel, *Cinnamomum camphora*

(syn. *Laurus camphora*, *Camphora officinarum*) is one of countless tree species that in the nineteenth century were intentionally introduced from many parts of the world to enrich the flora of the Australian colonies. It is set apart from most other species, however, by the extent to which it has flourished in this country, especially in wet, coastal eastern Australia, where it now dominates the landscape in many places, and has come to be considered as an environmental weed.

This broad-leaved evergreen tree is handsome, shapely and resilient, and was widely planted as an ornamental tree in public parks, in the grounds of schools and other government buildings, and beside streets. It was also highly esteemed for its ability to quickly provide shade for dairy cattle in the denuded former-rainforest lands of sub-tropical north-eastern New South Wales and south-eastern Queensland. More recently, however, it has spread uncontrollably across that region, competing successfully with native regrowth, and forming veritable forests on abandoned pasture. The once admired tree is now widely despised and denigrated; this highly prosperous introduced tree has become the victim of its own ecological success.

In this paper, the history of the camphor tree is traced from its earliest introduction into Australia, through its spread within the eastern states of New South Wales and Queensland, with particular attention to the institutional agents of its dissemination. Finally, consideration is given to aspects of its transformation from a popular and widely planted ornamental tree to an environmental weed.

Introduction of the camphor tree to Australia

The camphor tree belongs to the family Lauraceae, and is native to warm-temperate and sub-tropical areas of East Asia. Its natural range, indicated in the map (Figure 1), covers parts of eastern China, extending into Vietnam, Taiwan, and southern Japan. The dots indicate places to which the species had been introduced by 1930, including north and south America, Africa, Europe, other parts of East Asia, and Australia and New Zealand. For instance, the species was found growing on Mauritius in 1847 when the island was visited by the British exploring ship HMS *Rattlesnake* (Goodman 2005: 93–94).

The earliest records of the existence of the camphor tree in Australia are in inventories of plants growing in the Botanic Gardens at Sydney

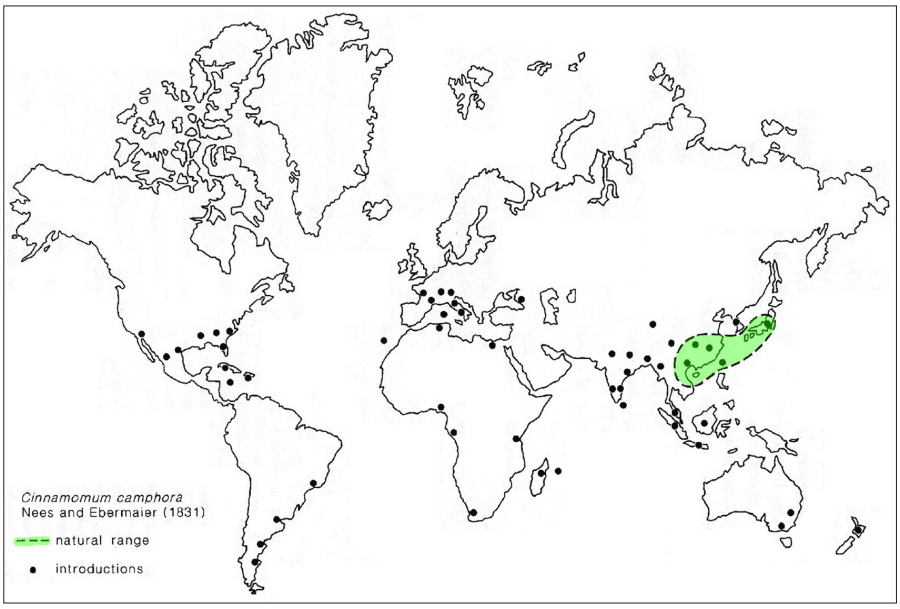

Figure 1: Natural range and introductions (to 1930) of *Cinnamomum camphora*. *Source*: Donkin 1999.

in the late 1820s. These contain accounts of the introduction of *Laurus camphora* to the gardens in 1823 by Captain E. McArthur, and in 1824 by Chief Justice Forbes.[1] Firth (1980) found a record of a consignment containing the species from the Royal Botanic Gardens, Kew, to a Mr Laurence in 'the Colony of New South Wales' in 1822, although it is not possible to know whether this was the source of the trees which appeared soon after at the Sydney Botanic Gardens. Further consignments from Kew containing the camphor tree were made in 1833 to Van Diemen's Land, and in 1854 to Melbourne and Moreton Bay. Also in 1854, an individual camphor laurel, under the name *Camphora officinarum*, was among a collection of plants received at the Sydney Botanic Gardens from J. Duncan of the Royal Botanic Gardens, Mauritius.

The earliest evidence of camphor laurel growing in Brisbane is a report of its presence in 1856 in Captain Wickham's garden at Newstead (Bailey 1910). Captain John Clements Wickham had been Second Lieutenant under Phillip Parker King on HMS *Adventure*, which in the company of HMS *Beagle* surveyed the southern part of South America and Tierra del Fuego in the 1820s; he was also First Lieutenant under Robert Fitzroy on HMS *Beagle* in the 1830s during the voyage on which

Charles Darwin was the naturalist; and he was Captain of HMS *Beagle* during her survey of the Australian coast in the late 1830s. After his distinguished career in the Royal Navy, Wickham was appointed to the post of Police Magistrate to the Moreton Bay District in 1842. He later acquired the property known as Newstead, fronting the Brisbane River near Breakfast Creek, and in his garden there he grew a large number of economically useful plants, camphor laurel among them. By 1861 camphor laurel was also 'flourishing in full vigour' at the Brisbane Botanic Gardens (Hill 1861, Bailey 1910).

The record of the 1824 introduction to the Sydney Botanic Gardens gives the place of origin of the tree as Japan, although it is uncertain whether it came directly from there or indirectly from some other place. Indeed, most, if not all, of the earliest introductions of the camphor tree to Australia came not directly from its native Asia, but from other places to which it had previously been introduced. For example, a case of plants including *Laurus camphora* was received from the Botanic Gardens at Mauritius in 1850, and a case of seeds including 'camphor' was received from Ceylon in 1876.[2] The first unambiguous record of camphor trees received by the Sydney Botanic Gardens directly from East Asia is for 1880. In September of that year the gardens received three Wardian cases of plants from Japan, among which was *Cinnamomum camphora*.[3]

The Wardian case was an invention which revolutionised the shipment of plants over long distances. It was devised by the English physician, microscopist and botanist Nathaniel Bagshaw Ward, and was first used in 1833 when two of the glazed cases filled with plants were shipped to Sydney. They were landed at the Botanic Gardens in Sydney after a voyage of almost seven months with 'nearly the whole' of their contents 'alive and flourishing'.[4]

Spread through rural eastern Australia

Planting for Ornament and Amenity

Among the earliest documented plantings of camphor trees beyond the Botanic Gardens of Sydney and Brisbane occurred in the streets of Grafton, in north-eastern New South Wales, in the 1870s. One of the most striking features of Grafton today is undoubtedly its splendid trees; thousands of individuals, of many species, line the

city's thoroughfares and ornament its parks. Planting began in the 1870s, and became a continuing activity, extending into new areas and sometimes requiring replanting in places where the originals were in inconvenient positions, or were of unsuitable types.

The idea of planting trees in Grafton's wide streets was the subject of a public meeting held at the School of Arts in August 1866. By that time the town area had been denuded of most of its natural vegetation, and it was thought that trees would not only add to the beauty of the town, but would also provide much-needed shade.[5]

It was not until May 1874 that the council of the Borough of Grafton adopted a by-law for the planting and protection of trees in its streets and parks, and the work began in that year. By 1881 it could be said that 'a good deal' of Victoria and Prince Streets had been planted at intervals of 30 feet and at a distance of 12 feet from the footpaths. Trees used included Moreton Bay chestnut (black bean), fig tree, camphor tree, white and red cedar, silky oak, bunya pine and pittosporum. In 1884 it was said that the street trees were 'growing immensely', and that Grafton would soon deserve the title of the 'grove city'. 'Walks, miles in length' could already be made under their shade.[6]

No record has been found of the planting of the first camphor trees in the streets of Grafton, but various evidence points to the species having been among the earliest plantings in the mid to late 1870s. It appeared in a list of trees and shrubs recommended in 1874 by local nurseryman H. A. Volckers as 'suitable for the Clarence climate'; it was described as a 'hardy evergreen tree, [which] grows very fast in this district, and is most useful for shade and shelter'.[7] In September 1877, Patrick Deery applied for a licence for a public house in Mary Street, Grafton, to be called the Camphor Tree Hotel, presumably after trees of that type that had already been planted in his street.[8] In November of the same year, the Grafton Borough Council received an application from one of its residents to plant twenty-seven camphor and mulberry trees, to which it responded 'that he might plant camphor trees and any other trees mentioned in the bye-laws, but not mulberries'.[9] It was commented in January 1884 that recent dry weather had been adversely affecting many of the town's street trees, and that the camphor trees, especially the younger ones, appeared to 'suffer most'.[10]

Aside from the systematic street planting inaugurated by Grafton Borough Council in 1874, other early references to camphor trees,

although not necessarily to the actual planting of them, can be found for that city. A number of fruit and decorative trees auctioned in Grafton in September 1870 included camphor trees; two camphor trees were obtained in 1874 for planting in the grounds of the Grafton public school; and the planting of two rows of trees, one of blue gums and one of camphor laurels, was among improvements to the Grafton Hospital recommended by a 'special improvement committee' in 1877.[11]

Grafton is used here to exemplify the early use of camphor trees in public spaces for amenity and ornamentation, but it must be emphasised that the species was planted in many other places throughout the colonies of New South Wales and Queensland for these purposes. Earlier instances, however, are uncommon. Other early examples, both public and private, include camphor trees among batches of plants sent from the Sydney Botanic Gardens for planting at: Port Denison, now Bowen, Queensland (despatched 2 October 1866), Peak Downs, Queensland (11 February 1868), the court houses at East Maitland and Singleton (10 August 1868), the Albion Ground at West Maitland (7 July 1874), the Presbyterian Church, Dungog (29 September 1874), and the All Saints Parsonage, Bathurst (16 June 1875).[12]

Figure 2: Streetside planting of camphor trees in the city of Lismore, north-eastern New South Wales, 2010.

Arbor Day and School Plantings

Great impetus was given to tree planting in New South Wales by the inauguration in 1890 of an 'Abor Day' by the Minister for Public Instruction, Joseph Carruthers. For years, supplies of trees for planting in public school grounds had been provided by the government free of charge to teachers applying for them, upon their undertaking to give them appropriate care and attention, and many schools had been vegetated under that arrangement. Now, by systematising the work, provision was made for the participation of school pupils, and for their practical instruction in arboriculture.

Initially, an individual school could choose to set apart 'any Friday in the months of June, July and August' as an Arbor Day, and under this scheme the first Arbor Day was celebrated at Ryde Public School, in Sydney, on 16 July. During the planting season of 1890, 140 schools in New South Wales held Arbor Days, and were granted free supplies of trees and shrubs, and monetary aid towards the expenses connected with planting them.

In 1891, it was decided that instead of each school having its own separate Arbor Day, one general day would be appointed annually for all schools in the colony, and Friday 21 August was fixed upon for that year. Planting operations were carried out at no fewer than 601 schools in 1891 under the new arrangement.

Arbor Day was also inaugurated in Queensland in 1890, and was first celebrated, generally, on Friday 1 August. About 5,400 young trees were planted in the grounds of 368 schools on that occasion. August was found to be too late in the year for tree planting in Queensland, so the date was brought forward by three months in 1891 to better provide for the 'varying climatic conditions of different parts of the colony'.[13] At the second Arbor Day celebration, on 1 May 1891, about 5,000 trees were planted in public schools. Camphor trees were among the many species planted on both occasions.

Farm Planting

The expansion of dairy farming throughout north-eastern New South Wales and south-eastern Queensland occurred at the expense of the region's native vegetation, especially the sub-tropical rainforest. It was a feature of the conversion of the forested lands of eastern Australia to

dairy farming that in order to occupy them quickly, the native growth was ruthlessly destroyed, with little or no provision being made for future shade or shelter. Replanting became necessary, and a range of native and exotic species were used for the purpose.

Dairy farming began in New South Wales in the Illawarra district, south of Sydney, but from the late 1880s it expanded rapidly along the north coast, and declined correspondingly in the south (Jeans 1972). Although the expansion of dairying during the 1890s occurred along most of the North Coast from the Hunter valley to the Queensland border, the most remarkable growth occurred on the rainforest lands of the Tweed and Richmond Rivers, in particular the area called the Big Scrub. The rapidity and suddenness of this growth is indicated by the fact that 70 per cent of New South Wales butter production in 1900 came from the Tweed and Lismore electorates, the former embracing the catchments of the Tweed and Brunswick Rivers, and the latter including much of the Richmond's Big Scrub. Despite the origins of the industry in the South Coast region, by the early years of the twentieth century the North Coast far exceeded the South Coast in milk production, and had come to be considered the 'real home' of dairying in New South Wales (Hall 1906). Dairy production in the North Coast region continued to grow during the earliest decades of the twentieth century, reaching a peak in the early 1930s at which time the region produced 60 per cent of the State's butter.

The effects of vegetation destruction were compounded by severe drought in the earliest years of the twentieth century, and it was observed in 1904 that 'shelter for live stock, pastures, and crops is becoming one of the leading subjects of the day'. Two classes of land cried out for sheltering foliage: the 'great plains which, in the memory of man, never bore trees on their surface, and the large tracts which have been bared by the eager settlers.'[14]

Referring specifically to the Richmond River district of New South Wales, Gorman (1905) wrote that it was 'becoming more noticeable every year how bare the country is becoming, and how badly off the farms are for shelter'. Later on, this would be 'a very serious problem', so farmers were strongly urged to plant shade trees. The native teak and bean trees were recommended, and also several exotic species, among which was the camphor laurel. Reiterating Gorman a few years later, Alexander (1909) warned that the need for shade trees in

the Richmond River district called for 'urgent attention'. Weeping fig and Moreton Bay fig ultimately 'surpassed all other evergreen trees for shade purposes', but they were slow in growth, whereas camphor laurels grew rapidly, 'making handsome trees in a few years'.

In contrast to the planting of trees in public places, which was frequently associated with the celebration of a special occasion such as Arbor Day or, later, ANZAC Day, and so was largely attended and well publicised, tree-planting on farms was usually carried out privately and was rarely reported. It is therefore difficult to find written evidence of farmers planting camphor trees, or any other particular species for that matter, as shade trees. Some evidence exists today, however, in the landscape, in the form of old, spreading individuals in paddocks from which the original vegetation was removed long ago. Whether the camphor tree became the saviour in this rural context that it undoubtedly did in the urban one is difficult to judge.

Planting for camphor production

In many parts of the world, both within and beyond its natural range, the camphor tree was planted to provide a source of that once highly valued commodity, camphor.[15] This occurred mainly around the end of the nineteenth century, when increasing demand for camphor for industrial purposes combined with a diminishing natural resource to cause a sudden and enormous increase in its price.

There is a long history of the harvesting of camphor trees in East Asia to provide camphor for medicinal, insecticidal, sanitary and religious/ceremonial purposes. A new and ultimately much more significant use for camphor arose in the 1860s with the development of nitrocellulose-based plastic, later known as celluloid. Celluloid was first used for the manufacture of objects which would earlier have been made from expensive natural materials such as ivory or horn, but from the late 1880s it became the basis for photographic film. The invention of flexible celluloid photographic film in 1889 was an essential prerequisite for the development of motion pictures. By the early twentieth century, most of the world's camphor output was being used for celluloid production, the proportion being estimated by Eaton (1912) as 70 per cent.

The major source of camphor in the late nineteenth century was the island of Formosa (Taiwan), where the lower-altitude camphor-

tree lands were gradually exhausted, and the camphor makers were forced to move into the mountainous areas where the trees were less easily obtained (Tavares 2005). As the low-altitude grounds were not reforested, but were mostly turned into farmland, the camphor-distilling industry was a major contributor to deforestation in Formosa (Ch'en 1998: 713–714).

The production of camphor in Formosa increased greatly after the Japanese takeover of the island in 1895. The price of camphor also rose greatly under a Japanese monopoly system, established in 1899 (Durham 1932), stimulating efforts in Germany and Great Britain to synthesise the substance, and elsewhere, both within and beyond its natural range, to cultivate the tree. The Japanese government, aware of the wholesale destruction of the trees in Formosa and other islands under its control, also commenced systematic planting on a large scale (Eaton 1912).

Beyond its natural range, the cultivation of camphor trees for camphor production was undertaken in many places, including Ceylon (Sri Lanka), southern India, German East Africa, the Federated Malay States, the West Indies, and the United States of America (Eaton 1912). In the USA, the first sizeable plantation to be harvested was at Satsuma, Florida, in 1914.

Some effort was also made to encourage the planting of camphor trees for camphor production in eastern Australia. In 1900, the *Agricultural Gazette of New South Wales* advised readers of the recently increased demand for camphor for use in the manufacture of celluloid. As the tree was observed to grow 'like a weed' in many parts of the colony (an allusion to its rapid growth, not its unwanted dispersal), it was recommended that consideration be given to 'the local manufacture of camphor' (Anon. 1900). The *Queensland Agricultural Journal* in 1907 described camphor production as a 'neglected' industry in that state. So well did the camphor laurel tree grow in eastern Queensland that some thought it would be 'a very paying proposition to plant forests of this tree' (Anon. 1907).

Indeed, the renowned international forester David Hutchins (1916) suggested the adoption of camphor propagation in Queensland as 'a matter of permanent forest policy'. Hearing 'incredible stories of its rate of growth in Queensland gardens', Hutchins believed that:

> if systematically introduced into the forest, the Camphor tree would spread naturally and gradually fill up the forest, giving a future forest out of all proportion, more valuable, than the present forest…If the camphor tree were found not to spread fast enough from scattered plantations in a fire-protected forest, there would be little difficulty or expense in planting it in Queensland in large regular plantations.

Despite such urgings as these, the cultivation of camphor trees for camphor production never was adopted in New South Wales or Queensland. Although there is some evidence to suggest that the extraction of camphor from existing trees was successfully carried on in northern New South Wales and Queensland, the main reasons for planting the species in eastern Australia remained shade, shelter and ornamentation.[16]

Agents of dissemination

The main agents of dissemination of camphor laurel throughout eastern Australia in the nineteenth and early twentieth centuries were several public institutions, namely: the Botanic Gardens, Sydney; the State Nursery, Campbelltown; the State Forest Nursery, Gosford; and the Botanic Gardens, Brisbane. The Queensland Acclimatisation Society, a government-funded private organisation, was also a significant contributor in the northern colony.

Botanic Gardens, Sydney[17]

The Botanic Gardens in Sydney were established in the early days of the settlement, on the site of a farm created for the cultivation of plants and seeds brought by the First Fleet in 1788. Exactly when the Government farm became the Botanic Gardens has been the subject of debate, but the change is generally held to have occurred around the time that Charles Fraser was appointed as the first Colonial Botanist and Superintendent. The exact date of Fraser's appointment by Governor Macquarie is uncertain, but 13 June 1816 has been adopted as the official birthday of the gardens (Maiden 1928, Gilbert 1986).

The functions of the gardens as a nursery, and acclimatisation centre, and a distribution point are reflected in the multifarious duties of the superintendent. These included the maintenance of correspondence with other botanical institutions throughout the

world, requesting and obtaining plant material from overseas, the collection of indigenous plants to further enrich the gardens, and the supply of plant material to botanists and horticulturists around the world, to public institutions in New South Wales and sometimes in other Australian colonies, and to settlers wishing to plant ornamental exotics or introduced pasture grasses, fruit trees, vegetables and herbs (Gilbert 1986). In regard to the latter duty, readers of the *Sydney Gazette* in 1829 were urged to avail themselves of an abundant supply of layers and cuttings of twelve or thirteen varieties of olives that Fraser had successfully reared.[18]

Although the camphor tree was growing in the gardens in Fraser's time (*c*.1816–1831), no instances of its distribution are known from before the 1850s, and few from before the mid-1870s (Table 1). It must be emphasised, however, that the precise composition of each consignment of plants was usually not recorded in the gardens registers. This was especially so after about mid-1877, when most entries were in the form of general descriptions such as 'one package of plants'.

Despite the lack of detail in the official Botanic Gardens records, it is known from other sources, such as descriptions of individual Arbor Day celebrations, that camphor trees were frequently included in packages of plants distributed from the gardens. It is clearly on record that after the institution of Arbor Day, schools were the most significant destination among the various public institutions for plants distributed by the Sydney Botanic Gardens, receiving from one-quarter to almost one-third of the total number annually in the early 1890s (Table 2).

From 1899 until 1902, public schools were the destinations for about half of all consignments of trees from the gardens (Table 3). This changed, however, in 1903, when the State Nursery began distributing its trees directly rather than through the gardens.

State Nursery, Campbelltown

In 1881, a State Nursery was established on 22 acres (about 9 ha) of land at Campbelltown, south-west of Sydney. Plants grown at the nursery were at first sent to the Botanic Gardens in Sydney for distribution, but from 1903 they were despatched by 'rail, coach and steamer' directly from the nursery, which was conveniently close to Campbelltown railway station (Fowler 1983a,b). The figures in Table 1 therefore

Table 1: Distribution of camphor laurel from the Botanic Gardens, Sydney

Date	Description	Qty	To	Ref.
23 Aug 1854	*Cinnamomum officinarum*	11	New Caledonia	B3
5 Oct 1854	*Cinnamomum officinarum*	1	Brisbane	B3
3 Aug 1863	*Laurus camphora*	2	Randwick	B3
25 Aug 1863	camphor laurel	3	Sydney	B3
2 Oct 1866	*Laurus camphora*	1	Port Denison, Q.	B3
11 Feb 1868	*Laurus camphora*	1	Peak Downs, Q.	B3
10 Aug 1868	*Laurus camphora*	12	East Maitland	B3
10 Aug 1868	*Laurus camphora*	1	Singleton	B3
5 Apr 1869	*Laurus camphora*	1	Samoa	B3
24 Jun 1869	*Laurus camphora*	1	?	B3
30 Jun 1874	*Laurus camphora*	2	Grafton	B6
7 Jul 1874	*Laurus camphora*	2	West Maitland	B6
10 Jul 1874	*Laurus camphora*	2	Gladesville	B6
29 Sep 1874	camphor	2	Dungog	B6
4 Nov 1874	*Laurus camphora*	1	Cardwell, Q.	B6
16 Jun 1875	camphor	2	Bathurst	B6
1 Jul 1875	camphor	2	Sydney	B6
19 Jul 1875	camphor	2	Paddington	B6
2 Sep 1875	*Laurus camphora*	6	Sydney	B6
14 Dec 1877	*Laurus camphora*	unavail.	Brisbane, Q.	Return
28 Sep 1878	*Laurus camphora*	unavail.	'Howe Island'	Return
17 June 1881	*Laurus camphora*	unavail.	New Caledonia	Return
4 Jul 1881	*Laurus camphora*	2	Newtown	Return
28 Nov 1893	*Laurus camphora*	300 plants	Toorak, Vic.	B10
16 May 1898	*Laurus camphora* (seeds)	packet	Adelaide, S.A.	B10
24 Oct 1901	camphor laurel	4	German New Guinea	B9
12 Jan 1903	*Laurus camphora*	2	Apia, Samoa	B9
13 Feb 1917	*Laurus camphora*	2	Sydney	B9
23 May 1935	camphor laurel	18	Coledale	B9

Sources: Plants sent away 10 January 1852 to 11 February 1870 (B3), Royal Botanic Gardens, Sydney; Plants sent away 5 March 1870 to 27 December 1879 (B6), NSW State Records, 19/17199; Plants received and despatched 26 February 1898 to 2 August 1935 and 2 May 1898 to 8 August 1935 (B9), Royal Botanic Gardens, Sydney; Plants and seeds distributed 7 June 1892 to 7 December 1898 (B10), NSW State Records, 19/17207

Table 2: Numbers of plants distributed from the Botanic Gardens, Sydney, to various public institutions, 1891 to 1895

Distributed to:	1891	1892	1893	1894	1895
Reserves	5,902	10,373	8,257	9,338	9,899
Schools	10,403 (29.3%)	10,420 (24.9%)	11,343 (27.3%)	14,576 (31.9%)	10,843 (26.5%)
Hospitals	2,417	2,276	2,619	3,023	3,317
Court Houses	1,620	1,777	912	794	306
Gaols	364	791	526	326	442
Post Offices	596	472	364	430	476
Convents	769	948	3,054	3,244	1,602
Churches	1,551	3,341	4,985	3,987	4,993
Cemeteries	1,150	1,172	1,060	1,380	1,125
Councils	6,032	5,684	3,372	2,094	3,990
Railways	1,083	2,468	1,468	1,731	1,290
P&A Assns*	997	1,222	908	738	149
Progress Committees	1,026	120	1,488	404	315
Misc.	1,620	735	1,203	4,042	2,179
TOTAL	**35,530**	**41,799**	**41,560**	**45,690**	**40,926**

Note: Numbers of plants distributed to schools are expressed (in parentheses) as percentages of the total numbers of plants distributed each year. 'P&A Assns' represents Pastoral and Agricultural Associations.

Source: Plants and seeds distributed 7 June 1892 to 7 December 1898 (B10), NSW State Records, 19/17207

Table 3: Distribution of trees from the Botanic Gardens, Sydney, to public schools, 1899 to 1923

Year	Trees distrib'd	Total plants distrib'd*	Total Consignments	Consign. to public schools	%
1899	15,294	40,541	598	349	58.4
1900	16,392	37,534	634	339	53.5
1901	14,845	43,115	480	188	39.2
1902	13,305	34,700	522	211	40.4
1903	2,890	7,693	111	5	4.5
1904	1,888	5,201	88	9	10.2
1905	1,931	6,639	114	30	26.3
1906	2,644	8,086	116	25	21.6
1907	1,988	7,130	105	20	19.0
1908	2,410	10,527	136	30	22.1
1909	2,096	10,857	108	12	11.1
1910	3,090	10,620	150	10	6.7
1911	3,847	9,625	169	19	11.2
1912	3,285	10,983	123	8	6.5
1913	3,209	8,251	112	10	8.9
1914	2,651	9,716	148	12	8.1
1915	3,751	12,510	156	36	23.1
1916	5,582	19,731	unavail.	unavail.	
1917	3,512	8,911	127	7	5.5
1918	3,256	8,546	154	13	8.4
1919	7,576	17,710	175	37	21.1
1920	11,598	26,044	177	16	9.0
1921	9,656	25,045	213	51	23.9
1922	13,858	31,994	271	73	26.9
1923	20,243	36,868	284	60	21.1

Note: Total (*) comprises trees, shrubs and miscellaneous plants.

Sources: Plants distributed 9 May 1899 to 23 August 1912 (B11), NSW State Records, 19/17204; Annual Reports of the Botanic Gardens, Sydney, 1913–1923.

include plants propagated at the State Nursery, as do the figures for years prior to 1903 in Table 2.

The State Nursery became a major source of trees for planting at schools in New South Wales on Arbor Days, as is evident from the figures in Table 4. In the years represented in this table (1903 to 1923), from one-quarter to three-quarters of all consignments of plants from the nursery were destined for public schools.

As for the Botanic Gardens, it has mostly been impossible to identify individual species among the consignments of plants from the State Nursery. Some records of camphor laurel distribution from the nursery have survived, however, for the period when its plants were distributed through the Botanic Gardens. These are compiled in Table 5.

State Forest Nursery, Gosford

Hogan's Brush Forest Reserve near the town of Gosford, north of Sydney, was chosen as the site of the first State Forest Nursery in New South Wales. Portion of the reserve was cleared in 1886, but the site was found to be flood-prone, so it was abandoned for nursery purposes. The cleared land was nevertheless planted with various species, received from the Botanic Gardens in Sydney, the Conservator of Forests in Adelaide, and the Inspector of Forests in Melbourne. At the end of 1887, six acres (about 2.5 ha) had been planted with 6,550 trees, including 100 camphor laurels. Meanwhile, a new site closer to Gosford was selected for the nursery, and work commenced there in July 1887. Three-and-a-half years later, the stock of plants at the nursery had reached nearly 713,000, and included 500 camphor laurels (Table 6).[19]

When Arbor Day was initiated in New South Wales in 1890, the Gosford State Nursery was called upon by the Minister for Public Instruction and various municipal bodies to supply trees for planting. These requests were complied with as far as limited stocks would allow. In 1891, however, there was surplus stock, and this was offered to 'state schools and corporate bodies' for planting in school grounds, streets, and public parks. A catalogue of 161,700 plants available for distribution in 1891 was prepared; it included 300 individuals of *Laurus camphora*.[20]

The Gosford nursery became the major supplier of trees to schools in 1891. About 100,000 trees and shrubs were given away in connection with the first general Arbor Day in 1891, and at the end of that year

Table 4: Distribution of trees from the State Nursery, Campbelltown, to public schools, 1904 to 1923

Year	Trees distrib'd	Trees distrib'd to public schools	Total plants distrib'd*	Total Consignments	Consign. to public schools	%
1903*	22,534	unavail.	68,336	555	204	36.8
1904	13,045	5,447	56,620	372	216	58.1
1905	17,020	5,591	76,782	488	239	49.0
1906	17,087	7,322	73,163	602	334	55.5
1907	18,234	3,882	63,195	518	223	43.1
1908	19,078	4,403	57,642	440	192	43.6
1909	24,033	4,743	54,317	504	214	42.5
1910	34,163	4,653	67,313	653	237	36.3
1911	34,479	1,628	70,022	677	266	39.3
1912	38,765	6,616	68,919	758	354	46.7
1913	34,249	4,396	66,082	608	233	38.3
1914	39,908	4,961	72,572	689	280	40.6
1915	64,184	5,962	115,880	805	370	46.0
1916	unavail.	unavail.	116,861	1,618	1,211	74.8
1917	39,807	6,144	86,499	637	285	44.7
1918	32,838	4,057	71,867	514	198	38.5
1919	49,492	5,533	105,486	659	212	32.2
1920	59,667	4,497	122,775	686	168	24.5
1921	48,160	2,135	109,793	629	173	27.5
1922	51,593	7,127	115,403	691	261	37.8
1923	49,266	7,909	103,851	799	381	47.7

Note: Total (*) comprises trees, shrubs and miscellaneous plants. The figures for 1903 include Botanic Gardens despatches in addition to those from the State Nursery, although most (89.5% of the total number of plants) were despatched direct from the nursery that year.

Sources: Annual Reports of the Botanic Gardens, Sydney, 1903–1923.

Table 5: Camphor laurel received at the Botanic Gardens, Sydney

Date	Description	Qty	From	Ref.
26 May 1874	young camphor plants	60	East Maitland	B5
4 Mar 1876	camphor (seeds)	unavail.	Ceylon	B5
26 Apr 1877	camphor	unavail.	Queensland	B5
14 Sep 1880	*Cinnamomum camphora*	unavail.	Japan	B7
9 Jun 1886	camphor laurel (seeds)	unavail.	East Maitland	B7
15 May 1889	*Camphora officinalis*	272	State Nursery	B7
23 Apr 1890	*Camphora officinalis*	400	State Nursery	B7
14 May 1890	*Camphora officinalis*	296	State Nursery	B7
30 May 1890	*Camphora officinalis*	240	State Nursery	B7
9 Jul 1890	*Camphora officinalis*	164	State Nursery	B7
9 Jun 1891	*Camphora officinalis*	660	State Nursery	B7
29 Jul 1891	*Camphora officinalis*	490	State Nursery	B7
26 Aug 1891	*Laurus camphora*	500	State Nursery	B7
12 May 1892	*Camphora officinalis*	360	State Nursery	B7
24 Jun 1892	*Laurus camphora*	686	State Nursery	B7
11 May 1893	*Camphora officinalis*	700	State Nursery	B7
30 May 1894	*Camphora officinalis*	77	State Nursery	B7
1 Jun 1894	*Camphora officinalis*	155	State Nursery	B7
8 Aug 1895	*Laurus camphora*	294	State Nursery	B7
16 May 1896	*Camphora officinalis*	504	State Nursery	B7
26 Aug 1896	*Camphora officinalis*	77	State Nursery	B7
6 May 1897	*Camphora officinalis*	504	State Nursery	B7
7 Jul 1897	*Camphora officinalis*	14	State Nursery	B7
19 Jul 1897	*Camphora officinalis*	220	State Nursery	B7

Sources: Plants received 30 March 1870 to 5 February 1880 (B5), Royal Botanic Gardens, Sydney; Plants, seeds and specimens received 10 February 1880 to 19 December 1898 (B7), Royal Botanic Gardens, Sydney.

the nursery had available 198,000 trees and shrubs, including about 7,000 *Laurus camphora*, for distribution in 1892 'should Arbor Day be continued'. Its total stock then numbered more than 1.2 million plants.[21]

The Gosford Nursery supplied about 134,000 trees and shrubs to schools and other public bodies for Arbor Day in 1892, and at the end of that year had 200,000 available for the next. In addition to Arbor Day distribution, the nursery supplied about 24,000 trees and shrubs in 1892 for planting on reserves and plantation areas. Fewer than 47,000 plants were distributed by the nursery to 'schools and public bodies' in 1893. In 1894, about 37,000 trees and shrubs were distributed to 'municipal bodies, public trusts, and commons', but schools are not mentioned, from which it seems that the nursery ceased supplying schools after 1893.[22]

It was decided in 1910 to devote the Gosford nursery to the production of plants for State afforestation, and to cease the distribution for other public purposes. During the previous fifteen-or-so years, the nursery had supplied plants for a wide variety of purposes, of which the following are some examples: farmers and settlers for shade and shelter, government farms, cemeteries, hospitals, asylums, parks and

Table 6: Distribution from, and stock at, the State Forest Nursery, Gosford, 1889 to 1895

Year	Total trees and shrubs distrib'd	Trees and shrubs distrib'd for Arbor Day	Stock available for planting at year end	Camphor laurel at year end
1889			51,000	
1890			712,548	500
1891		100,000	1,225,709	7,038
1892	158,322	134,122	686,583	3,600
1893*	174,458	46,547	453,000	
1894–5**	62,322		255,000	

Note: Asterisk indicates half year ended 31 December only; double asterisk indicates 18 months ended 1 July.

Sources: Annual Report for 1889, Forest Conservancy Branch; Annual Report on State Forest Administration for 1890; Annual Report on State Forest Administration for 1891; Annual Report on State Forest Administration for 1892; Annual Report for 1893, Department of Agriculture and Forests.

recreation reserves, municipal bodies for street and road planting, and pastoral, agricultural and horticultural associations.

Foreshadowing the trouble that the camphor tree would much later cause, the species was observed in 1916 to be 'spreading as a weed into the forest about Gosford'. The immediate source, whether the nursery itself or trees planted about the town, was not identified, although it was noted that birds, being fond of the succulent berry, were mainly responsible for spreading the tree (Hutchins 1916).

Botanic Gardens, Brisbane

The Botanic Gardens in Brisbane were established within a tight bend in the Brisbane River, which became known as Gardens Point and which the gardens later shared with the Government House and the Houses of Parliament. Land there was set apart for the purpose of botanic gardens in 1854. In the following February Walter Hill was appointed as the first superintendent, a position which he retained until his retirement in 1881. A Committee of Management for the gardens was first appointed in July 1855.

In 1868, the Botanic Gardens in Brisbane were extended by the incorporation into them of the adjoining Queen's Park, adding ten acres (about 4 ha). To impart uniformity to the addition with the rest of the grounds, the existing row of bunya pines parallel to the river in the gardens was extended to the entrance gates at Edward Street; and a double row of 'foliaceous plants', including camphor trees, was planted parallel with Alice Street. The foliaceous trees were reported in 1869 to be 'rapidly developing' and to 'promise exceeding well'.[23] The source of the camphor trees planted in 1868 is unknown, but it was probably a supplier in New South Wales where the species was much more prevalent at that time. It is notable in this regard that an assemblage of ornamental and fruiting trees, including camphor, offered for auction in Brisbane in 1867, had been obtained from the commercial nursery of John Baptist and Sons at Surry Hills, Sydney.[24]

It is known that camphor trees were flourishing in the Brisbane Botanic Gardens within several years of the establishment of that institution, but it has not been determined when the gardens first became a source of camphor plants or seed for wider distribution. Certainly, the nurseries at the gardens were the major supplier of trees for planting during the first celebration of Arbor Day in Queensland in

1890 (Table 7). The public gardens of Queensland distributed about five thousand plants for Arbor Day that year, of which 3,451 (68 per cent) came from the Brisbane Botanic Gardens.[25] In 1891, when Arbor Day was celebrated on 1 May, the Botanic Gardens supplied about 1,200 (34 per cent) of the 3,600 supplied by Queensland's public gardens. In 1892, the quantity supplied was about 1,400 trees (46 per cent) of 3,200.

Of the trees distributed to schools from public gardens in 1891, 381 (10 per cent) were camphor trees, the largest number for a single species, followed by 297 jacaranda trees. Of the trees supplied by the Brisbane Botanic Gardens in 1892, 160 were camphor trees. This was again the largest number for a single species.

The Brisbane Botanic Gardens were affected by major floods in the early 1890s, notably in March 1890 and twice in February 1893. In his report in 1893, the curator listed the trees that had survived the latter floods, and observed that *Cinnamomum camphora* had 'stood well'. He 'would recommend it for planting in places subject to periodic inundation'.

Table 7: Arbor Day tree distribution, Queensland, 1890 to 1893

Year	Trees planted at Queensland schools on Arbor Day	Trees distrib'd by public gardens for Arbor Day (a)	Trees [and camphor laurel trees] distrib'd by Brisbane Botanic Gardens for Arbor Day (b)	Trees distrib'd by the Queensland Acclimatisation Society for Arbor Day
1890	5,453	5,099	2,496 [22]	3,000
1891	4,968	3,648	1,223 [216]	830
1892	2,676	3,169	1,454 [160]	
1893	1,577	1,697	782	

Note: (b) is included in (a).

Sources: Reports of the Secretary for Public Instruction for 1890, 1891, 1892 and 1893; Annual Reports of the Department of Agriculture for 1890–91, 1891–92 and 1892–93; *Queenslander*, 16 August 1890; *Courier-Mail*, 5 May 1891.

The Queensland Acclimatisation Society

The Queensland Acclimatisation Society was formed in Brisbane in August 1862, under the sponsorship of the governor of Queensland, Sir George Bowen. Its rules and objects were adopted from those of the Acclimatisation Society of Victoria, founded in 1861, which had been

based on those of the Acclimatisation Society of the United Kingdom, founded in 1860. In 1863, the Society was granted land in Brisbane on which to carry out its activities, and this was named Bowen Park in honour of the Society's sponsor. The activities of the Society initially included animals, but eventually focussed exclusively on economic botany (Gillbank 1986, Clements 1999, Brouwer 2003, Osborne 2008).

Bowen Park in 1893 was said to contain 'a wealth of foliage and a mass of flowers unexcelled in the colony'. It was 'rich with indigenous and acclimatised trees, tropical palms rise 50ft and 60ft out of the ground straight stemmed and with pretty fronded leaves, the flower beds are full of colour and fragrance, the swards are a living green, the ponds are covered with lillies, and there are scores of cosy nooks where rest and shade may be found and enjoyed'. There were trees which had been 'gathered from most parts of the world, and which [had] taken to the Queensland soil with glad content.' Among them 'the umbrageous camphor laurel affords a delightful canopy for noonday or afternoon visitors'.[26]

The Society's dealings with the camphor tree had begun by the early 1870s, the species being among the great variety of plants growing at Bowen Park in 1871. It was represented in the collection of useful and decorative plants exhibited by the Society at the exhibition of the Agricultural Society of New South Wales, held in Sydney in April 1877. By 1881 there was a large demand upon the Society for both seeds and potted seedlings of the species. Among distributions of camphor laurel made by the Society was a packet of three-hundred seeds sent in 1898 to the Central Agricultural Bureau in South Australia[27]

When the first Arbor Day was observed in Queensland in 1890, the Society supplied about 2,000 plants of various species directly to schools and reserves for planting, and a further 900 to the Agriculture Department for distribution to schools (Table 7). Of the stock of 5,000 plants made available by the Society for planting on Arbor Day in 1891, the most prevalent individual species were camphor laurel (500) and *Grevillea robusta* (500).[28]

Scourge

Perception of a problem

By the 1990s, a complete about face had occurred in attitudes toward the camphor tree in eastern Australia. The change had taken place gradually, as had the spread of the tree itself. In a perceptive address to the Queensland Naturalists' Club in 1959, Romeo Lahey (1960) drew attention to the invasion of the landscape in southern Queensland by introduced weeds. He gave as an example the 'forests of camphor laurel' established by birds in parts of southern Brisbane. The growing perception of the camphor tree as an invasive weed was crystallised at the end of the 1970s by Darryl Firth, who wrote his University of New England (Armidale) Bachelor of Letters thesis on the ecology of the species in the Richmond–Tweed region of north-eastern New South Wales (Firth 1979a). Firth had been inspired to undertake this research by the growing recognition of the species as 'undesirable' by farmers and graziers in that region. Nowhere else in its range of naturalisation in coastal eastern Australia from Cooktown to Nowra was the camphor tree as abundant as in the Richmond–Tweed region.

In subsequent published papers, Firth (1979b, 1981) presented the camphor tree as an 'important tree weed' and a 'new weed' in north-eastern New South Wales. Judge Lyn Furnell (1981, p. 201), in his history of the town of Bangalow in north-eastern New South Wales, warned his readers to 'Beware the camphor laurel wilderness', and newspaper editor Jim Brokenshire (1988, p. 44), in his later historical account of the settlement of the Brunswick River district, wrote of the '…development of the "greenie" generation of environmentalists who seem bent on regenerating the Big Scrub, a task that seems little more than a dream, the only regeneration in a big way being the camphor laurel trees'. At a workshop on rainforest rehabilitation held at the North Coast Agricultural Institute, Wollongbar, in late 1988, Mark Dunphy (1991) placed camphor laurel among the three 'problem tree weed species' of former rainforest lands in north-eastern New South Wales.

Causes of the problem

The widespread introduction of the camphor tree into high-rainfall areas where it grew well, combined with its palatable fruit and the existence of natural dispersal vectors in the form of frugiferous birds, were necessary preconditions for the invasion which ensued. They were not, however, sufficient. Firth (1979b) identified the following as underlying causes of the increasing abundance of the camphor tree. The abandonment of hillside banana plantations provided ideal habitat for the species. More significantly, the change from intensive dairy farming to beef cattle grazing, and the increase in absentee ownership of land in the region, reduced the effort previously applied to weed control measures.

Dairy production in the North Coast region of New South Wales, which reached a peak in the early 1930s, declined progressively after 1934, with butter production falling from 34,800 tonnes that year to 11,900 tonnes in 1969, and milk production falling from 709 million litres in 1934 to 497 million litres in 1971. The decline in production was accompanied, especially since the Second World War, by a movement of North Coast farmers out of dairying. This movement gathered momentum in the 1960s, and towards the end of that decade it was estimated that 50 per cent of dairy farmers in the region—some 3,500 farmers—had left the industry during the previous ten years (Bell and Nalson 1974). In the Richmond–Tweed sub-region, in similar fashion, the number of 'commercial dairies' declined from about 5,300 in the mid-1930s to 3,500 in 1964–65; the number of dairy cows in those dairies declined by 27 per cent from 291,000 to 213,000 during the same period (Bird 1968).

The reasons for the decline of the industry are complex, but several factors can be mentioned. Historically, North Coast dairy farmers have been oriented to the export butter market, particularly to the United Kingdom, the destination of more than 90 per cent of Australian butter in the earliest decades of the twentieth century. Australian butter exports to the United Kingdom declined during the late 1950s; at the same time prices also declined. These trends were the result of greater quantities of butter entering the British market after the Second World War from countries with either more favourable natural resources for dairy production, or considerable Government support, or both, and

lower net production costs than Australian producers (Drane and Edwards 1961).

North Coast dairy farmers, suffering from declining farm incomes, were faced with the choice of accepting reduced standards of living, making substantial adjustments to their farm practices, or leaving the industry. Bird (1968) illustrated their predicament by explaining that a dairy farmer who maintained his level of butter-fat production over the period 1958–59 to 1963–64 lost 13 per cent of his purchasing power, while during the same period, factory employees enjoyed a 15 per cent increase. Not surprisingly, many children of dairy farmers left the farm to pursue more lucrative careers in the many secondary industries that developed in Australia during the post-war 'long boom', leaving behind an ageing and inflexible farm workforce.

North Coast dairy producers were prevented from diverting their production from butter to liquid milk to any significant extent by their exclusion from the Milk Zone—an area encompassing Sydney, Newcastle, and Wollongong, and other proclaimed districts in the State which contained fast-developing industrial populations. The Milk Zone was the creation of the *Milk Act* 1931 which gave to a minority of South and Central Coast dairy farmers legally protected access to 80 per cent of the State's population for the sale of liquid milk. This arrangement further disadvantaged North Coast farmers who, being largely butter-fat producers, were subject to the vicissitudes of overseas markets and world prices; Milk Zone farmers, on the other hand, were mainly producers of liquid milk, the price of which only varied in accordance with urban prosperity. Moreover, surplus liquid milk produced in the Zone was directed into butter production, contributing to the oversupply of that product and further disadvantaging North Coast butter-fat producers (Bell and Nalson 1974).

The general situation in the North Coast dairy industry in 1970 was described in the following terms. Buildings were generally badly maintained, both from a structural and hygiene point of view, engendered by a lack of supervision. Badly rotted and missing weather boards in walls, missing glass in windows, broken and cracked floors, corroded or missing gutters and downpipes, and boggy conditions around the dairy were common. Milking machines were often old, neglected, and in a poor state of repair (Muller 1978).

Further troubles for dairy farmers came in the early 1970s. On 1

July 1970, the Dairy Industry Authority was constituted to regulate the milk market over all of New South Wales, and one of the first actions by the Authority on the North Coast was to inspect all dairy farms and to recommend improvements to meet the minimum statutory requirements. Then Norco Ltd, the biggest dairy product manufacturer in the North Coast region, announced that its factories at Lismore and Murwillumbah would not receive milk in cans after 30 June 1971. The introduction of bulk milk collection forced farmers to invest in new equipment and better roads and bridges for bulk milk tankers, or leave dairying (Muller 1978). In 1972, the already depressed export market for dairy products was further depressed by the decision of Great Britain to join the European Economic Community.

Some farmers responded to their adverse circumstances by converting their dairies to beef production, which could be done without major investments, but this was a short-term solution as the beef market collapsed in the mid-1970s (Muller 1978). Some dairy farms were converted to horticulture; others were sold or subdivided to provide rural residential blocks for cashed-up refugees from the big cities who were attracted by the climate, scenery and lifestyle to the North Coast region.

Conclusion

It was generally recognised by the late 1990s that camphor laurel was well and truly out of control and had become a major environmental problem in parts of eastern Australia, especially the Richmond–Tweed region of New South Wales. This was a consequence of several decades of landuse change accompanying the decline of dairy farming, and the associated lessening of weed control on the former dairying lands. The task of arresting the spread of the species, let alone of eliminating it from the landscape, is potentially enormously costly, and probably futile. Recognition of this by some people has resulted in an alternative approach to the control of the problem, that is, the consideration of the species as an asset, or a resource, rather than a pest, and encouraging its use for a range of commercial purposes including the manufacture of furniture and craft items (Stubbs et al. 1999).

The purpose of this paper, however, has been to elucidate the factors that caused the present camphor plague, not to deal with measures

during the last couple of decades to control it. The spread of the species was an inevitable consequence of its affinity for the moist sub-tropical to tropical climate of coastal eastern Australia, and of the existence of frugiverous native birds which were partial to its plentiful fruit. These factors were aided by fundamental changes in landuse in the tree's favoured habitat in the latter half of the twentieth century.

The operation of the several factors causing the spread of the species required, however, its prior existence in the landscape, and it is the reasons for and the means of its initial introduction to eastern Australia that are the central themes of this paper. Ruthless clearance of native vegetation in the late nineteenth and early twentieth centuries created the desire to plant exotic trees such as *Cinnamomum camphora* in urban and rural settings for practical and aesthetic purposes. Tree-planting in general was strongly encouraged by governments, and facilitated by the distribution of trees propagated by public and private nurseries. It is doubtful, however, that anyone planting or advocating the planting of *Cinnamomum camphora* in eastern Australia in the late nineteenth and early twentieth centuries intended or expected the species to flourish and spread to the extent that it has, or would have imagined the attendant attitudinal reversal. Their saviour has become our scourge.

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Notes

1 Plants etc. received September 1828 to October 1847 (B1), Royal Botanic Gardens, Sydney.

2 Sydney Botanic Gardens, report for 1850 (1 February 1851); Plants received 30 March 1870 to 5 February 1880 (B5), Royal Botanic Gardens, Sydney.

3 Plants, seeds and specimens received 10 February 1880 to 19 December 1898 (B7), Royal Botanic Gardens, Sydney.

4 *Sydney Morning Herald*, 20 July 1906.

5 *Clarence and Richmond Examiner*, 14 August 1866.

6 *Clarence and Richmond Examiner*, 14 April 1874, 28 May 1881; *Town and Country Journal*, 7 June 1884.

7 *Clarence and Richmond Examiner*, 21 April 1874.

8 *Clarence and Richmond Examiner*, 15 September 1877.

9 *Clarence and Richmond Examiner*, 17 November 1877.

10 *Clarence and Richmond Examiner*, 8 January 1884.

11 *Clarence and Richmond Examiner*, 30 August 1870, 8 December 1877; Plants sent away 5 March 1870 to 27 December 1879 (B6), NSW State Records, 19/17199.

12 Plants sent away 10 January 1852 to 11 February 1870 (B3), Royal Botanic Gardens, Sydney; Plants sent away 5 March 1870 to 27 December 1879 (B6), NSW State Records, 19/17199.

13 *Brisbane Courier*, 29 April 1891.

14 *Sydney Morning Herald*, 22 November 1904.

15 A similar substance was obtained from the species *Dryobalanops aromatica* and *Blumea balsamifera*, but only 'true' camphor, the product of *Cinnamomum camphora*, is of concern here.

16 *Chronicle* (Adelaide), 18 June 1898, states that 'The manufacture of camphor… had been carried on with success in Queensland and in the north of New South Wales', but this has not been corroborated.

17 Designated the Royal Botanic Gardens in 1959.

18 *Sydney Gazette*, 14 February 1829.

19 Annual Report for 1886, Forest Conservancy Branch, NSW Department of Mines; Annual Report for 1887, NSW Department of Lands; Annual Report on State Forest Administration for 1890.

20 Annual Report on State Forest Administration for 1891.

21 Annual Report on State Forest Administration for 1891.

22 Annual Report on State Forest Administration for 1892; Annual Report for 1893, Department of Agriculture and Forests; Report on Agriculture and Forestry from 1 January 1894 to 1 July 1895.

23 Report on the Brisbane Botanic Gardens, 5 August 1868; Report on the Brisbane Botanic Gardens, 29 March 1869.

24 *Brisbane Courier*, 16 and 18 May 1867.

25 Other public gardens supplying plants for Arbor Day in Queensland were the botanic gardens at Toowoomba, Maryborough and Rockhampton, Queen's Park at Ipswich, Queen's Park at Townsville, and the State Nursey at Kamerunga, near Cairns.

26 *Queenslander*, 29 July 1893.

27 *Brisbane Courier*, 3 February 1871, 20 May 1881, 9 September 1881; *Sydney Morning Herald*, 12 April 1877; *Chronicle* (Adelaide), 18 June 1898; Plants and seeds distributed 7 June 1892 to 7 December 1898 (B10), NSW State Records, 19/17207.

28 *Queenslander*, 16 August 1890; *Brisbane Courier*, 5 May 1891.

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