

# *Dendrocnide cordata* (Warb. ex H.J.P.Winkl.) Chew (Urticaceae) is not present in Australia

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## Summary

Bean, A.R. (2019). *Dendrocnide cordata* (Warb. ex H.J.P.Winkl.) Chew (Urticaceae) is not present in Australia. *Austrobaileya* **10(3)**: 541–544. For the past 50 years, *Dendrocnide cordata* (Warb. ex H.J.P.Winkl.) Chew has been cited as being present in Queensland, Australia. Recent examination of specimens from Queensland and New Guinea reveals that all recorded Australian occurrences of *D. cordata* are referable to either *D. cordifolia* (L.S.Sm.) Jackes & M.Hurley or *D. moroides* (Wedd.) Chew, and that *D. cordata* does not occur in Australia. A key to *Dendrocnide* in Australia is provided, together with taxonomic accounts and descriptions of *D. cordata* and *D. moroides*.

Key Words: Urticaceae, *Dendrocnide cordata*; *Dendrocnide cordifolia*; *Dendrocnide moroides*; Papua New Guinea flora; Australia flora; Queensland flora; species description; identification key

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## Introduction

Chew (1969) revised *Dendrocnide* Miq. (Urticaceae), enumerating 36 species, including four from Australia. One of these species is *D. cordata* (Warb. ex H.J.P.Winkl.) Chew, typified by a specimen from the northern coast of Papua New Guinea. Chew (1969) cited two specimens of *D. cordata* from Australia (*Smith 10132*; *Volck & Dansie 1470*), both from the Atherton Tableland in northern Queensland. He placed *Laportea cordifolia* L.S.Sm. in the synonymy of *D. cordata*, erroneously citing the taxon name as *L. 'cordatifolia'*. Chew (1989) cited one additional specimen for Australia (*Stocker 1796*), also from the Atherton Tableland, but no other new information on *D. cordata* was given there.

Jackes & Hurley (1997) clearly demonstrated from field observations and glasshouse-grown plants that the Atherton Tableland populations of *Dendrocnide cordata*, including the specimens cited above, differ from the taxa represented by the types of *D. moroides* (Wedd.) Chew and *D. cordata*, but matched the type of *Laportea cordifolia*

L.S.Sm. Accordingly, they reinstated and transferred the latter name to *Dendrocnide*, with the name *Dendrocnide cordifolia* (L.S.Sm.) Jackes & M.Hurley applying to the Atherton Tableland taxon.

Jackes & Hurley (1997) then went on to apply the name *Dendrocnide cordata* to a single Australian specimen (*Fell 4155 et al.*), from the Lockhart River area of Cape York Peninsula. They reasoned that this specimen was not *D. moroides* mainly because they could not see any abscission scars for the male flowers, indicating that the inflorescence is wholly female. According to Chew (1969), unisexual inflorescences (with some exceptions) are a feature of *D. cordata* but not of *D. moroides*.

Chew (1969) stated that *Dendrocnide cordata* is closely related to *D. moroides*. He distinguished *D. cordata* by “a. the plant altogether less irritant, b. lamina cordate not peltate, c. inflorescence unisexual, rarely bisexual as well”, and he characterised *D. moroides* by the inflorescences with “10–20 female flowers around each male”, and by the cordate-peltate lamina, with sharply toothed margin.

From an examination of all the fertile specimens of *Dendrocnide moroides* at BRI, it is apparent that male flowers or their abscission scars are present only on a minority of fertile specimens. Hence, the inflorescences of *D. moroides* are sometimes bisexual but often unisexual, and the presence or absence of bisexual inflorescences is not a reliable character to distinguish *D. moroides* from *D. cordata*.

The protologue for *Laportea cordata* (Winkler 1922) includes the following “leaves broadly cordate, margin undulate denticulate, base 5-nerved”. The latter feature was largely ignored by Chew, but does appear to be diagnostic, i.e. leaves 5-veined at base for *Dendrocnide cordata* versus 3-veined at base for *D. moroides*.

Examination of the *Fell 4155* specimen (cited as *Dendrocnide cordata* by Jackes & Hurley (1997)), finds that its leaves are clearly peltate, 3-veined at base and with regularly dentate margins. These are all features of *D. moroides*. In contrast, *D. cordata* has cordate leaves, 5-veined at base and irregularly crenulate leaf margins. The apparent absence of male flowers is not considered an identifying feature for either species. Seven other specimens at BRI, collected from Cape York Peninsula after the *Fell* specimen and labelled *D. cordata*, are similarly identified as *D. moroides*.

In conclusion, I agree that *Dendrocnide cordifolia* is a distinct species worthy of recognition, and find that the name *D. cordata* has been misapplied to specimens of *D. moroides* from Cape York Peninsula. *D. cordata* does not occur in Australia. A comparison of characters for the three species is provided in **Table 1**.

### Taxonomy

***Dendrocnide cordata*** (Warb. ex H.J.P.Winkl.) Chew, *Gard. Bull. Singapore* 21: 202 (1965); *Laportea cordata* Warb. ex H.J.P.Winkl., *Bot. Jahrb. Syst.* 57: 503 (1922). **Type:** Papua New Guinea. MADANG PROVINCE. Constantinhafen [Melamu], in 1887, *K. Holtrung 513* (syn: K 000675706!; MEL 8911!).

Monoecious trees 8–15 metres high. Leaves alternate; petiole 11–34 cm long; lamina very broadly ovate to orbicular, 15–40 cm long, 18–38 cm wide, base cordate, not peltate; venation mostly pinnate, but with 5 prominent palmate veins at the base of the lamina; margins irregularly crenulate; upper surface glabrous, cystoliths circular, abundant; lower surface glabrous except along veins. Inflorescence unisexual. Male flowers 1–1.5 mm long, pedicel up to 1 mm long. Female flowers in clusters, *c.* 1 mm long; stigma ligulate, 0.7–1.2 mm long. Achenes dorsiventrally flattened, broadly-ovate in outline, 1.5–2 mm long, with or without a raised medial ridge, surface smooth, lateral tepals very small, much shorter than achene.

**Additional specimens examined:** Papua New Guinea. EAST SEPIK PROVINCE: Near Kundiman village, Yuat River, Sep 1959, *Pullen 1784* (L). MOROBE PROVINCE: Oomsis Creek, *c.* 18 miles [30 km] W of Lae, Mar 1962, *Hartley 10032* (BRI, L); Mori River, Abau subdistrict, Feb 1969, *Henty & Lelean NGF41847* (BRI, L); Yalu, Jul 1944, *White et al. NGF1662* (BRI, L). MADANG PROVINCE: Camp 2, Guam River, Josephstaal FMA area, Aug 1999, *Takeuchi 13992 et al.* (L). GULF PROVINCE: Purari River, delta area 32.5 km E of Baimuru, Mar 1974, *Croft LAE61082* (BRI).

**Note:** Several specimens determined by Chew as *Dendrocnide cordata* from Central province (e.g. *Pulsford UPNG107*, *Carr 11207*, *White 787 & Darbyshire 629*) and the Tanimbar Islands (*Buwalda 4292 & 4162*) appear to differ markedly from the type, and may represent a new species.

***Dendrocnide moroides*** (Wedd.) Chew, *Gard. Bull. Singapore* 21: 204 (1965); *Laportea moroides* Wedd., *Arch. Mus. Hist. Nat.* 9: 142 (1856); *Urticastrum moroides* (Wedd.) Kuntze, *Revis. Gen. Pl.* 2: 635 (1891). **Type:** [Queensland. COOK DISTRICT:] Endeavour River, *s. dat.*, *A. Cunningham s.n.* (holo: G 00354074!).

*Laportea peltata* Gaudich. ex Decne., *Nouv. Ann. Mus. Hist. Nat.* 3: 490 (1834). **Type:** Timor. [1801–1803], *J.B. Leschenault s.n.* (holo: P 00602034!).

Monoecious shrubs 0.5–5 metres high. Leaves alternate; petiole 7–19 cm long; lamina very broadly ovate to orbicular, 9–18 cm long, 9–16 cm wide, base peltate; venation mostly

pinnate, but with 3 prominent palmate veins at the base of the lamina; margins dentate or denticulate; upper surface densely hairy with hairs of differing length, cystoliths circular, abundant; lower surface densely hairy. Inflorescence unisexual or bisexual. Male flowers *c.* 1.5 mm long, pedicel *c.* 1.5 mm long. Female flowers in clusters, *c.* 0.75 mm long; stigma ligulate, 0.8–1.8 mm long. Achenes dorsio-ventrally flattened, ovate in outline, 1.5–2.2 mm long, surface papillose, lateral tepals enlarged and almost covering achene.

**Additional specimens examined [Cape York Peninsula only]: Queensland.** COOK DISTRICT: West Claudie River, 10.3 km WNW of Lockhart River, Mar 1994, *Fell DGF4155 et al.* (BRI); Orchid Creek Station, SW of Lockhart River, May 2014, *Forster PIF41188 & Thompson* (BRI); 2 km S of 12 mile yards on Munburra, Sep 2012, *Thompson ST12697 et al.* (BRI); Macrossan Range, Turrel Hill, Silver Plains, Jul 1997, *Forster PIF21322 et al.* (BRI); Rocky River scrub, Silver Plains, Jul 1996, *Forster PIF19473* (BRI); 10 km along Battle Camp Road, off Cooktown-Hopevale road, Apr 1999, *Forster PIF24329 & Booth* (BRI); Bakers Blue Mountain, Font Hills, Jun 1996, *Forster PIF19248 et al.* (BRI); *c.* 20 km S of Cooktown on Cairns road, Apr 1975, *Craven 3216* (L).

**Table 1. Morphological comparison of *Dendrocnide cordata*, *D. cordifolia* and *D. moroides***

Character	<i>D. cordata</i>	<i>D. cordifolia</i>	<i>D. moroides</i>
leaf upper surface	glabrous	sparsely hairy	densely hairy
leaf base	cordate	cordate	peltate
basal leaf vein number	5-veined	3-veined	3-veined
leaf margin	irregularly crenulate	dentate or denticulate	dentate or denticulate
inflorescence sex	unisexual	bisexual	unisexual or bisexual
inflorescence length	5–20 cm	2–6 cm	5–15 cm
tepals (at fruiting stage)	much shorter than achene	almost covering achene	almost covering achene
achene surface	sometimes with a medial raised ridge, otherwise smooth	papillose throughout	papillose throughout

**Key to the Australian species of *Dendrocnide***

- 1 Lower leaf surface glabrous or with hairs only on the veins . . . . . 2
- 1. Lower leaf surface moderately to densely hairy . . . . . 3
- 2 Leaves elliptical to narrowly elliptic, 4–7.5 times longer than wide . . . . **D. corallodesme**
- 2. Leaves broadly elliptical to ovate, 1.6–2.5 times longer than wide . . . . **D. photiniphylla**
- 3 Leaves peltate; upper leaf surface with dense indumentum of variable-length hairs . . . . . **D. moroides**
- 3. Leaves cordate; upper leaf surface with sparse indumentum of uniform-length hairs, or glabrous . . . . . 4
- 4 Leaf margins regularly dentate; mature infructescences white . . . . . **D. cordifolia**
- 4. Leaf margins entire or crenulate; mature infructescences purple . . . . . **D. excelsa**

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