



## Application of the name *Eucalyptus obtusiflora* DC. (Myrtaceae)

Dean Nicolle<sup>1,4</sup>, Alex George<sup>2</sup> and Peter G. Wilson<sup>3</sup>

<sup>1</sup>Currency Creek Arboretum, PO Box 808, Melrose Park, South Australia 5039, Australia

<sup>2</sup>Four Gables, 18 Barclay Road, Kardinya, Western Australia 6163, Australia

<sup>3</sup>National Herbarium of New South Wales, Mrs Macquaries Rd, Sydney, New South Wales 2000, Australia

<sup>4</sup>Corresponding author: [dn@dn.com.au](mailto:dn@dn.com.au)

### Abstract

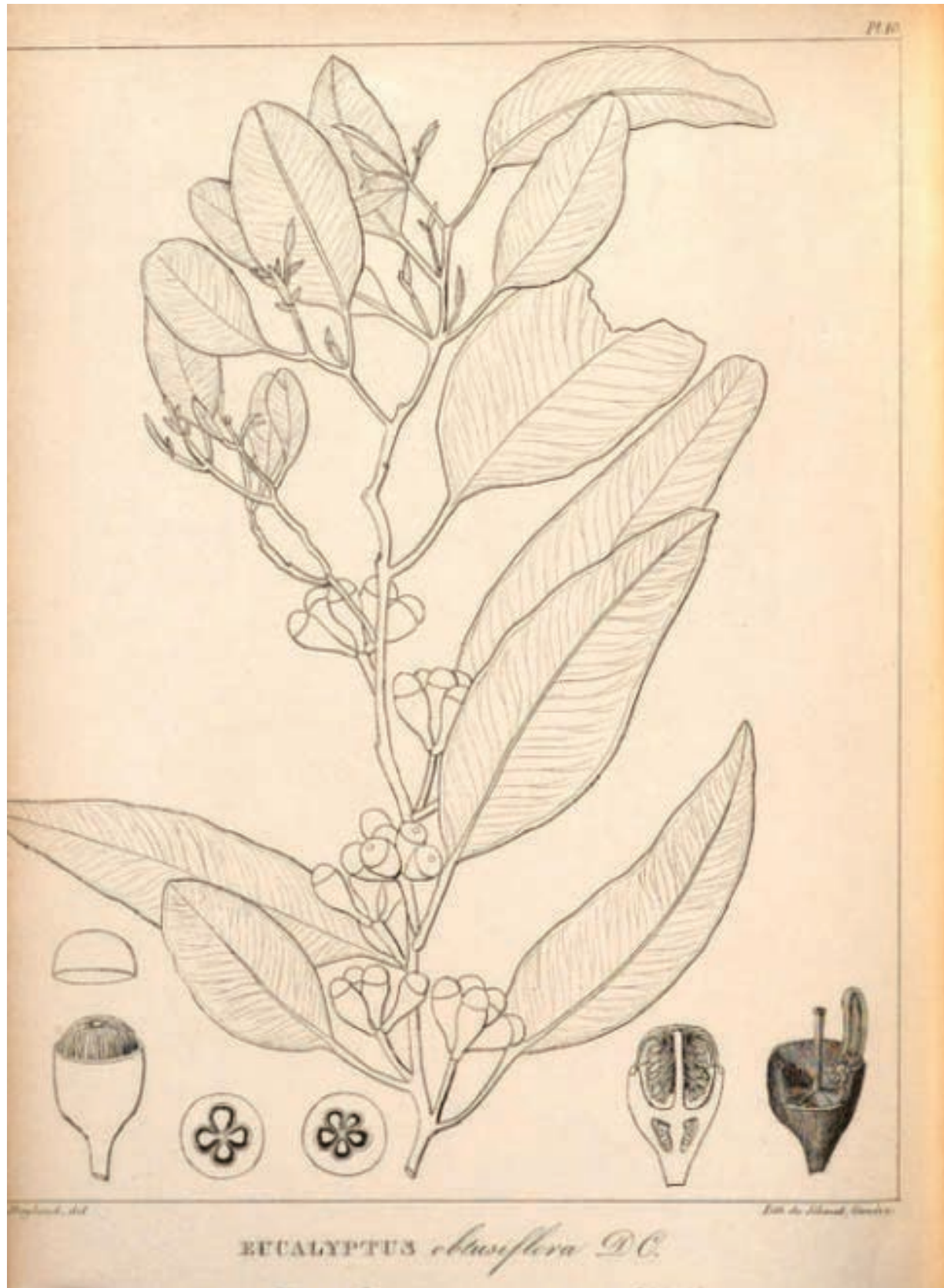
The name *E. obtusiflora* has been applied to both an eastern Australian species and to a distantly-related species from Western Australia. We have re-examined the literature and type material of *E. obtusiflora* and conclude that the holotype was most likely collected on the west coast of Western Australia, possibly as part of the Baudin Expedition, and was certainly not collected by Sieber, with whom the type specimen has previously been associated.

### Introduction

The name *Eucalyptus obtusiflora* has been applied to an eastern Australian species of *E.* subg. *Eucalyptus* (a 'monocalypt') by various authors (e.g. Maiden 1907b, Brooker and Kleinig 1983, Chippendale 1988) but also to a distantly-related Western Australian species of *E.* subg. *Symphyomyrtus* (e.g. Brooker and Kleinig 1990a, Brooker 2000, Hill *et al.* 2001, French 2012). This confusion occurred due to uncertainty about which specimen constituted the type, resulting from the erroneous attribution of type status to a Franz Sieber collection held at G (Chippendale *in adnot.*, Hill *et al.* 2001: 302). We have re-examined the literature and herbarium material of *E. obtusiflora* to clarify both the typification and the correct application of the name. This has flow-on effects regarding the application of the names *E. dongarraensis* Maiden & Blakely and *E. obstans* L.A.S. Johnson & K.D. Hill.

### Discussion

*Eucalyptus obtusiflora* was published by A.P. de Candolle in his *Prodromus* (de Candolle 1828: 220), with the type citation: 'in Novâ Hollandiâ ad oram orientalem' (in New Holland on the east coast). The *Australian Plant Name Index* (Chapman 1991) added text to the type citation of *E. obtusiflora*: '... et insulâ à Gallis Decrès dictâ', but this was mistakenly transposed from the previous species in De Candolle's work, the distantly-related South Australian species *E. cneorifolia*.



**Fig. 1.** Plate of *Eucalyptus obtusiflora* from *Mémoire sur la famille des Myrtacées* (de Candolle 1842), which matches the type specimen in G-DC (see Fig. 2).



Fig. 2. The holotype of *Eucalyptus obtusiflora* held in G-DC (sheet G00657440). Note that the right-hand branchlet matches the plate illustrated in de Candolle's *Mémoire sur la famille des Myrtacées* (see Fig. 1).

The next mention of *E. obtusiflora* is in de Candolle's paper *Mémoire sur la famille des Myrtacées* (1842). There is no further description of the species, nor is a collection cited, but a plate is included that illustrates a branchlet with leaves and flower buds as well as details of separate buds with the opercula removed to reveal anthers that are rather stylised on filaments wrongly rendered as incurved rather than inflexed (Figure 1). This illustration perfectly matches the right-hand element on the sheet of *E. obtusiflora* in the Prodrusus herbarium in G-DC (Figure 2), which is here considered to be the holotype. Both de Candolle's plate and the type specimen in G-DC represent a species of *E. subg. Symphyomyrtus* ser. *Rufispermae*. This series includes 33 species (Nicolle 2019) and is widely distributed in south-western Australia, from the Pilbara of Western Australia through the South-West to western Victoria and south-western New South Wales but is notably absent from the east coast (and adjacent ranges) of Australia.

The first link of *E. obtusiflora* with a Sieber collection was by Bentham (1867: 205) who, under *E. obtusiflora*, cited 'N. S. Wales. Port Jackson, Sieber, n. 473' and wrote: 'I have not seen De Candolle's specimens, and his figure represents parallel-celled anthers, but that is probably the fault of the artist. In other respects it agrees well with our plant.' The specimen of Sieber 473 at K is composed of seven separate fragments that appear to represent at least three different species, but all seven fragments certainly represent eastern Australian species of *E. subg. Eucalyptus* (including a green ash, a scribbly gum and a snow gum). Bentham cited '*E. rigida*, Sieb. Pl. Exs.' as a synonym. It appears that all later literature accepted Sieber 473 as the type for *E. obtusiflora*. However, it is worth noting that Sieber never visited Western Australia, and only collected in Australia in 1823, two years after de Candolle received the specimen in the Prodrusus herbarium.

Brooker and Kleinig (1983: 98) treated *E. obtusiflora* as an eastern Australian monocalypt species, as did Chippendale in *Flora of Australia* (1988, p. 177). Chippendale cited the sheet of Sieber 473 at G as the holotype, although there is no indication on the sheet that de Candolle studied it. That specimen has leaves, buds and flowers, and is certainly an eastern Australian species of *E. subg. Eucalyptus*. Chippendale cited isotypes at BM, G, K, NSW and W. There is also a sheet at MEL labelled Sieber 829 (MEL 703454) but with the annotation '*Ex Herbarium A.F. Lang. Flora Novae Holl. No. 473.*' In 1993, M.I.H. Brooker determined this specimen as *E. obstans*, and it certainly represents the eastern Australian monocalypt species. Otto Friedrich Lang (1817–47) was a German botanist of Verden an der Aller, Hannover, who corresponded with Mueller, though no letter has been found that mentions *E. obtusiflora*.

In his *Forest Flora of New South Wales*, Maiden (1907a: 85) published the combination *E. virgata* var. *obtusiflora* (DC.) Maiden, based on the eastern Australian monocalypt then known as *E. obtusiflora*. Maiden's citation of '*Sieber's No. 473, Fl. Nov. Holl.*' in his *Critical Revision of the Genus Eucalyptus* (Maiden 1907b: 281) is treated by the *Australian Plant Name Index* (Chapman 1991) as a lectotypification of the name.

The first to apply the name *E. obtusiflora* to a Western Australian species of *E. subg. Symphyomyrtus* were Brooker and Kleinig (1990a), who treated the species in their *Field Guide to Eucalypts: South-western and Southern Australia* and stated that the species 'includes *E. dongarraensis* Maiden & Blakely'. In the same year, Brooker and Kleinig (1990b), in their *Field Guide to Eucalypts: South-eastern Australia*, also used the name *E. obtusiflora* for an eastern Australian species of *E. subg. Eucalyptus*, but with a footnote stating 'The original specimen of *E. obtusiflora* DC. is *E. dongarraensis*, an endemic to south-western W.A.' In this, they were presumably pre-empting the taxonomic work of Hill and Johnson (1991) but their use of the name *E. obtusiflora* for two very different species (the western and the eastern species) in the same year created much confusion due to the lack of adequate explanation at the time. *Eucalyptus dongarraensis* was described by Maiden and Blakely in 1925 (p. 184), based on a collection from Dongara on the west coast of Western Australia, gathered by J.H. Maiden in October 1909.

Hill and Johnson (1991: 258) provided some explanation for their application of the name *E. obtusiflora* to a Western Australian species of *E. subg. Symphyomyrtus* when they described the new species *E. obstans* for the eastern Australian taxon previously known as *E. obtusiflora*. They stated 'Maiden (1907) made the combination *E. virgata* Sieber ex Sprengel var. *obtusiflora* (DC.) Maiden based on de Candolle's name, understanding that de Candolle's type represented the eastern Australian species that we are naming *E. obstans*. All of Maiden's cited material is of this eastern taxon. De Candolle also apparently confused the taxa, his original type representing a Western Australian species (*E. obtusiflora*, until now known by its later synonym *E. dongarraensis* Maiden & Blakely)'.

In a later publication, Hill *et al.* (2001: 302) provided further explanation for their application of the name *E. obtusiflora* to the Western Australian species. They claimed that the 'specimen held in G-DC (Port Jackson, F.W. Sieber 473, 1823) is not the same as replicates of Sieber 473 held elsewhere, which represents [sic] the eastern Australian species (of section *Renantheria*) since described as *E. obstans* L.A.S. Johnson & K.D. Hill. The specimen held in G [G-DC] represents the Western Australian species discussed here; the 'replicates' can only be the result of the mixing of specimens.' This reference to the 'replicates' of *E. obtusiflora* reflects these

authors' impression that the specimen in G-DC was collected by Sieber but represented a different taxon from the one associated with specimens of *Sieber 473* held in other herbaria. Hill *et al.* (2001) then gave a detailed description of *E. obtusiflora*, which they divided into three subspecies occurring between Shark Bay and Yorkkrakine in Western Australia. For one of these subspecies they published the combination *E. obtusiflora* subsp. *dongarraensis* (Maiden & Blakely) L.A.S.Johnson & K.D.Hill, based on *E. dongarraensis*. This application of the name *E. obtusiflora* by Hill *et al.* (2001) has largely been accepted until now, except at the infraspecific level, where French (2012: 310) has concluded that the three subspecies do not warrant taxonomic distinction.

## Typification

The name *Eucalyptus obtusiflora* DC. is based solely on the sheet in the Prodrum herbarium (G-DC, barcode G00657440) which is therefore the holotype of the name; there is no evidence that uncited original material exists. The specimen, *Sieber 473*, in the general herbarium at G (barcode G00227744) was not cited by de Candolle or annotated by him and cannot be considered a type. It, and many other specimens of *Sieber 473* that were previously considered part of the type gathering of *E. obtusiflora* DC., represent the eastern Australian species of *E.* subg. *Eucalyptus* now known as *E. obstans* L.A.S.Johnson & K.D.Hill.

The label annotations on G00657440, 'Eucalyptus obtusiflora DC.' and 'Eucalyptus Nouvelle Hollande, côte orient.; mus: de Par: 1821' (Fig. 2), are "clearly the handwriting of Augustin Pyramus de Candolle" (Laurent Gautier, pers. comm.). There is no collector's name associated with the specimen, but it is likely to have been collected by either Charles Gaudichaud-Beaupré (Freycinet expedition, 1817–1820) or Jean-Baptiste Leschenault de La Tour (Baudin expedition, 1800–1803). There is a specimen of *E. obtusiflora* at P (barcode P00291918), collected on 'Ile des Amiraux' [=Depuch Island] in 1801 during the Baudin expedition, but it is at a different reproductive stage from the one in G-DC and cannot be a type. The misleading locality, 'côte orient.' or 'ad oram orientalem', indicating the east coast of Australia, is also associated with the two adjacent species in the *Prodrum*, *E. cneorifolia* DC. (South Australia) and *E. gomphocephala* DC. (Western Australia).

## Taxonomy

***Eucalyptus obtusiflora* DC.**, *Prodrum Systematis Naturalis Regni Vegetabilis* 3: 220 (1828).

Type citation: 'in Novâ Hollandiâ ad oram orientalem'

Type: Nouvelle Hollande, côte orient.; mus. de Par.: 1821 (holo: G-DC G00657440 image!). Figure 2.

Notes: *Eucalyptus obtusiflora* is a species of *Eucalyptus* subg. *Symphyomyrtus* sect. *Dumaria* ser. *Rufispermae* that is distributed along the west coast of WA, from north of Carnarvon southwards to near Jurien Bay and inland to Wyalkatchem (French 2012).

The following two subspecies are recognised in *E. obtusiflora* (Nicolle 2019, French and Nicolle *in prep.*):

***Eucalyptus obtusiflora* DC. subsp. *obtusiflora***

Notes: Distributed from the Mullewa area (east of Geraldton) northwards to the Lake MacLeod area (north of Carnarvon), including a number of islands in the Shark Bay area, such as Dirk Hartog, Dorre and Bernier islands. The subspecies is distinguished from subsp. *dongarraensis* mainly in its non-decorticating, rough bark on the lower trunks (up to 0.5 to 2 m above ground level) and also in its consistently non-pruinose branchlets, buds and fruits.

***Eucalyptus obtusiflora* DC. subsp. *dongarraensis*** (Maiden & Blakely) L.A.S.Johnson & K.D.Hill, *Telopea* 9(2): 305 (2001).

Basionym: *Eucalyptus dongarraensis* Maiden & Blakely, *Journal and Proceedings of the Royal Society of New South Wales* 59: 184 (1925).

Type citation: 'It has been seen only at Dongarra, in Western Australia, up to the present. Dongarra is a railway station on the coast, 275 miles north of Fremantle and 43 miles south of Geraldton.'

Type: Western Australia: Dongarra, *J.H.Maiden*, October 1909 (holo: NSW; iso: CANB, K, MEL, PERTH, US).

= *Eucalyptus obtusiflora* subsp. *cowcowensis* L.A.S.Johnson & K.D.Hill, *Telopea* 9(2): 305 (2001).

Type: Western Australia: 3.3 miles [5.5 km] W. of Wyalkatchem, *G.M. Chippendale* 252, 9 Aug 1967 (holo: NSW; iso: CANB, PERTH).

Notes: Distributed from near Jurien Bay northwards to the Kalbarri area and inland to Goomalling and to near Wyalkatchem. The subspecies is distinguished from subsp. *dongarraensis* mainly in its completely decorticated bark and its variably pruinose branchlets, buds and fruits.

It should be noted that, when Maiden and Blakely described *E. dongarraensis*, the town after which it is named was so spelt. Even though the spelling of the town was later amended to Dongara, Maiden's epithet is orthographically correct and cannot be changed.

The more specific reference to the type of *Eucalyptus dongarraensis*, including date, is given only by Maiden (1927: 402). The *Australian Plant Name Index* (Chapman 1991) cites Maiden's gathering from 'Dongarra' as lectotype of the name but this was the only gathering available to Maiden and the specimen at NSW [NSW 42723] is the holotype. Duplicates sent from NSW to other herbaria are isotypes, some distributed by Maiden (PERTH 01380311; CANB 00412302) and others distributed by L.A.S. Johnson (MEL 1611164; PERTH 01380338; US 00409806).

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### References

- Bentham G (1867) Myrtaceae. *Flora Australiensis* Vol 3. (Lovell Reeve and Co., London)
- Brooker MIH (2000) A new classification of the genus *Eucalyptus* L'Hér. (Myrtaceae). *Australian Systematic Botany* 13: 79–148. <https://doi.org/10.1071/SB98008>
- Brooker MIH, Kleinig DA (1983) *Field Guide to Eucalypts: South-eastern Australia*. (Inkata Press, Melbourne and Sydney)
- Brooker MIH, Kleinig DA (1990a) *Field Guide to Eucalypts*. Vol. 2. South-western and Southern Australia (Inkata Press, Melbourne and Sydney)
- Brooker MIH, Kleinig DA (1990b) *Field Guide to Eucalypts*. Vol. 1, Revised ed. South-eastern Australia (Inkata Press, Melbourne and Sydney)
- Candolle AP de (1828) *Prodromus Systematis Naturalis Regni Vegetabilis*. Vol. 3. (Treuttel et Würtz, Paris)
- Candolle AP de (1842) Mémoire sur la famille des Myrtacées, *Mémoires de la Société de Physique et d'Histoire Naturelle de Genève* vol. 9, t. 10
- Chapman AD (1991) *Australian Plant Name Index*. (AGPS Press, Canberra)
- Chippendale G (1988) *Eucalyptus and Angophora*. *Flora of Australia* Vol 19 (Australian Government Publishing Service, Canberra)
- French M (2012) *Eucalypts of Western Australia's Wheatbelt*. (Malcolm French, Perth)
- Hill KD, Johnson LAS (1991) Systematic studies in the eucalypts – 3. New taxa and combinations in *Eucalyptus* (Myrtaceae). *Telopea* 4: 223–267. <https://doi.org/10.7751/telopea19914928>
- Hill KD, Johnson LAS, Blaxell DF (2001) Systematic studies in the eucalypts. 11 – New taxa and combinations in *Eucalyptus* Section *Dumaria* (Myrtaceae). *Telopea* 9: 259–318. <https://doi.org/10.7751/telopea20013003>
- Maiden JH (1907a) *Eucalyptus virgata*, Sieb. Pp. 85–89 in *The Forest Flora of New South Wales*. Vol. 2, No. 90 (Government Printer, Sydney)
- Maiden JH (1907b) XXVIII. *E. virgata*, Sieb. Pp. 273–284 in *A Critical Revision of the Genus Eucalyptus* Vol 1, part 9. (Government Printer, Sydney)
- Maiden JH (1927) CCCLXVI. *E. dongarraensis*, Maiden and Blakely. Pp. 371–372, 402 in *A Critical Revision of the Genus Eucalyptus*. Vol. 7, part 8 (Government Printer, Sydney)
- Maiden JH, Blakely WF (1925) Descriptions of sixteen new species of *Eucalyptus*. *Journal and Proceedings of the Royal Society of New South Wales* 59: 156–199.
- Nicolle D (2019) *Classification of the eucalypts* (Angophora, Corymbia and Eucalyptus) Version 4. <http://www.dn.com.au/Classification-Of-The-Eucalypts.pdf>