

# *Leucospora multifida* (Michx.) Nutt. (Plantagiaceae), a Newly Naturalized Genus and Species in Taiwan

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**Abstract.** *Leucospora multifida* (Plantagiaceae), a newly naturalized genus and species from Taiwan, is so far known only from open roadsides with scant or low ground vegetation at low elevations in northern Taiwan. This species is native to the US Midwest. *Leucospora multifida* is a small plant, with glandular-hairy foliage, deeply dissected leaves, and seeds with usually 8 longitudinal ribs, by which they can be distinguished from other Plantagiaceae species. A taxonomic description and photographs to facilitate identification are provided.

**Keywords:** *Leucospora multifida*, newly recorded genus, Plantagiaceae, Taiwan, taxonomy.

## INTRODUCTION

*Leucospora* Nutt. is a monotypic genus, from the Greek for "white seeds" (Nuttall, 1834). Its sole species was first described as *Capraria multifida* (Michaux, 1803) (belonging to the family Scrophulariaceae). The epithet *multifida* is Greek for "cleft many times", in reference to the shape of its leaves. Currently, *Leucospora* is placed in the family Plantaginaceae and belongs to the most species-rich tribe Gratioleae, spanning ca. 30 genera and >300 species (Albach et al. 2005; APG IV 2016; Seatigna et al. 2022). In the tribe of Gratioleae, *Leucospora* and *Stemodia* are considered closely related (Estes & Small 2008).

According to our botanical exploration, *L. multifida* was found at low elevations (of 10~50 m) in northern Taiwan. All specimens collected were deposited in the herbarium of the Dept. of Biology, National Museum of Natural Science (TNM; Taichung, Taiwan). Previous records of the Plantaginaceae in Taiwan included 15 genera (Editorial Committee of the Red List of

Taiwan Plants, 2017); *Leucospora* is also a newly recorded genus in Taiwan.

## Systematic Treatment

*Leucospora multifida* (Michx.) Nutt., J. Acad. Nat. Sci. Philadelphia 7: 87. 1834. 白籽草 (Fig. 1)

## Basionym

*Capraria multifida* Michx., Fl. Bor.-Am. (Michaux) 2: 22, t. 35 (1803)

## Synonyms

*Conobea multifida* (Michx.) Benth., A.P.de Candolle, Prodr. 10: 391 (1846)

*Stemodia multifida* (Michx.) Spreng., Syst. Veg. ed. 16, 2: 811 (1825)

*Sutera multifida* (Michx.) Walp., Repert. Bot. Syst. 3: 271 (1844)

## Description

An annual herb, about 5~20 cm tall and similarly wide; large plants usually abundantly branched. Stems terete, ascending to erect, densely pubescent with glandular hairs, green to reddish-

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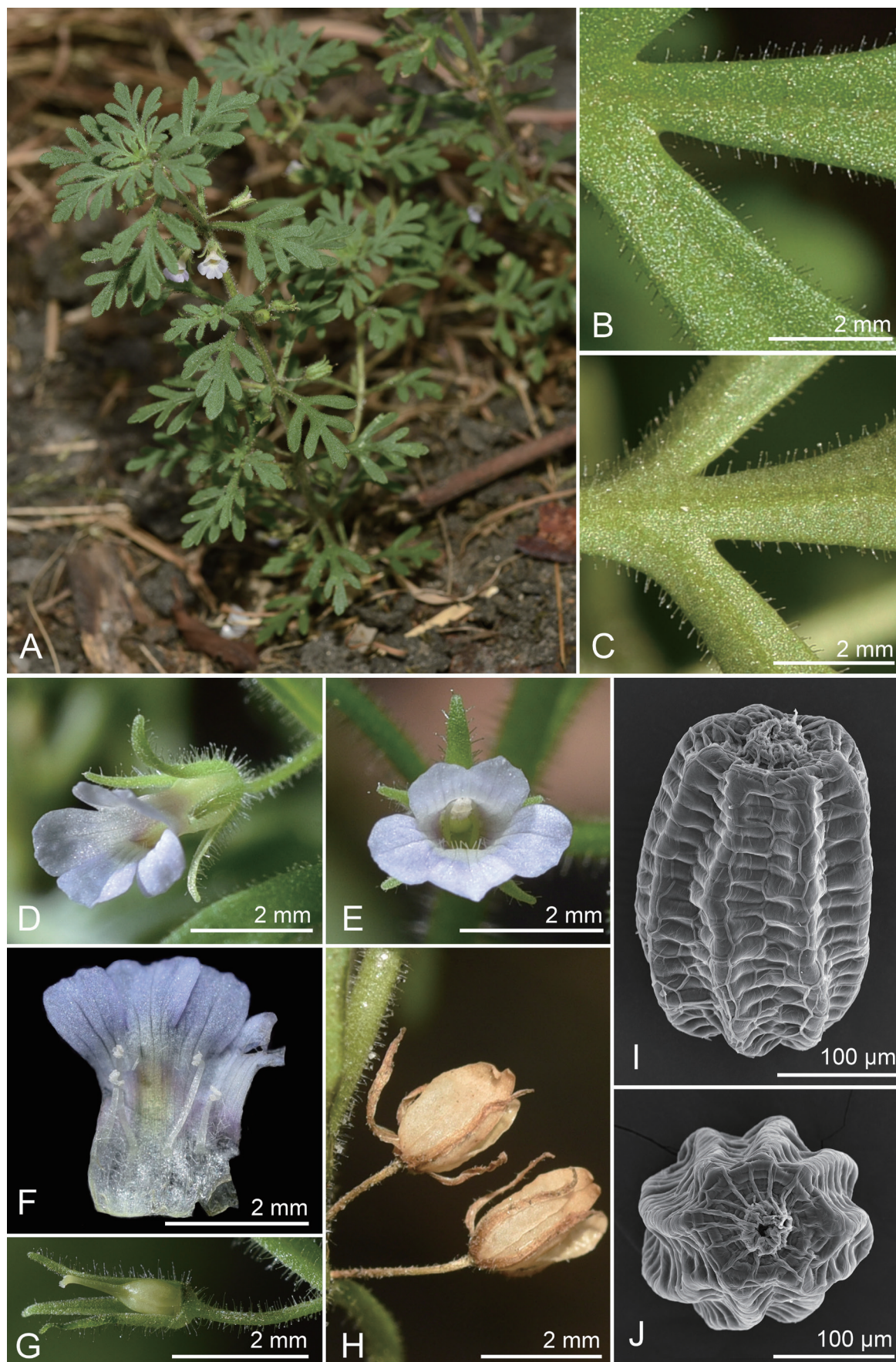


Fig. 1. *Leucospora multifida*. A. Habit. B. Leaf, upper surface. C. Leaf, lower surface. D. Flower, side view. E. Flower, front view. F. Opened corolla, and 4 stamens. G. Gynoecium, with corolla and calyces removed. H. Fruits. I. Seed, longitudinal view. J. Seed, polar view. (C. H. Chen 12996).

green. Leaves in opposite pairs or in whorls of 3, mostly long-petiolate, petiole winged, blades 1~3 cm long; each leaf with 3~7 linear-oblong lobes and a few dentate teeth or small secondary lobes, margins mostly entire, the surface with gland-tipped hairs, each lobe or segment with a single vein. Inflorescence axillary, of solitary or paired flowers, flower stalks 3~6 mm long, bractlets absent. Flowers perfect, calyces ca. 2.5~3.5 mm long and elongated to 3.5~5 mm when fruiting, deeply 5-lobed from the base, lobes linear, rounded to bluntly pointed at tip, with glandular hairs; corollas 3~4.5 mm long, bilabiate, 5-lobed and upper lip 2-lobed, lower lip deeply 3-lobed, lobes ca. 1~1.5 mm wide, white to pale light-blue, throat partially pale-pinkish to lavender, yellow markings with short hairs in middle part; stamens 4, fertile, didynamous, filaments 1~1.5 mm long, white, glabrous; gynoecium not exerted, style ca. 1 mm long, stigma wedge-shaped, ovary superior, glabrous, ca. 1 mm long. Capsules, ovoid, 3~4.5 mm long, wall thin, glabrous, 2 equal-sized locules, dehiscent longitudinally with 2 sutures. Seeds numerous, oblong-ovoid, ca 0.3 mm long, 0.15~2 mm wide, usually with 8 longitudinal ribs, ribs extending from polar axis to both ends.

Flowering May to October, fruiting May to November.

*Leucospora multifida* is a small plant, with glandular-hairy foliage, deeply dissected leaves and seeds usually with 8 longitudinal ribs, by which they can be distinguished from other Plantagiaceae species.

#### Specimens Examined

Keelung City: Qidu Dist. (七堵區), Dunan St. (堵南街) 30 June 2022, C.H. Chen 12996 (TNM); same loc. 12 Sept. 2022, C. M. Wang 19618 (TNM).

#### Distribution and Notes

Even though most of the literature mentions *Leucospora* as a single genus, there is still some controversy as to the classification and processing, but because of the relationship with closely related species, it is a non-monophyletic group, and the classification is complicated, so this classification problem will not be dealt with at this time (Seatigna et al. 2022). In addition, although another species of *Leucospora* was published, it was soon merged into the closely related genus *Stemodia* (Henrickson 1989; Turner & Cowan

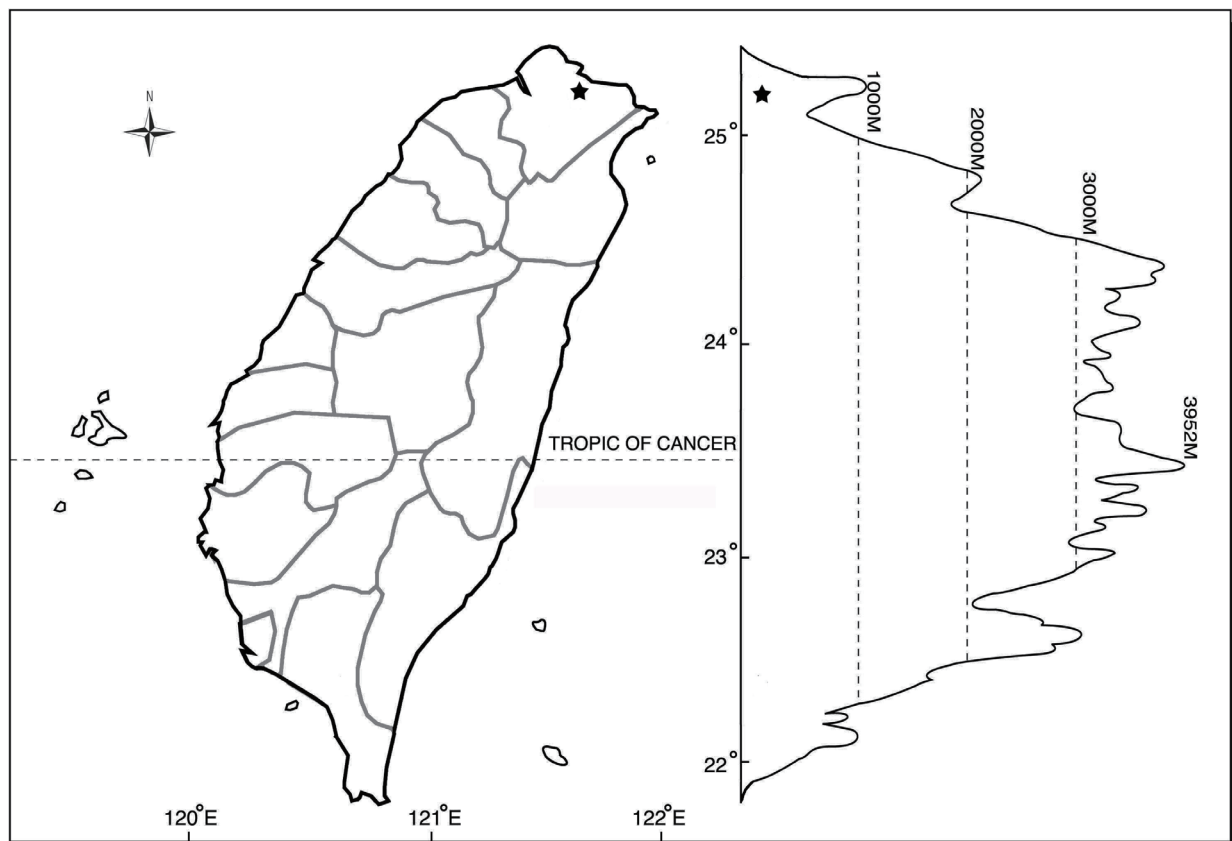


Fig. 2. Distribution map of *Leucospora multifida* in Taiwan (star).

1993). Therefore, this genus is still considered to be monotypic.

The core of its native range is the mid-western US, with a trend of spreading to the eastern US. In its original habit, *L. multifida* occurs along gravel and sand bars, in open fields, moist prairies, low open wood, mudflats, and roadsides, and is an annual herb that thrives in summer (Baskin et al. 1994). This species has been found since 2014 ([https://www.facebook.com/permalink.php?story\\_cement](https://www.facebook.com/permalink.php?story_cement) where there is scant or low ground vegetation at low elevations in northern Taiwan; it also grows in harsh environments formed by a small amount of accumulated soil (Fig. 1A). Similar growing conditions were also reported in a wharf area of southern China in 2014, and this plant was assessed to be an invasive weed because of its rapid expansion (Kang et al. 2016). According to previous research, the seed bank of this species is well maintained in the wild, which means it has a strong naturalization ability (Baskin et al. 2019).

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## 台灣歸化植物白籽草新屬和種紀錄（車前草科）

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白籽草 (*Leucospora multifida*) 屬於車前草科，歸化為台灣新記錄的屬和種，迄今為止僅在台灣北部開放路邊的低海拔地區，生育環境是偏好植被稀少的開放區或低草區，該物種原產於美國中西部。白籽草是小型草本植物，葉具腺毛並深細裂，種子通常有8條縱稜，可與其他車前草科植物區分。本文提供了分類描述和照片以供識別。

關鍵詞：白籽草，新紀錄屬，車前草科，台灣，植物分類