

## TWO NEW SPECIES OF *CELTIS* (CELTIDACEAE) FROM AUSTRALIA AND MADAGASCAR

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### SUMMARY

*Celtis australiensis* Sattarian is described from Australia and *Celtis madagascariensis* Sattarian is new for Madagascar. Both new Celtidaceae (formerly Ulmaceae–Celtidoideae) are illustrated with a photograph.

**Key words:** *Celtis*, Australia, Madagascar, endocarp surface, leaf margin, leaf shape, taxonomy.

Celtidaceae (formerly Ulmaceae–Celtidoideae) comprise c. 150 species classified in 9 genera (e.g., *Celtis*, *Trema*) distributed in the Northern Hemisphere and in Africa, to Southern Africa (Polhill, 1964; Grudzinskaya, 1967; Elais, 1970; Terabayashi, 1991; Omori & Terabayashi, 1993; Judd et al., 1994; Ueda et al., 1997). Some species of the family are used for timber and reforestation, some are ornamental.

One of the species of *Celtis* so far known as widespread, *C. philippensis* Blanco, was supposed to be distributed in Tropical Africa and Madagascar, India, Burma, South East China, Taiwan, Indochina, Thailand, throughout Malesia to North East and West Australia and the Solomons (Soepadmo, 1977). Soepadmo distinguished two varieties: *C. philippensis* var. *philippensis* and *C. philippensis* var. *wightii*, and noted they may not be clearly defined. While going through various herbarium collections from Africa, Asia, Australia, and Madagascar, we found two new species of *Celtis*, easily recognised by habit, leaf shape, leaf margin, and endocarp of fruits. The author of the Ulmaceae for the Flora of Australia, Hewson (1989) also remarked that some Australian specimens did not fit in *C. philippensis*. We are of the opinion that the “*C. philippensis* complex” has to be divided into several regional species, and *C. philippensis* s.s.

### 1. *Celtis australiensis* Sattarian, *spec. nov.* — Fig. 1

Ab *C. philippensis* differt foliis elliptico-cordatis, margine et apice spinosis, pilosis (unicellulosis praecipue in pagina inferiore). — Typus: *Telford 11722* (holo CBG; iso BISH, BRI, L, NSW, PERTH), Western Australia, Dampier district, Geikie Gorge, near gorge mouth, 14 May 1992, fr.

Small tree or shrub 2–4 m tall, bark smooth, white to grey. *Leaves* alternate, simple, elliptic-cordate, 2–7 by 1.5–5 cm, coriaceous, margin either entire or with spines along the upper half of the margin, petiole short, 3–5 mm, with hairs, apex apiculate

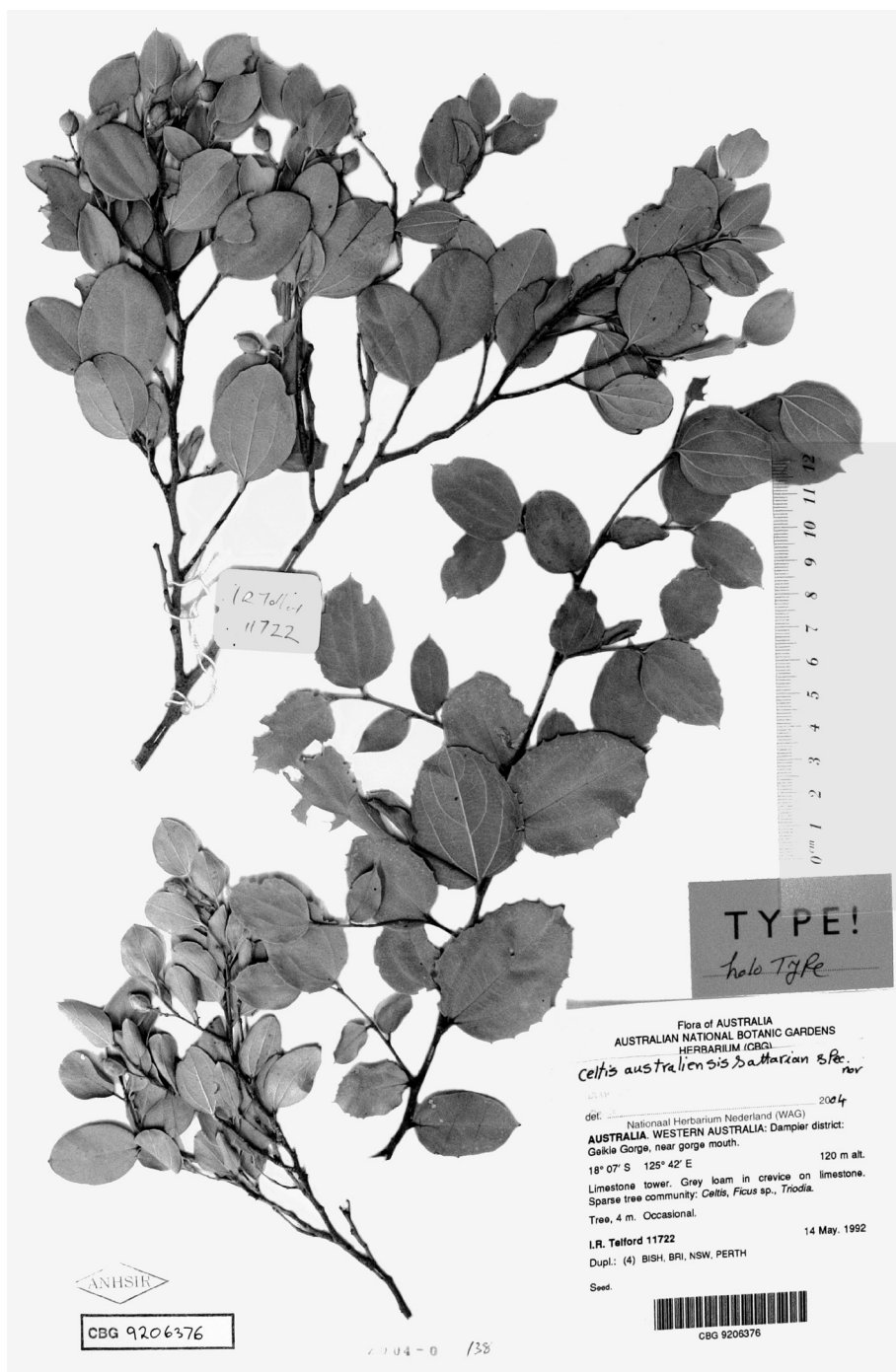


Fig. 1. *Celtis australiensis* Sattarian. Photograph of holotype specimen Telford 11722.

or obtuse and spiny, base rounded to cordate, midrib reaching apex, two basal lateral veins reaching 2/3 of leaf, running halfway the distance between midrib and margin, 2–4 additional conspicuous lateral veins, upper leaf surface minutely tuberculate, lower surface more minutely tuberculate, shortly pilose above, more densely so below, midrib pilose to glabrous; watershoot leaves c. 7 by 5 cm. *Inflorescence* a many-flowered panicle, 3–7 cm long. *Male* and *hermaphrodite flowers* white; bisexual perianth lobes ovate-elliptic, 2–2.5 mm long; stamens 1.5–3 mm long, anthers subreniform, stigmatic arms bifid. *Fruit* an ovoid drupe, c. 7 by 6 mm, green, turning orange to purple, 1-seeded, endocarp (stone) ovoid, surface reticulate, creamy.

*Distribution* — Australia: Western Australia, Northern Territory, and Queensland.

*Habitat & Ecology* — Open places, rocky area on limestone outcrops with *Lysiophyllum* and *Ficus*. This species is markedly xerophytic in drier habitats. *Flowering*: October to November; *fruiting*: May to July.

*Additional specimens examined*:

WESTERN AUSTRALIA: *Chesterfield* 389, NE Kimberley, Vansittart Bay (Seaflower Bay), 28 May 1984; *Forbes* 1997, SE Kimberley, Yards & Winnama Spring, ± 17.5 km from Turk Walsh point, Port Warrender, Admiralty Gulf, N Kimberley Creek, 28 May 1984; *Forbes* 2754, Kimberley, King Leopold range, 1.4 km W of same Creek on northern side of Gibb River Road, on steep ridge of Mt Bell, 30 July 1984; *Streimann* 8276, King Leopold Range, gorge 3 km NW of Silent Grove which is 63 km NE of Lennard River crossing on Gibb River Road, 16 May 1988; *Kenneally* 4347, Drysdale River National Park, E Kimberley, 16 Aug. 1975; *Kenneally* 5102, Surveyors vine thicket, Mitchell plateau, NW Kimberley, 18 June 1976; *Kenneally* 5263, Mitchell plateau, NW Kimberley, 22 June 1976; *R.A. Perry* 2672, 10 miles SW of Lissadell station, 22 June 1976; *I.R. Telford* 6179, Kimberley district, Carson Escarpment, 35 km E of new Theda, Glider Gorge near Wonjarring, 27 July 1977.

NORTHERN TERRITORY: *J.D. Briggs* 904, Victoria River district: 5 km S of Timber Creek River Downs, 12 May 1983; *Kenneally* 5139, Limbunya, 19 June 1976; *Kenneally* 6186, 7 km SW of Martins well, Dampierland, N of Broome, 26 April 1997; *Lazarides* 6978, on Stuart Highway, 6 miles NW of Katherine, 10 July 1963; *M.O. Parker* 832, 23 km S of Katherine, 4 May 1977; *R.A. Perry* 2394, Port Warrender, vine thicket, 7 miles S of Ord River Station, 8 July 1949; *R.A. Perry* 2869, 1.5 miles SSE of Timber Creek Police Station, 4 June 1952; *Moya Smith* 85, Arairma, W of Nellie point, Dampier peninsula, 26 April 1985; *H. Streimann* 8241, Yammera Gap, Napier range, 9 km NE of Lennard River crossing on Gibb River Road, 12 May 1988.

QUEENSLAND: *R.W. Purdie* 3597, Burke district, Gregory River, c. 20 km WSW of Riversleigh Homestead: 5 June 1989.

## 2. *Celtis madagascariensis* Sattarian, *spec. nov.* — Fig. 2

Ab *C. philippensis* differt foliis ovatis coriaceis integris, apice rotundatis, venis lateralibus marginem fere attingentibus, fructibus rostratis, endocarpio reticulato. — *Typus*: *Phillipson* 2938 (holo MO; iso WAG), Madagascar, Toliara, Reserve d'Andohalela, parcelle 2, near Hazofotsy, along river bank, 20 Dec. 1988, fl.

Small tree, 7–10 m high, bark grey, whitish, smooth. *Leaves* alternate, simple, ovate-elliptic, 7–10 by 2.5–3 cm, coriaceous, petiole 7–14 mm long, margin entire, attenuate or rounded at base, 3 veins at base, midrib reaching the apex, two lateral veins reaching 2/3 of leaf length, running close to the margin at 1/4 or less of the distance from midrib to margin, no conspicuous additional lateral veins, leaf apex obtuse-mucronate. *Inflorescences* axillary, as long as or clearly longer than the petiole, lower ones with male flowers only or with male flowers and 1 or 2 hermaphrodite flowers, upper ones sometimes without male flowers and 2–5 hermaphrodite flowers. *Male* and *herma-*

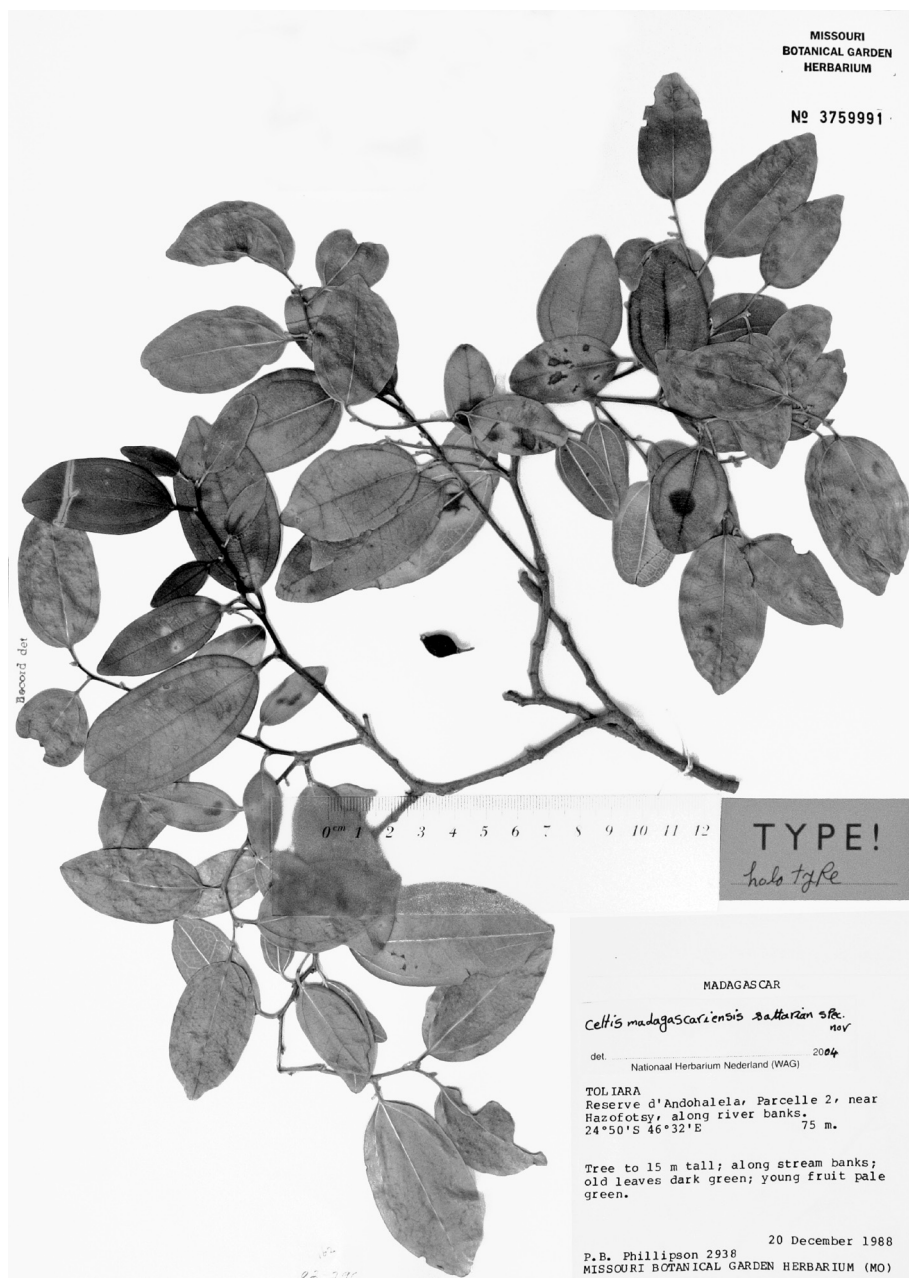


Fig. 2. *Celtis madagascariensis* Sattarian. Photograph of holotype specimen Phillipson 2938.

*phrodite flowers* creamy with a tender glabrous pedicel, 3–5 mm long. Sepals 5, glabrous; stamens 5, filaments shaped as an acumen, often bent during flowering, 5–9 mm long, anthers 1 mm long, ovate-globose. *Fruit* a drupe, broadly ellipsoid, c. 12 by 8 mm, 1-seeded, green becoming red or brown, endocarp ovoid-acuminate, polygonal, surface reticulate, creamy-whitish.

Distribution — Madagascar, Tulear province, Toliara and Toamasina region.

Habitat & Ecology — Along fast rapids and streams, on calcareous grounds or sandstone. Flowering: end November to end January; fruiting: June to July.

Additional specimens examined:

MADAGASCAR: *Linda Sussman 436*, Toliar prov., Southern Domain; 40 km NE of Betioky, near Analafaly; *Phillipson 2509*, Tulear prov., Beza Mahafaly Reserve, near Betioky Hills E of Sakamena River, near Ambinda, 3 Nov. 1987; *Phillipson 2565*, Tulear prov., Beza Mahafaly Reserve, near Betioky, Ehazoara River valley E of Sakamena River, 15 Nov. 1987; *Roland Rakotondrajaona et al. 117*, SE of Ankosy, near National park of Zahamena; *R. Randranaivo et al. 496*, Toamasina, 1.5 km of Toliara.

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