

# The *Agathis brownii* case (Araucariaceae)

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## Abstract

Mabberley, David J. (Nationaal Herbarium Nederland, University of Leiden, The Netherlands; and Royal Botanic Gardens Sydney, Mrs Macquaries Road, Sydney, NSW 2000, Australia) 2002. The *Agathis brownii* case (Araucariaceae). *Telopea* 9(4): 743–754. Examination of Annual Reports of the Royal Botanic Gardens Sydney and early horticultural and travel literature, both published and in manuscript, shows that *Agathis brownii* (Lem.) L. Bailey was not based on New Caledonian material, as has been most recently argued, but is most likely a synonym of *A. macrophylla* (Lindl.) Masters, the name of a Melanesian species, though its being an older name for *A. robusta* (C. Moore ex F. Muell.) F. Bailey cannot be entirely ruled out. During the investigation of the case it became necessary to lecto- or neo-typify *Agathis australis*, *A. lanceolata*, *A. robusta* and *Dammara ovata* C. Moore ex Seem. (= *A. lanceolata* Warb.) and to correct a number of citations of both authors and place of publication of names in *Agathis*, *Araucaria* and *Dammara*.

## Introduction

In sorting out the eponymy of Robert Brown (1773–1858) for a future publication, consideration has had to be given to *Dammara brownii* [Hort. Angl. ex] Lem., i.e. *Agathis brownii* (Lem.) L. Bailey (Araucariaceae), named in Brown's honour according to Chittenden (1951: 64, 318). However, Brown was not mentioned by the original author, Lemaire, who based the name on a young pot-plant growing in a greenhouse at Van Geert's nursery in Ghent (Gand), Belgium, in 1855. Accompanying an illustration of the growing plant, Lemaire wrote enthusiastically about the new acquisition which Van Geert had bought in England.

In his *Flora vitiensis* (1868: 264) Seemann placed *D. brownii* illegitimately in the synonymy of the younger name, *Dammara robusta* C. Moore ex F. Muell. (1860). In 1900, Warburg (see Appendix) referred *D. brownii* to the synonymy of *Agathis robusta*, a new combination he was proposing based on *D. robusta*; his new combination was therefore illegitimate but, fortunately, the binomial had already been legitimately published by F.M. Bailey in 1883 (see Appendix). However, from the 1930s to 1970s the Queensland kauri, *A. robusta* (F. Muell.) F.M. Bailey, in cultivation in America and Europe, was known as *A. brownii*, being listed under that name in the standard horticultural works of the period (see below).

But *D. brownii* has been placed in the synonymy of many other species, too (see Appendix for precise references): Carrière, and Decaisne & Naudin ('le dammara de Brown', 'de l'île septentrionale de la Nouvelle-zélande') referred it to a New Zealand species (the only one there being *A. australis* (see below); many plants cultivated in Europe as *A. australis* are indeed *A. robusta*, according to Royal Horticultural Society Dictionary 1: 82, 1992). Both Gordon and Henkel & Hochstetter had *D. brownii*, as well as *D. bidwillii* (see Appendix), in the synonymy of *D. obtusa*, now a synonym of *A. macrophylla* (Lindl.) Masters, a tree from Melanesia, to which *D. robusta* was also referred by Henkel & Hochstetter. In the most recent revision of the genus, Whitmore (1980) has it as a New Caledonian species (see below)!

Indeed, the name has been treated as a *nomen dubium* according to Whitmore (1980), following Hyland (1978), perhaps in turn following Barrett (see Appendix), who revived the name *A. robusta*, based on *Dammara robusta* F. Muell. (1860), a name younger than *D. brownii*.

What, then, is *D. brownii*? Is it really *A. robusta* and therefore a name to be proposed for rejection in maintaining the name *A. robusta* for the Queensland kauri? There is no known herbarium voucher, nor any description not derived from the original, nor any other illustration published. The Queensland kauri is planted in Central Sydney and so, in connexion with a proposed Greening Australia/Royal Botanic Gardens Sydney project on 'Sydney Trees', it has now become doubly necessary to sort this out.

As a piece of detection, in accumulating circumstantial evidence to ascertain its identity, largely by elimination, it has been necessary to examine carefully the early records of introduction to Europe of the species of *Agathis*, critical in which is the role of the first two Directors of the Royal Botanic Gardens Sydney, John Carne Bidwill and Charles Moore. Starting with the Queensland kauri, to which *D. brownii* has most often been referred in this century, the following argument will show that the plant is probably not Australian at all, in which case its name is not a threat to *A. robusta*; moreover it does not even commemorate Robert Brown. In investigating the case, it has become necessary to propose a number of new typifications (see Appendix).

### Australia: *Dammara robusta*

Devon-born John Carne Bidwill (1815–1853), first Director of the [Royal] Botanic Gardens Sydney (Mabberley 1996, 2001) is commemorated in the Latin name of the bunya-bunya, *Araucaria bidwillii* Hook. (Araucariaceae), a tree he introduced to cultivation in Europe when he returned to England with live plants of it in 1843. Over the following years, he sent further live bunya-bunya trees to England in cases provided by his patron, William Macarthur at Camden Park, NSW. By 1850, Macarthur could include in his 'Catalogue of plants cultivated at Camden Park in 1850' another conifer, *Dammara* sp., from Wide Bay [Queensland], where Bidwill was by then Commissioner of Crown Lands, a post he was offered in recompense for the government bungling which had led to his being deprived of the Directorship of the Sydney Gardens and being replaced by the second Director, Charles Moore (1820–1905).

On 2 January 1849, in a letter reprinted in *Hooker's Journal of Botany* 1: 284–6 (1849) under 'Another coniferous tree detected in Australia', Bidwill had written from Wide Bay about his triumph in finding the conifer that New Year's Day. In 1842 an Aborigine at Moreton Bay had told him about the tree but no-one else could attest to it until Bidwill found it on the site of the future Maryborough. To get the single cone the plant bore, Bidwill had to have the tree felled. By the end of March he was building his house from kauri timber. He deliberately did not send seeds directly to the Sydney Botanic Gardens or to nurserymen such as T.W. Shepherd in Sydney (Mabberley 1996), and so it seems indisputable that it was Macarthur who not only germinated Bidwill's seeds but also distributed the first-raised young plants in the colony. According to a photocopy (Royal Botanic Gardens Sydney) of his 'Catalogue of plants cultivated at Camden Park in 1850', annotated in his own hand, plants were available at 10 shillings each.

A tree planted in 1853 in what was to become a collection of *Agathis* spp. in the 'Upper Garden' (now part of the 'Middle' Garden) at the Royal Botanic Gardens Sydney, shown as the *Agathis* collection at the edge of the Palm Grove in the 1871 plan of the Gardens where some trees still survive (Bed 28a), is therefore most likely to have been one of the progeny: it was '40 feet' high in 1861, when Seemann studied the living collection (*Flora Vitiensis*: 264 [1868]), and had reached '53 feet' by 1871 (Ann. Rep.

1870–1: 2). Today it is the tallest tree in the Gardens (32.8 m in 1996). Six other seedlings were sent to England from Camden on Christmas Eve 1854 (Mabberley 1996).

According to the archival records in the Royal Botanic Gardens Sydney ('Plants sent away 1852–1870' f. [4]), living material of the 'Dammara sp., Wide Bay' was sent to Henderson's Nursery, Pineapple Place, in London on the *St George* on 1 April 1852 (see also Ann. Rep. 1853: 3, 4, where it is recorded that plants were also sent to Sir Joseph Paxton at Chatsworth for the Duke of Devonshire). And again, on 27 April 1853 ('Plants sent away 1852–1870' f. [8]; Ann. Rep. 1854: 3) one 'Dammara nova sp. New Holland' was sent by Moore to his brother David Moore (1807–1879) at the Royal Botanic Gardens Dublin, at Glasnevin. For 8 Sept. 1853 the Glasnevin records show 'from Mr. Moore Sydney. Wardian case of valuable plants' but it is not known whether the tree survived the voyage.

It was only in 1854, though, that Charles Moore could report he had been to Wide Bay, not only to examine the remains of the late John Bidwill's Botanic Garden at Tinana, Maryborough, but also to collect seeds and plants for the Sydney Gardens as well as wood samples for the Paris Exposition of 1855 (Ann. Rep. 1854: 2). It would appear that this collecting journey was the origin of the next Botanic Gardens stock of the new tree, as Moore was able to send out young plants in bulk in 1854–5 (Ann. Rep. 1855: 4–6), material being sent out as 'Dammara new sp., New Holland'. It was sent to England (Veitch's nursery in Chelsea, the Royal Botanic Society's garden in Regent's Park, London and Henderson's (six plants), to Hooker at Kew), as well as to Baptist's Nurseries, Surry Hills, Sydney, and to botanic gardens in Java and Cape Town.

'Dammara sp. Le 'Kaurie Tree' de Wide Bay' was no. 75 of the Moreton Bay and Wide Bay woods sent by Macarthur and Moore to the Paris Exposition of 1855; there is voucher material (fertile) in the Paris herbarium. In the Australian Horticultural and Agricultural Society's spring show (the *Sydney Morning Herald's* verdict [2 Oct., p. 5] 'in fact to do justice to it and to the judges, we must pronounce it the worst we remember to have seen') held in Sydney 1–2 October 1857, there was 'approbation to the Messrs. Shepherd's superb collection of plants for landscape embellishment'. The exhibit, which won a gold medal, comprised '35 varieties' including *Araucaria bidwillii* Hook. and the 'Wide Bay Kowrie', i.e. Queensland kauri (Mabberley 2001), then known in the trade as *Dammara bidwillii*.

By 1856, though, Moore was sending out saplings of the Wide Bay species as 'Dammara robusta MSS' (Ann. Rep. 1856: 3–4) to Henderson's and others in England. The next year (Ann. Rep. 1857: 5–6) Moore supplied 36 to Baptist's in Sydney, 36 to Guilfoyle also in Sydney, as well as 15 to Henderson's in London, three for 'King George Sound', two for Sri Lanka (Peradeniya) and one for Singapore, for example. That year it was listed as *D. robusta* in the catalogue of the plants growing in the Sydney Botanic Gardens and an illustration of a young plant growing there was published in *The Month*, a Sydney periodical, by its editor, Francis ('Frank') Fowler (1833–1863), again with Moore's new name, *D. robusta*. The tree illustrated is that which is now the tallest of all the trees in the Gardens: it was then about five years old so was probably the one planted in 1853, most probably from Macarthur's initial stock raised at Camden Park from Bidwill's seeds.

In 1858, Moore sent seeds and cones to James Clary at the Wide Bay settlement and more plants to Henderson's, to Calcutta, to Sri Lanka, Western Australia and to an Adelaide nurseryman (Ann. Rep. 1858: 7). Only in 1860, though, was a formal description of *D. robusta* published by Ferdinand von Mueller, based on 'scanty material' made available to him in Melbourne by T.W. Shepherd's Darling Nursery in Sydney (see Appendix).

The evidence thus shows that the major European introductions of *Agathis robusta* (in 1854–56) were just too late for them to be the *D. brownii* already in cultivation in Europe by 1855. It is possible that those raised from Bidwill's seeds by Macarthur reached Henderson's by then, but I can find no mention in the contemporary horticultural literature or nurserymen's catalogues of what would have been an outstanding new introduction. The first stock raised from seeds collected by Moore in 1854 could possibly have reached Europe by then, too, and perhaps Veitch made it available to Van Geert, but there is no evidence so far for its being offered for sale in England at that time.

So, on the circumstantial evidence available, it would appear that Australia cannot be considered as the certain origin of the plant named *D. brownii* by Lemaire. But, as Hyland (1978) points out, confusion may have initially arisen in Australia, with Walter Hill's use of that name for the Queensland kauri in his exhibit for the International Exhibition held in London in 1862 (see below). In addition, '*D. Brownii Hortulanorum*' is found in Mueller's hand on the MEL 1582082 (MEL) sheet of *A. robusta*. Moreover, the typification of *D. robusta* has not been clear: even in recent works the type is incorrectly attributed to Moore, and so a lectotype is chosen in the Appendix.

According to Whitmore (1980), *Dammara brownii* was indeed not Australian but came from New Caledonia.

### New Caledonia: *Dammara moorei*

In 1850, Moore had been invited to sail on HMS *Havannah* (Capt. John Elphinstone Erskine, 1805–1887) to islands in the western Pacific (Bennett 1860: 351). Near Hienghène on the east coast of New Caledonia, he collected material of an endemic species, the 'kaori blanc', the only one from the island to be known in Europe before 1855. In his journal for October 1850 (a MS copy preserved in the Royal Botanic Gardens Sydney) he wrote (ff. 61–2), 'At this place I either observed or collected the following *Dammara Nova Species* a most beautiful tree ...'. He [f. 66] tried to get natives to bring young plants and cones but to no avail despite 'a grand reward'. It was described, as *D. moorei*, from his herbarium material, by Lindley, who had been instrumental in the appointment of Moore and thereby the ousting of Bidwill (Mabberley 1996).

In 1851 (Ann. Rep. 1852: 3, 7) Moore could send live material of '*Dammara Moorii*' from New Caledonia to Henderson's in London and to the 'Government Botanic Gardens, Batavia'. There is no evidence that this species was ever announced for sale though, and, in any case, in its young stages it has lanceolate leaves unlike Lemaire's *D. brownii*, so New Caledonia would appear not to be the source of *D. brownii* after all. Indeed *D. moorei* was still being exhibited as a novel young plant by William Bull as late as 1864 (Anon. in Gard. Chron. 1864: 654). On the other hand, a specimen had been planted in Sydney next to the plant of *D. robusta* in 1853 (Ann. Rep. 1870–1: 2) and was therefore in the same bed as the tree illustrated as *D. robusta* in the plate published in *The Month*. That, too, still survives in bed 28a and is labelled *Agathis moorei*.

Moreover, *Dammara brownii*, when first described, was actually said to have originally come, not from 'Nouvelle-Calédonie' but from 'N[ouv]elle Ecosse' (i.e. 'New Scotland'), and although this was referred to New Caledonia by de Laubenfels reported in Hyland (1978), this name in French actually refers to Nova Scotia, a name used today for part of Canada. Some early settlements near present-day Waipu, in the North Island in New Zealand were called the Nova Scotian settlements (Robinson [1952: 139]; Reed [1956: 238]) because the Gaelic-speaking settlers had come from Nova Scotia in Canada: Waipu is in *Agathis* country.

### New Zealand: *Dammara australis*

The name *Dammara bidwillii* used by Shepherd for *A. robusta* in the 1857 spring show has been applied to the New Zealand species *A. australis* (see Appendix). Moreover, there was in New Zealand, at Christchurch, a second botanical Robert Brown (1824–1906), who could conceivably have been the eponymous 'Brown' (and is indeed confused with the first Robert Brown in the supplement to Stafleu & Cowan's *Taxonomic Literature*!).

But these are false leads, because *Agathis australis* is the only native New Zealand species and was in cultivation in Europe at the latest by 1824 (1821 according to Lindley; 1823 according to RHS Dictionary ed. 1: 64, 1951) and so was well known in cultivation long before 1855. In any case, in youth it differs markedly from *A. robusta* in its smaller, narrower leaves.

It should be noted that the name *Agathis australis* has been assumed to be based on *Dammara australis* D. Don., but the first publication of the name in *Agathis* has until rather recently been overlooked. Although noted by Moore and Edgar in 1976 (see Appendix) it has still to make its way into *Index Kewensis* and has not yet been typified, which is remedied in the Appendix below.

New Zealand would appear to be ruled out too — another blind alley in the case — so perhaps Nova Scotia is the result of a confusion, probably arising in Belgium, because, as The Hebrides are part of Scotland, The New Hebrides (i.e. Vanuatu) could, perhaps, have been referred to as a 'New Scotland'?

### Vanuatu: '*Dammara ovata*'

Moore visited Aneityum in Vanuatu on the voyage of the *Havannah*. In his journal (f. 19 of the MS copy held at Royal Botanic Gardens Sydney), he noted that in August 1850, 'only two Conifers were observed ... one a large and noble sp. of *Dammara* three times the size in its leaves and cones to that of New Zealand [*A. australis*] but scarcely as large a tree, two hundred and eighty [growth] rings were counted in a large block lying at Captain Padden [Paddon]'s establishment — this plant is not uncommon on the South-West side of the island extending its range from the sea to the tops of the mountains'. A specimen of it that he collected there he named *Dammara ovata* on a manuscript label sent to Lindley in England. Lindley made the specimen bearing Moore's unpublished *D. ovata* and 'New Hebrides and Fiji Islands' the type of his new species, *D. obtusa*.

Lindley referred a second specimen, collected by Moore on the *Havannah* voyage from Vanikoro in the Solomon Islands (Santa Cruz Island) and intended by Moore to be called *D. peyrousei*, to another new species, *D. macrophylla*. Moore wrote of Vanikoro in his journal (f. 50) for 13 September 1850, 'We had not proceeded far before it commenced raining a perfect deluge. We determined however to persevere in our excursion and was [sic] rewarded by the discovery of a noble sp. of *Dammara* and other valuable plants ... [f. 53] The cones and leaves are at least 10 times the size of *D. australis* and twice that of the sp. found at Anateum [sic]. As a kauri is found on Erromango it may possibly be an intermediate sp. or var. between this and that'. Indeed Moore's (and Lindley's) two species, together with *D. vitiensis* Seem., described later from Fiji, are now considered conspecific and referred to *Agathis macrophylla* (Lindl.) Masters (Whitmore 1980).

However, the name *Dammara ovata* has become much confused (see de Laubenfels 1972: 134, 141 for partial explanation) and was used in print later for two very different species, both from New Caledonia. In the 1857 catalogue of plants growing in the Sydney Gardens, Moore used the name for a second species collected in New Caledonia

(his original *D. ovata* from Aneityum was correctly listed there as *D. obtusa*, i.e. *A. macrophylla*). A cone of his second *D. ovata* (= *Agathis lanceolata* Warb.) was illustrated that year, on the same plate as *D. robusta*, in *The Month*. This was the second known New Caledonian endemic species and, although in its juvenile stages it has leaves like those of *D. brownii*, it was apparently not in cultivation in Europe when the latter was described, though in NSW there is a specimen ('1850') mounted with one of *A. moorei*.

Before 1860 Moore's friend, Captain James Paddon, then living in New Caledonia (Bennett 1860: 353), had brought indigenous people from both Vanuatu and New Caledonia to see the Sydney Gardens. Between them, these people recognised *A. macrophylla* (*D. obtusa*) and *A. moorei* growing with *A. robusta* in what is now Bed 28a, though an inhabitant of the Isle of Pines recognised none and explained that there was another tall species in the south of New Caledonia, but unrepresented in the Gardens collection then. This was probably the 'Koghis kauri' and, subsequently, it was introduced to Sydney from the Nouméa area. Moore sent herbarium material of this, his second '*D. ovata*', collected in New Caledonia, to Lindley. But Lindley did not publish this *D. ovata* either, under any name, and this species is now correctly *A. lanceolata* Warb. (see Appendix).

It should be noted that the shrubby species (unfortunately, in view of the above) now called *A. ovata*, based on Vieillard's misinterpretation of Moore's name, is a third New Caledonian endemic, the scrub kauri, and was Moore's *Dammara hypoleuca* introduced to France in 1862 (Carrière, *Traité Conif.* ed. 2: 624, 1867) — see Appendix below.

In describing *Dammara obtusa*, i.e. *Agathis macrophylla*, Lindley had not only a cone and specimens but also a living plant. In 1851 (Ann. Rep. 1852: 3, 4, 7, 10), Moore received live Aneityum material of *D. obtusa* from Paddon, and sent out live material to Henderson's, to his brother at Glasnevin, to the Duke of Bedford at Woburn Abbey, to the Royal Botanic Society's garden in Regent's Park, London, to the Horticultural Society's garden at Chiswick, to Kew and to the 'Government Botanic Gardens, Batavia'. In that year Shepherd's could offer it as Moore's introduction, *Dammara* 'sp. from Anatum'. In 1852 (Ann. Rep. 1853: 3, 4, 5), Moore sent more to the Jardin des Plantes in Paris, to Thomas Moore (1821–1887, no relation) at the Chelsea Physic Garden, to Louis Napoleon, 'the Prince President of France', to Paxton for the Duke of Devonshire, and to the Duke of Richmond. Next year, not only Henderson's but also Rollisson's ('Rollinson') of Tooting and the botanic gardens in Hamburg were supplied with plants (Ann. Rep. 1854: 3, 6).

Unlike all the other 'novel' species considered in this paper so far, live material of '*D. obtusa*' was available to Lindley as early as 1851 and it was early sent under that name to a number of firms in London. It seems then that this could well have been the original *D. brownii*.

But how was Robert Brown implicated? He had neither been to Vanuatu, nor written about this plant, nor was he referred to by Lemaire. Why does '*D. brownii*' not even feature in the British horticultural literature of the period, when it was so lauded by Lemaire? Where did Van Geert, whose agent in London was R. Silberrad of 5 Harp Lane, Tower Street (Gard. Chron. 13 Oct 1855: 673), get his plant?

### The case solved?

As early as 1867 Carrière (see Appendix) had indeed considered *Dammara brownii* conspecific with *D. macrophylla*, but reduced the latter name, illegitimately, to *D. brownii*, noting it had been introduced to France in 1855 — though he wrote that the plant was from New Zealand, where the sole species is *Agathis australis* (see above). He roundly criticised Gordon's synonymizing *D. brownii* with *D. bidwillii*, though Gordon

(see Appendix) had amalgamated *D. brownii* and *D. obtusa* (i.e. now *A. macrophylla*) as early as 1858 and before Seemann in 1868 had allied it with *D. robusta*, perhaps following Hill and von Mueller (see above).

In 1855, '*Dammara obtusa*' was one of the 'New and Rare Plants' (Gard. Chron. 14 July 1855: 467) offered at 31/6 by the firm of J. & C. Lee in Hammersmith ('The Trade Supplied'), so *Agathis macrophylla* was certainly readily available in England in 1855. And it could well be that the complete answer lies in one of Carrière's synonyms, '*D. brownii obtusa* Hort.', because one of the London firms at this time was J. and H. Brown, Albion Nursery, Stoke Newington, whose advertisements also appeared regularly in the *Gardeners' Chronicle* (e.g. 1855: 754), though no published advertisement with *D. obtusa* has yet been found perhaps because the firm supplied directly to 'the trade' and therefore possibly directly to van Geert.

With all the circumstantial evidence, particularly the fact that Lindley had described *D. obtusa* from a live plant in England, but also that in the original description *D. brownii* was described as a very vigorous greenhouse subject with large leaves (like *A. macrophylla*), supporting which Whitmore (1980) notes that *A. macrophylla* is 'Occasionally cultivated in temperate glasshouses, where it has produced cones', the most parsimonious solution in this detective story — whatever the precise explanation — is that the plant was labelled '*Dammara Brown's obtusa*', or similar, and became confused, '*D. brownii*' therefore inadvertently commemorating the nurseryman and not the great botanist.

On that hypothesis then, *D. brownii* is from neither Australia nor New Zealand nor New Caledonia, as has been recently supposed, and the relevant synonymy is:

***Agathis macrophylla*** (Lindl.) Masters, J. Roy. Hort. Soc. 14: 197 (1892); Dümmer, J. Roy. Hort. Soc. 39: 83 (1913); Whitmore, Pl. Syst. Evol. 135: 60 (1980).

*Dammara macrophylla* Lindl., J. Hort. Soc. 6: 271 (1851).

*Dammara brownii* [Hort. Angl. ex] Lem. [var.] *macrophylla* (Lindl.) Carr., Traité Conif., ed. 2: 622 (1867), *nom. illeg.*

Type: Solomon Is. (Santa Cruz Is.), Vanikoro Is. ['Vanikolla' ('Peyrouse's Is.'), 13 Sept. 1850], C. Moore 'N° 9' (CGE, holo [P, photo! See also Dümmer, J. Roy. Hort. Soc. 39: 83 (1913)], K iso).

[*Dammara* 'sp. from Anatum', Shepherd, Cat. Darling Nursery 15 (1851)]

*Dammara obtusa* Lindl., J. Hort. Soc. 6: 270 (1851) & in Paxt., Fl. Gard. 2: 146 + t. (1851–2); Lem., Jard. Fl. 2, Misc.: 111 + t. (1852); Gordon, Pinetum 79 (1858) & Suppl. 28 (1862), excl. syn. *D. bidwillii* & *D. robusta*; Henkel & Hochst., Syn. Nadelh. 216 (1865), excl. syn. *D. bidwillii*; Dümmer, l.c. (1913).

*Agathis obtusa* (Lindl.) Masters, J. Roy. Hort. Soc. 14: 197 (1892).<sup>†</sup>

*Agathis macrophylla* (Lindl.) Masters var. *obtusa* (Lindl.) Silba, Phytol. 68: 23 (1990).

Type: [Vanuatu, Aneityum, Aug. 1850], ('New Hebrides and Fiji Islands'; 'D. ovata Moore'), C. Moore 'No. 7' (holo-, CGE (photo P), iso-, K).

[*Dammara peyrousei* [C. Moore ex] Hook., J. Bot. Kew Misc. 4: 115 ('*peyrousii*'), t. 4 ('*perousii*') (1852), *nom. in syn.*]

<sup>†</sup> Also published by Mottet, Dict. Prat. Hort. 1: 77 (1892) [as is *\*A. orientalis* (D. Don) Mottet, l.c. — *nom. superfl. pro \*A. dammara* (Lamb.) Poir. in Lam., Tabl. Enc. 6: 711, t. 997 (1823), syn. *\*Abies dammara* (Lamb.) Dum. Cours., Bot. Cult. ed. 2, 6: 474 (1811)].

?*Dammara brownii* [Hort. Angl. ex] Lem., Ill. Hort. 2, Misc.: 60 cum tab. (1855); Hérincq, Hort. Franç. 192 (1855); Courtin, Fam. Conif. 99 (1858); Carr., Traité Conif. ed. 2: 621 (1867); Dene & Naudin, Man. Amat. Jard. 3: 321 (1868); Whitmore, Pl. Syst. Evol. 135: 66 (1980).

?*Agathis brownii* (Lem.) L. Bailey, Cult. Conif. N. Am. 18, 151 (1933), excl. syn. *A. robusta* & descr.; Chitt., Dict. Gard. 1: 64 (1951), excl. syn. *A. robusta* & descr.

Type: Bought in England and cultivated at Van Geert's Nursery, Ghent, Belgium (?not preserved, in which case Stroobant's lithograph published by Lemaire, l.c., should serve as 'iconotype').

[*Dammara brownii obtusa* Hort. ex Carr., l.c., nom. in syn.]

Native in Solomon Is., Vanuatu, Fiji (Note that another synonym, based on Fijian material, is:

\**Agathis vitiensis* (Seem.) Benth. & Hook.f. ex Drake, Ill. Fl. Ins. Pacif.: 353 (1892); Farjon, Bibliog. Conifers: 20 (1998, q.v. for further synonymy).

## Conclusion

It can be concluded, using the above reasoning, that *Dammara brownii* was Moore's first *D. ovata*, i.e. *A. macrophylla* (var. *obtusa*) discovered by him in Vanuatu in August 1850, sent to Lindley, and also planted in the Sydney Gardens in the kauri collection with the young *D. robusta* raised by Macarthur from Bidwill's seeds. That tree was later joined by the second '*D. ovata*' [labeled '*A. ovata*' today!], i.e. *A. lanceolata* from New Caledonia. Lindley changed the second '*D. ovata*' to *D. obtusa* and through him it reached the London trade and thence, with a garbled name, Belgium, Van Geert and Lemaire, who (inadvertently?) described it as new all over again.

If this is so, *Dammara brownii* is therefore neither an Australian plant nor one commemorating Robert Brown. This conclusion was reached long ago — but has apparently been completely overlooked: in Guilfoyle & Son's 1862 *Catalogue of plants*, p. 14 (copy at MEL) and, again, in their *Catalogue of ornamental trees and shrubs ... 1866* p. 16, describing the conifers grown at their Double Bay nursery, Sydney, *D. brownii* is firmly in the synonymy of *D. obtusa*, i.e. *Agathis macrophylla*. Carrière in France (and effectively Gordon before him — see above and in Appendix) also recognized the identity of *D. brownii* with what is now *A. macrophylla*. Horticulturists nowhere took up the (apparently bogus) name *D. brownii*, though taxonomists have allotted this binomial to the synonymy of a whole array of different species. This is, then, yet another example where horticultural work on Australasian plants, including that published in Continental Europe, has been neglected by botanists (cf. Mabberley 1991, 1999).

The possibility, extremely unlikely as it is, that *D. brownii* was an otherwise unrecorded name used by nurserymen in England in 1855 for *D. robusta*, and that 'Ecosse' was a slip for '[Nouvelles] Galles [du Sud]' (i.e. [New South] Wales) or a corruption of 'New Holland' — as very far-fetched as this seems — cannot be entirely ruled out, however. In consequence, any detractors from the hypothesis presented above would be obliged, in the interests of nomenclatural stability, to proscribe the name *Agathis brownii* lest it ever be resurrected for *A. robusta*.

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## Appendix: Synonymy of other taxa discussed in the case

[Names marked with an asterisk are not in *Index Kewensis* or other lists]

\**Agathis australis* [Hort. ex] Lindl. in Loud., *Encycl. Pl.*: 802 (1829); Moore & Edgar, *Fl. New Zealand* 2: 329 (1976).

Type (neotype designated here): as lectotype of *D. australis*, below.

*Dammara australis* D. Don in Lamb., *Pinus* 2: 14 & t. 6 (1824). Type: New Zealand [Bay of Islands, May–June 1820 — according to 'Bay of Islands shipping arrivals and departures 1803–1840', teste Mark Large], *J. Downie s.n.* in Herb. Lambert (lost?), the basis of the Lambert plate by Sowerby (lecto, effectively selected by Whitmore [1980: 54]).

[*Dammara brownii* Hort. ex Carr., *Traité Conif.*, ed. 2: 625 (1867), nom. nud.; Decne & Naudin, *Man. Amat. Jard.* 3: 321 (1868), nom. nud.; non Guilfoyle (1862), i.e. *A. robusta*]

Loudon's text was actually written by Lindley (see p. iv and Gloag 1970: 56–7), but Lindley does not cite Lambert's publication with the species entry, so a specimen from Lindley's herbarium (CGE) would have been a good candidate as a type had there been any contemporary sheets there (there are not – Gina Murrell in litt.) and it seems that the description was based on the living plant in the Society's garden. Only in Lambert's second edition (1842: 104) is it recorded that such a plant was in the garden, and perhaps no specimen of the cultivated plant was made in any case. In the interests of stability, I therefore propose that the lectotype of *D. australis* be considered as neotype for *A. australis*, particularly as Lambert's book is cited on pp. X & 784 of Lindley's work.

2. *Agathis lanceolata* Warb.†, *Monsunia* 1: 186 (1900); Whitmore, *Pl. Syst. Evol.* 135: 60 (1980).

\**Dammara lanceolata* Lindl. ex Sebert & Pancher, *Rev. Marit. Colon.* 40: 555 (Feb 1874) & 41: 246 (Apr 1874) & *Not. Bois Nouv. Caléd.* 169 (1874), non Vieill. (1862), = *A. moorei* (Lindl.) Masters.

Type: New Caledonia, 'kaori des indigènes', Fournier & Sebert 60 p.p. in *Herb. Colonies Franç.* (P, lecto!, selected here).

Note that de Laubenfels (1972: 134) and Whitmore (1980: 60) have Pancher s.n., 'Cougui' [= Koghi Mts.], 1870, (P, n.v. [; iso- K (photo), P!]) as 'holotype', but the only material listed by Sebert and Pancher (in April 1874) is Fournier and Sebert's collection, which was presented to P in 1894, though one sheet labelled *D. ovata* under this number is referable to true *A. ovata* (see below).

\**Dammara ovata* C. Moore [Cat. Bot. Gard. Syd 1857: 14 (1857), nom. nud.; ex Fowler, *The Month* 1: 293+ tab., nom. nud. (Nov 1857); ex Bennett, *Gatherings Nat. Austral.*: 353 (1860), nom. nud.] ex Seem., *Fl. Vit.*: 264 (Feb. 1868); Parl. in DC., *Prodr.* 16(2): 375 (July 1868), non Vieill. (1862) = *A. ovata* (Vieill.) Warb.

\**Agathis ovata* (C. Moore ex Seem.) Maiden, *Guide Bot. Gard. Sydney*: 36 (1903), non (Vieill.) Warb. (1900).

Type: Growing at Botanic Gardens Sydney, collected 1861 (from the tree probably that still in Royal Botanic Gardens Sydney), B. Seemann s.n. (?K, not found, though perhaps sheets labelled 'Moore').

Seemann (l.c.) made herbarium specimens and took live plants of this and other of the seven supposedly different species in the collection with him to England, presented them to Kew, and made those, with his notes on the genus, available to Parlatore, who visited Kew in connexion with his account of the genus for De Candolle's *Prodromus*, hence Parlatore's remark '(v.v.)', i.e. live specimen seen [at Kew] as well as Moore! Bennett! [herbarium sheets at Kew]. There also survives wild-collected herbarium material from New Caledonia [or Isle of Pines (Bennett, l.c.)], C. Moore (CGE [(N. Caledonia) 'Moore', though mounted with 'D. ovata young' perhaps from the Sydney tree]; P, photo], K, NSW ['New Caledonia', '1850', mounted with material of *A. moorei*].

[*Agathis obtusa* sensu Guillaum., *Acta Horti Gothob.* 19: 8 & fig. 4 (1952), non (Lindl.) Masters = *A. macrophylla* (Lindl.) Masters)].

†Why de Laubenfels (1972) attributes this name to 'Lindl. ex Warb.' is unclear. Although Warburg does not state the basionym, it is evident from his text that he is basing his new names in *Agathis* on those in *Dammara*. Lindley never used the name in either *Agathis* or *Dammara*, but Warburg's perpetrating Sebert's & Pancher's error indicates he was using their text, effectively creating a *nomen novum* in *Agathis* for *D. lanceolata* Sebert & Pancher, non Vieill. To correct Warburg's basionym to Vieillard's *D. lanceolata* would entail *A. lanceolata* falling in the synonymy of *A. moorei* (see below) and the necessity to provide a completely new name for the 'Koghish kauri', a highly undesirable outcome.

3. *Agathis moorei* (Lindl.) Masters, *J. Roy. Hort. Soc.* 14: 197 (1892); Dümmer, *J. Roy. Hort. Soc.* 39: 82 (1913); Whitmore, *Pl. Syst. Evol.* 135: 62 (1980).

*Dammara moorei* Lindl., *J. Hort. Soc. Lond.* 6: 270 (1851 as 'moorii'); Moore, *Ann. Rep.* 1852: 3, 7), non sensu Vieill., *Ann. Sci. Nat.* IV, 16: 56 (1862) = *A. corbassonii* de Laubenf.

Type: New Caledonia [Hienghène, Oct. 1850], C. Moore 'N° 8' (holo-, CGE, n.v.; iso-, K, NSW [New Caledonia '1850', mixed with *A. lanceolata*]).

\**Dammara lanceolata* Vieill., *Ann. Sci. Nat.* IV, 16: 56 (1862), non 'Lindl.' ex Sebert & Pancher (1874) = *A. lanceolata* Warb.

Type: New Caledonia, 'Gatope', Vieillard 1280, p.p. (P, lecto [de Laubenfels (1972: 133)]).

4. *Agathis ovata* (Vieill.) Warb., *Monsunia* 1: 186 (1900), quoad basion., non *A. ovata* (C. Moore ex Seem.) Maiden (1903)†; Whitmore, *Pl. Syst. Evol.* 135: 63 (1980).

*Dammara ovata* Vieill., *Ann. Sci. Nat.* IV, 16: 56 (1862), Gordon, *Suppl. Pinetum*: 28 (1862), non [C. Moore ex] Seem. (1868) = *A. lanceolata* Warb.

Type: New Caledonia, Mts d'Unia, Vieillard 1263 (P, lecto [de Laubenfels (1972: 142)]).

*Dammara hypoleuca* [Bull ex Anon., Gard. Chron. 1864: 654, nom. nud.; C. Moore ex] Henkel & Hochst., Syn. Nadelh.: 217 (1865).

*Agathis hypoleuca* (Henkel & Hochst.) Warb., Monsunia 1: 186 (1900).

Type: New Caledonia, 'Port Molle' [though this is in Queensland; according to Gardener's Chronicle 1861: 868 it was *\*Araucaria cunninghamii* Mudie (Pict. Austral.: 133, 148 [1829]) that came from Port Molle: perhaps this is a confusion], C. Moore, described from a juvenile plant (TUB, not preserved?).

[*Dammara pumila* C. Moore, Cat. Pl. Gov. Bot. Gard. Sydney 89 (1895), nom. nud.]

[*Agathis pumila* Maiden, Guide Bot. Gard. Sydney 41 (1903), nom. nud.]

†Warburg kept up both Moore's species, i.e. *D. ovata* (= *A. lanceolata*) and *D. hypoleuca* (though he considered that a *species dubia*). He used Moore's name as the source in *Dammara* of the basionyms, taking them from Parlatores' account (cited on p. 183). It could therefore be argued that his *A. ovata* was based, not on Vieillard's mistaken use of C. Moore's name, derisory 'description' and absence of a cited specimen, none of which Warburg cites, but on *D. ovata* C. Moore in the sense of all other authors. In that case *A. lanceolata* Warb. would become *A. ovata* Warb. (basionym: *D. ovata* C. Moore ex Seem., non Vieill.) and *A. ovata* '(Vieill.) Warb.' would be *A. hypoleuca* (Henkel & Hochst.) Warb., as Warburg had intended them to be. However the Code would appear to insist that Vieillard, whose three species are completely muddled up (his '*D. moorei* ('*moorii*')' is *A. corbassonii*; his '*D. ovata*', though attributed to Moore, was not Moore's plant, and his only 'new' species, *D. lanceolata*, was true *D. moorei*!) be followed, in which case it has to be argued that Vieillard was describing a new species. As crude as Vieillard's elements are (and his description of *D. lanceolata* is no better, both being brief adjuncts to a description of his *D. moorei* (i.e. a different species, now *A. corbassonii*), one of a list of economically important New Caledonian plants), the requirements are there but, in citing an author (Moore), as with *D. moorei* ('*moorii*') Lindley, it would seem not to have been Vieillard's intention to publish *D. ovata* as a new species in any case.

If, as seems inevitable in following the Code, *A. ovata* cannot be revived for Moore's *D. ovata*, and in the interests of stability it would be better not to transfer the name to another species and revive Moore's *D. hypoleuca* at this stage, then the consequence is that *A. lanceolata* stands.

**5. *Agathis robusta*** (F. Muell.) F.M. Bail., Syn. Qld Fl. 498 (1883); Warburg, Monsunia 1: 186 (1900), comb. superfl., illegit. [*D. brownii* Lem. in syn]; Barrett, Inst. Bot. Agric. [Buenos Aires] 1(19): 21 (1958); Hyland, Brunonia 1: 105 (1978); Whitmore, Pl. Syst. Evol. 135: 63 (1980); Hill, Fl. Austr. 48: 565 (1998).

*Dammara robusta* C. Moore [Ann. Rep. 1856: 3, 4 & 1857: 5, 6, nom. nud.; Cat. Pl. Govt. Bot. Gard. Sydney 14 (1857), nom. nud.; ex Fowler, Month 1: 293 cum tab. (Nov 1857), nom. nud.; ex Bennett, Gatherings Nat. Austral. 353 (1860), nom. nud.] ex F. Muell., Quart. J. Trans. Pharm. Soc. Vict. 2: 173 (1860); Seem., Fl. Vit. 264 (1868), ? excl. syn. *D. brownii*.

\**Dammara bidwillii* [Shepherd ex Anon. in Syd. Morn. Herald 2 Oct. 1857: 5 (1857, as '*Dammara bedwillii*'), nom. nud., & Mag. Sci. Art Sydney 1: 113 (1858), nom. nud.] Guilfoyle, Cat. Pl.: 14 (1862, as '*Bidwillii*') & Cat. Orn. Trees & Shrubs 1866: 16 (1866, as '*Bidwillii*'), nom. superfl. pro *D. robusta*.

Type: Probably cult. Darling Nursery, Chippendale, Sydney [T.W. Shepherd s.n.], Herb. Muell. MEL 258764 (MEL, **lecto, selected here**). Mueller's description of the female parts is based on 'the dissection of but a solitary fruit-cone' and only one such survives (Helen Aston *adnot.* May 1990). Note that the only sheets I have seen bearing the name *Dammara bidwillii* (at K — from Gordon's herbarium) are referable to *A. australis*. It is not recorded that Bidwill collected that plant whilst in New Zealand.

[*Dammara* sp. (Wide Bay), Macarthur, Cat. Pl. Cult. Camden 1850: 10 (1850); Moore, Ann. Rep. 1853: 3 (1853)]

[*Dammara* sp. The Kaurie Tree of Wide Bay, Moore in NSW Exhibition Commissioners, Cat. Nat. Ind. Prod. NSW: 36 (1855)]

[*Dammara* sp. Le 'Kaurie Tree' de Wide Bay, Moore in Macarthur & Moore, Cat. Coll. Bois Indig.: 22 (1855)]

[*Dammara* sp. New Holland, C. Moore, Ann. Rep. 1855: 4–6 (1855)]

[*Dammara brownii* sensu W. Hill in Anon., Cat. Nat. Ind. Prod. Qld. 15 (1862), ?non Hort. Angl. ex Lem. (1855); there are Exhibition specimens so named at K]

[*Agathis brotonii* sensu L. Bailey, Cult. Conif. N. Am. 151 (1933); Chitt., Dict. Gard. 1: 64 (1951), ?non (Lem.) L. Bailey]



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