**Erythrina calcicola** sp. nov. (Fabaceae) from Thailand

NAIYANA TETSANA¹* & MANOP POOPATH¹

**ABSTRACT**

In the context of an ongoing survey of the limestone ecosystem in Phu Khiao-Nam Nao Forest Complex in Thailand, we describe and illustrate a new species, *Erythrina calcicola* Tetsana & Poopath. Morphologically, it is particularly similar to *E. stricta* Roxb. which is distributed in mainland Southeast Asia, but differs in the shape and size of the leaflets, size of the flowers and fruits, and shape of the calyx and the standard blade. Currently, *E. calcicola* is only known from Tham Pha Sawan temple, Loei province, northeastern Thailand.

**KEYWORDS**: Phaseoleae, *Erythrina*, limestone, northeastern Thailand, conservation status. Published online: 5 June 2018

**DESCRIPTION**

*Erythrina calcicola* Tetsana & Poopath, sp. nov.

Similar to *E. stricta* Roxb., but distinguished by the shape of the leaflets, flowers and fruits; leaflets tri-lobed, rarely unlobed (unlobed in *E. stricta*), calyx cup-shaped or campanulate (spathaceous in *E. stricta*), standard ovate (elliptic-lanceolate in *E. stricta*) and fruits cylindric-oblong and constricted between the seeds (strap-like and not constricted between the seeds in *E. stricta*). Type: Thailand, Loei, Pha Khao district, Tham Pha Sawan temple, 500 m, 23 Mar. 2017, Tetsana, Hemrat, Suwannachart & Kiewbang 1274 (holotype: BKF!; isotypes BKF!, SING!). Figs. 1–2.

Tree, 7–12 m tall, trunk straight. *Bark* smooth to slightly rough, thorns scattered, greyish-brown to light brown, 0.5–1 cm long. *Stipules* triangular-lanceolate, 3–4 mm long, caducous. *Leaves* tri-foliolate, membranous or herbaceous, young leaflets densely covered with simple hairs, glabrescent; petiole 4–6.5 cm long, rachis 2–3 cm long, with a few thorns; petiolules 0.4–0.6 cm long; terminal leaflet rhomboid, 2.5–4.5 × 3–5.5 cm, apex rounded, tri-lobed, rarely unlobed, base cuneate, secondary veins 4–6(–7) pairs; lateral leaflets obliquely rhomboid, 2.5–4.5 × 2–4.5 cm, apex round, tri-lobed,

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¹ Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation, Chatuchak, Bangkok, 10900, Thailand.

* Corresponding author: n_tetsana@windowslive.com

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Figure 1. *Erythrina calcicola* Tetsana & Poopath: A. habit; B. inflorescence; C. flower; D. calyx and dissected calyx; E. standard; F. wings; G. keels; H. diadelphous stamens; I. pistil; J. pod. All from *Tetsana et al. 1274*. Drawn by O. Kerdkaew.
rarely unlobed, base cuneate, secondary veins 3–4 pairs. Inflorescences axillary, erect, pseudoracemes, 10–20 cm long, dense, 15–20-flowered; peduncle and rachis terete, reddish-brown, usually densely covered with simple hairs; floral bracts caducous. Flowers without any distinct scent, 3.5–4 cm long; calyx cup-shaped or campanulate, 2-lobed, brownish-green, 0.7–0.8 cm long; standard ovate, bright red, 3–3.5 × 2–2.3 cm; wings obliquely obovate, reddish-green, 0.5–0.6 × 0.3–0.4 cm; keels obliquely ovate, reddish-green, 1.2–1.3 × 0.6–0.8 cm; stamens 10, diadelphous, (2.1–)2.5–2.8 cm long; pistil suboblong, 2.8–3 cm long, ovary covered with long appressed hairs, style slightly glabrous; ovules ca 3. Pods cylindric-oblong, 5–10 × 0.8–1 cm, acuminated, constricted between the seeds, densely covered with simple hairs; seeds 1–2(–3), glossy, ellipsoid or bean-shaped, 1.2–1.5 × 0.5–0.7 cm.


Figure 2. *Erythrina calcicola* Tetsana & Poopath in its natural habitat at Tham Pha Sawan temple, northeastern Thailand. A. habitat; B. bark; C. thorny branches; D. leaf arrangement; E–G. inflorescences and flowers in various views; H. pods; I. immature seed. Photos by N. Tetsana, 23 March 2017.
Distribution.—Endemic to northeastern Thailand, known only from the cited localities.

Ecology.—Limestone hills, ca 500 m, usually on hilltops rather than the steep cliff sides.

Phenology.—Flowering: February–March; fruiting: March–April.

Vernacular.—Thong lang hin pun (ทองหลางหินปูน).

Etymology.—The specific epithet, calcicola (limestone), refers to the habitat.

IUCN conservation assessment.—This new species is only known from an area < 500 km² in Loei province at Tham Pha Sawan temple, and thus may be threatened by local construction projects and tourist activities. We therefore suggest the conservation assessment ‘Vulnerable’ (VU B2ab(iii)) (IUCN, 2001).

Notes.—The differences between the new species and *E. stricta* are outlined in Table 1. The Tham Pha Sawan temple and adjoining Pha Ngam Forest Park, Huai Lao waterfall Forest Park and Phu Pha Man National Park form a large isolated massive limestone hill complex in the middle part of northeastern Thailand. It is possible that *Erythrina calcicola* may be endemic to this narrow area, which is similar to a number of other newly described species, e.g., *Cycas petrae* A.Lindstr. & K.D.Hill (Lindstrom & Hill, 2003), *Spatholirion calcicola* K.Larsen & S.S.Larsen (Larsen & Larsen, 2003), *Impatiens ruthiae* Suksathan & Triboun (Suksathan & Triboun, 2009), *Dracaena jayniana* Wilkin & Suksathan (Wilkin et al., 2012), *Arisaema nonghiense* Klinrat. & Yannawat (Klinratana et al., 2014), *Toona calcicola* Rueangr., Takane & Suddee (Rueangruea et al., 2015), *Dischidia kerrii* Kidyoo & Suddee (Kidyoo & Suddee, 2016).

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Table 1. Morphological differences between *Erythrina calcicola* sp. nov. and *E. stricta*. Information on the former is based on specimens cited in this study and on in situ examination of additional individuals in Tham Pha Sawan temple. Information on *E. stricta* is based on Roxburgh (1832), Adema (1996), and Sa & Gilbert (2010).

<table>
<thead>
<tr>
<th>Character</th>
<th><em>E. calcicola</em></th>
<th><em>E. stricta</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>leaflet shape</td>
<td>rhomboid, obliquely rhomboid</td>
<td>broadly triangular, rhomboid, broadly reniform-oblolate</td>
</tr>
<tr>
<td>leaflet outline</td>
<td>tri-lobed, rarely unlobed</td>
<td>unlobed</td>
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<tr>
<td>leaflet size (cm)</td>
<td>2.5–4.5 × 2–5.5</td>
<td>7–19 × 7–24.5</td>
</tr>
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<td>petiole length (cm)</td>
<td>4–6.5</td>
<td>12–15</td>
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<tr>
<td>flower length (cm)</td>
<td>3.5–4</td>
<td>5</td>
</tr>
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<td>calyx shape</td>
<td>cup-shaped, campanulate</td>
<td>Spathaceous</td>
</tr>
<tr>
<td>standard shape</td>
<td>ovate</td>
<td>elliptic-lanceolate</td>
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<tr>
<td>standard size (cm)</td>
<td>3–3.5 × 2–2.3</td>
<td>3–4.5</td>
</tr>
<tr>
<td>fruit shape</td>
<td>cylindric-oblong/ constricted between the seeds</td>
<td>strap-like/ not constricted between the seeds</td>
</tr>
<tr>
<td>fruit size (cm)</td>
<td>5–10 × 0.8–1</td>
<td>7–12 × 0.7–1.5</td>
</tr>
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REFERENCES


