Phytotaxa 589 (3): 283–288
https://www.mapress.com/pt/
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Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

https://doi.org/10.11646/phytotaxa.589.3.7

Bulbophyllum wiratnoi (Orchidaceae), a new species of section *Epicrianthes* from Indonesian New Guinea

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Abstract

A new species of *Bulbophyllum* sect. *Epicrianthes*, *Bulbophyllum wiratnoi* Saputra, Schuit., Mustaqim & J.Champ., is described based on specimens from Indonesian New Guinea. A detailed morphological description and diagnosis, information on distribution and ecology, a preliminary conservation assessment, and a discussion are provided. A key to species of *Bulbophyllum* sect. *Epicrianthes* in Indonesian New Guinea is also presented.

Keywords: rare, endemic, orchids, Papua Barat Daya, Sorong Nature Recreation Park

Introduction

The Bird's Head or Vogelkop Peninsula is the westernmost part of New Guinea, the richest island in the world in terms of plant species diversity (Cámara-Leret *et al.* 2020). Since 2014, several field trips have been conducted here to increase the number of scientific orchid collections in order to update our knowledge of this species-rich plant family. As a result, a number of new species from this area could be described, e.g. *Dendrobium moiorum* Saputra *et al.* (2020: 143), *D. sagin* Saputra & Schuiteman in Saputra *et al*. (2020: 193) and *D. spiculatum* Schuiteman in Schuiteman & Wanma (2017: 84).

Here, we describe a species new to science from the largest genus in the Orchidaceae, *Bulbophyllum* Thouars (1822: t. 3). The species belongs to sect. *Epicrianthes* Blume (1825: 306) Hooker (1890: 753), a section of about 41 species characterized by the patent or usually pendulous, stem-like rhizome, one-leaved pseudobulbs, 1-flowered inflorescence, and flowers having petals bearing conspicuous marginal appendages, which are often unusually shaped and may or may not be movably suspended by a short filament (Vermeulen & O'Byrne 2011). There are 20 species of this section known from New Guinea (De Vogel *et al.* 2022), all but one of them endemic, so that our finding increases the number to 21. A key for the identification of the four species of *Bulbophyllum* sect. *Epicrianthes* known from Indonesian New Guinea is also presented.

Taxonomic treatment

Bulbophyllum wiratnoi Saputra, Schuit., Mustaqim & J.Champ., ***sp. nov.*** (Figs 1–2)

Accepted by Pankaj Kumar: 14 Feb. 2023; published: 28 Mar. 2023

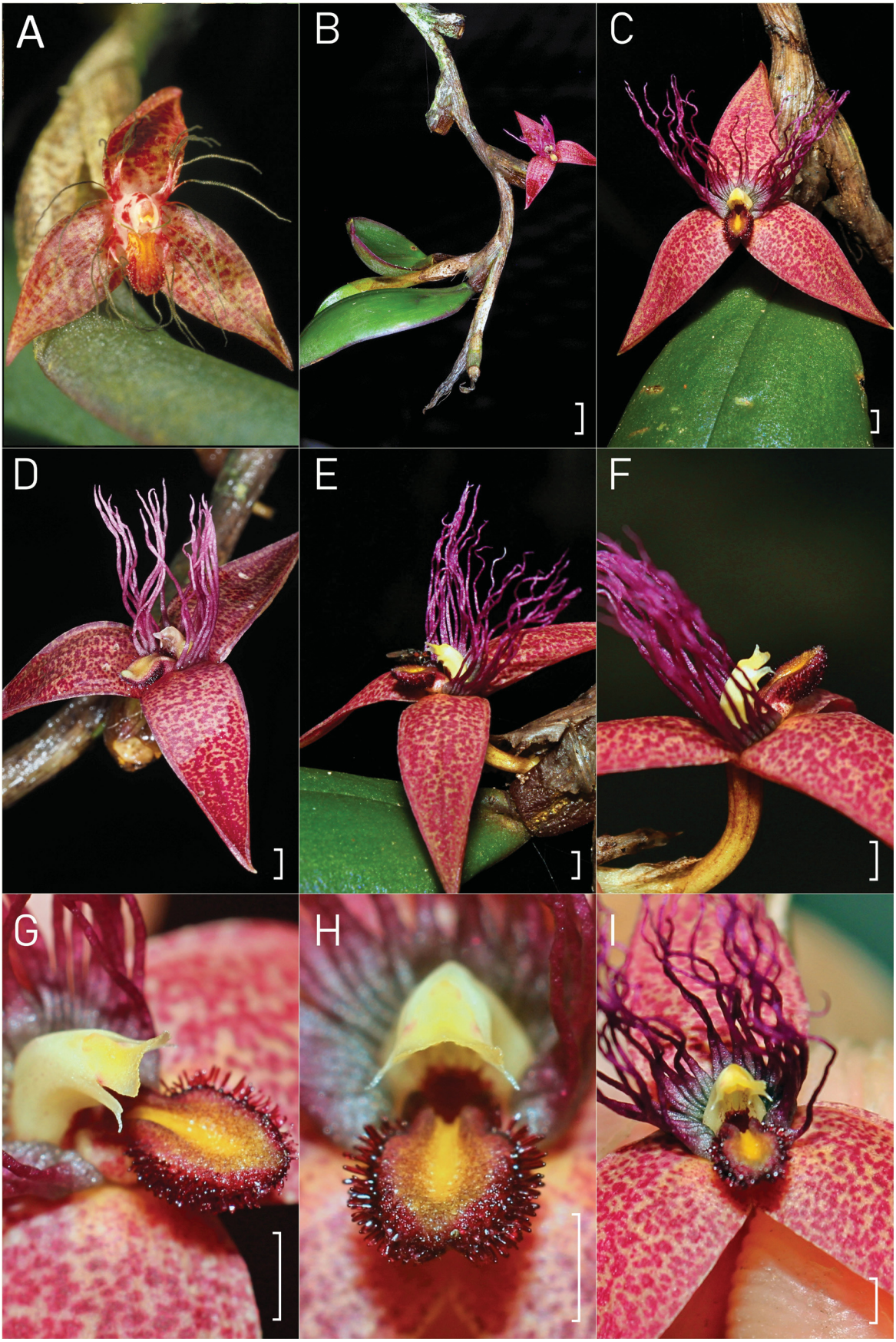

FIGURE 1. Morphology of *Bulbophyllum* johannuli and *Bulbophyllum wiratnoi*. **A.** *Bulbophyllum johannuli*. **B–I.** *Bulbophyllum wiratnoi*: **B.** Plant with inflorescence. **C–D.** Flower (front view, oblique view). **E.** Polinator. **F–H.** Lip (side view, oblique view, front view). **I.** Petal front view. Scale: B = 5 mm, C–L = 1 mm. Photographs A by Peter Jongejan, C, E, F, G, H, I by Reza Saputra and B, D by Jeffrey Champion.

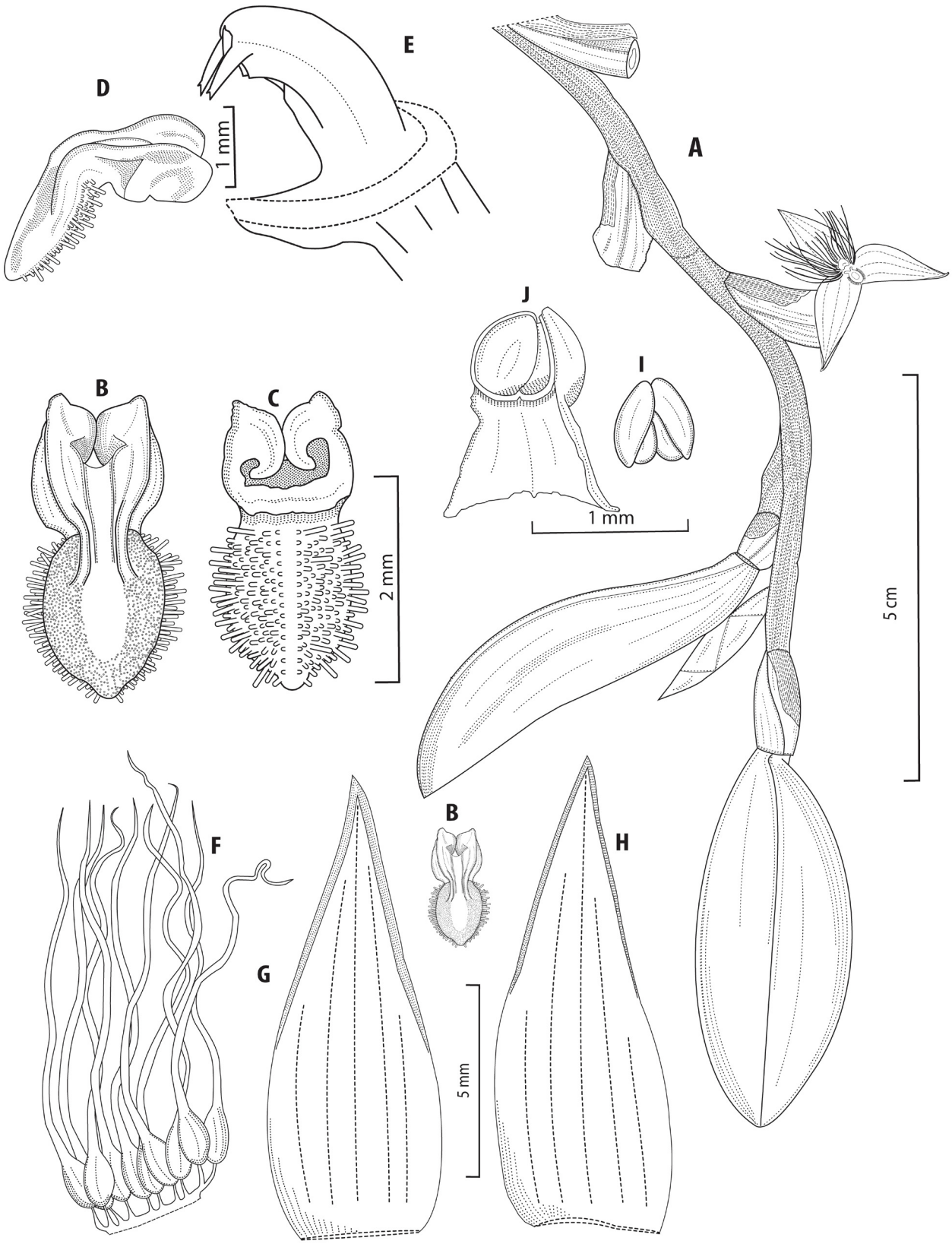

FIGURE 2. Line drawing *Bulbophyllum wiratnoi.* **A.** Plant habit. **B-D.** Lip (adaxial, abaxial, side view). **E.** Column side view. **F.** Petal with appendages. **G.** Dorsal sepal. **H.** Lateral sepal. **I.** Polinia. **J.** Anther cap. All from holotype. Illustrated by Reza Saputra.

Type:—INDONESIA. Southwest Papua Province: Kota Sorong, Sorong Nature Recreation Park, elev. 114 m, 6 June 2018, *Reza 268* (holotype: MAN!, spirit material).

Diagnosis:—This species is similar to *Bulbophyllum johannuli* Vermeulen (1982: 22–23) in the apically filiform petal appendages but

differs in having longer leaves 5.5–5.6 cm [index 2–2.3] (vs. 4.2 × 2.8 cm [index 1.5] in *B. johannuli*), larger sepals (*ca.* 12 × 4.5–5 mm vs 8 × 3 mm), petal appendages filiform from a dilated base, *ca.* 9.7-12 mm long (vs. filiform, 5 mm long, not dilated at the base), with pandurate labellum (vs. spathulate), having longer (*ca.* 0.23 mm long) and denser papillae on the abaxial side of the lip (vs. papillae *ca.* 0.14 mm long).

Pendent epiphytic herbs. Roots mostly produced close to the base of the rhizome, to *ca.* 30 cm long, 1 mm diam. Rhizome pendulous, stem-like, not or sparsely branching, to *ca.* 46 cm long, 3 mm in diameter, sections between pseudobulbs 1.5–3 cm, rhizome scales persistent. Pseudobulb ellipsoid, 9–13 × 4–5 mm. Leaves mid-green, subsessile, held almost horizontally, convex above, concave below, coriaceous, ovate to oblong, 5.5–5.6 × 2.4–2.8 cm, index 2–2.3; margin entire, glabrous, apex obtuse to acute. Inflorescence *ca.* 15 mm long, 1–flowered. Peduncle porrect, *ca.* 7 mm long, peduncle-scales 3, longest *ca.* 10 mm long. Floral bract tubular at the base, *ca.* 10 mm, acute to acuminate. Flowers opening widely, smelling like fermented cassava (called *tapai* in Indonesian), which attracts *Musca domestica* in cultivation (pers. obs. RS); sepals ochre-yellow densely spotted red-purple; petals with purple appendages that are ash grey in the dilated basal part; lip yellow, more or less suffused with red-purple, the hypochile finely spotted red-purple, the epichile with deep red-purple papillae; column creamy yellow, red-purple below the stigma; anther light yellow, pollinia golden yellow. Pedicel and ovary *ca.* 8 mm long. Dorsal sepal patent, ovate-lanceolate, *ca.* 12 × 4.5–5 mm with the widest part at 1/3 from the base, index 2.4–2.6; thick, glabrous, base broadly attached, margins entire, inrolled near the apex, acuminate. Lateral sepals patent, ovate-lanceolate, slightly oblique, *ca.* 12.8 × 4.3 mm with the widest part near the middle, index 3; thick, glabrous, base broadly attached, margins entire, inrolled near the apex, acuminate. Petals reduced, *ca.* 0.25 mm long and 2.6 mm wide strip, with 10–12 slender, marginal teeth each carrying a porrect, sessile, immobile, somewhat undulate, filiform appendage dilated and flattened at the base, *ca.* 9.7–12 mm long, *ca.* 0.2 mm in diameter in the upper part, *ca.* 0.7 mm wide at the base. Lip pandurate in outline shape, *ca.* 3.1 × 1.4 mm, index 2.2 (all without artificial spreading), contracted in middle, divided into a hypochile and an epichile; hypochile subquadrate in outline, *ca.* 1.3 × 1.2 mm, carnose, glabrous, concave abaxially, at the base with two recurved, uncinate auricles, margins erect, continuing as two ridges on the basal third of the epichile, along the median with two low, parallel, longitudinal keels terminating just below the epichile; epichile ovate, thick-carnose, slightly decurved, *ca.*1.8 × 1.1 mm, obtuse, margins entire, adaxial surface almost flat, slightly raised towards the apex, subglabrous with minute, scattered papillae, the thick sides of the epichile and its abaxial surface densely covered with small, globose papillae and longer (*ca*. 0.23 mm long) slender papillae, except for a glabrous longitudinal strip along the median on the abaxial side. Column *ca.* 2.7 mm long, slightly curved, the lateral wings near the apex with a short, wide-angled tooth, stelidia pointing downwards at right angles to the column, narrowly triangular, *ca.* 0.7 mm long, acute-acuminate, upper margin with a very short tooth; clinandrium margin obscurely 3-dentate; column-foot at right angles to the column, *ca.* 0.9 mm long. Anther quadrangular, glabrous, at the apex with a large, flat, fishtail-shaped extension, in total *ca.* 1.4 mm long, of which the extension is *ca.* 0.7 mm long and *ca.* 1.2 mm wide. Pollinia 4, strongly unequal in size, the largest narrowly ellipsoid, *ca.* 0.46 mm long, arranged in two pairs. Fruit not seen.

Distribution:—INDONESIA: Papua Barat Daya Province, Bird's Head Peninsula. Endemic.

Habitat and ecology:—Epiphyte on branches of a large tree in lowland rainforest, *ca.* 114 m asl.

Phenology:—Flowering in January and July.

Etymology:—The specific epithet honours Wiratno, prominent Indonesian conservation figure and former Director-General of Conservation of Natural Resources and Ecosystems, Ministry of Environment and Forestry, who was responsible for many breakthroughs in Indonesian conservation development. His ideas about new ways to manage conservation areas in Indonesia are already positively impacting the lives of local people, while preserving ecosystems and their biodiversity.

Conservation Status:—Data Deficient (DD) following the guidelines from IUCN Standards and Petitions Subcommittee (2022). Most species of *Bulbophyllum* section *Epicrianthes* are rare plants, known from few localities (Vermeulen & O'Byrne, 2008), although a few, such as *B. macneiceae* Schuit. & de Vogel, are more widespread. *Bulbophyllum wiratnoi* is only known from the type collection area, Sorong Nature Recreation Park, and from a cultivated specimen of unknown provenance (see below). During several thorough field surveys in five years, we only found one individual in the type locality and one individual from unknown location in Papua. Even though this species occurs in a conservation forest, its habitat in margin of Sorong City is affected by anthropogenic activities such as site disturbance, habitat fragmentation and village expansion, as well as illegal collecting activities by hunters.

Notes:—Vegetatively, *Bulbophyllum wiratnoi* resembles many other species in sect. *Epicrianthes*, but it is unique in having sessile, filiform petal appendages with a dilated base. The expanded apical part of the anther, forming a small hood, is unusual, but a similar structure is found in *B. conchophyllum* J.J.Sm. In *Bulbophyllum* sect. *Epicrianthes*, far

fewer species have been recorded from Indonesian New Guinea than from Papua New Guinea. According to a study of the literature (Cámara-Leret *et al.* 2020, De Vogel *et al.* 2022), prior to the discovery of *B. wiratnoi*, only three species of *Bulbophyllum* sect. *Epicrianthes* had been recorded from the Indonesian part compared to eighteen from the PNG part of New Guinea. These are *B. conchophyllum* Smith (1912: 133), *B. dijkstalianum* Vermeulen *et al.* (2010: 276), and *B. macneiceae* Schuiteman & de Vogel (2005: 365). A second collection of *Bulbophyllum wiratnoi*, believed to be from Indonesian New Guinea, is without a precise locality.

Additional specimen examined. INDONESIA. Indonesian New Guinea, exact provenance unknown [Jeffrey Champion cult. '*Bulbophyllum* section *Epicrianthes* No. 2'].

Key to species of *Bulbophyllum* sect. *Epicrianthes* in Indonesian New Guinea

1a. Petals with 3 appendages.....2
1b. Petals with 10 or more appendages.....3
2a. Rhizome stiffly patent. Petal appendages glabrous in apical part. Column with triangular stelidia..... ***B. dijkstalianum***
2b. Rhizome pendulous. Petal appendages hairy in apical part. Column with subulate stelidia.....***B. macneiceae***
3a. Petal appendages filiform with a dilated base, not with a stalk, sessile on the marginal teeth of the petals. Apical part of lip strongly papillose..... ***B. wiratnoi***
3b. Petal appendages obclavate with a long, filiform stalk. Apical part of lip glabrous..... ***B. conchophyllum***

Acknowledgements

RS would like to thank Marjito for bringing the rare species to our attention and for being an invaluable companion during the field surveys in Sorong Nature Recreation Park. Also thank to the West Papua Natural Reseources Conservation Agency for the permit collection of type specimen. The Cambridge Conservation Initiative through The Tony Whitten Conservation Awards 2021 awarded to RS is gratefully acknowledged for research funding.

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