

Livistona victoriae and the North Australian Exploring Expedition 1855–1856

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The first botanical collections and pictorial representations of *Livistona victoriae* are connected with the activities of botanist Ferdinand Mueller and artist Thomas Baines during the North Australian Exploring Expedition, 1855–1856. In this article, we bring together the earliest specimens and artworks of the palm for the first time and outline its 140-year taxonomic history.

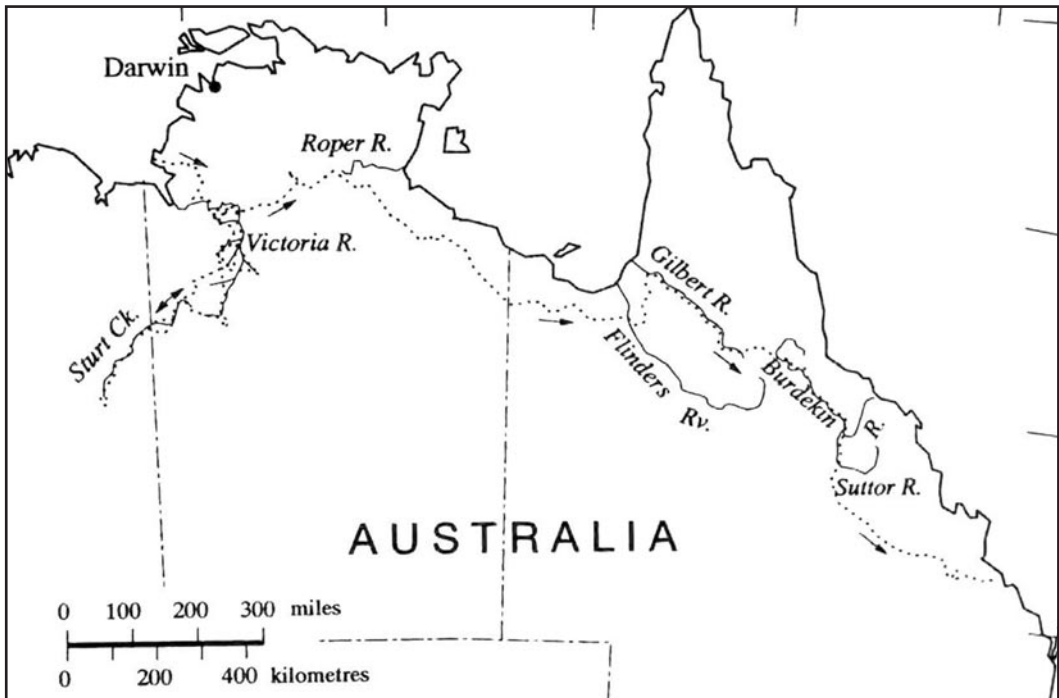
The oldest recorded specimen of *Livistona victoriae* Rodd was collected as "*Livistona* sp." by botanist Ferdinand Mueller from a palm that he encountered at Victoria River, Northern Territory, Australia, during the North Australian Exploring Expedition, 1855–1856. Although it was later recognized as morphologically distinct, no formal name was proposed (see Jones 1984, Wilson 1992), and it was not until 1998, some 140 years later, that it was formally described and given its present name (Rodd 1998). After the Expedition, Mueller identified the palm as "*Livistona inermis*" and artist Thomas Baines provided the first pictorial representations, as "palm tree of the Victoria."

The Victoria River region is currently one of the most isolated and unpopulated areas in Australia. The ancient landscape through

which much of Victoria River winds is dominated by spectacular high cliffs, escarpments, tablelands, buttes and mesas formed by the erosion of a sandstone formation with an estimated depositional age of ca. 840 Ma (Dunster & Ahmad 2013). At 560 km in length, Victoria River is the longest river in the Northern Territory. The river was named for Queen Victoria by Commander John Clements Wickham and Lieutenant John Lort Stokes in December 1839 during their survey of the north and west coasts of Australia (Stokes 1846). It is likely that the survey expedition encountered or at least distantly viewed *L. victoriae* during their forays in search of freshwater in the middle reaches of the river near locations where the palm is known to occur. However, the only references to 'palms' by Stokes (1846) in his account of the expedition were those growing on the banks of the lower reaches of the river and undoubtedly refer to the palm-like *Pandanus aquaticus* F.Muell., a plant that is ubiquitous in riparian environments in northern Australia. *Livistona victoriae* does not occur in such habitats.

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1. Overland route of the North Australian Exploring Expedition of 1855–1856, represented by the dotted-line. Taken from Parkin (1996).

The next European exploration of the river was undertaken by the North Australian Exploring Expedition, 1855–1856. This expedition, sponsored by the British Government and the Royal Geographical Society, London, was led by government surveyor Augustus Charles Gregory and was tasked with examining the river and its hinterland to determine suitability for settlement and to ascertain what resources were available (Gregory 1857, 1858). The significance of the expedition was enhanced by the inclusion of scientific and artistic members, including surgeon and naturalist Joseph Ravenscroft Elsey, geologist James Spottiswood Wilson, assistant botanist James Flood, botanist Ferdinand Mueller and artist Thomas Baines (Cohn 1996, Parkin 1996, Gooding 2012). In particular, it is the last two expedition members who are relevant to this paper because of their specific involvement with collecting, documenting and illustrating *L. victoriae*.

The expedition left Sydney on 18 July 1855 in two vessels, the barque *Monarch* and the schooner *Tom Tough*, with a combined complement of 19 men and with provisions to last 18 months. They arrived in the north-west of Australia at Victoria River on 15 September 1855, with *Monarch*, after

discharging its cargo of horses and sheep, sailing to Timor and *Tom Tough* remaining as a support vessel. Over a period of almost nine months, the expedition at first explored Macadam Range, 24 September to 12 October 1855 (Gregory 1858) and then the Victoria River catchment to as far inland as 700 km to the brackish/saline Lake Gregory at the edge of the Tanami Desert, 17 October 1855 to 21 June 1856. In late June 1856, the expedition separated into two groups, one of which, led by the artist Baines, sailed *Tom Tough* to Timor (about 750 km to the north-west) to replenish supplies and with a plan to eventually rendezvous in the Gulf of Carpentaria at Albert River with the other expeditioners, including Mueller, who were to travel overland eastward through the headwaters of streams that flow into the Gulf, then southward through central Queensland to end in Brisbane (December 1856) (Fig. 1).

In *Tom Tough*, one of Baines's responsibilities was to safeguard the botanical specimens that had been collected thus far by Mueller during the first phase of the expedition and return them safely to Sydney. However, on Baines's arrival at Timor the authorities declared *Tom Tough* to be unseaworthy, and she was ordered to Surabaya, Java, some 1300 km to the west, to undergo repairs (Baines 1858). After a series



2. Ferdinand Mueller, ca. 1863–1865. Photo by Johnstone & Co., Melbourne. Family collection.

of further adventurous misfortunes (including mutinous behaviour among the crew and physical assaults leading to court cases), the planned rendezvous at Albert River with the overland expeditioners did not take place and Baines finally arrived, in a replacement vessel the brigantine *Messenger*, in Sydney on 31 March 1857, some four months after the return of the overland expeditioners (Baines 1858). During this time, many of Mueller's botanical specimens were either damaged or destroyed (Mueller 1858, Bentham 1863).

Ferdinand Mueller (1825–1896) (later Baron von Mueller) (Fig. 2) was at the time of the expedition the most active botanist working in Australia. He was appointed government botanist for the colony of Victoria in 1853 and had established in Melbourne the foundation of the National Herbarium of Victoria with the personal ambition of elucidating the Australian flora as completely as possible. Mueller intended to visit the Kew Herbarium after the expedition to examine specimens collected by earlier botanists in Australia but remained in Victoria to secure his government position. Meanwhile, George Bentham accepted an

3 (left) . Specimen of *Livistona victoriae* collected by Mueller held at the National Herbarium of Victoria [MEL1059501]. With permission of the National Herbarium of Victoria. 4 (right). Specimen of *L. victoriae* collected by Mueller held at the Herbarium, Royal Botanic Gardens Kew, <http://specimens.kew.org/herbarium/K000209792>. © The Board of Trustees of the Royal Botanic Gardens, Kew.





5. *Livistona victoriae*, Jasper Gorge. Photo by E. Schweizer.

invitation from William and Joseph Hooker to write a flora of Australia. Mueller subsequently assisted Bentham by lending specimens from Melbourne to Kew (Stafleu 1967, Lucas 2003).

Mueller joined the Northern Australian Exploring Expedition after obtaining a leave of absence from his position of government botanist of Victoria (Cohn 1996). He saw the expedition as an opportunity to gain first-hand knowledge of the tropical Australian flora. After Mueller's return to Melbourne in 1857, he was appointed the additional role of director of Melbourne Botanical Gardens. He remained as government botanist until his death in 1896, but was controversially dismissed as director of the botanical gardens in 1873 (Maroske & Cohn 1996).

In the Macadam Range and Victoria River area, Mueller collected specimens of palms, all identified by him as *Livistonas*. There are four known surviving specimens, two each are held respectively in the herbaria at Royal Botanic Gardens Victoria, Australia, and Royal Botanic Gardens Kew, U.K. Three of the specimens consist of only a few fruits and small portions of rachillae, and only one has leaf material. Their paucity suggests that they were possibly among those specimens that were damaged in the *Tom Tough* misadventure. Two of the specimens have been identified as *L. victoriae* (Figs. 3 & 4) and the other two as *L. leichhardtii* F.Muell., a name that had been languishing in

synonymy mainly under *L. humilis* R.Br. until Dowe (2018) proposed a resolution of the correct identity of that species. An examination of the original description of *L. leichhardtii* indicated that it was the same taxon later described by Beccari (1921) as *L. lorophylla* Becc., a name that is now placed in synonymy under *L. leichhardtii* because of its nomenclatural precedence.

All botanical, geological and zoological specimens collected by participants belonged to the British Government, which sponsored the expedition. Mueller negotiated an agreement under which he was to retain duplicate specimens for his own herbarium in Melbourne. Mueller (1857) wrote that he sent the best and most representative and complete specimens to Kew and kept only fragments or poorer specimens in Melbourne. It is of interest to note that a record survives of the specimens being received by Kew in July 1857, under the names of "*Livistonia inermis* Br." and "*Livistonia*" (RBG Kew 2022). Mueller (1857) considered that the specimens were "so much more useful at Kew than in Australia." This situation may partly explain the poor condition of the specimen of *L. victoriae* (Fig. 3) in the herbarium at Royal Botanic Gardens Victoria and that the better specimen is held in Kew herbarium (Fig. 4). Mueller also noted the difficulties in preparation of specimens in the field, in respect to drying and pressing, and the damage caused by transporting them over long distance by pack-horse. He later also



6. *Livistona victoriae*, Jasper Gorge. Photo by E. Schweizer.



7. Juvenile *Livistona victoriae*, Jasper Gorge. Photo by E. Schweizer.

acknowledged the damage caused by the problems associated with the unseaworthiness of *Tom Tough* (Mueller 1858). As suggested above, the palm specimens from Macadam Range and Victoria River appear to have been among the water-damaged specimens.

In his report on the expedition, Mueller (1858) consistently identified what is now known to be *L. victoriae* as "*L. inermis*." He wrote that "*Livistonia* [sic] *inermis* and an allied species supplied us occasionally with palm-cabbage" and that "the sandstone tableland forms in its



8. Exposed root mass of *Livistona victoriae*, showing the densely aggregated fine roots and evidence of fire. Photo by E. Schweizer. 9. Fruit (semi-desiccated) and seeds of *L. victoriae*, Jasper Gorge. Photo by J.L. Dowe.

endless extent a landscape equally arid and cheerless ... *Livistona inermis* gracing now and then its declivities." Mueller did not explain his choice of the name "*L. inermis*," but it can be postulated that the lack of petiole armature

(*inermis*, Latin for unarmed) may have been significant as a defining character. *Livistona inermis* R.Br. was one of two palms described by Brown (1810) when he established the genus *Livistona*, the other *L. humilis*. Both were

described from islands in the Gulf of Carpentaria, some 900 km to the east of Victoria River. Of these, the palm from Victoria River with unarmed petioles was the best “fit” for the existing names available to Mueller. Given the unresolved and developing nomenclature of *Livistona* in Australia at the time, it is understandable that Mueller applied the name *L. inermis* to *L. victoriae*. Brown’s original description of *L. inermis* was very brief, and the main distinguishing character, an unarmed petiole, also applies to *L. victoriae*, at least in juvenile and mature individuals (seedlings have moderate armature on the lower part of the petiole). A subsequent account of *L. inermis* by Martius (1838), based on additional specimens, reiterated that it had unarmed petioles, thus establishing a clear and definable character as part of the circumscription of the species.

As for Mueller’s “allied species,” this can be interpreted as referring to what he was to later describe as *L. leichhardtii*, which he named in admiration for the lost explorer/botanist Ludwig Leichhardt (Mueller 1865, 1874). In the prologue Mueller (1874, p. 221) highlighted the distinguishing characters of *L. leichhardtii*, including “petiolo spinuloso [petiole thorny] ... sinus foliorum filo

destitutis [sinuses of leaves lacking filamentous threads] ... floribus minutis [flowers minute] ... carpidiis ovatis [fruit ovate].” This description clearly does not apply to *L. victoriae*, Mueller’s misnamed “*L. inermis*.”

In comparison to *L. leichhardtii*, which Mueller collected at Macadam Range, *L. victoriae* is present throughout much of the lower Victoria River catchment and its tributaries and would have become a familiar sight for the expeditioners during the many months spent there. *Livistona victoriae* (Mueller’s “*L. inermis*”) and *L. leichhardtii* are readily distinguishable on gross morphology and physiognomy: *L. victoriae* is a tall palm, the leaves have broad rigid segments, the petioles usually unarmed and the fruit are globose; whereas *L. leichhardtii* is a smaller palm, has deeply divided leaves with pendulous narrow segments, the petioles armed with strong spines and fruit are ovoid-ovoid to infrequently pyriform. The two species occupy distinctly different habitats: *L. victoriae* is mostly confined to the bases of sandstone cliffs or escarpments, or associated with watercourses that descend from such formations (Figs. 5–9). In contrast, the preferred habitat of *L. leichhardtii* is in open forests and woodlands and only rarely in confined gorges (Fig. 10). The population of

10. *Livistona leichhardtii*, Explosion Gorge, El Questro Station, Western Australia. Photo by J.L. Dowe.



L. leichhardtii in Macadam Range is the eastern extent of an otherwise wide distribution to the west and is found throughout much of the Kimberley of Western Australia, sometimes forming significant populations. *Livistona victoriae* has a more restricted overall range, occurring in the Victoria River and Keep River areas in the Northern Territory and intermittently, where suitable habitat occurs, through to Bungle Bungle Range in Western Australia where there is a significant population (Dowe & Jones 2011).

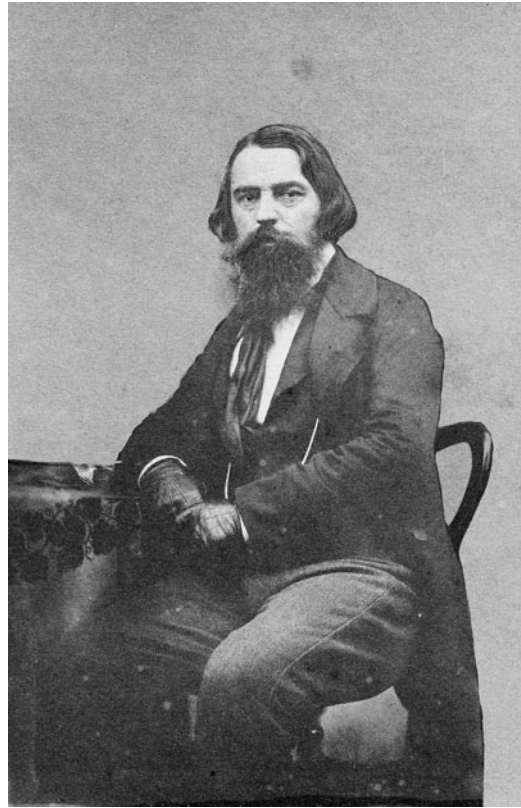
Livistona victoriae occurs in a strongly monsoonal climate, within the latitudinal range of 15–17°S. Rainfall is mostly in the “wet season,” December to March, and many of the other months are usually rainless, or with only small totals. Data from Victoria River Downs Station indicates a rainfall average of 654 mm per annum, with 53 rain days. Temperature mean range is 19.5°C–34.6°C. Meeting these ecological requirements presents a challenge for the cultivation of this species. Both species are regularly subjected to low intensity fires.

Ethnobotanical investigations have identified a number of uses of *L. victoriae* by First Nations people in the Victoria River area. The Gurindji people, of the lower catchment, consume the cabbage, which is cut out of the leaf base; they describe it as having a texture similar to cabbage and sweet in taste (Wightman et al. 1994). The Ngarinyman people, of the upper catchment, similarly consume the cabbage, either raw or cooked on hot coals, but also use the leaves to cover meats when cooking, as mats for sitting around their camps and as placemats for food (Smith 1993).

Apart from Mueller’s brief references in expedition reports, he did not expand or offer any additional information about the palm that he referred to as “*L. inermis*” from Victoria River. From Mueller’s first “discovery” of *L. victoriae*, it took another 140 years for it to be formally described. As noted by Rodd (1998), it was remarkable that *L. victoriae* had remained unrecognized as a distinct species for so long even though it would have been seen by pastoralists and others for nearly one hundred years. *Livistona victoriae* was named by Rodd with the epithet dually recognizing the distribution in the Victoria River area and also Queen Victoria.

Thomas Baines, “artist to the expedition”: a pictorial record of *Livistona victoriae*

In addition to Mueller’s work on the palms, a significant record of the Victoria River



11. Thomas Baines, undated [c. 1855]. Kerry Stokes Collection, Perth, with permission.

environment and the expedition activities was depicted in the illustrations and paintings produced by Baines, considered as “the most important expedition artist to have worked in northern Australia” (Smith 2012). John Thomas Baines (Fig. 11) was born in King’s Lynn, Norfolk, on 27 November 1820. Prior to the North Australian Exploring Expedition, he had been based in South Africa since 1842 as a marine, portrait and “war” painter (McAleer 2014). Because of his reputation as an excellent artist and experienced explorer, he was commissioned by the British Government in 1855 to accompany Augustus Gregory as draughtsman and artist. Baines was also assigned the position of storeman as part of his responsibilities (Gregory 1858, Braddon 1986).

During the expedition Baines produced a number of historically important paintings and illustrations that documented activities of the expedition and in particular their mostly friendly, though occasionally hostile, contact with the First Nations peoples of the region (Stiebel 2008). He also illustrated the flora and fauna, as well as general scenery and coastline



12. Pools of the Victoria in Stokes' Range, Saturday May 55, watercolour by Thomas Baines, illustrating *Livistona victoriae*. Kerry Stokes Collection, Perth, with permission.

profiles. His oil paintings, mostly worked up later from sketches (Gardiner 1975), were examples of imperial exploration of the time, often depicting the expeditioners as action heroes facing danger and death and operating in a hostile, alien and untamed environment, i.e., fighting crocodiles, subduing the natives and scaling and securing the most rugged and dangerous locations in the landscape. It is for such paintings, depicting successful colonial "conquering" and "British entitlement" that Baines is best remembered (Gooding 2012, Smith 2015). After completing the expedition, he briefly returned to England in 1857, and then to Africa in 1858 to join David Livingstone's Zambesi Expedition, from which he was eventually removed having been accused of theft, apparently falsely (Carruthers 2012). Apart from a few intermittent journeys to England, Baines spent the remainder of his life in Africa (Lockett 1975), struggling as an artist, explorer and occasional botanical collector, but only to die in poverty of dysentery in Durban on 8 May 1875 (Goyder 2016, Stiebel & Carruthers 2019).

Baines produced at least three works that depicted palms in the Victoria River area (Figs. 12 & 13). These, though somewhat stylised,

are all recognizable as *L. victoriae*. Only one of the palm sketches has locality details and refers to Stokes Range (Fig. 12), although the distinctive formation depicted has not been identified. He produced no illustrations of *L. leichhardtii*, as he did not join the expedition when traversing Macadam Range (where Mueller collected that species) but remained with *Tom Tough* in Victoria River to tend to the sheep and other logistical tasks (Baines 1858). The two watercolour sketches of *L. victoriae* (Figs. 12 & 13) are in one of four albums of watercolours, wash paintings and pencil drawings completed during the expedition, with a combined total of about 400 individual items. In addition, Baines completed at least 24 oil paintings of the expedition, and these are now held in public and private collections (Birman 1992).

Departing Australia in July 1857, Baines arrived in London in late September (Gardiner 1975). At a meeting of the Royal Geographical Society on 9 November 1857, it was reported that "a series of paintings, from the pencil of Mr. Baines, illustrating the natural scenery of the regions visited by him" during the Australian expedition were on display (Shaw 1858), but whether those depicting *L. victoriae* were



13. *The palm tree of the Victoria, Friday May 55*, watercolour by Thomas Baines, illustrating *Livistona victoriae*. Kerry Stokes Collection, Perth, with permission.

included is not known. Baines's expedition sketchbooks remained in the collection of the Royal Geographical Society until 2015, when

they were purchased by the Kerry Stokes Collection, Perth, because of their importance to the history of early exploration of Australia.

Conclusion

Although Ferdinand Mueller was not a palm specialist, his early contribution to the taxonomy of Australian palms was significant. The collections and observations he made during the North Australian Exploring Expedition established a basis on which new palm species were subsequently discovered and described, especially in the genus *Livistona*. Thomas Baines's sketches and paintings of the Victoria River area hold considerable historical importance as they are the first visual record of that part of Australia, depicting the landscape, encounters with First Nations people and at least one species of palm, *L. victoriae*. In this article we bring together the earliest specimens and illustrations of the palm for the first time and outline its 140-year-old taxonomic history.

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