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Lasiobema flavum (Leguminosae: Caesalpinioideae), a new record for the Flora of Thailand

RUTH P. CLARK[1]

ABSTRACT. *Lasiobema flavum* was until now known only from two specimens collected in Peninsular Malaysia. A specimen collected in Trang District, Thailand, in 2011 represents a new record for the country, and the first collection since 1934. A revised description, colour photos, and preliminary conservation assessment for the species are provided here.

KEY WORDS: *Bauhinia*, Cercideae, endangered, Fabaceae, limestone, *Phanera*.

INTRODUCTION

The genus *Bauhinia* L. is placed in tribe Cercideae, subtribe Bauhiniinae. This subtribe has previously been considered to be a single large, heterogeneous genus, *Bauhinia s.l.*, comprising ca 300–350 spp., or has been understood to comprise as many as 26 segregate genera (Wunderlin, 1976). Recent phylogenetic analyses (Bruneau *et al.* 2001 & 2008; Hao *et al.*, 2003; Sinou *et al.*, 2009) have provided evidence that *Bauhinia s.l.* is not a monophyletic group, due to the position of the monospecific *Brenierea* nested within it. These studies have demonstrated that *Bauhinia s.l.* should be divided into a number of segregate genera as proposed by Lewis & Forest (2005), one of which is *Lasiobema* (Korth.) Miq.

Lasiobema was created as *Bauhinia* subgenus *Lasiobema* by Korthals in 1841, and was subsequently upranked to genus level by Miquel in 1855. There are currently 15–20 species recognised within *Lasiobema* (Lewis *et al.*, 2005), ca 10 of these occuring in Thailand. *Lasiobema* is part of the group of South East Asian tendrilled lianas that also includes *Phanera* Lour. *s. s.* and *Lysiphyllum* (Benth.) de Wit. Like *Phanera*, the flower of *Lasiobema* has 3 fertile stamens, but the genus is further characterised by the receptacle being very short and turbinate or absent (de Wit 1956), and by the presence of a floral disc in most species.

Lasiobema flavum was described by de Wit (1956) based on a specimen collected in Langkawi Island on the Malay Peninsula in 1934. Subsequently, the species has not been collected, and has not been known from outside of Peninsular Malaysia until now. During fieldwork in Trang Province in 2011, a specimen of *L. flavum* was collected, which represents a new record for Thailand. Moreover, it is the first known collection of the species since the type collection in 1934.

MATERIALS AND METHODS

Collections in herbaria BKF, K and SING (Thiers, 2014) were reviewed for additional specimens, and collections at L, P and the Australian herbaria were searched using online databases. JSTOR was checked for specimen records.

Preliminary Conservation Assessments were produced by mapping localities in GeoCAT (Bachman *et al.*, 2011), generating EOO and AOO values using this program, and evaluating the distribution. The current state of the vegetation in these localities was assessed using Google Earth images.

Lasiobema flavum de Wit, Reinwardtia 3(4): 381–539. 1956.; Larsen & Larsen, Fl. Males., Ser. I, Spermat. 12(2): 442–535. 1996.— *Bauhinia flava* (de Wit) Cusset, Adansonia Ser. II, 6: 278. 1966.

[1] Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK.

Type: Peninsular Malaysia, Kedah State, W coast, P. Dayang Bunting, Pulau Langkawi, 26 Nov. 1934, *Henderson s.n.*, *Sing. Field 29.146* (holotype **K**; isotypes **K**, **L**, **SING**). Fig. 1.

[Measurements in square brackets represent those presented by other authors, these values not observed by the present author.] Secondary veins are those parallel to the central vein.

Climber, to ca 7 m long, with tendrils arising in leaf axils or on lower parts of inflorescence axis. *Stipules* linear, oblong, ca 0.5 × 1 mm. *Stems* sparsely orange tomentose, glabrescent. *Petiole* 1.5–7 cm, sparsely orange tomentose, glabrescent. *Leaves* suborbicular, bilobed 1/3–2/3, apex of lobes rounded to acute, base shallowly to deeply cordate; glabrous both surfaces, or orange tomentose between base of veins on lower surface, and on lower part of veins; 6–16 × 6–17 cm; secondary veins 8–10, slightly raised on both surfaces. *Inflorescence* a raceme or panicle, axillary or terminal, the racemes alternate; racemes to 17 cm, whole inflorescence to 30 cm; axis densely golden-orange tomentose when young, hair becoming sparse when older. *Pedicel* 3–5 mm, golden-orange tomentose. *Bracts* single at base of pedicel, narrowly triangular, 1–3 mm, outer surface golden-orange tomentose with glabrous patches, inner surface glabrous. *Bracteoles* 2, opposite or subopposite, midway along or lower on the pedicel, narrowly triangular, 1–1.5 mm, outer surface tomentose, inner surface glabrous. *Bud* ovoid, ca 3 × 2 mm. *Calyx* splitting into 5 lobes, these reflexing in mature flower, ovate to elliptic, ca 4 × 2 mm, densely fawn or golden pubescent on outer surface, inner surface with few hairs, striate. *Receptacle* absent. *Petals*: Median petal blade suborbicular, ca 7 × 6 mm, plus claw 1.5 mm; lateral petals obovate, 5–7 × 3–6 mm, tapering to and including claw 1–2 mm; all petals sparsely orange hairy on outer surface, glabrous on inner surface. *Fertile stamens* 3, [6–] 11–13 mm, glabrous, anthers [0.5–] 2 mm. *Staminodes* 2–7, 0.5–1.5 mm, glabrous. *Ovary* arising below disc, through cleft in disc, 3–5 mm, with stipe 1–2 mm, style ca 5 mm, all glabrous; ovules 6–7; stigma small, capitate, glabrous. *Disc* fleshy, corrugated, ca 2–3 mm diameter × 1 mm deep. *Fruit* dehiscent, oblong, 6–8 × 1.5 cm, glabrous. *Seeds* 3–6, flat, orbicular, ca 1 cm diameter.

Field notes: Flower pale yellow, stamen filaments and ovary pale green, floral disc dark yellow; flowers sweetly scented.

Thailand.— PENINSULAR: Trang, Rassada [Wat Nong Si Chan, 07º 59'53.8"N 99º 44'11.1"E, 165 m, 17 Nov. 2011, *Clark et al. 252* (**K**, **QBG**)].

Additional material examined.— Peninsular Malaysia:

Perlis: Tebing Tinggi, Mar. 1910, *Ridley 15109* (**SING**).

Distribution.— Peninsular Malaysia (Langkawi, Perlis).

Ecology.— Limestone hills, in open areas. 0–165 m.

Phenology.— Flowering in November; fruiting in March.

Preliminary Conservation Assessment.— This species is known from only 3 specimens, collected in 1910, 1934, and 2011, with one unconfirmed (sterile) specimen collected in 1941. It is known from 3 localities, Langkawi Island and Perlis in Peninsular Malaysia, and Trang Province in Thailand. The two most distant localities (Langkawi and Trang), are ca 180 km apart, indicating that the species has a very restricted distribution.

The Extent of Occurrence (EOO) of the species is 4,158.801 km^2, and the Area of Occupancy (AOO) is 12.000 km^2. According to both of these values, the species can be considered to be Endangered (EN) according to IUCN Criteria B1 and B2.

The rarity of collection events, coupled with the fact that the species appears to occur only on limestone across a limited range in Peninsular Thailand and Malaysia, suggests that the species may be at risk of extinction. Some limestone forest is still present on Langkawi Island (Google Earth; B. Chuan pers. comm.), and the population of *L. flavum* there may still exist, despite no collections of the species having been made on this island since 1934. The majority of the state of Perlis is covered by agricultural and urban land use; however, some forest remains in the vicinity of Tebing Tinggi, so the population of *L. flavum* in this locality may be extant. The population of the species on the

limestone hill at Wat Nohng Si Chan is not known to be currently threatened. However, it is noted that karst limestone hills in Thailand are subject to quarrying, (Clements *et al.*, 2006), which constitutes a major threat to these habitats, and may impact this locality in the long term.

Taxonomic Notes: One specimen at SING herbarium is determined as *cf. L. flavum* (det. K. & S.S. Larsen, 1980): Corner, E.J.H., Peninsular Malaysia, Kedah State, Tasek Dayang Bunting, Langkawi Island, 17 Nov. 1941 (SING). This specimen is sterile, and the leaf is bilobed to the base, whereas that of *L. flavum* is bilobed 1/3–2/3, and the leaf apices are acuminate, rather than rounded or acute. It could be, as suggested by K. & S.S. Larsen, a basal shoot, which may have a leaf form differing from that of mature branches; however, this is uncertain, and the identity of this specimen is therefore doubtful, hence it is not included in the current description.

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Figure 1. *Lasiobema flavum* (specimen *Clark et al. 252*): A. Leaves and habit; B. flowers. Photos by Piyakaset Suksathan.

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