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Nervilia cumberlegei (Orchidaceae), a Newly Recorded Orchid from Myanmar

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Abstract *Nervilia cumberlegei* (Orchidaceae) is recorded in Myanmar for the first time. A description, locality information and photographs are provided. Thus far *N. cumberlegei* is known only from Taiwan and Thailand. This discovery in Myanmar represents the western edge of the species distribution.

Key words: Burma, section *Linervia*, Tanintharyi, taxonomy, terrestrial orchid.

Introduction

Nervilia Comm. ex Gaudich. is commonly known as 'shield orchid'. Most species grow in forested habitats and are shade-demanders (Gale *et al.*, 2018). The genus *Nervilia* is most diverse in tropical Asia, although it is widely distributed in the Old World tropics, from Australasia and the South-west Pacific Islands to sub-Saharan Africa (Pettersson, 1991; Gale *et al.*, 2015, 2018). There are approximately 71 species in the genus (Tang *et al.*, 2018; WCSP, 2020). However, *Nervilia* remains poorly known, especially in the Asian region (Gale *et al.*, 2014). This genus is troublesome in taxonomic identification because of the development of flower and leaves in different seasons (Chen and Gale, 2009). The populations are often small, isolated and prone to demographic stochasticity (Gale *et al.*, 2010; Gale *et al.*, 2018). *Nervilia* is characterized by having a prominent fan-shaped leaf venation (Pridgeon *et al.*, 2005; Tang *et al.*, 2018) and flowers followed by a vegetative stem bearing a single photosynthetic leaf (Niissalo *et al.*, 2020). *Nervilia* plants have antioxidant and antibacterial properties (Ruthisha *et al.*, 2018) and are used as traditional medicine. Medicinal orchids are considerably threatened by anthropogenic impacts such as habitat destruction, and illegal collection for commercial and subsistence uses (Pant *et al.*, 2002; Pant, 2013).

In Myanmar, Kress *et al.* (2003) and Aung *et al.* (2020) recorded six species of *Nervilia* in their checklists; *Nervilia concolor* (Blume) Schltr. (= *N. aragoana* Gaudich.), *N. juliana* (Roxb.) Schltr., *N. khasiana* (King & Pantl.) Schltr., *N. macroglossa* (Hook.f.) Schltr., *N. maculata* (C.S.P.Parish & Rchb.f.) Schltr. [= *N. parishiana* (King & Pantl.) Schltr.] and *N. plicata* (Andrews) Schltr. In the latest checklist by Aung *et al.* (2020), the number of species has not been changed, however, some names are updated. During a field trip to Tanintharyi Region, *Nervilia cumberlegei* Seidenf. & Smiti-

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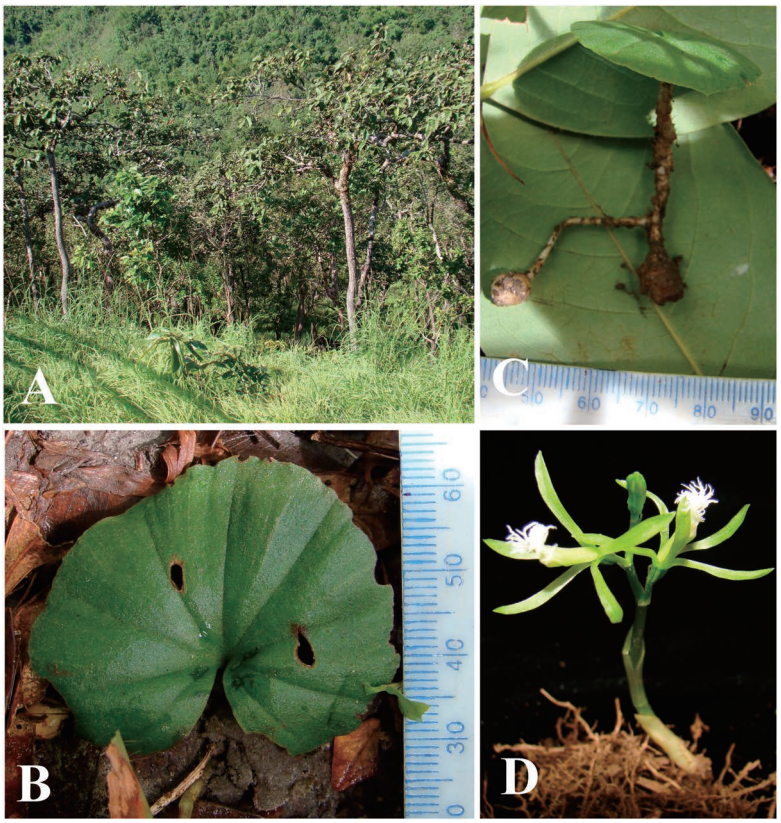

Fig. 1. *Nervilia cumberlegei* and its habitat. A. Habitat. B. Leaf. C. Tubers. D. Inflorescence.

nand was collected, which was previously known only from Taiwan and Thailand. This is the first record of *N. cumberlegei* from Myanmar.

Materials and Methods

The field survey in Tanintharyi Nature Reserve and the adjacent area around San-daw-shin Pagoda Hill, was carried out from April to August 2009. Herbarium specimens and living material were collected and photographs were taken. The measurements were taken in the field. Voucher specimens are kept in the Education Center of Tanintharyi Nature Reserve and in the herbarium of the Forest Research Institute, Myanmar (RAF). The living specimens are cultivated at the Orchid House of Tanintharyi Nature Reserve and are used for study.

Results and Discussion

The study area, ranging up to 10 km from the coastal line to the intermittent mountain range in Tanintharyi Nature Reserve, is covered by dry deciduous forest dominated by *Dipterocarpus obtusifolius* Teijsm. ex Miq. (Dipterocarpaceae). In April 2009, two *Nervilia* inflorescences were collected in bamboo leaf litter near Zinbar stream. From May to August 2009, several plants with leaves were discovered along Zinbar stream to Heinze stream as well as near San-daw-shin Pagoda. The *Nervilia* plants did not match any descriptions of the six species recorded in the latest checklist (Aung *et al.*, 2020). After careful examination of both herbarium specimen and living material, it was identified as *Nervilia cumberlegei* Seidenf. & Smitinand, described from Khao Yai National Park, central Thailand. It is characterized by having an 2–4-flowered inflo-

rescence and green flowers with white and strongly fimbriate labellum.

Taxonomic Treatment

Nervilia cumberlegei Seidenf. & Smitinand, Orch. Thail. (Prelim. List): 729 (1965); Seidenf. in Dansk Bot. Ark. 32(2): 155 (1978); Leou in Quart. J. Expt. Forest Natl. Taiwan Univ. 11(2): 75 (1997); Su in Editorial Committee of the Flora of Taiwan (ed.), Fl. Taiwan, ed. 2, 5: 978 (2000); Chen and Gale, in Wu *et al.*, (eds), Fl. China 25: 200 (2009); Gale and Watthana in Balslev *et al.* (eds), Fl. Thailand 12(2): 559 (2014).

[Fig.1 B–D]

Terrestrial herb growing among leaf litter, flowering when leafless, up to 8 cm tall in flower, leaf adpressed to the ground. **Tuber** white, globose, 8 × 10 mm. **Subterranean stem** from the apical node of the tuber, 2.7 cm long, 3 mm in diam. **Leaf blade** 4–5 cm in diam., dark green, reniform, fan-shaped, glabrous, with 9 veins, thick and leathery, developing after flowering. **Inflorescence** 8 cm long, 3–4-flowered; peduncle 1.5 cm long, 3 mm in diam., smooth, green, bearing linear-lanceolate, pale green, tubular sheaths, sheaths 4 × 20 mm. **Flowers** green with white fringed labellum, 3 cm across, sepals and petals free, pedicel short, 2 mm long, green; *sepals* green, narrowly elliptic, apex acute; dorsal sepal 15 × 2 mm; lateral sepals 15 × 2 mm; petal narrowly elliptic, 14.5 × 2 mm; *labellum* white, 3-lobed, oblong, 15 × 4 cm, lateral lobes round, mid-lobe fringed, pubescent; disk white with green veins. **Column** white, erect, 'hugged' by lateral lobes of labellum, 10 mm long, hypochile greenish; anther cap white. **Ovary** conspicuous, green, 3-angled, 4 mm long.

Specimens examined: —MYANMAR. Tanintharyi Region. New Mi-chaung-laung and Heinze Local Operation Unit, Tanintharyi Nature Reserve, Yephyu Township, Dawei District, ca. 252 m elev., 14°30'03.6"N, 98°13'17.9"E, 25 April 2009, *Myo Min Latt 003* (RAF).

Habitat: —*Nervilia cumberlegei* grows in a humus layer over clay in bamboo forest and in stony soil in dry deciduous forest (Fig. 1A).

Phenology: —Flowering in April to May before the rainy season.

Distribution: —Myanmar (new record), Taiwan and Thailand.

Note: —We propose the local name of this species as "Tanintharyi Ta-bin-shwe-htee". Ta-bin-shwe-htee is the Myanmar name of *Nervilia. Nervilia cumberlegei* was previously known only from Taiwan and Thailand. The discovery in Myanmar represents the western limit of the species distribution (Fig. 2).

IUCN Conservation Status: —Many populations were found in dry deciduous forest dominated by *Dipterocarpus obtusifolius*. However, the extent of the populations remains unknown, and the habitat is very close to rubber plantations and human settlements. The species may be threatened by further expansion of the rubber plantations and other agricultural land development. Therefore *N. cumberlegei* is here assessed as Near Threatened (NT) (IUCN, 2012).

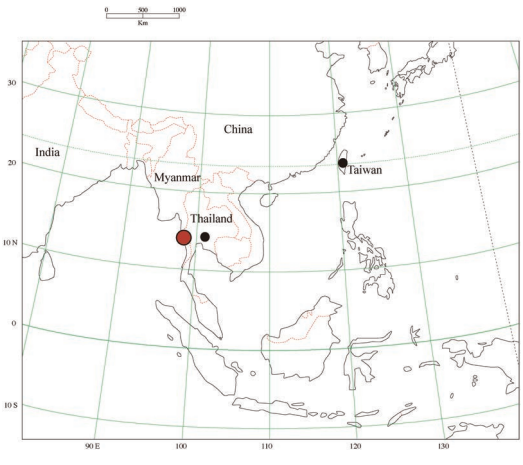

Fig. 2. The locality of *Nervilia cumberlegei* in Myanmar. A red circle indicates the newly recorded population in Myanmar, and black circles known populations in Khao Yai National Park, Thailand, and near Sun Moon Lake, central Taiwan, based on Seidenfaden and Smitinand (1965), and Su (2000).

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