

## TWO NEW TAXA OF *RHODODENDRON* (ERICACEAE) FROM VIETNAM

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Two new taxa from Vietnam are described and illustrated: *Rhododendron tephropeplodes*, in subsection *Tephropepla*, and *R. chunii* subsp. *vietnamense*, in subsection *Tsutsusi*.

**Keywords.** Ericaceae, Phan Xi Păng, *Rhododendron chunii* subsp. *vietnamense*, *Rhododendron tephropeplodes*, Vietnam.

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### Introduction

In recent years, several new species of *Rhododendron* have been described from Vietnam. These include *Rhododendron suoilenhense* D.F.Chamb., N.T.T.Huong & Rushforth and *R. rushforthii* Argent & D.F.Chamb.

In collaboration with researchers from the Vietnamese Institute of Ecology and Biological Resources (IEBR), staff from the Royal Botanic Garden Edinburgh, Royal Botanic Gardens, Kew, Longwood Gardens, and the University of British Columbia undertook a joint expedition to Northern Vietnam in 2014. The aim of this expedition was to collect a range of species distributed in Northwest Vietnam, particularly on the Hoang Lien Son mountain range, for research and *ex situ* conservation. Material collected included living material, seed, herbarium specimens and DNA samples. The genus *Rhododendron* was a particular focus, reflecting the research and conservation interests of the group. Some of the plants raised from these seeds at Logan, Kew and the Yorkshire Arboretum first flowered in 2016. Among these, we identified two hitherto undescribed rhododendron taxa.

Mackay *et al.* (2018) recognise 47 *Rhododendron* taxa from Vietnam. However, botanical exploration of the high mountains of northern Vietnam has been very limited, so our understanding of the diversity and distribution of *Rhododendron* species in the region remains rudimentary (Gibbs *et al.*, 2011). Northern Vietnam is at the southeastern end of the Sino-Himalayan mountain range and is an important part of the Indo-Burma biodiversity hotspot for plants (Critical Ecosystem Partnership Fund, 2020). There are also phytogeographical affinities with the montane flora of South and Southeast China.

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### Taxonomic treatment

***Rhododendron tephropeplodes* R.A.Baines & D.F.Chamb., sp. nov. (subsect. *Tephropepla*)**

Similar to the allied *Rhododendron tephropeplum* Balf.f. & Farrer, a species from Northeast India, northern Myanmar and Southwest China, but differs in the dimorphic scales on the lower leaf surfaces; the smaller, 1-mm calyx lobes; the larger funnel-shaped, whitish to pale pink 30–35 mm corollas that are glabrous on the outer surfaces; and the glabrous stamens. – Type: Cultivated at the RBGE, Logan Botanic Garden (accession number 20150482), 23 iv 2019, *Baines 71* (holotype HN, isotype E). [Figures 1, 2](#).

Shrub to 1.2 m tall; bark longitudinally peeling, mahogany. *Leaves* narrowly elliptic, subacute, apiculate, base cuneate, lamina (30–)50–60 × 20–25 mm, dark green above, lower surface grey, papillose; scales sunk in pits, dense, to twice their diameter apart, dimorphic, the smaller whitish, the larger rufous and scattered; petioles 50–90 mm, densely lepidote, otherwise glabrous. *Inflorescence* terminal, 3- to 6-flowered, rachis short. *Calyx* lobes 5-orbicular, c.1 mm long, scaly below. *Corolla* funnel-shaped, whitish to pale pink, 30–35 mm long, tube 15 mm long, glabrous on outer and inner surfaces. *Filaments* glabrous. *Ovary* lepidote; style impressed, lepidote at base. *Capsule* ovoid, c.7 × 2–3 mm, densely scaly.



**Figure 1.** *Rhododendron tephropeplodes* R.A.Baines & D.F.Chamb., sp. nov. RBGE accession no. 20150482 flowering at Logan Botanic Garden. Photographs: R. A. Baines.

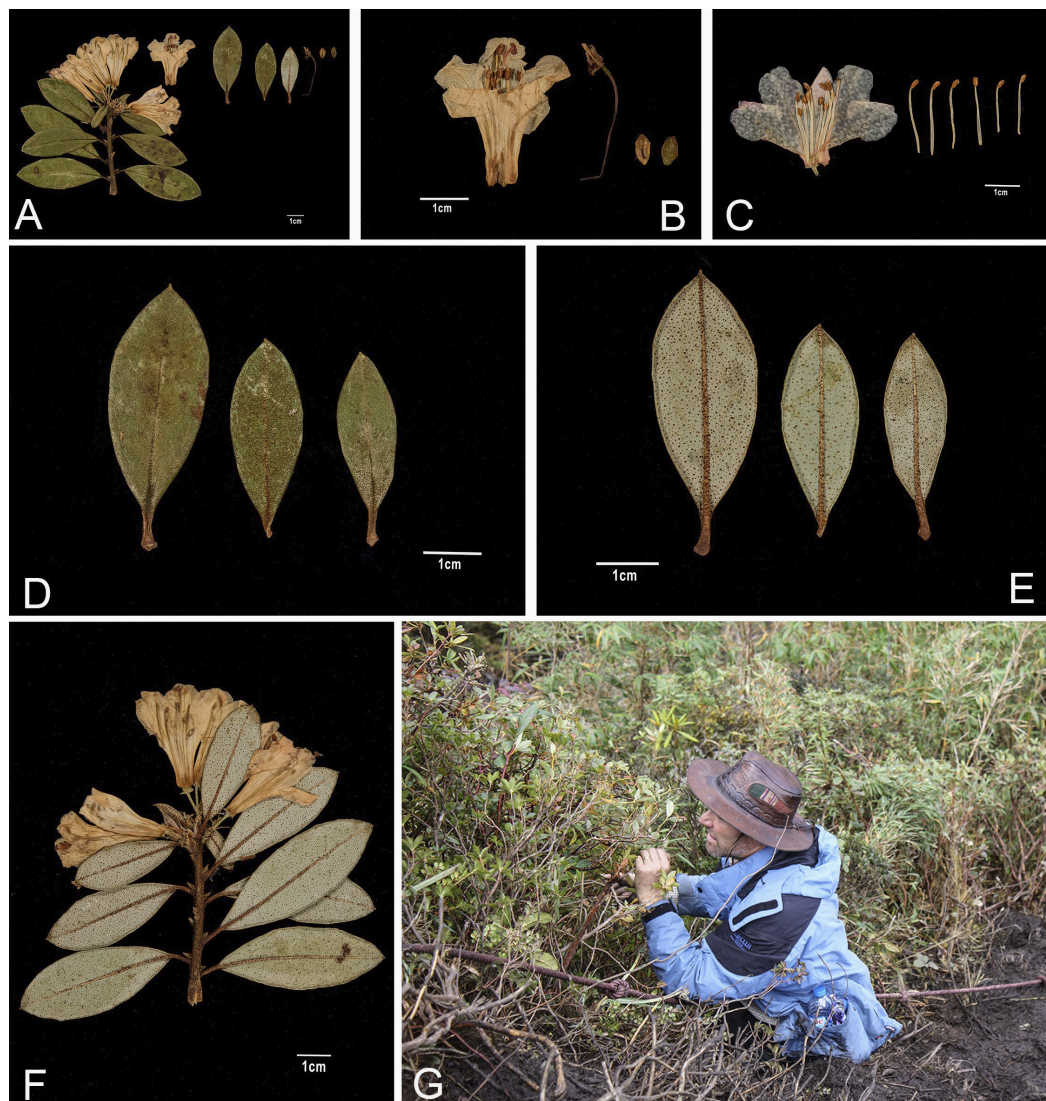


Figure 2. *Rhododendron tephropeplodes* R.A.Baines & D.F.Chamb., sp. nov. A, Flowering stem in cultivation; B, floral parts highlighting stigma, style and minimal calyx; C, floral parts highlighting stamens; D, adaxial leaf surfaces and petioles; E, abaxial leaf surfaces and petioles; F, abaxial view of flowering stem in cultivation; G, habitat. Photographs: L. Wilson.

*Ecology.* Temperate montane cloud forest, in wet thin soil with high humus content and high humidity. The surrounding vegetation is characterised by *Hydrangea*, *Illicium* and *Rhododendron*.

*Phenology.* The above description has been prepared from cultivated plants grown at Logan

Botanic Garden from seeds collected in the wild in November 2014. The normal flowering time is mid to late April.

*Conservation status.* Data Deficient (DD) (IUCN Standards and Petitions Subcommittee, 2019). Two populations were discovered on Phan Xi Păng Mountain. One of these was at threat from erosion near a public path.

*Cultivation.* *Rhododendron tephropeplodes* should be grown in partial shade but will tolerate exposed conditions down to a minimum temperature of approximately  $-8^{\circ}\text{C}$ . It requires damp, acidic soils that are freely draining but high in organic matter. When propagated from seed it can produce flowers in its third year and should reach a maximum height of 2 m.

*Additional specimen examined.* VIETNAM. Lào Cai Province: Sa Pa District, Phan Xi Păng Mountain, 2605 m,  $22^{\circ}19.208'N$ ,  $103^{\circ}46.191'E$  [ $22^{\circ}19'12.46"N$ ,  $103^{\circ}46'11.46"E$ ], 1 xi 2014, Baines et al. HNE 162 (source of seeds for RBGE accession 20150482) (E, HN, K).

The differences between *Rhododendron tephropeplodes* and *R. tephropeplum* are summarised in the [Table](#).

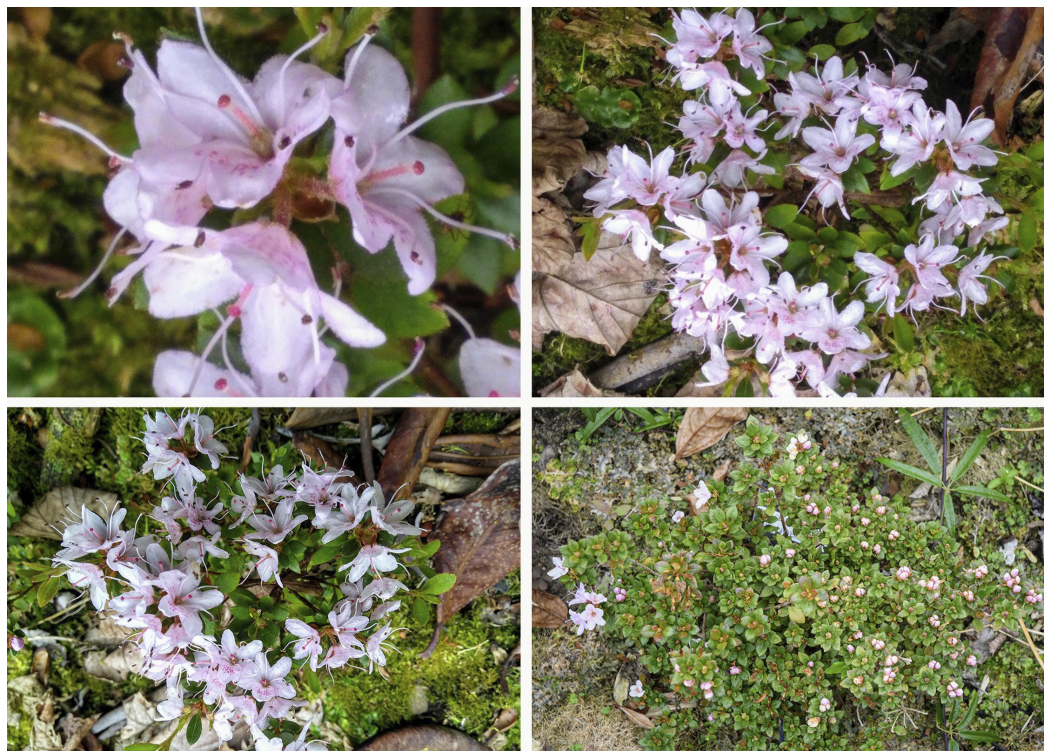
***Rhododendron chunii* W.P.Fang subsp. *vietnamense* R.A.Baines & D.F.Chamb., subsp. nov.**  
(subsect. *Tsutsusi*)

*Rhododendron chunii* subsp. *chunii* differs from the new subspecies in the young stems that bear appressed bristles that apparently lack the stipitate glands of subsp. *vietnamense*, and in the outer surface of the corolla tube that is glandular. – Type: Cultivated at RBGE, Logan Botanic Garden (accession number 20150480), 23 iv 2019, Baines 73 (holotype HN, isotype E). [Figures 3, 4](#).

Small shrub, to 2 m; young shoots covered with erectopate bristles, stipitate glands and flattened strigose red-brown hairs. Leaves monomorphic, coriaceous, persistent, elliptic to oblong-ovate,  $1-2 \times 0.5-0.9$  cm, twice as long as broad, apex acuminate, base broadly cuneate, margin entire, upper surface strigose, lower surface paler, strigose, especially on midrib; petiole 2–3 mm, strigose. *Inflorescence* 2- to 3-flowered; pedicels 5–7 mm, densely brown-strigose. *Calyx* strigose; lobes 1–2 mm, oblanceolate. *Corolla* funnel-shaped, lilac-purple, upper lobes flecked, 9–10 mm; tube  $6 \times 3$  mm, with 5 rows of glands on the outer surface, glandular within but glabrous outside. *Stamens* 5, subequal, filaments minutely hairy

**Table.** Comparison of *Rhododendron tephropeplum* and *R. tephropeplodes*

Character	<i>R. tephropeplum</i>	<i>R. tephropeplodes</i>
Calyx lobes	5–7(–8) mm, orbicular to oblong	1 mm, orbicular, dimorphic
Corolla	Campanulate, (17–)20–24 mm	Funnel-shaped, 30–35 mm
Stamen filaments	Pubescent towards base	Entirely glabrous
Leaf scales	Unequal, not dimorphic	Dimorphic



**Figure 3.** *Rhododendron chunii* subsp. *vietnamense* R.A.Baines & D.F.Chamb., subsp. nov. HNE 160, RBGE accession no. 20150480, flowering at Logan Botanic Garden. Photographs: R. A. Baines.

below. Ovary densely covered in fine brown hairs; style covered with fuscous setose hairs and glands in lower half. Capsule ovoid 5 × 4 mm, strigose.

*Ecology.* Temperate montane cloud forest, in wet thin soil with high humus content and high humidity. The surrounding vegetation is characterised by *Enkianthus*, *Pieris* and *Rhododendron*.

*Phenology.* The above description has been prepared from cultivated plants grown at Logan Botanic Garden from seeds collected in the wild in November 2014. The normal flowering time is mid to late April.

*Conservation status.* Data Deficient (DD) (IUCN Standards and Petitions Subcommittee, 2019). At least four small populations are known on Phan Xi Păng Mountain, within the Hoang Lien National Park. We treat the conservation assessment of this subspecies as DD, awaiting more detailed fieldwork in northern Vietnam.

*Cultivation.* *Rhododendron chunii* subsp. *vietnamense* can tolerate full sun or partial shade and is hardy down to a minimum temperature of approximately –8°C. It requires damp,

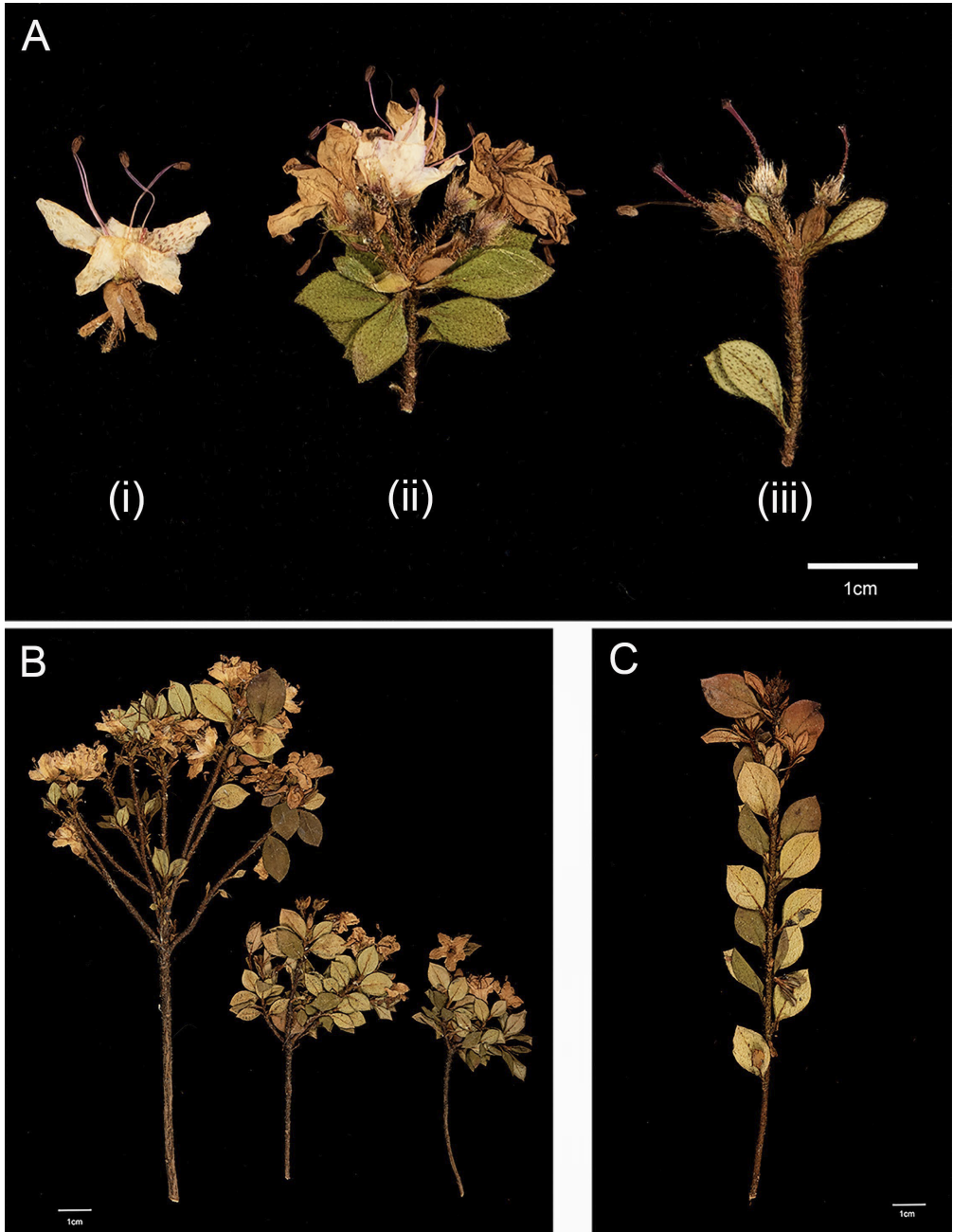


Figure 4. *Rhododendron chunii* subsp. *vietnamense* R.A.Baines & D.F.Chamb., subsp. nov. A, Floral parts highlighting tubular corolla, stigma and style (i), floral arrangement in terminal cluster (ii), and seed capsules (iii); B, flowering stem in cultivation; C, young stems with erectopatent bristles. Photographs: L. Wilson.

acidic soils that are freely draining but high in organic matter. When propagated from seed it can produce flowers in its third year and should reach a maximum height of 1 m.

*Additional specimens examined.* VIETNAM. Lao Cai Province: Sa Pa District, Phan Xi Păng Mountain, 2605 m, 22°19.208'N, 103°46.191'E [22°19'12.46"N, 103°46'11.46"E], 1 xi 2014, Baines et al. HNE 160 (source of seeds for RBGE accession 20150480) (E, HN, K). Sa Pa, Phan Xi Păng, Ton Station, 2605 m, 1 xi 2014, Hanoi, UBC, Logan, Longwood & Kew Expedition to Vietnam (2014) HNE 163 (E [E00787050, E00787049]). Vietnam, screes on banks of a river above second camp and below Phan Xi Păng, 2300 m, 8 v 1992, K. Rushforth 2266 (E [E00039842]); ridge from Sin Chay village to first campsite, 2350 m, 3 v 1992, K. Rushforth 2242 (E [E00039840]); Camp 2 to the summit, narrow belt above first rock outcrop, 2550 m, 27 x 1994, K. Rushforth & D. Chamberlain, Rushforth 3011 (E [E00073374]).

Nguyen & Nguyen (2012) reported the existence of *Rhododendron chunii* in Vietnam, we assume based on the Rushforth specimens cited above. We are now aware of several collections of subsp. *vietnamense* that are consistent in the diagnostic morphological characters that distinguish this taxon from subsp. *chunii*. However, these are relatively trivial compared with the obvious similarities between the two subspecies. Furthermore, there are very few specimens available to us of subsp. *chunii*. We therefore cannot comment on the range of variation in the Chinese populations.

Subspecies *chunii* occurs at an altitude of 1100–1800 m in forested mountains in northern Guangdong Province, South China.

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