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. *Australbaileya* 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; Marsdenieae; 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 blirienis; Leichhardtia brissii; Leichhardtia brevifolia; Leichhardtia brevis; Leichhardtia brunea; Leichhardtia carrii; Leichhardtia connivens; Leichhardtia coronata; Leichhardtia cremea; Leichhardtia cymulosa; Leichhardtia destituta; Leichhardtia dischidioides; Leichhardtia diversicola; Leichhardtia egregia; Leichhardtia flavescens; Leichhardtia flava; Leichhardtia fraseri; Leichhardtia glabrata; Leichhardtia glandulifera; Leichhardtia globosa; Leichhardtia gonolobioides; Leichhardtia grandis; Leichhardtia jenseni; Leichhardtia keharensis; Leichhardtia kempteriana; Leichhardtia lacicola; Leichhardtia liisae; Leichhardtia lloydii; Leichhardtia longiloba; Leichhardtia lorea; Leichhardtia micradaenia; 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 spatulata; 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...
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.].

**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.


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

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


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


Distribution: Endemic to Australia (Western Australia).


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).

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


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.


**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 isolecloype 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).


**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).


**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.


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


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.


[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).


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.


Type species: Leichhardtia australis R.Br.


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.


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.


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

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


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.**


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

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


**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.**


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


**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.**


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

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


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

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


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

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

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

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


**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.*


**Type:** Australia. Queensland. *North Kennedy District*: Robinson Creek, 3 km NNE of Ravenshoe, November 1989, R. Lockyer *s.n.* (holo: BRI [AQ500633]; iso: BRI [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.*


**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.*


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

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


*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.*


**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.
Forster, Gymnema and Leichhardtia

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


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


*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]).


**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:** 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*.


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


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

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


**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.
23. *Leichhardtia egregia* (P.I.Forst.) P.I.Forst., **comb. nov.**


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

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


**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.**


**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.

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


**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.**


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


**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.**


**Distribution:** Endemic to Papua New Guinea on the island of New Guinea.
30. **Leichhardtia gonoloboides** (Schltr.) P.I.Forst., *comb. nov.*


**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.*


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

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


**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.*


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

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


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

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


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

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


**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.


**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.


**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.


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

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


**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.


**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.


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

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


**Distribution:** Endemic to Indonesia (Papua) on the island of New Guinea.
44. Leichhardtia paludicola (P.I.Forst.) P.I.Forst., **comb. nov.**


*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.**


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

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


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

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


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

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


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

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


**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.**


**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.**

**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.*


**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]).


**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.*


**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, 2nd step [here designated]: BM 001040536 *i.d.v.*; isolecoto: 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.


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


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

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


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


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


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


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

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

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


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

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


**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.*


**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 2nd step [here designated]: BM 001040531; isolec: BM 001040533 [*lacking Iter Australiense 2885*], CANB 278893, K 000873030 [*lacking date*]).


**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 Sutter 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*,


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


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


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

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

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References


