

## *Diospyros venablesii* W.E.Cooper (Ebenaceae), a new and endemic species from the Iron Range area, Cape York Peninsula, Queensland

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### Abstract

*Diospyros venablesii* W.E.Cooper is described and illustrated with notes on habitat, distribution and how to distinguish it from the most similar species, *Diospyros laurina*.

### Introduction

*Diospyros* L. is a pantropical genus of *c.* 550 species (Mabberley 2017) belonging to the family Ebenaceae. The Indopacific holds the largest diversity with *c.* 250 species. In Australia *Diospyros* was recently revised by Jessup (2014) with descriptions of 22 species including *D.kaki* Thunberg, which is naturalised. Seventeen species occur within the Wet Tropics Bioregion making it the region of most diversity in Australia.

With insufficient fertile material in herbaria, *Diospyros* sp. Ham Hill (*B.Hyland 2941RFK*) was not included in that revision even though the first collection was made in 1962 (*Volck AFO 02410 [CNS]*). Recent collections of both flowering and fruiting material have now made a formal description possible and herein *Diospyros venablesii* W.E.Cooper is described and named as a new species for the rainforests of the Iron Range area on Cape York Peninsula.

### Materials and methods

The study is based upon the examination of herbarium material from BRI and CNS, as well as field observations. All specimens cited have been seen by the author apart from those indicated *i.d.v.* (*imago digitalis visa*), that have been examined digitally from BRI.

Measurements of the floral parts and fruits are based on material preserved in 70% ethanol as well as fresh material from the field.

## Taxonomy

### *Diospyros venablesii* W.E.Cooper *sp. nov.*

Type: Australia: Queensland: Cook District: Road Reserve, Portland Roads Road, adjacent to Iron Range National Park, 31 August 2021, *W.Cooper 2779, J.Pritchard & E.Joyce* (holo: CNS 151007 [3 sheets + spirit CNS 151007. + spirit]; iso: 2 sheets each to be distributed to BRI, CANB & MEL, one sheet each to be distributed to K, L, MO, SING).

*Diospyros* sp. (Ham Hill B.Hyland 2941RFK), Jessup *et. al.* 2016; Zich *et. al.* 2018

Illustrations: Zich *et al.* (2018) as *Diospyros* sp. Ham Hill (B.Hyland 2941RFK)

Tree to 10m, dioecious; bark blackish and shallowly textured with numerous elongated horizontal fissures and lenticels; twigs with basifixed appressed silvery hairs becoming glabrous. New growth pink. *Leaves* simple, alternate: petioles 3–5 mm long, glabrescent; lamina elliptical, 30–118 mm long, 18–48 mm wide, thinly-leathery, base cuneate; apex shortly acuminate, acute or obtuse; margin entire, flat; both surfaces thinly sericeous with sparse appressed hairs; underside with 3–8 scattered black glands, discolorous; venation brochidodromous, midrib shallowly depressed on adaxial surface and raised on abaxial surface, lateral veins 5–8 pairs, tertiary venation reticulate and obscure. *Inflorescences* axillary or terminal, fragrance not detected. *Male inflorescence* a raceme up to 15 mm long; 2–8-flowered; rachis silvery pubescent; bracts at rachis base and flower bases similar, broadly ovate, *c.* 1.25 mm long, *c.* 1.25 mm wide, silvery pubescent abaxially and glabrous adaxially; flowers sessile. *Calyx* cupular, *c.* 2 mm long, 1.5 mm wide, silvery pubescent abaxially and glabrous adaxially, white, shallowly 3-lobed. *Corolla* tubular, 7.5–8 mm long, *c.* 2.75 mm wide, lobes 3, recurved and acute, *c.* 1.75 mm long, silvery pubescent abaxially and glabrous adaxially, pale green to white. *Stamens* 2 or 3, 5.5–6 mm long; filaments free (not adnate to tube), 2.5–3.5 mm long, glabrous; anthers linear, 2.5–2.8 mm long; pistillode globose-ovoid, *c.* 1.3 mm long, silvery hirsute. *Female inflorescence* a solitary flower; bracts at base paired, oblong-ovate, 2–3.25 mm long, silvery puberulent abaxially and glabrous adaxially. *Flowers* sessile or with a peduncle to 1 mm long. *Calyx* campanulate, 6.5–8 mm long, silvery puberulent both abaxially and adaxially, 3-lobed, lobes rounded, firm, *c.* 1 mm thick, ribbed, greenish-yellow. *Corolla* tube broadly ovoid, 7.5–8 mm long and 7–7.5 mm wide, lobes 3, recurved, broadly triangular, 2–2.5 mm long and *c.* 3 mm wide at base, silvery puberulent abaxially and glabrous adaxially, white. *Ovary* subglobose, *c.* 2.5 mm long and 3.5 mm wide, silvery puberulent, 3-locular, ovules 2 per locule, style *c.* 1 mm long, sparsely puberulent; stigma up to 12-lobed, diameter *c.* 1.25 mm. *Fruit* sessile, a berry, globose, 20–25.5 mm long, 24–29 mm wide, apex distinctly truncated and a very short persistent stigma, stigma diameter *c.* 1.5 mm, yellow, indumentum of appressed sericeous hairs over most of the fruit, more densely so proximally; calyx persistent at base, 13–17 mm diameter, thick, firm, recurved, 3-lobed, lobes broadly rounded, abaxially sericeous to sparsely sericeous, adaxially densely sericeous. *Seeds* 2–6, canoe-shaped, brown, *c.* 12 mm long, *c.* 6 mm wide. Germination epigeal. (Figures 1, 2 & 3)

**Diagnosis:** *Diospyros venablesii* is similar to *Diospyros laurina* (R.Br.) Jessup but differs by having: indumentum silvery (vs pale rusty); leaf texture thin and sub-membranaceous (vs thick and coriaceous); leaf apex shortly acuminate, acute or rarely obtuse (vs obtuse, rounded or rarely acute); pistillate corolla broadly ovoid and equidimensional (vs narrowly ovoid with the width equal to about half the length); fruiting calyx recurved from base and not enclosing fruit (vs slightly recurved at apex and enclosing the basal 1/3 to 1/2 of the fruit); fruit dimensions wider than long (vs longer than wide); fruit diameter 24–29 mm (vs 12–16 mm); fruit apex truncate (vs rounded).



**Fig. 1.** *Diospyros venablesii*. Male flowers (Voucher: Cooper 2784, CNS). Photo E. Joyce.



**Fig. 2.** *Diospyros venablesii*. Female flower (Voucher: Cooper 2779, CNS). Photo E. Joyce.



Fig. 3. *Diospyros venablesii*. Fruit (Voucher: Cooper 2745, CNS). Photo W. Cooper.

**Distribution:** *D.venablesii* has only been recorded in lowland rainforest between the Claudie and Pascoe Rivers in the vicinity of Kutini-Payamu (Iron Range) National Park and Iron Range Research Station on Cape York Peninsula, Queensland (Figure 4).

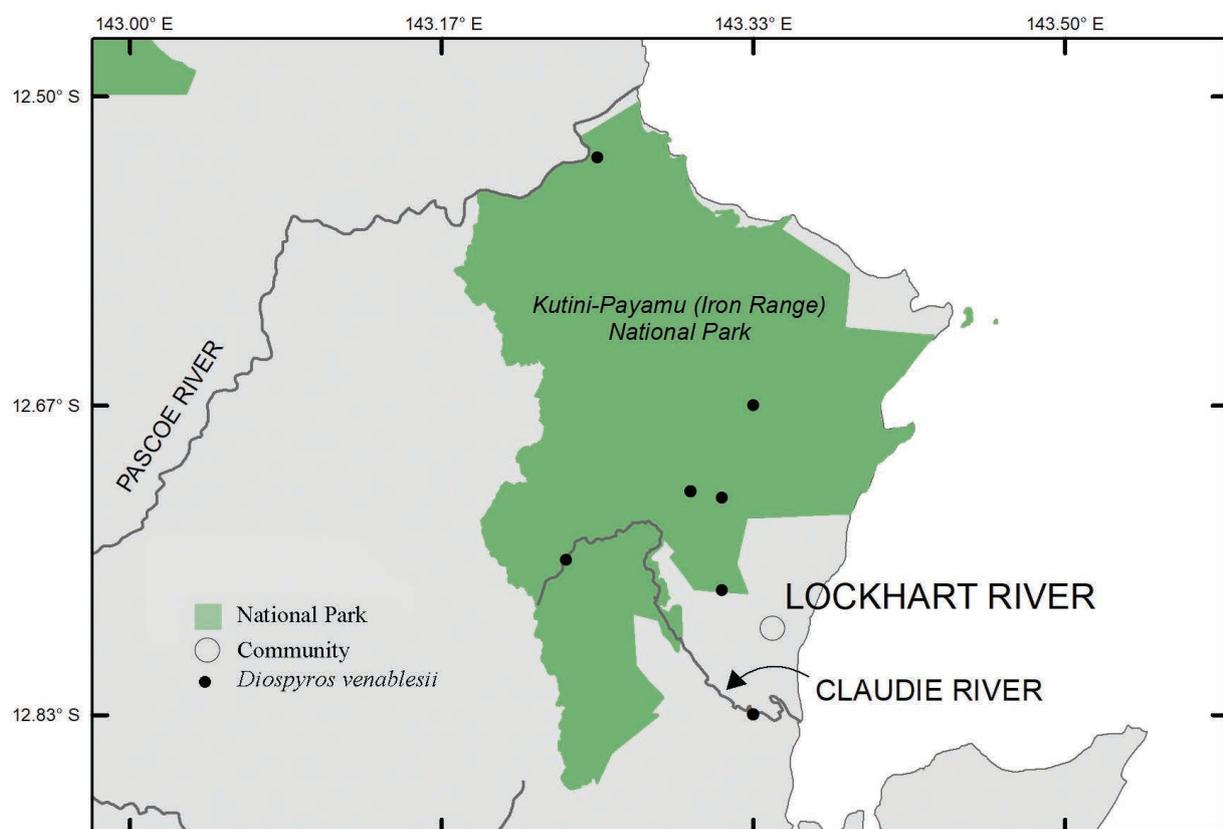


Fig. 4. Distribution map of *Diospyros venablesii* in the vicinity of Kutini-Payamu National Park, Cape York Peninsula, Queensland, Australia.

**Habitat and Ecology:** This species grows as a sub-canopy tree in semi-deciduous complex mesophyll and notophyll vineforest. It co-occurs with *Aglaia argentea* Blume, *Aleurites moluccanus* (L.) Willd., *Antiaris toxicaria* var. *macrophylla* (R.Br.) Corner, *Argyrodendron polyandrum* L.S.Sm., *Barringtonia calypttrata* (R.Br. ex Miers) R.Br. ex F.M.Bailey, *Beilschmiedia obtusifolia* (F.Muell. ex Meisn.) F.Muell., *Berrya javanica* (Turcz.) Burret, *Buchanania arborescens* (Blume) Blume, *Canarium australianum* F.Muell., *Castanospermum australe* A.Cunn. & Fraser ex Hook., *Garuga floribunda* Decne. var. *floribunda*, *Margaritaria dubium-traceyi* Airy Shaw & B.Hyland, *Myristica insipida* R.Br., *Neolamarckia cadamba* (Roxb.) Bosser, *Neonauclea glabra* (Roxb.) Bakh.f. & Ridsdale, *Premna hylandiana* Munir, *Syzygium pseudofastigiatum* B.Hyland, *Terminalia sericocarpa* F.Muell., *Tetrameles nudiflora* R.Br. and *Zanthoxylum rhetsa* (Roxb.) DC. Altitudinal range is from near sea level to about 50 m.

**Phenology:** Flowers have been recorded in August, September and October and fruit has been recorded in December and January.

**Etymology:** *Diospyros venablesii* is named for Brian Lewis Venables (1947–), a raconteur and naturalist who often resides on eastern Cape York Peninsula. He has been very helpful to me and to many biologists studying flora or fauna especially in the Iron Range and Cairns areas and deserves recognition for his generosity and contributions.

**Affinities:** *Diospyros venablesii* is similar to *Diospyros laurina*. However, the numbers of lateral veins in the leaves, pistillate flower calyx lobes, pistillate corolla shape, fruiting calyx and fruit shape differ significantly. The leaves on *D. venablesii* are much thinner, the shape mostly oblong-elliptical or elliptical and with apices usually shortly acuminate vs obovate or sub-orbicular (rarely oblong-ovate) and mostly with obtuse or rounded apices.

Applying the Key to Australian species of *Diopyros* using male flowers (Jessup 2014) one would arrive at couplet 17 (*D. yandina* and *D. pluviatilis*); for the second key using female flowers one would arrive at couplet 12 (*D. laurina*).

**Additional specimens seen:** QUEENSLAND. Cook District: Cassowary Creek, 1.5 km from confluence with the Pascoe River, Iron Range National Park, 28 Apr. 1993, *Fell DGF3145A & Butcher* (BRI) *i.d.v.*; Northern footslopes of Ham Hill, 7.6 km NNW of Lockhart River, 26 Mar. 1994, *Fell DGF4126 & Stanton* (BRI) *i.d.v.*; Claudie River between Portland Roads and Iron Range, 21 Oct. 1968, *Webb & Tracey 8589* (BRI) *i.d.v.*; Near Ham Hill, Weymouth Holding, 24 Oct. 1973, *Hyland 2941RFK* (CNS); EP/42 Claudie River, 19 Nov. 1977, *Stocker 1644* (CNS); Road reserve, Portland Roads Road, adjacent to Iron Range National Park, 5 Dec. 2020, *W.Cooper 2732, R.Jensen, D.Fell, T.Hawkes & B.Venables* (CNS); Road reserve, Portland Roads Road, adjacent to Iron Range National Park, 23 Jan. 2021, *W.Cooper 2745, J.Pritchard & L.Ross*, (CNS); Road reserve, Portland Roads Road, adjacent to Iron Range National Park, 1 Sept. 2021, *W.Cooper 2785, E.Joyce & B.Venables*, (CNS); Iron Range National Park, West Claudie River, 26 Mar. 1993, *Fell DGF3074 & Stanton* (BRI) *i.d.v.*; Iron Range, Cape York region, Sept. 1962, *Volck AFO 02410*, (CNS); Waygi Ck, Iron Range Research Station (IRRS), 13 Mar. 2017, *Fell DGF IRRS215, Cook & Cook* (BRI) *i.d.v.*; Claudie River, 11 Oct. 1972, *Hyland 2680RFK* (CNS); Claudie River, 22 Oct. 1973, *Hyland 6983* (CNS).

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## References

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