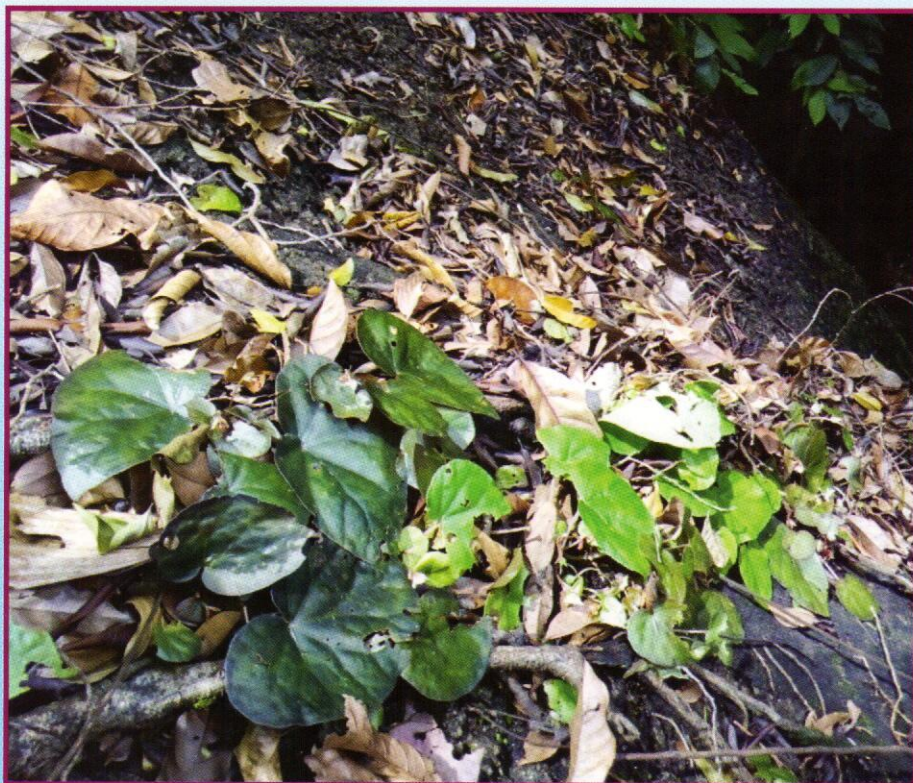


# BEGONIA PHOENIOGRAMMA RIDL. IN BUKIT TAMPIN

## The first record for Negeri Sembilan

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Two colour morphs of *Begonia phoeniogramma* – one with leaves which are bluish green above and magenta below (left), and the other with light green leaves (right).

A new record of *Begonia phoeniogramma* (Begoniaceae) for Negeri Sembilan was made when I first collected the species in 2008, from Bukit Tampin recreational forest in the Tampin Forest Reserve. At that time, I found only two tiny plants growing on a single rock in a tributary of Sungai Tampin, with one of them in flower. I trekked along the stream but couldn't find any other plants nearby, and wondered where the main population was. It was not until recently in June 2016, when I was on a trip to monitor the population of *B. tampinica* in the same area, that I made this discovery. I had mistakenly deviated from the usual trail and ended up at a massive boulder sitting on the hill slope. On top of the boulder, there was a clump of about 20 plants of *B. phoeniogramma*, partially covered with leaf litter. Many more seedlings were growing on the vertical rock face. The population has two morphs: one with concolourous light green leaves, and the other with leaves which are bluish green above and magenta underneath. Both morphs lack spots. The small flowers (c. 1.5 cm diameter) are pretty – the white tepals are ornamented with red stripes (a distinctive character for the species) and the stamens and stigmas are yellow.

From my personal observations on the flowering of a potted individual, a male flower opened first, followed by a female flower, nine days after the male flower had dropped off. This temporal gap between male and female flowering in an inflorescence is a strategy to avoid selfing and promote outcrossing. However, self-compatibility or selfing within the same plant was possible when another male flower of a new inflorescence, opened one day after the female flower of the first inflorescence was receptive. In the absence of pollination, the male flowers lasted for 7–9 days before they abscised, whereas the female flower was open for a week. Both male and female flowers were wide open in the morning, half closed in the evening and fully open again the next morning. In the wild, the flowers are visited by stingless bees, which presumably are also the pollinators.



Close-up of the plant and male flowers.



Female flower

The discovery of *B. phoeniogramma* in Tampin marks its southernmost distribution. Prior to this collection, the species was mainly found in the Gombak area (i.e., Ampang, Batu Caves, Bukit Lagong, Gabai and Genting Bidai), Sungai Lalang and Sungai Buloh in the state of Selangor (Kiew, 2005). It was never recorded outside Selangor until a specimen was collected from Bentong in 2006, which represents a new record for Pahang (KEP herbarium database, FRIM). The population at Bukit Lagong has two colour morphs similar to that of Tampin, whereas, the one at Batu Caves has spotted and unspotted leaves. The conservation status of the species in Malaysia is near threatened (NT), caused by a combination of threats from human settlements and tourism (Malaysia Plant Red List assessment, unpublished data).

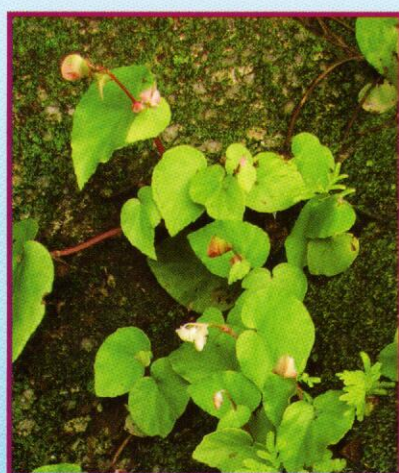


To the untrained eye, *B. phoeniogramma* may easily be confused with *B. integrifolia* which looks very similar (Kiew, 2005). *Begonia integrifolia* differs in not having prominent red stripes on the tepals. The close morphological similarities in both species suggests that they may share the same ancestor, but genetic studies would be needed to elucidate whether they are distinct species.

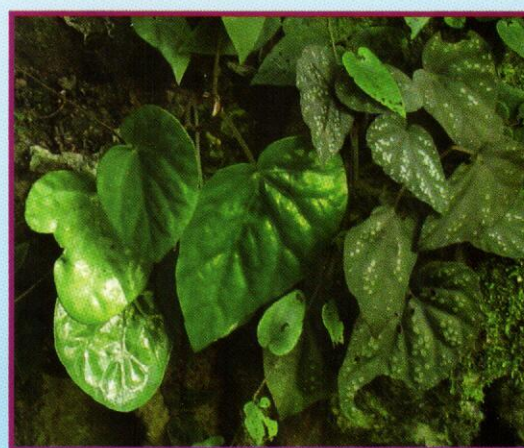
For now, *B. phoeniogramma* joins the list of a treasure trove of rare or threatened species recorded from the Bukit Tampin area (Table 1). Among them is *B. tampinica*, which is critically endangered and endemic only to Bukit Tampin. *Begonia tampinica* also shares the same niche with *Argostemma tenue*, another narrow endemic (see back issue 14, 2011). All these three species are highly niche specific and localised (they are found within a short stretch of 500 m of the riverine system). Hence, it is highly recommended that Bukit Tampin be gazetted as a High Conservation Value Area (HCVA) to protect and conserve these highly sensitive and vulnerable species.



*Begonia phoeniogramma* from Bukit Lagong, Selangor. Left: Female flower and bud with inferior ovaries. Right: The dark-leaved morph with reddish male flowers.



*Begonia integrifolia* in Langkawi, Kedah (left) and Bintang Hijau, Perak (right).



Unspotted (left) and spotted (right) leaves of *B. phoeniogramma* from Batu Caves, Selangor.

**Table 1. Rare or threatened species found in Bukit Tampin and nearby areas.**

Locality	Family	Species	Conservation Status*
Tampin F.R.	Thymelaeaceae	<i>Aquilaria malaccensis</i>	VU <sup>1,2</sup>
Tampin F.R., Bukit Tampin	Begoniaceae	<i>Begonia phoeniogramma</i>	NT <sup>1</sup>
Tampin F.R., Bukit Tampin	Begoniaceae	<i>Begonia tampinica</i>	CR <sup>1</sup> , endemic
Tampin F.R., Bukit Tampin	Rubiaceae	<i>Argostemma tenue</i>	unknown
Tampin F.R., Gunung Tampin	Memecylaceae	<i>Memecylon floridum</i>	LC <sup>1</sup> , VU <sup>2</sup>
Tampin F.R., Gunung Tampin	Myristicaceae	<i>Knema hookeriana</i>	VU <sup>2</sup>
Tampin Road	Dipterocarpaceae	<i>Anisoptera laevis</i>	VU <sup>3</sup> , EN <sup>2</sup>
Tampin	Dipterocarpaceae	<i>Anisoptera megistocarpa</i>	VU <sup>3</sup> , CR <sup>2</sup>

\* CR: critically endangered, EN: endangered, VU: vulnerable, NT: near threatened, LC: least concern <sup>1</sup> Malaysia Plant Red List, <sup>2</sup> IUCN Redlist, <sup>3</sup> Chua *et al.*, 2010.

### Acknowledgement

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### References:

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