

# ***Gymnema* R.Br. and *Leichhardtia* R.Br. (Apocynaceae), reinstated genera for taxa previously included in *Marsdenia* R.Br.: a conspectus for Australia, New Guinea and the Solomon Islands**

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## **Summary**

Forster, P.I. (2021). *Gymnema* R.Br. and *Leichhardtia* R.Br. (Apocynaceae), reinstated genera for taxa previously included in *Marsdenia* R.Br.: a conspectus for Australia, New Guinea and the Solomon Islands. *Austrobaileya* **11**: 1–18. Species previously classified in a broadly circumscribed *Marsdenia* have been reclassified into 24 segregate genera as a result of molecular analyses. The species of *Marsdenia* previously recognised for Australia, New Guinea and the Solomon Islands are reallocated here to *Gymnema* and *Leichhardtia*. A conspectus of these two genera for these regions is provided with 72 new combinations as required, together with full synonymy and general distribution notes. Lectotypes or second step lectotypes are selected for *Gymnema muelleri* Benth., *Marsdenia araujacea* F.Muell., *M. rostrata* R.Br. and *M. viridiflora* R.Br.

**Key Words:** Apocynaceae; Marsdeniaceae; *Gymnema*; *Gymnema erectum*; *Gymnema graniticola*; *Gymnema hamatum*; *Gymnema longipedicellatum*; *Gymnema stramineum*; *Leichhardtia ambuntiensis*; *Leichhardtia arachnoidea*; *Leichhardtia araujacea*; *Leichhardtia archboldiana*; *Leichhardtia arfakensis*; *Leichhardtia argillicola*; *Leichhardtia belensis*; *Leichhardtia bilobata*; *Leichhardtia bliriensis*; *Leichhardtia brassii*; *Leichhardtia brevifolia*; *Leichhardtia brevis*; *Leichhardtia brunnea*; *Leichhardtii carrii*; *Leichhardtia connivens*; *Leichhardtia coronata*; *Leichhardtia cremaea*; *Leichhardtia cymulosa*; *Leichhardtia destituta*; *Leichhardtia dischidioides*; *Leichhardtia diviscicola*; *Leichhardtia egregia*; *Leichhardtia flavescens*; *Leichhardtia flavida*; *Leichhardtia fraseri*; *Leichhardtia glabrata*; *Leichhardtia glandulifera*; *Leichhardtia globosa*; *Leichhardtia gonolobiooides*; *Leichhardtia grandis*; *Leichhardtia jensenii*; *Leichhardtia kebarensis*; *Leichhardtia kempteriana*; *Leichhardtia laticola*; *Leichhardtia liisae*; *Leichhardtia lloydii*; *Leichhardtia longiloba*; *Leichhardtia lorea*; *Leichhardtia micradenia*; *Leichhardtia microlepis*; *Leichhardtia millariae*; *Leichhardtia mira*; *Leichhardtia paludicola*; *Leichhardtia papillosa*; *Leichhardtia papuana*; *Leichhardtia parva*; *Leichhardtia poioensis*; *Leichhardtia praestans*; *Leichhardtia primulina*; *Leichhardtia pumila*; *Leichhardtia quadrata*; *Leichhardtia racemosa*; *Leichhardtia rara*; *Leichhardtia rostrata*; *Leichhardtia spathulata*; *Leichhardtia suaveolens*; *Leichhardtia subglobosa*; *Leichhardtia torsiva*; *Leichhardtia trilobata*; *Leichhardtia tubulosa*; *Leichhardtia tumida*; *Leichhardtia variabilis*; *Leichhardtia velutina*; *Leichhardtia venusta*; *Leichhardtia viridiflora*; *Leichhardtia viridiflora* subsp. *tropica*; *Leichhardtia viridiflora* subsp. *viridiflora*; *Leichhardtia volcanica*; *Marsdenia*; Australia flora; New Guinea flora; Solomon Islands flora; taxonomy; new combination

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## **Introduction**

The genus *Marsdenia* R.Br. has been traditionally recognised as primarily pantropical in distribution with major centres of diversity in Africa, Asia, Malesia (especially New Guinea), Australia and South America. A very broad view of what should be classified in *Marsdenia* in Australia and New Guinea has been previously taken

(Forster 1995a,b) with a global review required to refine relationships in the group. With the advent of molecular sequencing, a long-term project and working group led by Sigrid Liede-Schumann has now made an initial step towards resolving what to do with *Marsdenia s.l.* Unsurprisingly, such a large group of species from multiple continents

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can be inferred from the molecular derived clades to have formed many lineages (Liede-Schumann *et al.* 2021). The crux of the matter has been the decision as to where the molecular derived tree of lineages should be allocated into genera, and whether these genera can be linked to morphological synapomorphies and logical geographic patterns.

In contrast to some other large species groups (e.g. *Euphorbia* L. *s.l.*), it was decided to recognise multiple genera for the species previously included in *Marsdenia s.l.*; thus maximising an informative taxonomic classification that recognises distinct lineages whilst attempting to minimise nomenclatural change. As a result, *Marsdenia s.s.* becomes quite a small genus restricted to Asia, and a total of 23 other genera are recognised, with nearly all of them being reinstated names, thus avoiding a very large scale renaming of diverse taxa into a single hold all genus (Liede-Schumann *et al.* 2021). For Australia, New Guinea and the Solomon Islands, it means that there are now no species classified in *Marsdenia*, and two genera, *Gymnema* R.Br. and *Leichhardtia* R.Br. are reinstated.

Whilst a large number of nomenclatural transfers have been undertaken to enable the new classifications (Liede-Schumann *et al.* 2021), the species from a number of geographic regions are being dealt with by individual members of the working group. In the current paper, I am allocating the species that occur in Australia and New Guinea (Forster 1995b) to the reinstated genera *Gymnema* and *Leichhardtia*. The genus *Gymnema* is relatively widespread with species in Africa, Asia, Malesia (including New Guinea) and Australia. *Leichhardtia* is more restricted, with species in Malesia (including New Guinea), Australia and Melanesia (Fiji, New Caledonia, Solomon Islands).

## Materials and methods

Taxa are arranged alphabetically within *Gymnema* and *Leichhardtia* respectively. Type collection citation information is updated where appropriately from that provided in Forster (1995b). Some taxa that were previously named (Forster 1995b) were

represented at the time by collections that were accessioned only in the source herbarium (e.g. QRS [now in CNS]), with undistributed duplicates, or were unaccessioned with undistributed duplicates (some collections subsequently deposited at A, BISH and LAE). Herbarium accession numbers for both types and the now distributed isotypes have been added where the information is now available and if data previously given could be viewed as ambiguous, i.e. there is no collector number, or a collection has been databased separately as unique specimens. Some herbaria such as L have added new barcode numbers to specimens that are quite different to the older sheet numbers. Some additional and previously unseen type material at A, K and L has come to light via online images and these have also been included as *i.d.v.* (*imago digitalis visa*). Notes on distribution are provided reflecting current knowledge.

Due to some type collections having been either originally or subsequently, accessioned separately at the distributing herbaria, it is now necessary to undertake lectotypification or second step lectotypification for a number of names to ensure that Art. 8.2 and Art. 8.3 are adhered to. Example 7 of Art. 8.3 is particularly relevant here, where holotype material can be mounted on separate sheets with separate accession numbers, as long as they are **cross referenced** (Turland *et al.* 2018).

## Taxonomy

**Gymnema** R.Br., *Asclepiadeae* 22 (1810).  
**Type:** *Gymnema sylvestre* (Retz.) R.Br. ex Schult.

*Bidaria* (Endl.) Decne. in DC., *Prodr.* 8: 623 (1844); *Gymnema Bidaria* Endl., *Gen.* 595 (1838); *Gymnema* sect. *Bidaria* (Endl.) Benth., *Fl. Austral.* 4: 342 (1868). **Type:** *Bidaria tingens* (Roxb.) Decne. [= *Gymnema inodorum* (Lour.) Decne.].

*Jasminanthes* Blume, *Mus. Bot.* 1: 148 (1850).  
**Type:** *Jasminanthes suaveolens* Blume

Liede-Schumann *et al.* (2021) provide a description; however, the salient descriptors for *Gymnema* are as follows.

*Corolline corona* as five [ten] longitudinal ridges below the sinus of the corolla lobes, densely pubescent with trichomes. *Staminal corona* absent.

### List of taxa

#### 1. *Gymnema erectum* (F.Muell.) P.I.Forst., **comb. nov.**

*Bidaria erecta* F.Muell., *Trans. Philos. Inst. Vic.* 3: 9 (1859); *Marsdenia angustata* P.I.Forst., *Austral. Syst. Bot.* 8: 793 (1995) [non *M. erecta* R.Br. (1809)]. **Type:** Australia. Northern Territory: on stony ridges along the Victoria River, *s.dat.*, *F. Mueller s.n.* (holo: MEL 1515819).

[*Gymnema stenophyllum auct.*, non A.Gray; Bentham (1868: 344)].

**Distribution:** Endemic to Australia (Northern Territory, Western Australia).

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021).

#### 2. *Gymnema geminatum* R.Br., *Prodr.* 462 (1810).

*Marsdenia geminata* (R.Br.) P.I.Forst., *Austral. Syst. Bot.* 8: 805 (1995). **Type:** Australia. COOK DISTRICT: Islands of the Gulf of Carpentaria, December 1802, *R. Brown s.n.* (lecto: BM 001040551, *vide* Forster 1989: 128; isolecto: BRI [AQ333083], MEL 113347).

[*Gymnema sylvestre auct.*, non (Retz.) R.Br. ex Schult.; Bentham 1868: 342; Bailey 1900: 103–104].

**Distribution:** Endemic to Australia (Northern Territory, Queensland, Western Australia), and Papua New Guinea on the island of New Guinea.

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021).

#### 3. *Gymnema graniticola* (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia graniticola* P.I.Forst., *Austral. Syst. Bot.* 8: 57 (1995). **Type:** Australia. Western Australia. Hospital Valley, Shark

Bay, 21 August 1959, *R.D. Royce 5983* (holo: PERTH 3613135; iso: BRI [AQ389864]).

**Distribution:** Endemic to Australia (Western Australia).

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021).

#### 4. *Gymnema hamatum* (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia hamata* P.I.Forst., *Austral. Syst. Bot.* 8: 808 (1995). **Type:** Papua New Guinea. MOROBE PROVINCE: hills adjacent to Bumayang settlement, 13 October 1990, *W. Takeuchi 6962* (holo: BISH 1000887 & 626572; iso: A 00348612 *i.d.v.*).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**Typification:** The type collection at BISH was mounted on two sheets that are separately accessioned; however, it is clearly indicated on BISH 1000887 that this is the case and Art. 8.3, Example 7 applies (Turland *et al.* 2018).

**Note:** This species is yet to be sequenced. Its placement in *Gymnema* is based on morphology.

#### 5. *Gymnema longipedicellatum* (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia longipedicellata* P.I.Forst., *Austral. Syst. Bot.* 8: 814 (1995). **Type:** Australia. Queensland. COOK DISTRICT: State Forest Reserve 310 Gadgarra, Goldsborough Logging Area, 2 March 1993, *B. Hyland 14662* (holo: CNS [QRS101387]; iso: A 00268156, BISH 1000888, BRI [AQ580015], CANB 591156, LAE 285117).

*Marsdenia* sp. (Goldsborough P.I.Forster PIF13089); Forster (1994: 29).

*Marsdenia* sp. (Goldsborough PIF 13089); Hyland *et al.* (1994: 301).

**Distribution:** Endemic to Australia (Queensland).

**Typification:** The collection that comprises the holotype and what has been distributed as isotypes were all seen by me at QRS prior to duplicate distribution.

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021). It is worth observing that the placement of the sample for this species in this clade was not particularly close to the superficially similar *G. stramineum*.

**6. *Gymnema muelleri*** Benth., *Fl. Austral.* 4: 343 (1868).

*Marsdenia muelleri* (Benth.) P.I.Forst., *Austral. Syst. Bot.* 8: 812 (1995). **Type:** Australia. Northern Territory: [Tableland of the] Upper Victoria River, January 1856, *F. Mueller s.n.* (lecto [here designated]: K 000873008 *i.d.v.*; isolecto: BRI [AQ333085], K 000873009 *i.d.v.*, MEL 1515818).

**Distribution:** Endemic to Australia (Northern Territory, Queensland).

**Typification:** For the 1995 revision I only saw material from BRI and MEL. The sheet at MEL bears an ‘isotype’ label and I regarded this incorrectly as the holotype (Forster 1995b). There are two excellent sheets at K that were all seen and annotated by Bentham, unlike both the BRI and MEL sheets that are quite sparse, although fertile. The BRI sheet bears a label in S.T. Blake’s handwriting indicating that it was separated from the MEL material (undoubtedly a kleptotype, sanctioned or otherwise!).

The name requires lectotypification and this is made based on the best of the two sheets at K. The specimens K 000873008 and K 000873009 (designated here as the lectotype and an isolectotype respectively) have ‘Upper Victoria River’ and ‘Jan 1856. Ferd Mueller’ in Mueller’s hand on a label and both have the label ‘FLORA AUSTRALIENSIS. Named by Mr. Bentham.’ and Bentham’s annotation ‘Vol IV. Page 343.’. Both the BRI and MEL sheets have the locality information ‘Tableland of the Upper Victoria River’; however, are clearly part of the type collection.

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021).

**7. *Gymnema pleiadenium*** F.Muell., *Fragm.* 11: 77 (1878).

*Marsdenia pleiadenia* (F.Muell.) P.I.Forst., *Austral. Syst. Bot.* 8: 804 (1995). **Type:** East Australia, in 1848, *W. Hill s.n.* (holo: MEL 151481).

*Marsdenia rostrata* var. *dunnii* Maiden & Betche, *Proc. Linn. Soc. New South Wales* 32: 736 (1906); *Gymnema dunnii* (Maiden & Betche) P.I.Forst., *Austrobaileya* 2: 401 (1987). **Type:** Australia. New South Wales. Acacia Creek, McPherson Range, December 1905, *J.L. Dunn s.n.* (holo: NSW 181363; iso: BRI [AQ333081]).

**Distribution:** Endemic to Australia (New South Wales, Queensland, Western Australia).

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021).

**8. *Gymnema rivulare*** Schltr., *Bot. Jahrb. Syst.* 50: 141 (1913).

*Marsdenia rivularis* (Schltr.) P.I.Forst., *Austral. Syst. Bot.* 8: 813 (1995). **Type:** Papua New Guinea. MADANG PROVINCE: Minjem Tor, 7 December 1907, *R. Schlechter 16972* (lecto: SING 0059486, *fide* Forster 1995b: 813; isolecto: P 04256721 *i.d.v.*).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**Note:** This species is yet to be sequenced. Its placement in *Gymnema* is based on morphology.

**9. *Gymnema stramineum*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia straminea* P.I.Forst., *Austral. Syst. Bot.* 8: 816 (1995). **Type:** Australia. Queensland. COOK DISTRICT: State Forest Reserve 191, 6 November 1978, *B. Gray 20062V* (holo: CNS [QRS51713]; iso: BRI [AQ474723]).

*Marsdenia* sp. (Wongabel PIF 3990); Hyland *et al.* (1994: 301).

**Distribution:** Endemic to Australia (Queensland).

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021).

**10. *Gymnema suborbiculare*** K.Schum. in K.Schum. & Lauterb., *Nachträge Fl. Schutzgeb. Südsee* 354 (1905).

*Marsdenia suborbicularis* (K.Schum.) P.I.Forst., *Austral. Syst. Bot.* 8: 806 (1995).

**Type:** Papua New Guinea. MADANG PROVINCE: Asinai-Bach, Minjem-Tal, 11 February 1908, R. Schlechter 17270 (neo: SING, *vide* Forster 1995b: 807; isoneo: P 04256718 *i.d.v.*).

**Distribution:** Endemic to Australia (Queensland) and Papua New Guinea and Indonesia (Papua) on the island of New Guinea.

**Note:** This species is yet to be sequenced. Its placement in *Gymnema* is based on morphology.

**11. *Gymnema tricholepis*** Schltr., *Bot. Jahrb. Syst.* 40, *Beibl.* 92: 17 (1908).

*Marsdenia tricholepis* (Schltr.) P.I.Forst., *Austral. Syst. Bot.* 8: 811 (1995). **Type:** Papua New Guinea. CENTRAL PROVINCE: Mt Gawada, Sogeri Region, 14 January 1886, H.O. Forbes 534 (lecto: BM 001014172, *vide* Forster 1995b: 811; isolecto: A 00076367, L 0360061, US 00478932 *i.d.v.*).

[*Gymnema geminatum* auct. non R.Br.; S.Moore, *J. Bot.* 61, suppl. 34 (1923)].

**Distribution:** Endemic to Australia (Queensland) and Papua New Guinea on the island of New Guinea.

**Note:** This species was sequenced and included in the *Gymnema* clade by Liede-Schumann *et al.* (2021).

**12. *Gymnema trinerve*** R.Br., *Prodr.* 462 (1810).

*Bidaria trinervis* (R.Br.) Decne. In DC., *Prodr.* 8: 624 (1844); *Marsdenia trinervis* (R.Br.) P.I.Forst., *Austral. Syst. Bot.* 8: 794 (1995). **Type:** Northern Territory. Islands of the Gulf of Carpentaria, December 1802, R. Brown *s.n.* (lecto: BM 001040549, *vide* Forster

1995b: 794; isolecto: BRI [AQ333086], K 000873023 *i.d.v.*, K 000873021 *i.d.v.*, MEL 1515480, P 00645847 *i.d.v.*, P 00645848 *i.d.v.*).

**Distribution:** Endemic to Australia (Northern Territory, Western Australia).

**Note:** This species is yet to be sequenced and the placement here once again in *Gymnema* is based on the sequencing result for what is hypothesised to be a sister species, namely *G. erecta*.

**Leichhardtia** R.Br. in Sturt [*Leichhardtia orth. var.*], *Bot. Sturt's Exped. Australia* 2 (App.): 81 (1849), (non *Leichhardtia* F.Muell.). **Type species:** *Leichhardtia australis* R.Br.

*Thozetia* F. Muell. ex Benth., *Fl. Austral.* 4: 347 (1868). **Type species:** *Thozetia racemosa* F.Muell. ex Benth.

Liede-Schumann *et al.* (2021) provide a generic description; however, the salient descriptors for *Leichhardtia* are as follows.

*Corolline corona* [when present] as five ridges opposite the anthers, occasionally with trichomes. *Staminal corona* attached at the filament tube, carnose, erect, rather short.

**Etymology:** Brown (1849) made an orthographic error when describing *Leichhardtia* by including only one 'h' in the generic name. On the same page he however lists *Leichhardtia australis* with a separate species description. Bullock (1957) repeated this incorrect generic orthography.

The original publication is rare and difficult to access. At least one facsimile confounds the etymology of *Leichhardtia* by correctly spelling the name, perhaps indicating that the original error was quickly noted and corrected by Brown and that there may have been several printings of Sturt's work.

Ludwig Leichhardt and his disappearance remains one of the mysteries of early European exploration in Australia. His botanical collections were made under what could only be considered very difficult conditions, and it is very appropriate that this generic name will now be widely used in Australia.

## List of taxa

### 1. *Leichhardtia ambuntiensis* (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia ambuntiensis* P.I.Forst., *Austral. Syst. Bot.* 8: 799 (1995). **Type:** Papua New Guinea. EAST SEPIK PROVINCE: Near Ambunti, 29 May 1966, R.D. Hoogland 10163 & L.A. Craven (holo: CANB 169942 & 169943; iso: L 0004355, L 0004354, LAE 143648).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**Typification:** The holotype collection at CANB comprises two sheets (Forster 1995b) that are databased as separate accessions; however, these are clearly linked by labels on the specimens and in the CANB database.

### 2. *Leichhardtia arachnoidea* (Schltr.) P.I.Forst., **comb. nov.**

*Marsdenia arachnoidea* Schltr., *Bot. Jahrb. Syst.* 50: 151 (1913). **Type citation:** [Papua New Guinea. MADANG PROVINCE] ‘kleinere Liane in den Wäldern oberhalb Dschischungari, im Wariagebiet’, April 1909, R. Schlechter 19845 (holo: B†). **Type:** Papua New Guinea. MOROBE PROVINCE; Lae, hill near Taraka, 25 October 2003, W. Takeuchi & D. Ama 16667 (neo: BRI, *vide* Forster & Takeuchi 2005: 145; iso: A 00255402, A 00255403, LAE 281182).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

### 3. *Leichhardtia araujacea* (F.Muell.) P.I.Forst., **comb. nov.**

*Marsdenia araujacea* F.Muell., *Fragm.* 6: 135 (1868). **Type:** Australia. Queensland. COOK DISTRICT: Rockinghams Bay [Stone River], [24 October 1866], [*J. Dallachy s.n.*] (lecto [here designated]: K 000872971 *i.d.v.*; isolecto: BRI [AQ333092: with ‘Stone River J. Dallachy 26.10.1866; ex herb. Melbourne’], MEL 113385 [with ‘Stone River 24 October 1866’], MEL 113386 [with species description by Mueller], MEL 113387 [with ‘Rockingham’s Bay’]).

*Vincetoxium pachylepis* F.M.Bailey, *Bot. Bull.* 8: 79 (1893); *Cynanchum pachylepis* (F.M.Bailey) Domin, *Biblioth. Bot.* 89: 1085

(1928). **Type:** Australia. Queensland. COOK DISTRICT: Kamerunga, Barron River, January 1893, E. Cowley *s.n.* (holo: BRI [AQ333088]).

**Distribution:** Endemic to Australia (Queensland) (Forster 2019).

**Typification:** Mueller (1868) stated that his species was based on material from ‘Rockingham’s Bay, Dallachy’. This collection appears to have been fragmented and mounted as five separate accessions at MEL, BRI and K. The best of the MEL specimens (MEL 113385 with some flowers attached to a leafy stem; labelled as the holotype and with cross referencing to MEL 113386 and MEL 113387) has the location as ‘Stone River’ and a date of 24 October 1866, both written in Dallachy’s hand. MEL 113386 (labelled as an isotype) has a description by Mueller, but no locality, date or collector indicated. MEL 113387 (labelled as possibly an isotype) consisting of three separate leaves and a bit of stem has no description by Mueller, the locality ‘Rockingham’s Bay’, no date and no collector indicated. The material on these three sheets would have originally been unmounted and in folders all kept together at MEL. The sheet at BRI [AQ333092] has a label hand-written by S.T. Blake and states ‘Stone River J. Dallachy 26.10.1866; ex herb. Melbourne’; it comprises two loose leaves and a bit of stem. The sheet at Kew (K 000872971) is an excellent specimen, bearing a Botanical Museum of Melbourne label with ‘Rockinghams Bay’ in Mueller’s hand, but no collector and no date. It is annotated as being received by Bentham in 1868 and is the material he cited (Bentham 1868: 339); perhaps it was meant to be returned to MEL, but this never occurred.

Because the five specimens are separately accessioned, with different data and no clear cross referencing between them (apart from the three MEL specimens and this cross referencing would only have been done when the material was mounted), it is necessary to select a lectotype for this name. The specimen at K is easily the best of these, despite the lack of indication of a collector or collection date (although it does say ‘Rec. 1868’). The other four sheets are regarded as isolectotypes.

**4. *Leichhardtia archboldiana*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia archboldiana* P.I.Forst., *Austral. Syst. Bot.* 8: 776 (1995). **Type:** Papua New Guinea. MILNE BAY PROVINCE: North slopes of Mt Dayman, Maneau Range, 3 June 1953, *L.J. Brass* 22723 (holo: CANB 121075; iso: A 00216547 *i.d.v.*, LAE 13135, US 00478935 *i.d.v.*).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**5. *Leichhardtia arfakensis*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia arfakensis* P.I.Forst., *Austral. Syst. Bot.* 8: 753 (1995). **Type:** Indonesia. Papua. Minjambau, Arfak Mountains, 22 May 1962, *C. Versteegh* BW12693 (holo: CANB 378761 & 378762; iso: L 0004356 *i.d.v.*).

**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.

**Typification:** The holotype collection at CANB comprises two sheets (Forster 1995b) that are databased as separate accessions; however, these are clearly linked by labels on the specimens and in the CANB database.

**6. *Leichhardtia argillicola*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia argillicola* P.I.Forst., *Austral. Syst. Bot.* 8: 756 (1995). **Type:** Indonesia. Papua. Geelvinckbaai, Agathis area Bosnik, Biak, 22 November 1959, *Versteegh & Vink* BW8307 (holo: L 0004358; iso: A 00216512 *i.d.v.*, CANB 118751, LAE 32066).

**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.

**7. *Leichhardtia australis*** R.Br. in Sturt, *Bot. Sturt's Exped. Australia* 2 (App.): 81 (1849).

*Marsdenia leichhardtiana* F.Muell., *Fragm.* 5: 150 (1866), *nom. illeg.*; *M. australis* (R.Br.) Druce, *Rep. Bot. Soc. Exch. Club Brit. Isles* 4(Suppl. 2). 634 (1917). **Type:** Australia. New South Wales. common on the Murray in the interior, *s.dat.*, [*C.*] *Sturt s.n.* (holo: BM 001040529).

**Distribution:** Endemic to Australia (New South Wales, Northern Territory, Queensland, South Australia, Victoria, Western Australia).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**8. *Leichhardtia belensis*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia belensis* P.I.Forst., *Austral. Syst. Bot.* 8: 741 (1995). **Type:** Indonesia. Papua. Bele River, 18km NE of Lake Habbema, November 1938, *L.J. Brass* 11340 (holo: L 0004359; iso: A 00216510 *i.d.v.*, BRI [AQ36108], CANB 159443, LAE 72671).

**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.

**9. *Leichhardtia bilobata*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia bilobata* P.I.Forst., *Austral. Syst. Bot.* 8: 747 (1995). **Type:** Papua New Guinea. CENTRAL PROVINCE: Boridi, 7 September 1935, *C.E. Carr* 13003 (holo: CANB 63944; iso: BM 001014159, K 000872984, L 0004360, LAE 58886, SING 0070820).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**10. *Leichhardtia bliriensis*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia bliriensis* P.I.Forst., *Austral. Syst. Bot.* 8: 773 (1995). **Type:** Papua New Guinea. WEST SEPIK PROVINCE: near Wantipi Village (on Bliiri River), 4 August 1961, *P.J. Darbyshire & R.D. Hoogland* 8382 (holo: CANB 104646; iso: A 00348610 *i.d.v.*, BRI [AQ217355], K000872978 *i.d.v.*, LAE 53377).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**11. *Leichhardtia brassii*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia brassii* P.I.Forst., *Austral. Syst. Bot.* 8: 758 (1995). **Type:** Papua New Guinea. MILNE BAY PROVINCE: Sudest Island, Mt Riu, west slopes, 31 August 1956, *L.J. Brass* 27956 (holo: A 00076484; iso: L 0004361, LAE 25961, US 00478933 *i.d.v.*).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**12. *Leichhardtia brevifolia* (Benth.) P.I.Forst., **comb. nov.****

*Gymnema brevifolium* Benth., *Fl. Austral.* 4: 343 (1868); *Marsdenia brevifolia* (Benth.) P.I.Forst., *Austral. Syst. Bot.* 8: 795 (1995). **Type:** Australia. Queensland. PORT CURTIS DISTRICT: Princhester Creek, *s.dat.*, [E.M.] Bowman *s.n.* (lecto: MEL 0113343A, *fide* Forster 1995b: 795; isolecto: BRI [AQ333098], MEL 113343).

**Distribution:** Endemic to Australia (Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021). In the 1995 account, this species was allied to what is now *Gymnema graniticola*, so it can now be assumed that the shrubby habit is derived in both *Gymnema* and *Leichhardtia*.

**13. *Leichhardtia brevis* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia brevis* P.I.Forst., *Austral. Syst. Bot.* 8: 781 (1995). **Type:** Australia. Queensland. NORTH KENNEDY DISTRICT: Robinson Creek, 3 km NNE of Ravenshoe, November 1989, R. Lockyer *s.n.* (holo: BRI [AQ500633]).

*Marsdenia* sp. (Ravenshoe R.Lockyer AQ500633); Forster (1994: 29).

**Distribution:** Endemic to Australia (Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**14. *Leichhardtia brunnea* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia brunnea* P.I.Forst., *Austral. Syst. Bot.* 8: 729 (1995). **Type:** Papua New Guinea. MILNE BAY PROVINCE: track between Gamwabila and Tutubea, Fergusson Island, 10 November 1976, J.R. Croft *et al.* LAE68738 (holo: BRI [AQ350505]; iso: LAE 233026).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**15. *Leichhardtia carrii* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia carrii* P.I.Forst., *Austral. Syst. Bot.* 8: 810 (1995). **Type:** Papua New Guinea. CENTRAL PROVINCE: Boridi, November 1935, C.E. Carr 13503 (holo: CANB 62205; iso: A 00216546 *i.d.v.*, BM 001014158, K 000872974 *i.d.v.*, L 0004362, LAE 70202, SING 0070821, SING 0070822).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**16. *Leichhardtia connivens* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia connivens* P.I.Forst., *Austral. Syst. Bot.* 8: 769 (1995). **Type:** Australia. Queensland. COOK DISTRICT: Split Rock Aboriginal Art Gallery, S of Laura, 22 January 1993, P.I. Forster PIF12830 & A.R. Bean (holo: BRI [AQ580001: 1 sheet plus spirit]; iso: CNS [QRS110293], DNA, MEL 240081).

*Marsdenia annae* P.I.Forst., *nom. inval.*, *nom. nud.*; Brennan (1992: 8).

*Marsdenia* sp. (Laura P.I.Forster PIF12830); Forster (1994: 29).

**Distribution:** Endemic to Australia (Northern Territory, Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**17. *Leichhardtia coronata* (Benth.) P.I.Forst., **comb. nov.****

*Marsdenia coronata* Benth., *Fl. Austral.* 4: 341 (1868). **Type:** Australia. Queensland. MORETON DISTRICT: Brisbane River, in 1855, F. Mueller *s.n.* (holo: K 000873037 *i.d.v.*; iso: MEL 113390).

**Distribution:** Endemic to Australia (Queensland).

**Typification:** In the 1995 revision it was incorrectly stated that the holotype for this name was the MEL specimen. The specimen at K is annotated by Bentham so should be regarded as the holotype.



**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**18. Leichhardtia cremea** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia cremea* P.I.Forst., *Austral. Syst. Bot.* 8: 777 (1995). **Type:** Papua New Guinea. EASTERN HIGHLANDS PROVINCE: near Daulo camp, Asaro – Mairi Divide, 26 June 1956, *R.D. Hoogland 5458 & R. Pullen* (holo: BRI [AQ214339]; iso: A 00216548 *i.d.v.*, CANB 55933, LAE 14741).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**19. Leichhardtia cymulosa** (Benth.) P.I.Forst., **comb. nov.**

*Marsdenia cymulosa* Benth., *Fl. Austral.* 4: 338 (1868). **Type:** Australia. Queensland. Chin Chin Creek, *s.dat.*, [*E.M.*] Bowman *s.n.* (holo: K 000873038; iso: BRI [AQ333100: with #319], MEL 9254 [with #319]).

*Marsdenia rhyncholepis* F.Muell., *Fragm.* 11: 77–78 (1878). **Type:** Australia. Queensland. COOK DISTRICT: Palmer River, in 1878, *T. Gulliver s.n.* (holo: MEL 9255; iso: BRI [AQ333102]).

*Marsdenia fragrans* Domin, *Biblioth. Bot.* 89: 1086 (1928). **Type:** Australia. Queensland. COOK DISTRICT: In cacumine montis Metal Mts. apud opp. Chillagoe, February 1910, *K. Domin 7878* (lecto: PR, *vide* Forster 1995b: 770).

**Distribution:** Endemic to Australia (Queensland). Whilst there is a Chin Chin Creek in Goodnight Parish in the Burnett District, this species does not occur anywhere near there. The location of the Bowman type collection remains a mystery but perhaps was from somewhere on the Palmer River goldfields.

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**20. Leichhardtia destituta** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia destituta* P.I.Forst., *Austral. Syst. Bot.* 8: 803 (1995). **Type:** Papua New Guinea. EAST SEPIK PROVINCE: Eastern ridge of Sumset (Mt Hunstein), 11 August 1966, *R.D. Hoogland 10930 & L.A. Craven* (holo: BRI [AQ0350498]; iso: A 00961860 *i.d.v.*, CANB 198742, K 000872975, L 0360062 *i.d.v.*, US 00478934 *i.d.v.*).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**21. Leichhardtia dischidioides** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia dischidioides* P.I.Forst., *Austral. Syst. Bot.* 8: 802 (1995). **Type:** Indonesia. Papua. 15 km SW of Bernhard Camp, Idenburg River, January 1939, *L.J. Brass 12259* (holo: BRI [AQ0361132]; iso: A 00348611 *i.d.v.*, CANB 159442, LAE 72672).

**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.

**Note:** When described this species was considered to be allied to *Marsdenia urceolata* Decne. (now *Dischidanthus urceolatus* (Decne.) Tsiang; Liede-Schumann *et al.* 2021). Both species included in *Dischidanthus* by Liede-Schumann *et al.* (2021) are restricted to Asia and possess staminal coronas in the flowers, whereas this species and *Leichhardtia torsiva* from New Guinea lack both. This species requires recollection and sequencing to test the hypothesis that its best classification is in *Leichhardtia*.

**22. Leichhardtia diviscicola** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia diviscicola* P.I.Forst., *Austral. Syst. Bot.* 8: 737 (1995). **Type:** Papua New Guinea. Eastern Highlands Province: Kassam Pass, January 1968, *M. Coode & A. Dockrill NGF32666* (holo: A 00076485; iso: L 0004363, LAE 98619).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**23. *Leichhardtia egregia* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia egregia* P.I.Forst., *Austral. Syst. Bot.* 8: 736 (1995). **Type:** Papua New Guinea. Morobe Province: Kauli Creek, 13 December 1962, *A.N. Millar NGF15612* (holo: BRI [AQ217377]; iso: CANB 159442, LAE 46873).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**24. *Leichhardtia flavescens* (A.Cunn. ex Hook.) P.I.Forst., **comb. nov.****

*Marsdenia flavescens* A.Cunn. ex Hook., *Bot. Mag.* 60: t. 3289 (1833); *Pergularia flavescens* (A.Cunn. ex Hook.) D.Dietr., *Syn. Pl.* 2: 894 (1840). **Type:** Australia. New South Wales. Illawarra, April 1844, *A. Cunningham [51]*. (holo: K 000873041).

**Distribution:** Endemic to Australia (New South Wales, Queensland, Victoria).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**25. *Leichhardtia flavida* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia flavida* P.I.Forst., *Austral. Syst. Bot.* 8: 738 (1995). **Type:** Papua New Guinea. WESTERN HIGHLANDS PROVINCE: Top of Paga Hill, 11 miles from Kapiago, 1 November 1968, *J. Vandenberg, J.S. Womersley & M. Galore NGF39960* (holo: BRI [AQ0058155]; iso: A 00106875 *i.d.v.*, BO, CANB 197744, K, L 0004365, LAE).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**26. *Leichhardtia fraseri* (Benth.) P.I.Forst., **comb. nov.****

*Marsdenia fraseri* Benth., *Fl. Austral.* 4: 339–340 (1868). **Type:** Australia. Queensland. MORETON DISTRICT: native of Moreton Bay, *s.dat.*, [*C.*] *Fraser s.n.* (lecto: K 000873043, *fide* Forster 1995b: 766).

**Distribution:** Endemic to Australia (New South Wales, Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**27. *Leichhardtia glabrata* (Schltr.) P.I.Forst., **comb. nov.****

*Marsdenia glabrata* Schltr., *Bot. Jahrb. Syst.* 50: 150 (1913). **Type:** Papua New Guinea. MADANG PROVINCE: Kani Geb., April 1908, *R. Schlechter 17618* (lecto: P 00645972, *fide* Forster 1995b: 809).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**Note:** This species is yet to be sequenced and is placed here in *Leichhardtia* based on morphology, albeit with some reservations.

**28. *Leichhardtia glandulifera* (C.T.White) P.I.Forst., **comb. nov.****

*Marsdenia glandulifera* C.T.White, *Queensl. Nat.* 12: 54 (1943). **Type:** Australia. Queensland. WIDE BAY DISTRICT: Fraser Island, *s.dat.*, *F.C. Epps s.n.* (holo: BRI [AQ330901]).

**Distribution:** Endemic to Australia (Northern Territory, Queensland, Western Australia).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**29. *Leichhardtia globosa* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia globosa* P.I.Forst., *Austral. Syst. Bot.* 8: 742 (1995). **Type:** Papua New Guinea. EASTERN HIGHLANDS PROVINCE: Mt Gahavisuka, 8 July 1992, *P.I. Forster PIF10887 & D.J. Liddle* (holo: BRI [AQ580003: 2 sheets plus spirit]; iso: CNS [QRS114176], CNS [QRS100727], K 000872985, L 0821477, LAE).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**30. *Leichhardtia gonoloboides*** (Schltr.) P.I.Forst., **comb. nov.**

*Marsdenia gonoloboides* Schltr., *Bot. Jahrb. Syst.* 50: 144 (1913). **Type:** Papua New Guinea. MADANG PROVINCE: Minjem Tor., April 1907, *R. Schlechter 17513* (lecto: P 00645973, *vide* Forster 1995b: 755; isolecto: SING 0059482).

**Distribution:** Endemic to Papua New Guinea on the islands of New Britain and New Guinea.

**31. *Leichhardtia grandis*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia grandis* P.I.Forst., *Austral. Syst. Bot.* 8: 729 (1995). **Type:** Papua New Guinea. MOROBE PROVINCE: Otetei Village, Langimer River, 25 November 1970, *H. Streimann & A. Kairo NGF44516* (holo: BRI [AQ0214245]; iso: A 00216511 *i.d.v.*, CANB 2326089, K 000872986, LAE 126505).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**32. *Leichhardtia jensenii*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia jensenii* P.I.Forst., *Austrobaileya* 5: 59 (1997). **Type:** Australia. Queensland. Cook District: State Forest Reserve 310, Gadgarra, track to Yeti Ridge, 15 February 1995, *R. Jensen 105* (holo: CNS [QRS105813 & 105814]; iso: BRI [AQ0716431], CANB 590537).

*Marsdenia* sp. (Yeti Ridge P.I.Forster +PIF17132); Forster (1997: 23).

**Distribution:** Endemic to Australia (Queensland).

**Typification:** The type material of *Marsdenia jensenii* was deposited in QRS (now CNS) subsequent to the species being described and was incorporated as two separate accessions despite being a single collection; these are however, cross-referenced in the CNS database as being both part of the holotype.

**33. *Leichhardtia kebarensis*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia kebarensis* P.I.Forst., *Austral. Syst. Bot.* 8: 760 (1995). **Type:** Indonesia. Papua.

Kebar Valley, c. 100 km W of Manowkari, 30 October 1954, *P. van Royen 3923* (holo: L 00043669; iso: CANB 65356).

**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.

**34. *Leichhardtia kempteriana*** (Schltr.) P.I.Forst., **comb. nov.**

*Marsdenia kempteriana* Schltr., *Bot. Jahrb. Syst.* 50: 146 (1913). **Type:** Papua New Guinea. MADANG PROVINCE: Kani Geb., November 1907, *R. Schlechter 16751* (lecto: P 00645974, *vide* Forster 1995b: 742; isolecto: SING 0059483).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**35. *Leichhardtia laticola*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia laticola* P.I.Forst., *Austral. Syst. Bot.* 8: 749 (1995). **Type:** Papua New Guinea. NEW BRITAIN PROVINCE: Central Nakanai Plateau, in the vicinity of small lake, November 1975, *N.M.U. Clunie et al. LAE63248* (holo: BRI [AQ0350531]; iso: K 000872983 *i.d.v.*, LAE 224527).

**Distribution:** Endemic to Papua New Guinea on the island of New Britain.

**36. *Leichhardtia liisae*** (J.B.Williams) P.I.Forst., **comb. nov.**

*Marsdenia liisae* J.B.Williams, *Austrobaileya* 3: 45 (1989). **Type:** Australia. New South Wales. 9 km along Deervale loop road from its western junction with Ebor–Dorrigo road, February 1988, *J. Williams 88078* (holo: BRI [AQ0447374]; iso: K 000872970, NE 52923, NSW 541705).

**Distribution:** Endemic to Australia (New South Wales).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**37. *Leichhardtia lloydii*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia lloydii* P.I.Forst., *Austrobaileya* 2: 455 (1988); *M. suberosa* S.T.Blake, *Proc. Roy. Soc. Queensland* 59: 167–168 (1948) [non *M. suberosa* (Fourn.) Malme (1900)]. **Type:** Australia. Queensland. MORETON DISTRICT: Mt Roberts, McPherson Range, 7 December 1946, S.T. Blake 17375 (holo: BRI [AQ333107]; iso: K 000873044 *i.d.v.*, NSW 212076).

**Distribution:** Endemic to Australia (New South Wales, Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**38. *Leichhardtia longiloba*** (Benth.) P.I.Forst., **comb. nov.**

*Marsdenia longiloba* Benth., *Fl. Austral.* 4: 340 (1868). **Type:** Australia. New South Wales: Hastings River, *s.dat.*, [C.] Beckler *s.n.* (lecto: K 00873046 [specimen on right hand side of sheet], *fide* Forster 1995b: 762; isolecto: BRI [AQ216695], MEL 113418, MEL 113419).

**Distribution:** Endemic to Australia (New South Wales, Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**39. *Leichhardtia lorea*** (S.Moore) P.I.Forst., **comb. nov.**

*Marsdenia lorea* S.Moore, *J. Bot.* 61: 34 (1923). **Type:** Papua New Guinea. CENTRAL PROVINCE: Sogeri region, 28 January 1886, H.O. Forbes 635 (lecto: BM 000017027, *fide* Forster 1995b: 728; isolecto: E 00288727 *i.d.v.*, FI 008055 *i.d.v.*, K 000872987 *i.d.v.*, LAE 87224 *i.d.v.*, MEL 578178).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**40. *Leichhardtia micradenia*** (Benth.) P.I.Forst., **comb. nov.**

*Gymnema micradenium* Benth., *Fl. Austral.* 4: 344 (1868); *Gongronema micradenia* (Benth.) Benth. & Hook.f. ex F.Muell., *Syst. Census*

*Austral. Pl.* 94 (1882); *Marsdenia micradenia* (Benth.) P.I.Forst., *Austral. Syst. Bot.* 8: 800 (1995). **Type:** Australia. Queensland. MORETON DISTRICT: Ugly Creek, *s.dat.*, C. Stuart 318 (lecto: MEL 113349, *fide* Forster 1995b: 800; isolecto: BRI [AQ2164539]).

**Distribution:** Endemic to Australia (Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**41. *Leichhardtia microlepis*** (Benth.) P.I.Forst., **comb. nov.**

*Marsdenia microlepis* Benth., *Fl. Austral.* 4: 342 (1868). **Type:** Australia. PORT CURTIS DISTRICT: Rockhampton, 9 June 1863, [J.] Dallachy *s.n.* (lecto: K 000873032, left specimen on sheet, *fide* Forster 1995b: 785; isolecto: MEL 113430).

**Distribution:** Endemic to Australia (Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**42. *Leichhardtia millariae*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia millariae* P.I.Forst., *Austral. Syst. Bot.* 8: 759 (1995). **Type:** Papua New Guinea. EAST SEPIK PROVINCE: Amboin, 22 July 1967, A.N. Millar NGF35103 (holo: BRI [AQ217360]; iso: LAE 89657).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**43. *Leichhardtia mira*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia mira* P.I.Forst., *Austral. Syst. Bot.* 8: 739 (1995). **Type:** Indonesia. Papua. Hollandia, Cycloop Mtns, path Ifar–Ormoe, camp site, 29 June 1961, P. van Royen & H. Sleumer 6094 (holo: L 0004367; iso: A 00076486).

**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.

**44. *Leichhardtia paludicola*** (P.I.Forst.)  
P.I.Forst., **comb. nov.**;

*Marsdenia paludicola* P.I.Forst., *Austral. Syst. Bot.* 8: 734 (1995). **Type:** Australia. Queensland. COOK DISTRICT. Cultivated at Emerald Creek near Mareeba, (ex plant of *P.I. Forster 5486* from Maloney's Springs, right branch), December 1991, *D.J. Liddle s.n.* (holo: BRI [AQ561263: 1 sheet plus spirit]; iso: CNS [QRS 110290]).

*Marsdenia* sp. (Bromley D.J.Liddle AQ561263); Forster (1994: 29).

**Distribution:** Endemic to Australia (Queensland).

**45. *Leichhardtia papillosa*** (P.I.Forst.)  
P.I.Forst., **comb. nov.**

*Marsdenia papillosa* P.I.Forst., *Austral. Syst. Bot.* 8: 745 (1995). **Type:** Papua New Guinea. MOROBE PROVINCE: Kuper Range along unpaved track to Biaru, 24 September 1988, *W. Takeuchi 4058* (holo: BISH 1000889).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**46. *Leichhardtia papuana*** (van Royen)  
P.I.Forst., **comb. nov.**

*Toxocarpus papuanus* van Royen, *Alpine Fl. New Guinea* 4: 2788 (1983); *Marsdenia argentata* P.I.Forst., *Blumea* 36: 105 (1991) [non *Marsdenia papuana* Schltr. (1913)]. **Type:** Papua New Guinea. EASTERN HIGHLANDS PROVINCE: 16 July 1959, *L.J. Brass 30545* (holo: L 0004357; iso: BO 110490, CANB 101971, K 000872977, LAE 35993, US 00664196 *i.d.v.*).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**47. *Leichhardtia parva*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia parva* P.I.Forst., *Austral. Syst. Bot.* 8: 760 (1995). **Type:** Indonesia. Papua. Inggebit, 29 May 1969, *S. Reksodihardjo 296* (holo: L 0004368; iso: K 000872980).

**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.

**48. *Leichhardtia poioensis*** (P.I.Forst.)  
P.I.Forst., **comb. nov.**

*Marsdenia poioensis* P.I.Forst., *Austral. Syst. Bot.* 8: 746 (1995). **Type:** Papua New Guinea. WESTERN HIGHLANDS PROVINCE: Near Poio Village, middle Yaki Valley, 30 June 1960, *R.D. Hoogland 6853* & *R. Schodde* (holo: BRI [AQ0214045]; iso: BM 000047373 *i.d.v.*, CANB 83185, L 0004369, LAE 32095).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**49. *Leichhardtia praestans*** (Schltr.)  
P.I.Forst., **comb. nov.**

*Marsdenia praestans* Schltr., *Bot. Jahrb. Syst.* 50: 152 (1913). **Type:** Papua New Guinea. WEST SEPIK PROVINCE: Torriceli Geb., 10 September 1909, *R. Schlechter 20216* (lecto: P 00645975, *fide* Forster 1995b: 798).

**Distribution:** Endemic to Indonesia (Moluccas, Papua) and Papua New Guinea on the island of New Guinea.

**50. *Leichhardtia primulina*** (P.I.Forst.)  
P.I.Forst., **comb. nov.**

*Marsdenia primulina* P.I.Forst., *Austral. Syst. Bot.* 8: 775 (1995). **Type:** Papua New Guinea. WEST SEPIK PROVINCE: Hindenburg Range, south of Nerenavip Village (Feramin Valley), September 1966, *D. Frodin NGF32198* (holo: BRI [AQ217457]; iso: CANB 179506, LAE 91813).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**51. *Leichhardtia pumila*** (P.I.Forst.)  
P.I.Forst., **comb. nov.**

*Marsdenia pumila* P.I.Forst., *Austral. Syst. Bot.* 8: 780 (1995). **Type:** Australia. Queensland. SOUTH KENNEDY DISTRICT: 78 km from Collinsville on Mt Coolon Road, 23 February 1994, *P.I. Forster PIF14880* & *A.R. Bean* (holo: BRI [AQ520806: 2 sheets plus spirit]; iso: CNS [QRS 110288]).

**Distribution:** Endemic to Australia (Queensland).

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**52. *Leichhardtia quadrata* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia quadrata* P.I.Forst., *Austral. Syst. Bot.* 8: 772 (1995). **Type:** Papua New Guinea. MOROBE PROVINCE: Near Skindewai, Wau–Salamaua road, 6 January 1956, *J.S. Womersley & A. Millar NGF8387* (holo: BRI [AQ214331]; iso: A 00348614 *i.d.v.*, BO 110453, CANB 55940, K 000872979 *i.d.v.*, L 0004370, LAE 8823, SING 0070823).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**53. *Leichhardtia racemosa* (F.Muell. ex Benth.) P.I.Forst., **comb. nov.****

*Thozetia racemosa* F.Muell. ex Benth., *Fl. Austral.* 4: 347 (1868). **Type:** Australia. Queensland. PORT CURTIS DISTRICT: near Rockhampton, *s.dat.*, [*A.*] *Thozet s.n.* (holo: K 000872972 *i.d.v.*; iso: BRI [AQ333119: with no. 511], MEL 113557 [with no. 511], MEL 113558 [with no. 511, description by Mueller], MEL 113560 [with no. 511], MEL 560756 [with no. 511]).

*Marsdenia hemiptera* Rehb.f., *Beitr. Syst. Pflanzk.* 73 (1871). **Type:** Australia. Queensland. MORETON DISTRICT: Brisbane River, *s.dat.*, *A. Dietrich 2671* (lecto: MEL 113656, *fide* Forster 1995b: 726; isolecto: CANB [CBG 8801998], PR *n.v.*).

**Distribution:** *Leichhardtia racemosa* is endemic to Australia (Northern Territory, Queensland, Western Australia).

**Typification:** Bentham (1868) cited a single collection ‘Near Rockhampton, Thozet’ when he described *Thozetia racemosa* based on a manuscript description by Mueller. There is no evidence that Thozet made multiple collections of the species and his material would have been originally kept at MEL in multiple papers, until Mueller sent some to Bentham [albeit without Thozet’s collecting number 511 attached], presumably with a draft

description. In the 1995 revision the holotype for *T. racemosa* was taken to be the MEL specimen and this has now been accessioned under four different numbers, all with cross-referencing between the sheets. However, Bentham as the describing author would not have seen this material, so the sheet at Kew should be regarded as the holotype with other sheets in BRI and MEL regarded as isotypes, despite some of the ones at MEL being better than the K sheet.

**Notes:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

When included in *Marsdenia*, this species must be called *M. hemiptera* due to the earlier named *M. racemosa* K.Schum. (1893) from the African continent.

**54. *Leichhardtia rara* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia rara* P.I.Forst., *Austral. Syst. Bot.* 8: 782 (1995). **Type:** Australia. COOK DISTRICT: Cairns, foot of Nisbet Range, 8 November 1993, *C. Lyons 149* (holo: BRI [AQ520833]).

**Distribution:** Endemic to Australia (Queensland).

**55. *Leichhardtia rostrata* (R.Br.) P.I.Forst., **comb. nov.****

*Marsdenia rostrata* R.Br., *Prodr.* 461 (1810); *Pergularia rostrata* (R.Br.) Spreng., *Syst. Veg.* 1: 844 (1820). **Type:** Australia. Queensland. PORT CURTIS DISTRICT: Keppel Bay, 13 August 1802, *R. Brown s.n.* (lecto, 2<sup>nd</sup> step [here designated]; BM 001040536 *i.d.v.*; isolecto: BM 001040535 *i.d.v.*, BRI [AQ342530], CANB 278889; K 000872967 [specimen on left of sheet], P 00645975 [lacking ‘13 August’] *i.d.v.*, P 0064977 [lacking ‘13 August’] *i.d.v.*).

**Distribution:** Endemic to Australia (New South Wales, Queensland, Victoria).

**Typification:** Robert Brown collected this species at several locations on his visit to Australia. In 1995 I selected his Keppel Bay collection made on 13 August 1802 as the lectotype (BM with 2 sheets) with

isolectotypes at BRI, CANB and K. At the time this was reliant on specimen images made by Australian Botanical Liaison Officers working at Kew, or material examined on loan. In the retrospect of online availability of specimen images, there are more specimens available than were viewed in the late 1980s. As accession numbers were not indicated for the BM specimens in the 1995 revision, it is necessary to take the lectotypification of the name to a second step, so the excellent specimen BM 00100536 is chosen as the lectotype.

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

**56. *Leichhardtia spathulata*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia spathulata* P.I.Forst., *Austral. Syst. Bot.* 8: 761 (1995). **Type:** Papua New Guinea. BOUGAINVILLE PROVINCE: Crown Prince Mountains, October 1960, *E.J.H. Corner NGF13598* (holo: BRI [AQ217372]; iso: LAE 31866).

**Distribution:** Endemic to Papua New Guinea on the island of Bougainville.

**57. *Leichhardtia suaveolens*** (R.Br.) P.I.Forst., **comb. nov.**

*Marsdenia suaveolens* R.Br., *Prodr.* 461 (1810); *Pergularia suaveolens* (R.Br.) Spreng., *Syst. Veg.* 1: 844 (1820). **Type:** Australia. New South Wales. Port Jackson [Sydney], 11 May 1802, *R. Brown s.n.* (lecto: BM 001040534, *vide* Forster 1995b: 790; isolecto: CANB 278890, K 000873027 [righthand specimen on sheet] *i.d.v.*).

**Distribution:** Endemic to Australia (New South Wales).

**58. *Leichhardtia subglobosa*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia subglobosa* P.I.Forst., *Austral. Syst. Bot.* 8: 744 (1995). **Type:** Papua New Guinea. NORTHERN PROVINCE: Gwiroro, 14 November 1955, *N.E.G. Cruttwell 672* (holo: K).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**59. *Leichhardtia torsiva*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia torsiva* P.I.Forst., *Austral. Syst. Bot.* 8: 801 (1995). **Type:** Papua New Guinea. WEST SEPIK PROVINCE: Second bush camp on ridge below Tamanagabip on track to Busilmin, 20 May 1975, *A. Vinas & J. Wiakabu LAE59549* (holo: L 0834586; iso: LAE 223977).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**60. *Leichhardtia trilobata*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia trilobata* P.I.Forst., *Austral. Syst. Bot.* 8: 748 (1995). **Type:** Papua New Guinea. WESTERN PROVINCE: Tarara, Wassi Kussa River, January 1937, *L.J. Brass 8657* (holo: CANB 159675; iso: A 00348615 *i.d.v.*, BM 001014155, BRI [AQ0361126], LAE 72165, L 0004372 *i.d.v.*, L 0004373 *i.d.v.*).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**61. *Leichhardtia tubulosa*** (F.Muell.) P.I.Forst., **comb. nov.**

*Marsdenia tubulosa* F.Muell., *Fragm.* 9: 71 (1875). **Type:** Australia. New South Wales. Lord Howe Island, Mt Gower, in 1871, *J.P. Fullagar s.n.* (holo: MEL 1515823A).

**Distribution:** Endemic to Australia (New South Wales: Lord Howe Island).

**62. *Leichhardtia tumida*** (P.I.Forst.) P.I.Forst., **comb. nov.**

*Marsdenia tumida* P.I.Forst., *Austral. Syst. Bot.* 8: 797 (1995). **Type:** Papua New Guinea. MILNE BAY PROVINCE: Mt Rossel, Rossel Island, 18 March 1979, *P. Katik LAE70925* (holo: BRI [AQ370292]; iso: A 00348616 *i.d.v.*, CANB 305334, K 000872976 *i.d.v.*, L, LAE 243535).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**63. *Leichhardtia variabilis* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia variabilis* P.I.Forst., *Austral. Syst. Bot.* 8: 751 (1995). **Type:** Papua New Guinea. MOROBE PROVINCE: Andarova, Slate Creek, Upper Watut, 10 December 1970, *H. Streimann & A. Kairo NGF44553* (holo: BRI [AQ350445]; iso: BO 110456, CANB 226210, K 000872982 *i.d.v.*, L 2725683 *i.d.v.*, LAE 128192, SING 0070824).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**64. *Leichhardtia velutina* (R.Br.) P.I.Forst., **comb. nov.****

*Marsdenia velutina* R.Br., *Prodr.* 461 (1810); *Pergularia velutina* (R.Br.) Spreng., *Syst. Veg.* 1: 844 (1820); *Tylophora velutina* (R.Br.) G.Don., *Gen. Hist.* 128 (1837). **Type:** Australia. Northern Territory. Mainland opposite Groote Eylandt, 4 January 1803, *R. Brown s.n.* [Bennett 2882] (lecto, 2<sup>nd</sup> step: BM 001040538; isolecto: BM 001040539, CANB 278891, *vide* Forster 1990: 285; Liede-Schumann & Meve 2018: 173).

*Marsdenia papuana* Schltr., *Bot. Jahrb. Syst.* 50: 144 (1913); *M. verrucosa* Warb., *Bot. Jahrb. Syst.* 13: 410 (1891) [non *M. verrucosa* Decne. (1844)]. **Type:** Papua New Guinea. MADANG PROVINCE: 1889–1891, *C. Lauterbach 437* (lecto: SING, *vide* Forster 1995b: 765).

*Marsdenia klossii* S.Moore, *Trans. Linn. Soc. Bot.* 9: 112 (1916). **Type:** Indonesia. Papua. Utakwa River to Mt Carstensz, in 1912–1913, *C.B. Kloss s.n.* (holo: BM 001014157).

**Distribution:** Widespread in Indonesia (Ceram, Papua, West Timor), Timor-Leste, Papua New Guinea, Philippines, the Solomon Islands and Australia (Northern Territory, Queensland, Western Australia).

**Note:** This species is yet to be sequenced. While I have placed it here in *Leichhardtia*, it may resolve that it fits into the clade containing the type of *Marsdenia*.

**65. *Leichhardtia venusta* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia venusta* P.I.Forst., *Austral. Syst. Bot.* 8: 740 (1995). **Type:** Papua New Guinea. GULF PROVINCE: Near Ihu, 14 January 1966, *L.A. Craven 700 & R. Schodde* (holo: L 0004374 & 0004376; iso: A 00348617 *i.d.v.*, CANB 194618, CANB 194619, K, LAE 143819).

**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.

**Typification:** In the 1995 revision it was stated that the holotype comprised two sheets. These were both sent on loan to BRI from L in the same specimen folder and labelled clearly as Vel [sheet in Dutch] 1 and Vel 2, despite the two sheets having different accession numbers (No. 226596 and 226597; these being pre barcode numbers used at the Rijksherbarium). I stated clearly on L 0004374 that the holotype comprised two sheets, so lectotypification is considered unnecessary.

**66. *Leichhardtia viridiflora* (R.Br.) P.I.Forst., **comb. nov.****

*Marsdenia viridiflora* R.Br., *Prodr.* 461 (1810). **Type:** Australia. Queensland. PORT CURTIS DISTRICT: Broad Sound, Thirsty Sound – inner entrance, 24 September 1802, *R. Brown s.n.* (lecto 2<sup>nd</sup> step [here designated]: BM 001040531; isolecto: BM 001040533 [lacking Iter Australiense 2885], CANB 278893, K 000873030 [lacking date]).

*Bidaria leptophylla* F.Muell., *Trans. Phil. Inst. Vict.* 3: 60 (1859). **Type citation:** “At the sources of the Burdeken River.” **Type:** Australia. Queensland. NORTH KENNEDY DISTRICT: Upper Burdekin, *s.dat.*, *F. Mueller s.n.* (holo: MEL 9253: specimen B).

*Marsdenia leptophylla* F.Muell. ex Benth., *Fl. Austral.* 4: 340 (1868); *Leichhardtia leptophylla* (F.Muell. ex Benth.) Bullock, *Kew Bull.* 1957: 287 (1957). **Type:** Australia. Queensland. NORTH KENNEDY DISTRICT: very rare at the sources of the Burdekin [River], *s.dat.*, *F. Mueller s.n.* (holo: K 000873031).



**Typification:** In the 1995 revision the type for *Marsdenia viridiflora* R.Br. was given as “Broad Sound, Thirsty Sound-inner entrance, R. Brown s.n., 24 Sep. 1802 (Iter Australiense 2885) (with the words ‘Marsdenia viridiflora R. Br. Prod. xx’ in Brown’s hand along the bottom of the sheet)”. There are two sheets of this collection at BM that are available as online images: BM 001040533 does not have the Bennett number 2885, whereas BM 001040531 does. It is possible that the words written in Brown’s hand that I quoted in 1995 are on the reverse side of the white piece of paper that is currently mounted above the modern BM barcode label. The name requires a second step lectotypification due to the presence of two separate accessions at BM, with my original choice being reaffirmed.

In the 1995 revision the type for *Bidaria leptophylla* F.Muell. was given as “Burdekin River, F. Mueller s.n., specimen D (undated) (holo: MEL 9253)”. This is incorrect as specimens C and D on MEL 9253 (that comprises four separate specimens) are *Leichhardtia australis*. I also clearly indicated on the sheet in October 1988 that the specimen B is the type for this name as reflected above. Specimen A on MEL 9253 is also this species and has been annotated as a possible isotype by an unknown person. Specimen A is labelled as being from the Suttor River, so cannot be considered an isotype.

**Note:** This species was sequenced and included in the *Leichhardtia* clade by Liede-Schumann *et al.* (2021).

Two subspecies are recognised.

**66a. *Leichhardtia viridiflora* subsp. *viridiflora*,**

*Marsdenia viridiflora* subsp. *viridiflora*, P.I.Forst., *Austral. Syst. Bot.* 8: 787 (1995).

**Distribution:** Endemic to Australia (Queensland).

**66b. *Leichhardtia viridiflora* subsp. *tropica* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia viridiflora* subsp. *tropica* P.I.Forst., *Austral. Syst. Bot.* 8: 788 (1995). **Type:** Australia. Queensland. COOK DISTRICT:

Lakefield National Park, 33 km from Laura on road to New Laura Homestead, 23 January 1993, P.I. Forster PIF12876 & A.R. Bean (holo: BRI [AQ58002: 2 sheets plus spirit]; iso: CNS [QRS 110291], DNA, MEL 0240082A).

**Distribution:** Endemic to Australia (Northern Territory, Queensland, Western Australia) and to Papua New Guinea on the island of New Guinea.

**67. *Leichhardtia volcanica* (P.I.Forst.) P.I.Forst., **comb. nov.****

*Marsdenia volcanica* P.I.Forst., *Austral. Syst. Bot.* 8: 750 (1995). **Type:** Papua New Guinea. BOUGAINVILLE PROVINCE: Maide River Gorge, lower south slopes of Lake Loloru crate, c. 15 miles N of Buin, 17 August 1964, L.A. Craven 280 & R. Schodde (holo: CANB 146783 & 146784; iso: LAE 81986).

**Distribution:** Endemic to Papua New Guinea on the island of Bougainville.

**Typification:** The holotype collection at CANB comprises two sheets (Forster 1995b) that are databased as separate accessions; however, these are clearly linked by labels on the specimens and in the CANB database.

**Excluded names**

*Marsdenia brachystephanus* Schltr. = **Sarcolobus brachystephanus** (Schltr.) P.I.Forst.

*Marsdenia secamonoides* (Schltr.) Omlor = **Sarcolobus secamonoides** (Schltr.) P.I.Forst.

*Marsdenia urniflora* P.I.Forst. = **Hoya uniflora** (P.I.Forst.) Simonsson & Rodda

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Peter Bostock, Gordon Guymmer and Sigrid Liede-Schumann reviewed this paper. Sigrid especially helped with finding additional type material and resolving typification of some names. Anna Monro investigated extant copies of Brown (1849) and helped to resolve once and for all just what was published in the original version. Brendan Lepschi provided images of some holotypes at CANB and checked the CANB database for cross referencing between specimen accessions.

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