

# *Endiandra inopinata* B.Gray (Lauraceae), a new species from Queensland's Wet Tropics

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## Summary

Gray, B. (2020). *Endiandra inopinata* B.Gray (Lauraceae), a new species from Queensland's Wet Tropics. *Austrobaileya* 10(4): 639–644. *Endiandra inopinata* B.Gray, a new species closely related to *E. insignis* F.M.Bailey but differing in floral and fruiting characteristics, is described and illustrated. The new species is restricted to the Mount Lewis and Mount Sorrow areas of the Wet Tropics rainforest of northeast Queensland.

Key Words: Lauraceae; *Endiandra*; *Endiandra inopinata*; Australia flora; Queensland flora; Wet Tropics rainforest; new species; taxonomy

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## Introduction

*Endiandra* R.Br. (Lauraceae) is a genus of c. 100 species occurring in Asia, Malesia, Australia and the Pacific Islands with 38 species (33 or 34 species endemic) in Australia (Hyland 1989; Le Cussan & Hyland 2007). Rohwer (1993) using morphological and anatomical characters, included *Endiandra* in the 'Beilschmiedia group' of the *Perseeae* Nees, along with *Beilschmiedia* Nees, *Brassiodendron* C.K.Allen, *Hexapora* Hook.f. and *Potameia* Thouars. *Endiandra* has been found to consistently group with *Beilschmiedia* based on molecular analyses (Rohwer & Rudolph 2005; Rohwer *et al.* 2014; van der Merwe *et al.* 2016; Song *et al.* 2019) and the two genera differ mainly in the orientation of the anther valves in the flower (Hyland 1989; Le Cussan & Hyland 2007). This apparent relationship is under question; however, as the recent more comprehensive study of Song *et al.* (2019) inferred a closer relationship between species of *Beilschmiedia* and *Syndiclis* Hook.f., with *Endiandra* sister to that group.

In Australia species of *Endiandra* occur from Torres Strait in Queensland to southern New South Wales, with one species extending to the Northern Territory. The majority of Australian *Endiandra* species occur in

rainforest, gallery or littoral forests with only a few species extending to drier open forests.

The species described below was first collected flowering in June of 1996 by Paul Forster, Maurice Tucker and Garry Sankowsky, (*Forster PIF19236 et al.*), along the Mount Lewis Road and this collection and subsequent collections from there and the Mount Sorrow area were subsequently identified as *Endiandra insignis* F.M.Bailey; however, closer study has shown it to be a distinct species. This new species is endemic to the Queensland Wet Tropics bioregion and is here described as *E. inopinata* B.Gray.

Although relatively common where it occurs, with flowering occurring over a long period, fruiting specimens proved very difficult to find, but collections in December of 2017 have made it possible to complete the description of this species.

## Materials and methods

All measurements and illustrations in this study are based on living plants in the field, herbarium specimens and spirit preserved materials from CNS and BRI. The description is modelled on those of Hyland (1989). Dimensions are inclusive, i.e. 1.0–1.7 is given as 1–1.7.

Abbreviations used in the specimen citation include LA (Logging Area), SF (State Forest or State Forest Reserve), Mt (Mount or Mountain except where a designated National Park or State Forest name).

### Taxonomy

**Endiandra inopinata** B.Gray sp. nov. Similar to *Endiandra insignis* F.M.Bailey but differing in anther filaments without glands and fruit 24–27 × 32–36 mm, opposed to anther filaments with glands, and fruits 60–80 × 65–100 mm in *E. insignis*. **Typus:** Queensland. COOK DISTRICT: Mount Lewis Road, 11 km from Mount Molloy to Mossman Road, *B. Gray BG9411* (holo: BRI; iso: CNS).

Small tree to 12 m tall, poorly formed and often with two or more stems from ground level; stem to 15 cm dbh, without buttresses; bark nondescript. Twigs terete and clothed in pale brown to rusty hairs when young, becoming glabrescent. Leaves green on the underside, clothed in appressed, pale brown to rusty hairs, especially so on midrib and primary veins, upper surface glabrous. Leaf blade elliptical to ovate-elliptical, apex acute to acuminate, base cuneate, 5.8–14.5 × 2–6.5 cm; penninerved, primary veins 5–8 pairs (mode 6) flush on the upper surface, midrib flush on the upper surface. Inflorescence paniculate, terminal, axillary or on twigs below the leaves, clothed in rusty upright hairs, bracts narrowly triangular to linear, 0.8–2 × 0.2–0.4 mm. Flowers 3-merous, green, scarcely opening at anthesis, the tepals remaining erect and forming a tight sheath around the exerted anthers and style. Pedicel 0.8–1.5 × 0.7–0.9 mm. Perianth tube 1–1.9 × 2.7–3.2 mm at the widest point, but narrowing slightly at the apex where it ranges from 2.2–2.7 mm diameter, outer tepals 3, 1.2–1.5 × 1.8–2.3 mm, inner tepals 3, 1.1–1.3 × 1–1.3 mm, all tepals usually with sparse, appressed hairs on the inner surfaces, but only rarely on the outer surfaces. Anthers glabrous, opening sideways and outwards, 0.6–0.9 × 0.3–0.6 mm. Filaments 1–1.3 mm long, hairy, glands absent; staminodes usually 3, variable, linear to narrowly triangular, usually undifferentiated, hairy, 0.9–1.1 × 0.2–0.3 mm. Ovary sessile, *c.* 0.8 × 0.7 mm, glabrous;

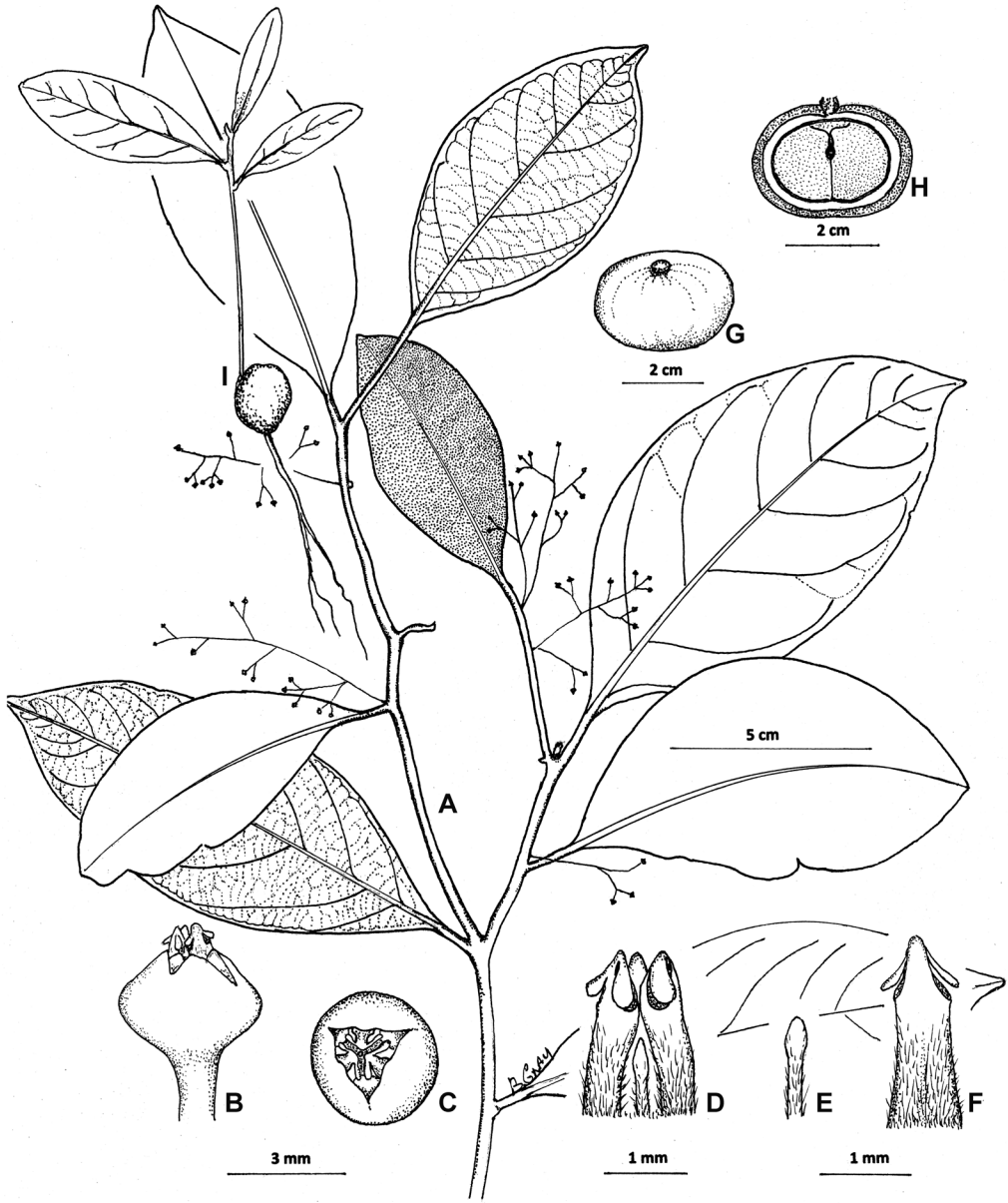
style 0.9–1 mm long, glabrous. Fruits wider than long and slightly laterally compressed, 24–27 mm long and 32–36 mm wide, yellow pinkish yellow to orange when ripe; mesocarp + exocarp 2–2.5 mm thick; endocarp 0.2–0.3 mm thick; seed 16.5–21 × 19–25 mm; testa 0.2–0.3 mm thick; radicle central. Cotyledons cream to pinkish cream. **Figs. 1–4.**

**Additional specimens examined: Queensland.** COOK DISTRICT: Daintree NP, upper slope of Mt Sorrow walking track, Nov 2018, *Ford 5410* (BRI); Mt Sorrow walking track, Jul 2017, *Gray 9787 & Hawkes* (CNS); *ibid.*, Dec 2017, *Gray 9961 & Hawkes* (CNS); SF 143, South Mary LA, Jun 1996, *Forster PIF19236, Tucker & Sankowsky* (BRI); 3.9 km from Bushy Creek bridge on Mt Lewis Road, Jun 2005, *Ford 4668* (CNS); 100 m past gate at grassy clearing on Mt Lewis Road, Dec 2017, *Jensen 3892 & McKenna* (BRI); 12.1 km on Mt Lewis Road from Julatten – Mossman Road, Nov 2005, *Halford Q8831 & Jensen* (BRI); 6.8 km past gate on Mt Lewis Road, Nov 2005, *Halford Q8838 & Jensen* (BRI); Mt Lewis Road, Aug 2009, *Gray 9297* (CNS); Mt Lewis access Road, Jan 2012, *Gray 9481* (CNS); *ibid.*, Aug 2013, *Gray 9577* (CNS); Mt Lewis Road, 12 km from Mt Molloy – Mossman Road, Jan 2012, *Gray 9482* (CNS); Mt Lewis Road 300 m before Finch clearing, Apr 2016, *Gray 9776 & Hawkes* (CNS); Mt Lewis Road, 9.5 km from Mt Molloy – Mossman Road, Apr 2016, *Gray 9777 & Hawkes* (CNS); *ibid.*, Dec 2017, *Gray 9957 & Ford* (CNS); Mt Lewis Road, 11.1 km from Mt Molloy – Mossman Road, Dec 2017, *Gray 9956 & Ford* (CNS); Mt Lewis Road, 9.5 km from Mt Molloy – Mossman Road, 100 m before Finch clearing, June 2018, *Gray 9971* (CNS).

**Distribution and habitat:** *Endiandra inopinata* is so far recorded from two small areas, Mt Lewis Road in the Brooklyn Wildlife Sanctuary and Mount Lewis National Park, and along the Mt Sorrow walking track within the Daintree National Park; however, it is likely because of the lack of access to this portion of the Wet Tropics, that the species may well occur in a broader area (**Map 1**).

*Endiandra inopinata* grows as an understory tree in an area of high rainfall in montain rainforest (complex notophyll to mesophyll vineforest) at altitudes between 250 and 1100 m, on soils derived from granite and can at times be locally common.

**Phenology:** Flowers have been recorded in January to August, while ripe fruits have been recorded in December and January. Flowering has been observed on trees as small as 4 metres tall.



**Fig. 1.** *Endiandra inopinata*. A. habit of flowering branchlet. B. flower (lateral view). C. flower (top view). D. anthers and staminode (lateral view). E. staminode. F. anther (adaxial view). G. fruit. H. section through fruit. I. seedling. Scales as indicated. A–F from Gray BG9411 (CNS); G & I from Jensen 3892 & McKenna (BRI); H from Gray 9956 & Ford (CNS). Del. B. Gray.



Fig. 2. Flowering plant of *Endiandra inopinata* (Gray BG9971, CNS). Photo: B. Gray.



Fig. 3. Inflorescence and flowers of *Endiandra inopinata* (Gray BG9971, CNS). Photo: B. Gray.





**Fig. 4.** Ripe fruit of *Endiandra inopinata* (Jensen 3892 & McKenna, BRI). Photo: R. Jensen.

**Notes:** *Endiandra inopinata* is most similar to *E. insignis*, but differs in being a small tree usually with basal coppice and/or multiple stems less than 15 cm diameter, with fruits to 36 mm diameter, compared to *E. insignis* which grows to a tree 25 m tall  $\times$  80 cm dbh, with fruits 65–100 mm diameter (Hyland 1989). *E. inopinata* has very distinctive pinkish-red new growth leaves during the wet season which make the tree easily recognised at that time of the year.

**Etymology:** The specific epithet is derived from the Latin *inopinatus* (unexpected) and refers to the unexpected discovery of this new species in areas that have been frequently botanised.

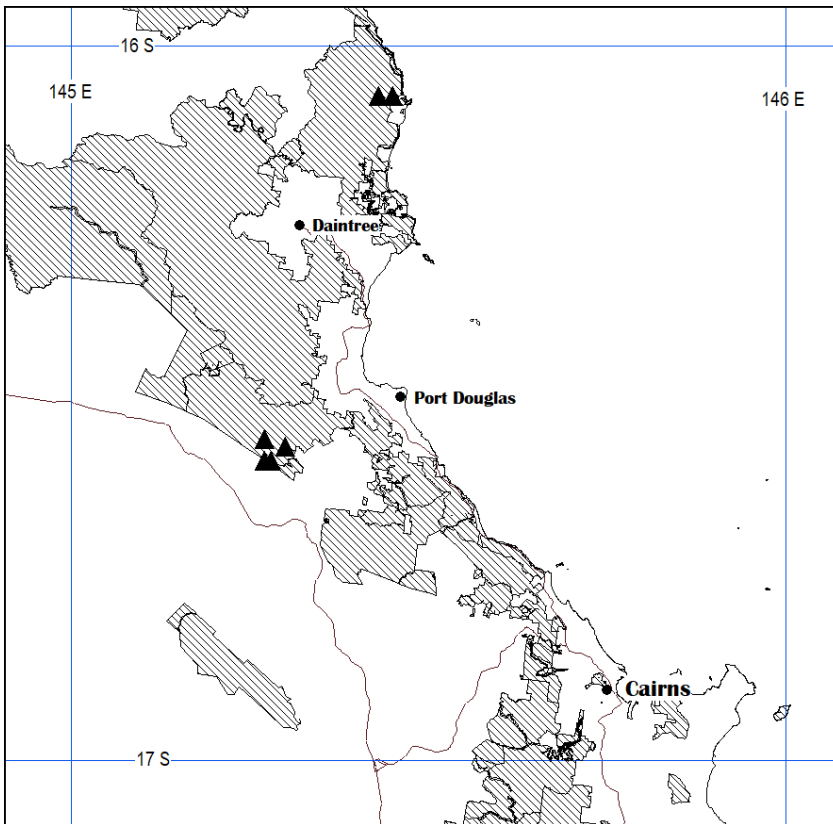
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**Map 1.** Distribution of *Endiandra inopinata*. Cross hatching indicate the conservation estate.