

A NEW SPECIES OF *STROBILANTHES* (ACANTHACEAE) FROM WESTERN THAILAND

J. R. I. Wood^{1*} and *R. W. Scotland*²

ABSTRACT

A new species from Kaeng Krachan National Park in Thailand, *Strobilanthes phyllocephala* J. R. I. Wood & R. W. Scotland, is described and illustrated. The role of important collectors like J. F. Maxwell and Kai Larsen in finding *Strobilanthes* species is highlighted and attention is drawn to the importance of good field observation to enable understanding of the unusual pletesimal flowering pattern characteristic of many species in this genus.

Keywords: endemic species, flowering patterns, J. F. Maxwell, Kaeng Krachan National Park, Kai Larsen

INTRODUCTION

There are approximately 60 species of *Strobilanthes* Blume recorded from Thailand, making it the largest genus of Acanthaceae in the Thai flora. As elsewhere, *Strobilanthes* species are characteristic of forest areas with a seasonal monsoon pattern of rainfall. They are largely absent from the plains and are noticeably rarer in areas of true rainforest. Consequently they are most diverse in the hill areas of northern and western Thailand, particularly along the main mountain chain separating Thailand from Myanmar. They are present but less diverse in the forests of peninsular Thailand. By our estimation there are now eleven species endemic to Thailand all from the western part of the country with a marked concentration in the Chiang Mai area. To this number could be added several near endemics restricted to the mountains separating Myanmar from Thailand but present in both countries.

It was fortunate for our studies that J. F. Maxwell (Max to his friends) was based in Chiang Mai as he was ideally placed to collect *Strobilanthes* species and to encourage his students and associates to do the same. Over the years collections were made of nearly all the unusual *Strobilanthes* species found in this region. Some of these were new to science and endemic to Thailand, including *S. bilabiata* J. R. I. Wood, *S. trichantha* J. R. I. Wood and *S. maxwellii* J. R. I. Wood, all three collected by Maxwell himself at least once, and *Strobilanthes fragrans* J. R. I. Wood found by one of his associates, Martin van der Bult. The type of *Strobilanthes maxwellii* was, in fact, collected by Maxwell's wife, although we were not aware of Saijai's status when we described the species. However, in naming the plant after Maxwell, we did so as a tribute to the number and quality of his collections and their associated field notes. We wrote: "This species is named after J. F. Maxwell, who has made numerous collections of

¹ Department of Plant Sciences, University of Oxford, South Parks Road, Oxford, OX1 3RB, United Kingdom.

*Corresponding author. E-mail: jriwood@hotmail.com

² Honorary Research Associate, Royal Botanic Gardens, Kew Richmond, Surrey, TW9 3AB, United Kingdom.

Received 7 June 2016; accepted 27 October 2016.

Strobilanthes and other species from northern Thailand, all of high quality and with outstanding field data. His material has been a delight to work with.” (WOOD & SCOTLAND, 2003: 103–104).

The notes that accompanied the collections were often particularly valuable. Information about mass flowering in *Strobilanthes* has been recorded from many countries including Sri Lanka, India, Bhutan, Myanmar (Burma) and Indonesia but information from Thailand was scant and limited to a few, somewhat contradictory comments on herbarium labels. Inevitably the first detailed comments came from Maxwell (quoted from BENNETT *ET AL.*, 2008): “I have some more notes about *Strobilanthes echinata* [Nees] from Kow Yai. I collected flowers of this species in April 2003 and fruits in July 2003. From that time the plants, all of them in the entire forest, slowly died and by early 2004 there was no trace of them ... a very common species there. This week [28 July 2004] I was quite pleased to find seedlings of *S. echinata* all over the place. The interesting point of this *S. echinata* is that it was known to flower profusely in April 1995 and nothing else was noted or collected until May 2002 when only a few individuals flowered. ... It is apparent that there is a ca. 10 years interval from the time of flowering/fruiting until the next flower show.” Sadly no further information has emerged about a phenomenon which must be reasonably common in this genus in Thailand; the need for field observations by other botanists in Thailand cannot be over-emphasised.

Maxwell not only provided excellent field notes, he was also very willing to help secure additional material when needed. Amongst plants sent to us in 2001 were specimens of an unknown shrubby species of Acanthaceae superficially resembling *Strobilanthes* but with spurred anthers. Examination of its pollen showed that it was of a type unknown in the Acanthaceae. We were, therefore, eager to get fresh material for molecular sequencing so that it could be correctly placed in the family. Maxwell came to the rescue, going back to the original site, the Karen village of Mae Jawn, and securing good material allowing us to place the genus in the *Ruelliae* as sister to *Pararuellia* Bremek, and leading to the description of a new monotypic genus, *Diceratotheca* J. R. I. Wood & R. W. Scotland, endemic to Thailand (WOOD *ET AL.*, 2012).

In highlighting the role of J. F. Maxwell, we do not wish to undervalue the role of other botanists in adding to our knowledge of *Strobilanthes*. One such was Kai Larsen, who was the collector in 1961 of another species endemic to Thailand, *Strobilanthes decumbens* (Bremek.) J. R. I. Wood, originally described in the genus *Larsenia* Bremek. It was, therefore, not surprising that in 1995 he, his wife Supee and his group also found a further new species which is described below. This was discovered in Kaeng Krachan National Park and is the first record of a *Strobilanthes* we are aware of from this national park, although others might be expected to occur. A second record of the same species emerged recently and, as the park is relatively well-known the existence of only two records separated by 18 years strongly suggests that it is a plietesial species flowering at approximately nine-year intervals. However, this needs to be confirmed by a botanist studying the flora of the park on a regular basis. As both Larsen and Maxwell are now sadly deceased, the task of studying the populations of this species and its flowering patterns lies with a new generation of botanists. We look forward to seeing a paper documenting these in the not too distant future.

Strobilanthes phyllocephala J. R. I. Wood & R. W. Scotland, **sp. nov.**
(Figs. 1–3)

Type: Thailand: Phetchaburi Province, Kaeng Krachan National Park, 12°48'N 99°24'E, 400–600 m, 6 Aug. 1995, *K. Larsen, S. S. Larsen, C. Tange, R. Moran & P. Puudjaa* 45466 (holotype K, isotypes probably at AAU, BKF, PSU).

Description.—Anisophyllous perennial herb of unknown height, the indumentum where present of rather stiff, slightly bent, large-celled white hairs. *Stems* bifariously pubescent, quadrangular, somewhat sulcate. *Leaves* unequal in each pair, the smaller about half the size of the larger, petiolate, 2–10 × 1.5–5.5 cm, ovate or ovate-elliptic, apex shortly acuminate, base asymmetric, cuneate and decurrent onto the petiole, margin obscurely crenate, shortly ciliate, veins 6–7 pairs, both surfaces with prominent cystoliths, adaxial surface glabrous apart from pubescent midvein; abaxial surface paler, pubescent especially on the veins; petioles up to 5 mm long, not clearly demarcated from decurrent leaf base, pubescent. *Inflorescence* of foliose heads borne on axillary branchlets 5–5.5 cm long; heads 2–4-flowered, sessile or borne on pubescent peduncles < 10 mm long; outermost bracts entirely leaf-like; middle bracts 15–20 × 4–5 mm, broadly lanceolate, obtuse, falcate, the margin obscurely crenate, pubescent especially on the veins and basal part; inner bracts 10–12 × 4–4.5 mm, ovate-bottle-shaped with an elongate, obtuse apex, pubescent especially on the veins and margins; bracteoles 7 × 0.5 mm, linear-oblongate, obtuse, pubescent; *calyx* subequally 5-lobed to the base, lobes 6–7 × 0.5 mm, linear, obtuse, not obviously accrescent, pubescent abaxially especially along midvein and near apex, cystoliths prominent; *corolla* ca. 2.6 cm long, pale blue, exterior shortly pubescent, interior glabrous except for hairs retaining the style, tube subcylindrical for ca. 5 mm, up to 3 mm wide, then bent nearly 90° and abruptly widened to 12–14 mm at mouth, lobes 5, ovate, rounded, ca. 5–6 mm long and broad; *stamens* 4, didynamous, inserted at base of inflated part of corolla, all fertile, two longest shortly exserted; filaments shortly pilose, shorter pair 2.5 mm long, longer pair 7 mm long; anthers erect, oblong, 1.75–2.25 × 0.5 mm, mucicous; *pollen* 65 × 35 μm, prolate, 3-porate, ca. 14-ribbed, bireticate with scalariform patterning (Fig. 3), most closely resembling that of *S. disparifolia* J. R. I. Wood (WOOD & SCOTLAND, 2009: 29) and not unlike Type 4 in the Flora of China (HU ET AL., 2011: 382); *style* 22 mm, thinly pilose with gland-tipped hairs, shortly exserted; ovary ca. 2.5 mm, comose. *Capsule* 7 × 3 mm, narrowly oblong-elliptic, comose, 4-seeded; *seeds* suborbicular, flattened, pilose with mucilaginous hairs (Figs. 1 and 2).

Recognition.—*Strobilanthes phyllocephala* does not appear to be closely related to other Thai species of *Strobilanthes*. It would appear at least superficially to resemble *S. yunnanensis* Diels and *S. cyphantha* Diels from Yunnan in having tight subcapitate inflorescences subtended by entirely leaf-like bracts, a subequally 5-lobed calyx with linear, pubescent segments and a distinctly bent corolla. From both of these species it is readily distinguished by the smaller corolla and the exserted stamens and style. The pollen somewhat resembles that of *S. cusia* (Nees) Kuntze but there is little other similarity between the two species.

Etymology.—The epithet *phyllocephala* means leafy head and refers to the distinctive inflorescence of this species.

Habitat.—Locally abundant on a dry slope in evergreen forest along a small stream and along a road.

Distribution.—Only known from the type collection and the following from almost the identical location: Thailand: Phetchaburi Province, Kaeng Krachan National Park, 12°48'56.4"N 99°23'11.3"E, 840 m, *S. Tagane*, *N. Nagamasu*, *A. Naiki*, *S. Rueangruea*, *S. Sudee*, *K. Fuse*, *W. Keiwbang* & *P. Pamsamrong* T2132 (BKF, FU).

Conservation Status.—Data Deficient (DD). It is impossible to assess the conservation status of this species in any other way. Although only known from two collections, it was noted as being locally abundant when collected. *Strobilanthes* species are notorious for their plietesial flowering patterns so apparently rare species can, in fact, be quite common as exemplified by the history of *S. accrescens* J. R. I. Wood from Bhutan (WOOD, 1994: 195, 226ff.). This species may in fact be much more common than the two collections suggest.

ACKNOWLEDGEMENTS

We are grateful to Rosemary Wise for drawing the illustration and John Baker for help in preparing it for publication. We also thank Dr. Hidetoshi Nagamasu for helpful comments and Dr. Shuichiro Tagane for the photographs that enhance this paper.

REFERENCES

- BENNETT, J. R., J. R. I. WOOD, AND R. W. SCOTLAND. 2008. Uncorrelated variation in widespread species: species delimitation in *Strobilanthes echinata* Nees (Acanthaceae). *Bot. J. Linn. Soc.* 156: 131–141.
- HU CHIA-CHI, DENG YUNFEI, J. R. I. WOOD, AND T. F. DANIEL. 2011. Acanthaceae. Pages 369–477 in Z. Wu and P. H. Raven (eds.), *Flora of China*. Vol. 19. Science Press, Beijing; Missouri Botanical Garden Press, St. Louis.
- WOOD, J. R. I. 1994. Notes relating to the Flora of Bhutan XXIX Acanthaceae with special reference to *Strobilanthes*. *Edinburgh J. Bot.* 51: 175–273.
- WOOD, J. R. I., AND R. W. SCOTLAND. 2003. The 2-lipped species of *Strobilanthes* (Acanthaceae). *Kew Bull.* 58: 83–129.
- WOOD, J. R. I., AND R. W. SCOTLAND. 2009. New and little-known species of *Strobilanthes* (Acanthaceae) from India and South East Asia. *Kew Bull.* 64: 3–47.
- WOOD, J. R. I., B. P. WILLIAMS, AND R. W. SCOTLAND. 2012. *Diceratotheca*, a new genus from Thailand. *Kew Bull.* 67: 687–695.

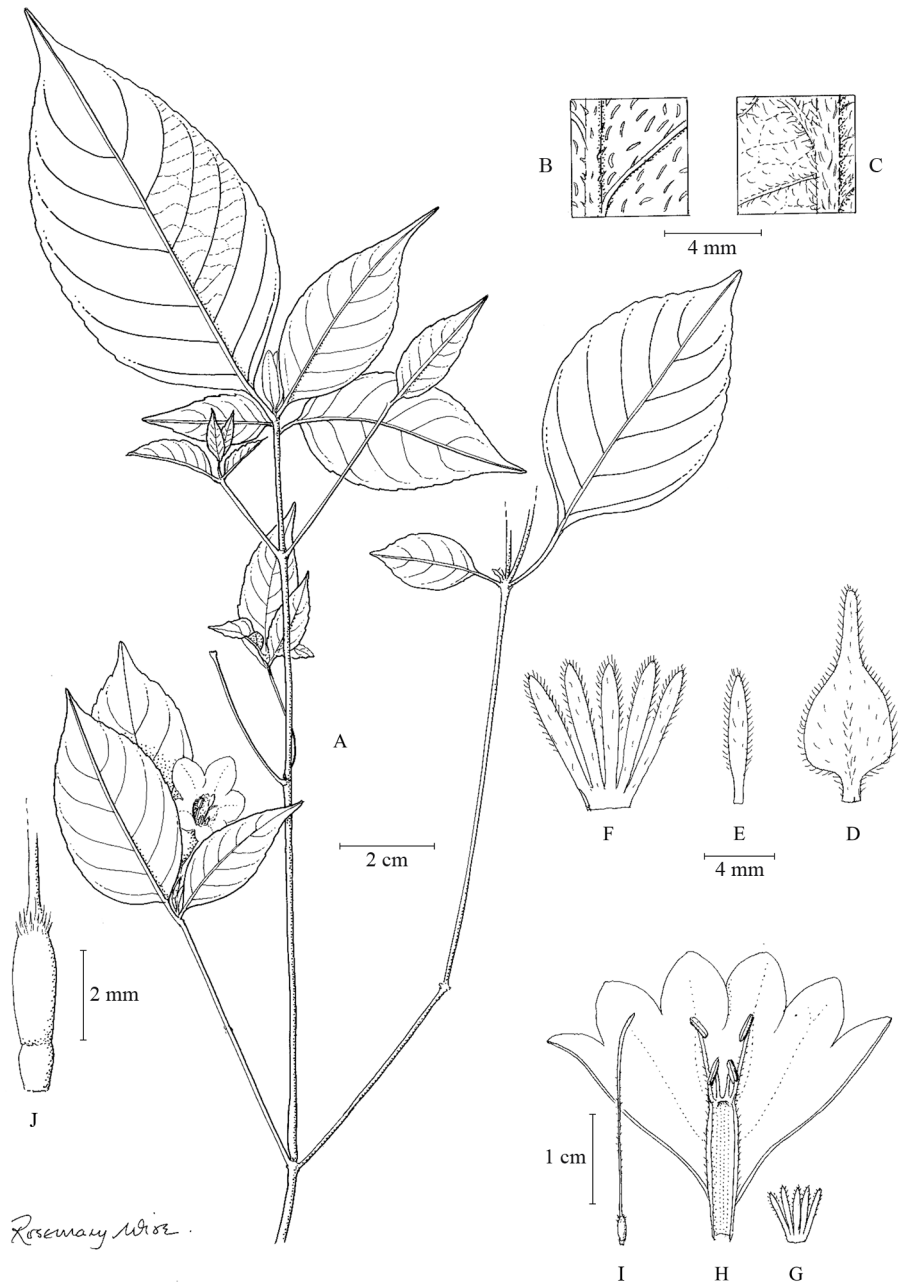


Figure 1. *Strobilanthes phyllocephala*. A, habit; B, adaxial surface of leaf; C, abaxial surface of leaf; D, inner bract; E, bracteole; F, calyx; G, calyx; H, corolla opened out to show stamens; I, ovary and style; J, ovary. Drawn by Rosemary Wise from K. Larsen *et al.* 45466.



Figure 2. *Strobilanthes phyllocephala*. A, habit; B, corolla; C, abaxial leaf surface. Photographs by S. Tagane of S. Tagane *et al.* T2132.

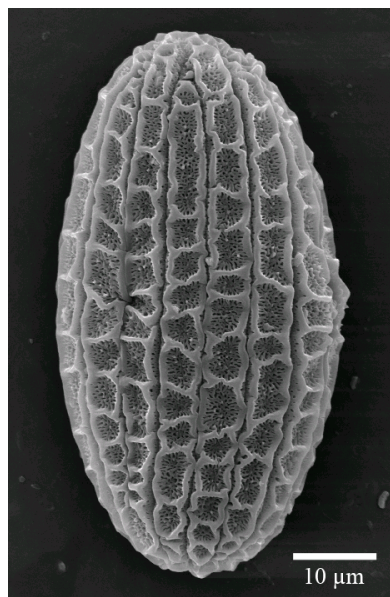


Figure 3. Scanning electron microscope (SEM) micrograph of pollen of *Strobilanthes phyllocephala* (K. Larsen *et al.* 45466).