The discovery of Tasmanian eucalypts: an historical sketch

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Abstract

A brief narrative is presented on the discovery of Tasmanian eucalypts, from the first collections of the early explorers to modern times. The author of each species, and the collector and locality of the type specimen are given. Some of the oldest herbarium specimens of Tasmanian eucalypts are illustrated.

Introduction

The genus *Eucalyptus* was first described in 1788 by the French botanist Charles L'Héritier de Brutelle, based on a specimen of *E. obliqua* from Adventure Bay on Bruny Island, Tasmania (L'Héritier 1788) (Photo 1). It had been collected in January 1777 by David Nelson, the botanist with Captain James Cook's voyage in the ships *Resolution* and *Discovery*. The expedition visited Tasmania briefly before continuing on to New Zealand and the north Pacific. A gardener by trade, Nelson's task was to collect plant specimens for study by botanists in Kew, England, and to collect seeds for planting in English gardens.

From these early collections, Tasmania was assured of a prominent place in the history of *Eucalyptus*, in spite of the island's relatively low species diversity in that genus in comparison to mainland Australia.

That one of Nelson's Tasmanian collections became the type specimen of the genus *Eucalyptus* is rather fortuitous. Many other specimens of eucalypts had been collected earlier from eastern Australia by Joseph

Banks and Daniel Solander, botanists with Cook's voyage in the *Endeavour* in 1770. However, most of these collections were never published, at least not in the single lavish work initially envisaged by Banks. Some of the specimens were described by the German botanist Joseph Gaertner, but he did not recognise the eucalypts as belonging to a distinct genus and included them elsewhere; for example, in *Leptospermum* and *Metrosideros*.

Early discoveries

Even before Nelson's collections, Tasmania's eucalypts had attracted the attention of visitors to the island. In 1642, Abel Tasman, the first European visitor, noted an '...abundance of excellent timber...trees about two to two and a half fathom in thickness, measuring from 60 to 65 feet from the ground to the lowermost branches...standing so far apart that they allow a passage everywhere...' (from Reid-McIlreavy 1942).

The second European visitor to Tasmania was the Frenchman Marion du Fresne in 1772. From his landfall at Marion Bay on the east coast, du Fresne saw little of interest in the vegetation (Roth 1891). He sailed for New Zealand where he lost his life at the hands of the Maoris.

In 1773, the Englishman Tobias Furneaux (in the *Adventure*) anchored at Louisa Bay on the south coast and Adventure Bay; one of his officers, James Burney, noted trees which '...shoot up very high before they branch out...large enough for masts for any ship in the navy...' (Nelson 1981). This voyage was



followed by that of James Cook in 1777, which brought David Nelson to Adventure Bay where the type specimen of *Eucalyptus obliqua* was collected (see above). In his work, Nelson was assisted by William Anderson, the ship's surgeon. Nelson was the first of many official plant collectors to reach Tasmania. Others followed during the early years, accompanying voyages of discovery to the southern lands, and returning with valuable collections of seeds and living and dried plants.

Another early visitor with an appreciation of Tasmania's eucalypts was John Hayes who explored parts of south-eastern Tasmania in 1793, naming many prominent features such as Adamsons Peak and Pindars Peak, the Derwent River and Betsy Island. Hayes is perhaps the pioneer of Tasmanian sawmilling: he is reputed to have towed back to England the trunk of a large tree, a slice of which was polished and made into a table (Lee 1912). The log was possibly that of a eucalypt.

The next major contribution to the discovery of Tasmania's eucalypt flora was made by Jacques-Julien de Labillardière, botanist on the voyage of Bruny d'Entrecasteaux (in the ships Recherche and Espérance). The aims of this voyage were to undertake a scientific survey of the Pacific and to search for the navigator La Pérouse who had vanished some years earlier. The French spent about four years in Australian waters, making landfalls in Tasmania in April 1792 and January 1793. In general, they had little enthusiasm for Tasmania's eucalypts. For example, Labillardière observed: '...the finest trees in this country are the different species of eucalyptus. Their ordinary thickness is about 18 feet.Many of the large trunks that we felled during our stay at this place were found, notwithstanding their apparent soundness externally, to be rotten at the heart' (Labillardière 1800). Louis-Auguste Deschamps, another botanist on the *Recherche*, wrote: '...the carpenters were unable to draw any advantage from its timber, which could

serve only as firewood' (from Plomley and Piard-Bernier 1993).

Labillardière made extensive collections of plants although much of his botanical activity was dogged by misfortune and controversy. The voyage itself was marred by disease. and antipathy between officers and crew, aggravated by the politics of the French Revolution. It coincided with wars between France and Holland, and then France and England. Labillardière's plant collection was, for a while, one of the spoils of war, seized by the English. Its return to Labillardière was secured by Joseph Banks in a supreme example of how science could rise above the pettiness of politics. As Joseph Banks wrote to Labillardière: '...surely nothing is so likely to abate the rancour that politicians frequently entertain against each other as to see harmony and goodwill prevail among their brethren who entertain science' (De Beer 1960).

On his return to France, Labillardière wrote the first major work devoted to the botany of Australia and Tasmania, *Novae Hollandiae Plantarum Specimen* (Labillardière 1804–1807). In the book, he describes 265 new species, including several eucalypts which he had collected from Tasmania: *E. amygdalina*, *E. cordata* (Photo 2), *E. globulus* (Photo 3), *E. ovata* and *E. viminalis*. Another of his specimens, that of *E. pulchella*, was described by his friend and colleague, René Louiche des Fontaines, director of the Natural History Museum in Paris.

Labillardière's collections illustrate how readily errors and confusion can arise in results gathered in what was then uncharted and often hostile territory. For example, in his book, he attributes the locality of *E. ovata* to south-western Western Australia, even though this tree is restricted to south-eastern Australia and Tasmania; clearly there has been a muddling of labels. He also described plants from places he did not visit, failing to

Photo 1. The holotype of Eucalyptus obliqua, collected by the English gardener/collector David Nelson at Adventure Bay (Bruny Island) in 1777. The first description of the genus Eucalyptus was based on this specimen.



acknowledge other sources of specimens such as Leschenault de la Tour, botanist on the Baudin voyage to Australia and Tasmania in 1800–1804 (Nelson 1974, 1975).

In 1801, Robert Brown, botanist on the voyage of the Investigator commanded by Matthew Flinders, arrived in Australia. In about four years, Brown and his artist colleague, Ferdinand Bauer, compiled one of the most extensive collections of Australian flora of the time. His efforts in Tasmania began in 1803 when he arrived at Risdon Cove with the first settlers and was the first European to ascend and botanise on Mount Wellington. He later participated in the founding of the Port Dalrymple colony on the Tamar River, and of Hobart at Sullivans Cove. Brown's work was published in 1810 in his Prodromus Florae Novae Hollandiae et Insulae Van Diemen, a landmark in Australian botany and the major flora of the region for many years to come. Curiously he did not deal with the eucalypts in this book, although he collected specimens of them (Photos 4, 5). Subsequently, he described several new Eucalyptus species but none was from Tasmania.

Although the majority of early descriptions of Australian plants was based on specimens collected in Australia by the explorers and their botanists, some were described from plants grown from seed. This was a time of great interest in horticulture, and useful or interesting exotic plants were always much in demand by Europeans. At least one Tasmanian eucalypt, *E. linearis*, was described by Frederick Denhardt, Chief Gardener at the Botanic Gardens in Naples, from a specimen grown from seed from Mount Wellington. This species is now correctly known by its older name, *E. pulchella*.

The Australian collectors

By the early 1800s, the main emphasis of botanical exploration had shifted from the

sea-faring botanist confined mainly to the coast, to the resident with access to the inland. Australia attracted plant collectors from many parts of Europe. For example, the Czech Franz Sieber made extensive collections in New South Wales and, although his collection was ultimately sold, the names he gave to many plants were published by other European botanists. For example, *E. pauciflora*, a name first introduced by Sieber, was published by the German botanist Kurt Sprengel.

Kew Gardens, in particular, influenced and directed the botanical exploration of Australia. It despatched and sponsored its own collectors to the colonies; for example, George Caley and Alan Cunningham, or recruited local residents. In Tasmania especially, such interested amateurs contributed enormously to botanical knowledge of the island. Collections were sent to William Jackson Hooker, Director at Kew, and later to his son Joseph Dalton Hooker. Each shipment of specimens or seeds was typically rewarded with gifts of books and encouragement from Hooker.

One of the first of the Tasmanian collectors was Robert William Lawrence, the son of a wealthy landowner in Launceston. Lawrence soon found a companion in his botanical interests, Ronald Campbell Gunn, who eventually became a Police Magistrate in charge of all the convicts in northern Tasmania. Burns and Skemp (1961) describe vividly the close relationship that developed between Gunn and Lawrence: 'Unlike most of the young men of that time whose main interests were hunting, dancing and drinking, Gunn and Lawrence had something in common. Better educated and with keener intellects than most of their fellows, they had within them the spirit of scientific inquiry and a desire to increase their knowledge, and here in a new land full of fresh and undescribed species, animal and vegetable, was an almost unlimited field for their activities. What they

Photo 2. Part of the specimen (an isotype) upon which the first description of Eucalyptus cordata was based. It was collected by Jacques-Julien de Labillardière at Penguin Island, Adventure Bay, in 1793.



needed was a guide and a teacher and this, almost by accident, Hooker provided'.

Gunn also recruited other collectors, such as Joseph Milligan, surgeon to the Van Diemens Land Company at Surrey Hills near Burnie. Milligan later moved to Flinders Island as superintendent of the surviving Tasmanian Aborigines.

Through the collecting efforts of Gunn, Lawrence and Milligan, Joseph Hooker described many new Tasmanian species from a wide range of plant groups, including flowering plants, conifers and cryptogams. Several Tasmanian eucalypts were described, including *E. coccifera* (collected by Lawrence), *E. gunnii, E. nitida* and *E. urnigera* (collected by Gunn) and *E. vernicosa* (collected by Milligan).

Hooker himself visited Tasmania in 1840, and then again in 1841, as part of an epic expedition to the far Southern Hemisphere in the ships *Erebus* and *Terror*. Although the study of the earth's magnetism was the main aim of the voyage, it made a remarkable contribution to botany, culminating in the publication of The Botany of the Antarctic Voyage (Hooker 1845–1859). Hooker had the highest regard for Gunn, writing '...[I] am indebted to him for nearly all I know of the vegetation of the districts I visited. I can recall no happier weeks of my wanderings over the globe than those spent with Mr Gunn, collecting in the Tasmanian mountains and forests, or studying our plants in his library...' (Hooker 1859).

Another collector active in Tasmania at this time was William Archer, an architect by training who lived on a property near Deloraine named Cheshunt. Archer sent large numbers of specimens to Hooker and assisted significantly in the publication of Hooker's *Flora Tasmaniae*. His efforts are commemorated in the names of several Tasmanian plants, including *E. archeri*, described many years later.

The Australian botanists

By the latter half of the nineteenth century, considerable botanical expertise had developed in Australia. Instead of simply supplying plant specimens to overseas specialists for study, collections were also being studied in Australia. The outstanding resident botanist of the era was without doubt Ferdinand von Mueller. Mueller was a pharmacist by training but, on Hooker's recommendation, was appointed Victorian Government Botanist. He collected throughout Australia, amassing thousands of specimens. Botany was a life passion to him, and nature his place of worship. 'Let us regard the forests as a gift, entrusted to any of us only for transient care, to be surrendered to posterity as an unimpaired property, increased in riches and augmented in blessings, to pass as a sacred patrimony from generation to generation', he wrote (Willis 1949).

Mueller maintained an active correspondence and exchange of specimens with botanists in Australia and Europe. His great ambition was to write a flora of Australia, but this project, after much acrimony between Mueller and the botanists at Kew, fell to the English botanist George Bentham. Mueller himself published hundreds of scientific papers and discovered and named about 2000 species. Of the eucalypts occurring in Tasmania, he named E. perriniana and E. regnans, although the latter was based on a specimen from mainland Australia. One of Mueller's Tasmanian collectors, the nurseryman Charles Stuart, collected specimens of the endemic species *E. tenuiramis* which was described by the Dutch botanist Friederich Miguel.

The first major revision of the whole genus *Eucalyptus* in Australia was undertaken by Joseph Henry Maiden who published the work in eight volumes from 1903 to 1933. By this time, the genus numbered over 400 species. Maiden was Government Botanist and Director of the Botanic Gardens in

Photo 3. An isotype of Eucalyptus globulus, annotated in Labillardière's handwriting.

Sydney. He described many new species, either alone or with his colleagues William Blakely, a botanist, and Henry Deane, a railway engineer as well as an accomplished botanist (Hall 1978). They described *E. archeri, E. dalrympleana, E. johnstonii, E. rubida* and *E. subcrenulata* from Tasmania.

Further advances in the genus at this time were made by the botanist Richard Baker and the organic chemist Henry Smith. Both of these workers were interested mainly in economic uses of Australian plants; for example, their use as timber and for essential oils (Hall 1978). In the Tasmanian flora, *E. rodwayi* and *E. delegatensis* were described by them.

In Tasmania, a review of the genus with an identification key was produced by Robert Brett (1938), who later also described the rare endemic species *E. morrisbyi* (Brett 1939). Keys and flora accounts were also published by Curtis (1956) and Curtis and Morris (1975).

As taxonomic study of the genus continues, new species of *Eucalyptus* continue to be described, especially from very localised populations on the Australian mainland. In Tasmania, Gray (1979) has described *E. brookeriana*, whilst detailed research on *E. delegatensis* by Boland (1985) has led to the recognition of Tasmanian populations as an endemic subspecies. Through the work of L.A.S. Johnson and co-workers in New South

Wales, many species have been recognised or clarified, including the Tasmanian endemic *E. barberi*, and the east coast species *E. sieberi*, which also occurs on mainland Australia. The identity and status of the taxon known until recently in Tasmania as *E. radiata* subsp. *robertsonii* is also subject to some debate (e.g. see *E.* aff. *radiata* in Williams and Potts 1996).

The interrelationships within the eucalypts continue to be reviewed (e.g. Pryor and Johnson 1971; Johnson 1976; Hill and Johnson 1995; see also Rozefelds 1996). The most recent unified taxonomic account of the group in Australia (Chippendale 1988) recognises 30 taxa in Tasmania, comprising 29 species, one of which (*E. globulus*) has two subspecies. Subsequent research (see Williams and Potts 1996) suggests that it is appropriate to treat the two subspecies of *E. globulus* in Tasmania as a single taxon.

The 29 Tasmanian eucalypt species are shown in Appendix 1, along with a summary of information on their initial collection and description.

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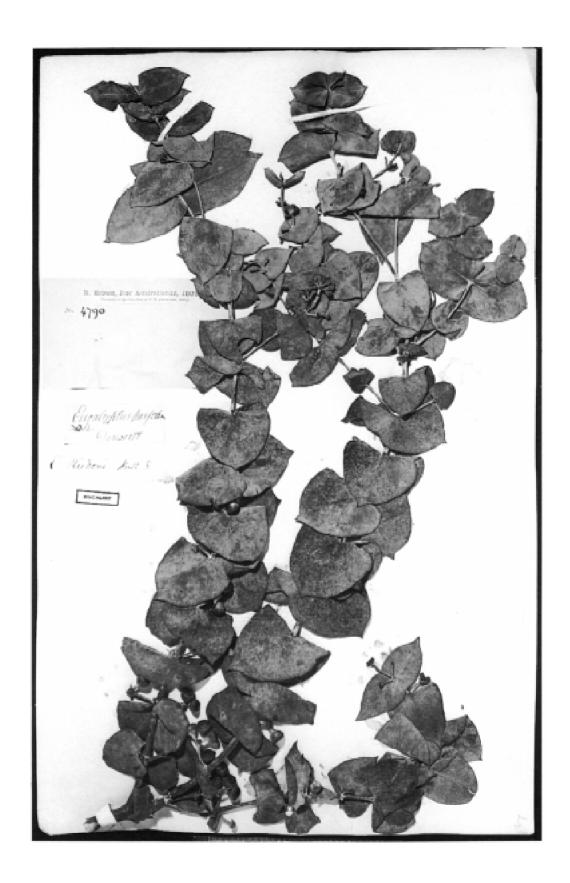
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Photo 4. The earliest known herbarium specimen of Eucalyptus risdonii, collected by Robert Brown in 1803–4 from the Derwent River's eastern shore. The first description of E. risdonii was not based on this specimen but one collected by Ronald Gunn in 1840 from the same locality.





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Photo 5. A specimen of Eucalyptus coccifera from Mount Wellington, collected in 1803–4 by Robert Brown. Brown's original annotation (upper centre) refers to the specimen by the invalid name 'E. alpina'.

Appendix 1. A chronology of the description of Tasmanian eucalypts.

Taxon	Year of publication	Author of the first published description	Collector of the type*	Locality of type specimen; comments
Type specimen of the	he genus <i>Euc</i> a	alyptus		
E. obliqua	1788	C. L'Héritier de Brutelle	D. Nelson	Adventure Bay, 1777.
Remaining eucalyp	t species in T	asmania		
E. globulus	1800	J.J. de Labillardière	J.J. de Labillardière	Van Diemens Land, 1792.
E. amygdalina	1806	J.J. de Labillardière	J.J. de Labillardière	Van Diemens Land, 1792.
E. cordata	1806	J.J. de Labillardière	J.J. de Labillardière	Van Diemens Land (no date).
E. ovata	1806	J.J. de Labillardière	J.J. de Labillardière	Van Diemens Land (no date).
E. viminalis	1806	J.J. de Labillardière	J.J. de Labillardière	Van Diemens Land, 1793.
E. pauciflora	1827	F. Sieber/K. Sprengel	F. Sieber	From NSW, 1823.
E. pulchella	1829	R.L. des Fontaines	J.J. de Labillardière	New Holland (Tasmania), 1792. This taxon was known for many years in Tasmania as <i>E. linearis</i> (syr <i>E. pulchella</i>), described by F. Denhardt from seed collected on Mount Wellington.
E. gunnii	1844	J.D. Hooker	R.C. Gunn	Arthurs Lake, 1843; commemorates the collector.
E. coccifera	1847	J.D. Hooker	R.W. Lawrence	Western Mts (no date).
E. risdonii	1847	J.D. Hooker	R.C. Gunn	Risdon, 1840.
E. urnigera	1847	J.D. Hooker	R.C. Gunn	Mt Wellington (no date).
E. vernicosa	1847	J.D. Hooker	J. Milligan	Mt Fatigue, 1842.
E. nitida	1856	J.D. Hooker	R.C. Gunn	?Circular Head, 1837.
E. tenuiramis	1856	F. Miquel	C. Stuart	?Vicinity of Southport (no date).
E. regnans	1870-71	F. von Mueller	D. Boyle	Victoria, 1867.
E. perriniana	1893	F. von Mueller	Dicker & Hedberg	Hamilton District.
E. rubida	1899	H. Deane & J.H. Maiden	J.H. Maiden	NSW, 1898.
E. delegatensis	1900	R. Baker	W. Bauerlen	NSW, 1899.
subsp. tasmaniensis	s 1985	Boland	G.M. Chippendale & A. Gray	North of Bothwell, on the Lakes Highway, 1974.

Taxon	Year of publication	Author of the first published description	Collector of the type*	Locality of type specimen; comments
E. rodwayi	1912	R. Baker & H. Smith	L.G. Irby	Interlaken, 1912; commemorates Leonard Rodway, Government Botanist in Tasmania from 1896–1932.
E. archeri	1929	J.H. Maiden & W. Blakely	W.H. Archer	Western Mts, 1848; commemorates the collector.
E. dalrympleana	1920	J.H. Maiden	W.A.W. de Beuzeville	NSW, 1920.
E. johnstonii	1922	J.H. Maiden	collector unknown	Dividing range between Huon and Derwent watersheds; commemorates the geologist, R.M. Johnston.
E. subcrenulata	1929	J.H. Maiden & W. Blakely	J.H. Maiden	Mt Field East, 1906.
E. morrisbyi	1939	R. Brett	not designated	Junction of South Arm and Clifton Beach roads; commemorates J.R. Morrisby, owner of a property on which <i>E. morrisbyi</i> grows.
E. sieberi	1962	L.A.S. Johnson	J.H. Maiden	NSW (1899); commemorates the collector and botanist Franz Sieber
E. barberi	1972	L.A.S. Johnson & D. Blaxell	L.A.S. Johnson & L.D. Pryor	Near Cranbrook, 1965; commemorates Prof. H.N. Barber who undertook pioneering studies on eucalypts at the University of Tasmania.
E. brookeriana	1979	A. Gray	A. Gray	Near Swanport, 1977; commemorates the botanist M.I.H. Brooker.
E. aff. radiata				The identity and status of this taxon is unresolved (see Williams and Potts (1996, p. 96). Until recently, it was treated as <i>E. radiata</i> subspecies <i>robertsonii</i> which was first described by W. Blakely in 1927 from NSW material.

^{*} This specimen does not necessarily represent the first collection of the species. (Information provided is taken from Chippendale (1988).)