

A new species and a new combination in *Meiogyne* (Annonaceae) of New Guinea. Contributions to the Flora of Mt Jaya, XXI

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Summary. A new species of the genus *Meiogyne* from New Guinea is described, and the species *Oncodostigma leptoneurum* is considered better placed within *Meiogyne*. A full description of the new species is provided, together with a conservation rating and line illustration.

Key Words. Annonaceae, Indonesia, Malesia, *Oncodostigma*, Papua.

Introduction

The island of New Guinea is one of the most poorly collected tropical areas in the world, and one of the largest remaining wilderness areas on the planet (Mittermeier *et al.* 2003). Over several years the Royal Botanic Gardens, Kew has undertaken a research programme in the Mt Jaya region of the southern coast of Indonesian New Guinea, in partnership with PT-Freeport Indonesia (PT-FI), Rio Tinto (London), LIPI Indonesia through the Herbarium Bogoriense, and the then Herbarium of Cenderawasih University, Manokwari (now Universitas Negeri Papua, UNIPA). Several thousand collections were made in the PT-FI Contract of Work (COW) Mining and Project Area on the southern flank of the Sudirman Mountains, from habitats throughout the entire altitudinal range from sea level to alpine scree (see Johns *et al.* 2006). The stimulus for this paper was an examination of lowland Annonaceae collections from the region during a generic survey of the family for the 'Trees of New Guinea' project. The Annonaceae are a pantropical family with high species diversity in South-East Asia, but generic limits have been modified in a range of recent papers based on phylogenetic analysis of molecular data.

In her study of the floral morphology of the Annonaceae, van Heusden (1992) noted the similarity of six Asia-Pacific genera, namely *Ancana* F. Muell., *Chieniodendron* Tsiang & P. T. Li, *Guamia* Merr., *Meiogyne* Miq., *Oncodostigma* Diels and *Polyaulax* Backer. These genera shared the characters of inner petals adaxially basally glabrous and verrucose, and a centripetal elongation of the apical process of the innermost stamens. Subsequently van Heusden (1994), amalgamated these generic names into *Meiogyne*, recognising nine species (eight named) in

her revision, distributed from India to Australia and the South Pacific. Since then the genus has grown further through the inclusion of the genus *Fitzalania* F. Muell. (Thomas *et al.* 2012; Xue *et al.* 2014) and recognition of species previously overlooked or the splitting of some wide-ranging taxa (Turner 2009, 2012; Xue *et al.* 2014).

In New Guinea, van Heusden (1994) recognised two species. These are the widespread *Meiogyne cylindrocarpa* (Burck) Heusden and the narrow endemic *M. glabra* Heusden. Recent molecular analyses, comparing Bornean and Australian material, indicate that *M. cylindrocarpa* may actually represent more than one taxon (Xue *et al.* 2014) but as the species was described from New Guinea the name here is unlikely to change. *Oncodostigma leptoneurum* Diels was also listed by van Heusden as a dubious species. This plant is only known from the type gathering from north-east New Guinea. The holotype (leafy twigs, detached flower and detached monocarps) is in Berlin, with isotypes consisting of leafy twigs with single attached flower buds in Brussels and Paris. While not doubting that the holotype's detached flower represented *Meiogyne*, van Heusden suggested that the other material might not, perhaps being from *Goniothalamus grandiflorus* Boerl. Study of photographs of the type material, available on JSTOR plants, makes it clear that the foliage is not that of *Goniothalamus grandiflorus*, but it can be related directly to the *Meiogyne* flower via the attached buds on the isotypes and some attached remnants on the holotype. Doubt was cast on the monocarps by van Heusden because they are more or less globose, rather than the typical cylindrical shape of fruits in the genus. However globose-ellipsoidal monocarps

are certainly present in *Meiogyne* as shown by the photographs in Xue *et al.* (2014: Fig. 2). Therefore, we are of the opinion that *Oncodostigma leptoneurum*, as described by Diels, does represent a species of *Meiogyne* distinct from other members of the genus and make a new combination for it below.

***Meiogyne leptoneura* (Diels) I. M. Turner & Utteridge comb. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77146122-1>

Basionym: *Oncodostigma leptoneurum* Diels, *Bot. Jahrb. Syst.* 49: 143 (1912), as '*leptoneura*'. Type: German New Guinea [Papua New Guinea], 'Kani-Gebirge', 15 May 1908, R. Schlechter 17657 (holotype B-photo! [B_10_0272872]; isotypes BR-photo! [BR0000006955540], P-photo! [P00411064]).

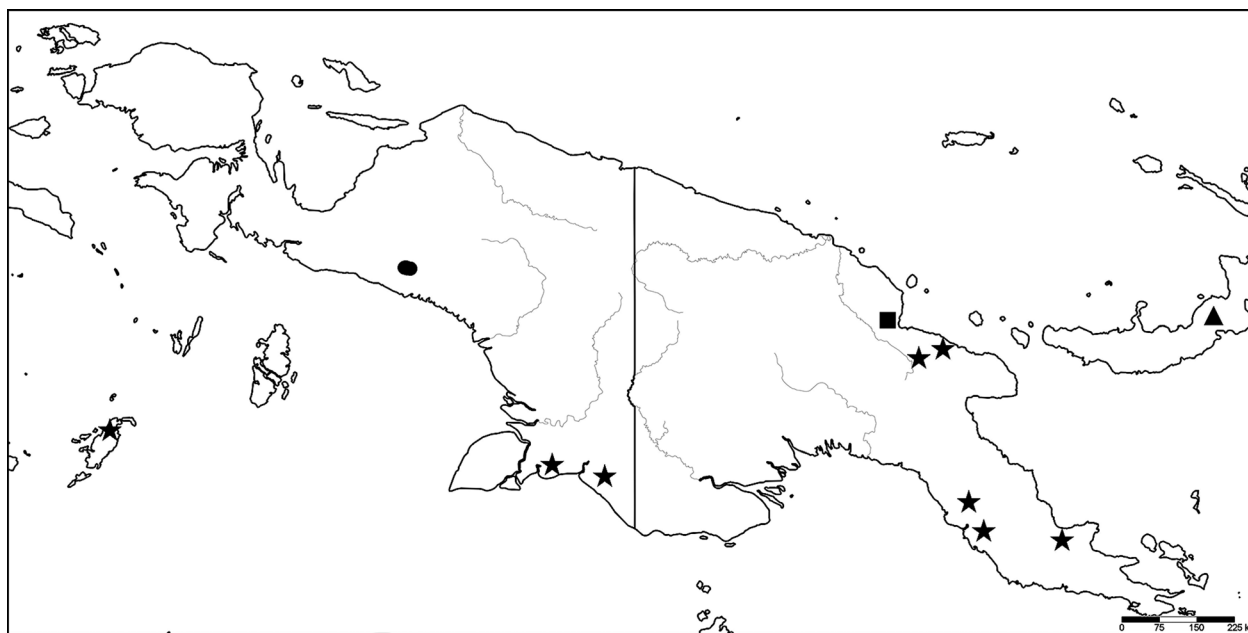
In studying collections from Mt Jaya we found material of what was clearly a species of *Meiogyne* that differed from the known species from New Guinea. The relatively long flower pedicels and yellowish petals readily distinguish it from the short-pedicelled reddish flowers of the only widespread species, *M. cylindrocarpa*. The other two New Guinea species are only known from locations very distant from Mt Jaya (Map 1) and differ from it in pedicel length (not exceeding 5 mm) and carpel number (refer to key below). We therefore describe the Mt Jaya plant as a new species.

***Meiogyne papuana* I. M. Turner & Utteridge sp. nov.**

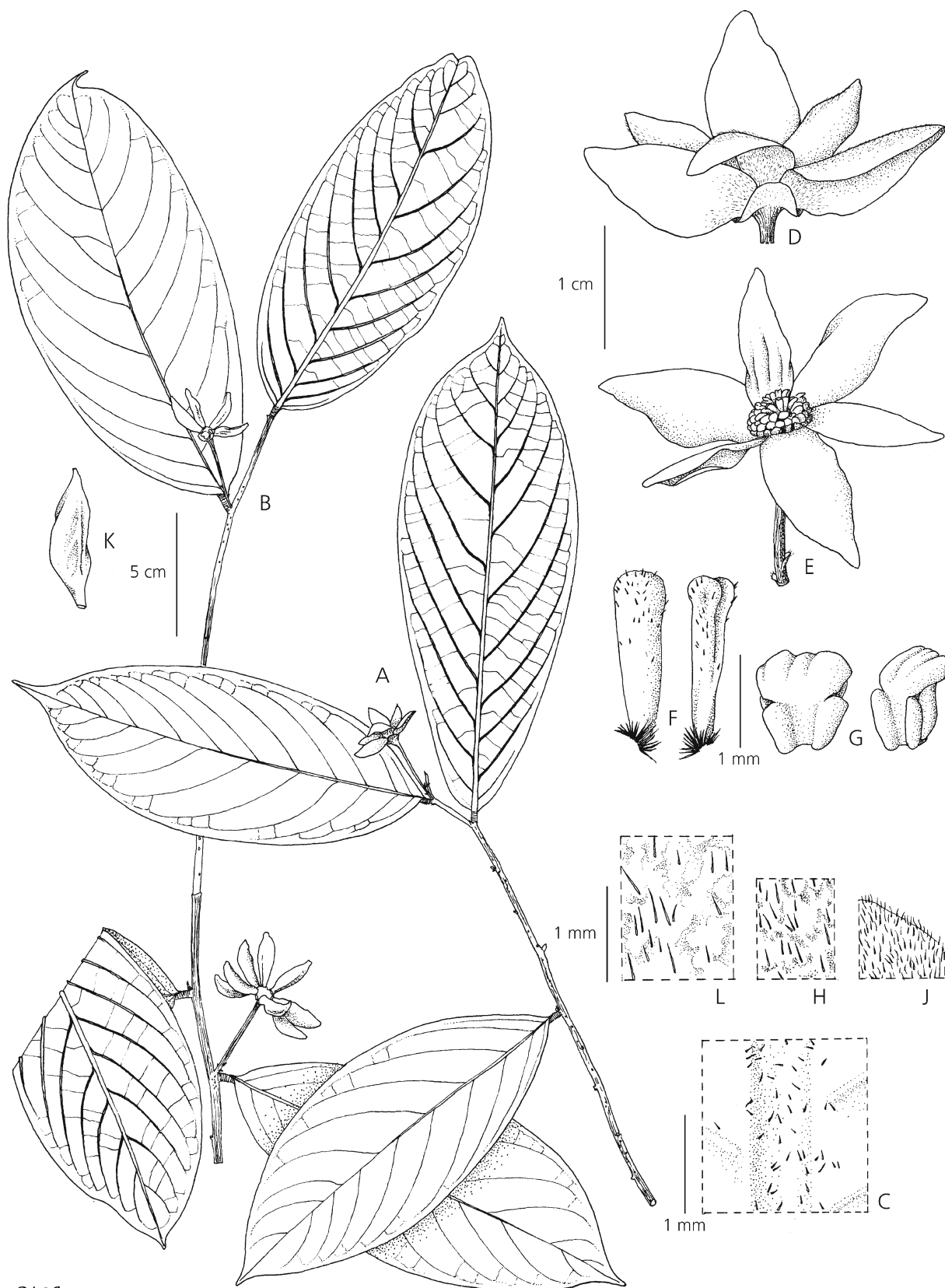
Type: Indonesia, Papua Province, Mimika Regency, PT-Freeport Indonesia Concession of Work area, Kuala Kencana, grounds of Rimba Irian Golf Club, 4°24'S, 136°52'E, 7 April 2000, *Triono* 121 (holotype 2 sheets K000260884 and K000260885; isotypes A, BISH, BO, BR, CANB, Freeport, KYO, L, LAE, MAN, MO, NSW, SAN, SING, TI).

<http://www.ipni.org/urn:lsid:ipni.org:names:77146123-1>

Tree 8–12 m tall, to c. 10 cm dbh or more. Innovations with a dense pale brown tomentum, very soon lost. Young twigs glabrous to sparsely brown hairy, drying longitudinally wrinkled, ridges well-defined, black, dark grey or brown with occasional raised, pale brown, round or longitudinally elongate, lenticels. Twigs paler with age, accentuated by crustose lichen growth. *Leaves* membranous to thinly coriaceous, drying brown to grey above, olive green below with brown veins, more or less glabrous or with hairs along midrib above, lamina ovate-lanceolate, elliptic or obovate, 8–25 × 3–10 cm, apex acuminate, acumen to at least 2 cm long, base acute, obtuse or rounded, often slightly asymmetric, midrib drying slightly sunken above, raised beneath, lateral nerves 8–12 pairs, visible from both surfaces and slightly raised, arching forward and looping obscurely within margin, basally shortly, but distinctly, decurrent to midrib, tertiary venation subscalariform, distinct and slightly raised. *Petioles* 5–7 mm long, 1–3 mm diam., drying blackish with shallow horizontal rings, channelled above. *Inflorescence* axillary, single-flowered or more



Map 1. Map of New Guinea showing the collecting localities of the four species of *Meiogyne* known from the region. Circles represent *M. papuana*, stars *M. cylindrocarpa*, square *M. leptoneura*, triangle *M. glabra*.



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Fig. 1. *Meilogyne papuana*. **A** habit of flowering branch; **B** habit of flowering branch with young fruits; **C** adaxial venation indumentum; **D** flower, lateral view; **E** flower with petals moved to show stamens and carpels; **F** carpels; **G** stamens; **H** outer petal indumentum; **J** inner petal indumentum; **K** mature monocarp; **L** fruit indumentum. All from *Triono* 121 (K-2 sheets). DRAWN BY ANDREW BROWN.

rarely paired. Flowering pedicel 1–3 cm long, c. 0.5 mm in diam., widening slightly distally, drying dark brown, minutely longitudinally striate with scattered, very short, pale hairs, 1 or 2 tiny basal bracts, medial bract located well below midpoint of pedicel, ovate-triangular, c. 1 × 1 mm, apex hairy outside; sepals broadly ovate, c. 2 × 3 mm, basally connate, greenish-yellow, drying brown, sparsely pale hairy outside, more or less glabrous within; outer petals fleshy, ovate-triangular, c. 14 × 8 mm, apex acute, base truncate, greenish-yellow drying brown, minutely verrucose abaxially, sparsely pale hairy, adaxially smoother with denser covering of short brown hairs; inner petals fleshy, ovate c. 13 × 4 mm, otherwise similar to outer petals except for verrucose region at base adaxially, rusty brown in vivo, drying dark brown; stamens c. 60 in 3 rows, c. 1 mm long, connective apex truncate; carpels to 30 or more, c. 1.5 mm long. Fruiting pedicel to 4 cm long, 3 mm diam., drying brown, longitudinally striate with pale lenticels, sparsely pale hairy; monocarps to 30 or more, when not fully mature, green in vivo (fully mature monocarps unavailable), cylindrical, to c. 5 × 1.5 cm, apex acute, drying dark brown to black, smooth, glabrous, stipe to c. 5 × 6 mm. Seeds 1 (mature seeds not seen). Fig. 1.

RECOGNITION. Differs from other members of the genus in New Guinea in the combination of the relatively long (10–30 mm) flower pedicels, the yellowish petals and the number of carpels (usually up to 30).

DISTRIBUTION. Endemic to southern Indonesian New Guinea.

SPECIMENS EXAMINED. INDONESIA. Papua Province: Mimika Regency, PT-Freeport Indonesia Concession of Work area (PT-FI COW), Kuala Kencana river crossing near plot 6, 19 Feb. 1998, 4°24'S, 136°52'E, *Dransfield* 7692 [K000260898] (A, BISH, BO, CANB, Freeport, K, L, MAN, MO, SING); *ibid.*, side road to Kali Kopi village, starting near mile post 38 on main

road, 4°25'S, 136°56'E, 85 m, 14 Jan. 1998, *Johns* 8790 [K000260877] (A, BO, CANB, Freeport, K, L, MAN); *ibid.*, Kuala Kencana near ecological plot 6, 4°24'S, 136°50'E, 75 m, 14 Jan. 1998, *Johns* 8798 [K000260892] (BO, Freeport, K, MAN); *ibid.*, golf course, 4°24'S, 136°52'E, 12 March 1999, *Johns* 9837 [K000260882] (A, BISH, BO, CANB, Freeport, K, L, LAE, MAN, SING); *ibid.*, golf course at Kuala Kencana, edge of primary forest along 17th fairway, 4°24'43"S, 136°52'32"E, 50 m, 20 Nov. 2000, *Lowry et al.* 5246 [K000260886] (BO, Freeport, K, MAN, MO); *ibid.*, Kuala Kencana, grounds of Rimba Irian Golf Club, 4°24'S, 136°52'E, 7 April 2000, *Triono* 121 (holotype 2 sheets K000260884 and K000260885; isotypes A, BISH, BO, BR, CANB, Freeport, KYO, L, LAE, MAN, MO, NSW, SAN, SING, TI).

HABITAT. Lowland forest, described as primary and very diverse; 10–85 m asl.

FIELD NOTES. “Flowers creamy-yellow” (*Dransfield* 7692); “Petals fleshy, yellow ... stamens brown; stigmas yellow” (*Johns* 9837); “Fruit deep orangish red” (*Lowry* 5246); “Corolla greenish yellow ... Monocarps immature fruit green while mature fruit bright orange.” (*Triono* 121).

CONSERVATION STATUS. Currently this species is only known from six collections from five localities in the PT-Freeport Indonesia Concession of Work area in Indonesian New Guinea. The lowland habitat in this region is undergoing conversion as more people move into the area to work for the mine, resulting in road-building, landslides and gardening/farming. However, immediately to the east of this region is the Lorentz World Heritage area — a protected area of 2.5 million ha — but, to date, no collections of this species have been made in this area. Because of the low EOO (<100 km²), and the small number of collections from the area, a preliminary conservation rating of Endangered (EN B1ab(iii)) is given here following IUCN (2012).

Key to species of *Meiogyne* recorded from New Guinea

- | | |
|------------------------------------------------------------------------------------------------------------|-------------------------|
| 1. Carpels typically many (generally more than 3, also reflected in number of monocarps) | 2 |
| 1. Carpels few (3 or less). | 3 |
| 2. Pedicel of flower 10 mm or more long, petals yellow, monocarps glabrous, drying black, apex pointed . . | M. papuana |
| 2. Pedicel of flower 7 mm or less long, petals red, monocarps hairy, drying brown, apex rounded | M. cylindrocarpa |
| 3. Carpels 1, monocarps glabrous, cylindrical with pointed apex. Known only from New Britain. . . . | M. glabra |
| 3. Carpels 2–3, monocarps tomentose, globose-ellipsoidal, apex rounded. | M. leptoneura |

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