

Research note

Two Newly Naturalized Plant species in Taiwan: *Fumaria parviflora* Lam. and *Nelsonia canescens* (Lam.) Spreng.

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[Summary]

Two newly naturalized herb species are reported in this paper. *Fumaria parviflora* Lam. (Papaveraceae) was found in an agriculture area of central Taiwan. *Nelsonia canescens* (Lam.) Spreng. (Acanthaceae) now well established and naturalized in central and southern Taiwan is an alien plant and a newly recorded naturalized genus in Taiwan. This report gives morphological characters, line drawings, distribution maps, and photographs to aid in their identification.

Key words: Acanthaceae, alien species, Papaveraceae, *Fumaria parviflora*, *Nelsonia canescens*.

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研究簡報

台灣兩種新歸化植物—小花球果紫堇與瘤子草

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摘 要

本文報導兩種新歸化的草本植物，罂粟科的小花球果紫堇與爵床科的瘤子草，前者目前在台灣中部發現，主要記錄在農業區內，後者為新紀錄之歸化屬，在台灣中部至南部發現，且拓殖力強，是很明顯的入侵型草本。本文提供分類特徵描述，手繪圖，以及在台灣的分佈點以供鑑定。

關鍵詞：爵床科、入侵植物、罂粟科、小花球果紫堇、瘤子草。

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The Papaveraceae in the APG III system includes 3 families that were separated: the Papaveraceae sensu stricto, the Fumariaceae, and the Pteridophyllaceae (APG III 2009). Eight species of *Corydalis* and 1 species of *Fumaria* in the Fumariaceae were recorded in Taiwan, and the *Fumaria officinalis* reported in north of Taiwan (Liu and Yang 1996). Recently, in our botanical inventory, a newly recorded species *Fumaria parviflora* Lam., was found in central Taiwan and is now considered to be a naturalized plant. This species was often found in farmland and is well established in cultivated field.

In addition, in the *Flora of Taiwan* 2nd edition, there are 15 genera and 32 species of the Acanthaceae recorded in Taiwan (Hsieh and Huang 2000). Further, 1 species (Huang and Wang 2009) and several naturalized species (Wu et al. 2010) were recorded in recent years. During our field investigation, *Nelsonia canescens* (Lam.) Spreng. was found as a newly recorded genus of the Acanthaceae in Taiwan. We found that this species has become a major weed in roadsides and urban areas, and is now considered to be a naturalized plant.

TAXONOMIC TREATMENT

1. *Fumaria parviflora* Lam. Encycl. (2):567. 1788.

.....小花球果紫堇(Figs. 1, 3) (新擬中名)

Annual herb, erect or somewhat prostrate.

Stem glabrous, up to 60 cm tall. Leaves alternate, 2~5 cm long, 3 or 4 pinnately divided. Inflorescence a raceme, terminal or opposite the leaves. Flowers 5~7 mm long; bracts greenish-white, ca. 2 mm long, 0.5 mm wide; sepals 2, shed after flowering, 0.5~1.5 mm long; petals 4, white or pink to purple, persistent after pollination, the upper one is largest, up to 7 mm long, spurred at the base, inner 2 petals adherent at the tips, oblanceolate; stamens 6, fused in 2 opposite sets, ca. 5 mm long; ovary subspheric, style 1, stigma dot-like. Fruit nutlet, spherical, ca. 2 mm in diameter; seed 1.

Specimens examined: Changhua County, Erlin Township, *C. M. Wang 16160* (TNM); Yunlin County, Mailiao Township, *C. M. Wang 15233* (TNM); *C. H. Chen 11236* (TNM); Tainan City, Anding District, *C. M. Wang 15909; 16165* (TNM).

Distribution and notes: The genus *Fumaria* comprises ca. 50 species (Manning et al. 2009), most of which grow around the Medi-

terranean region (Ebrahimzadeh et al. 2011). *Fumaria parviflora*, currently known from Europe, Africa, the Middle East, and South Asia (Jameel et al. 2014), was found in central Taiwan (Fig. 4). It has become well established in agriculture areas, presumably due to agricul-

tural activities. *Fumaria parviflora* is similar to *F. officinalis*, otherwise the only species of the genus recorded in Taiwan in morphology, differing from the latter in its smaller flower (5~7 vs. 7~9 mm long), much smaller sepal (ca. 1 vs. 2~3.5 mm long), and narrower leaflets.

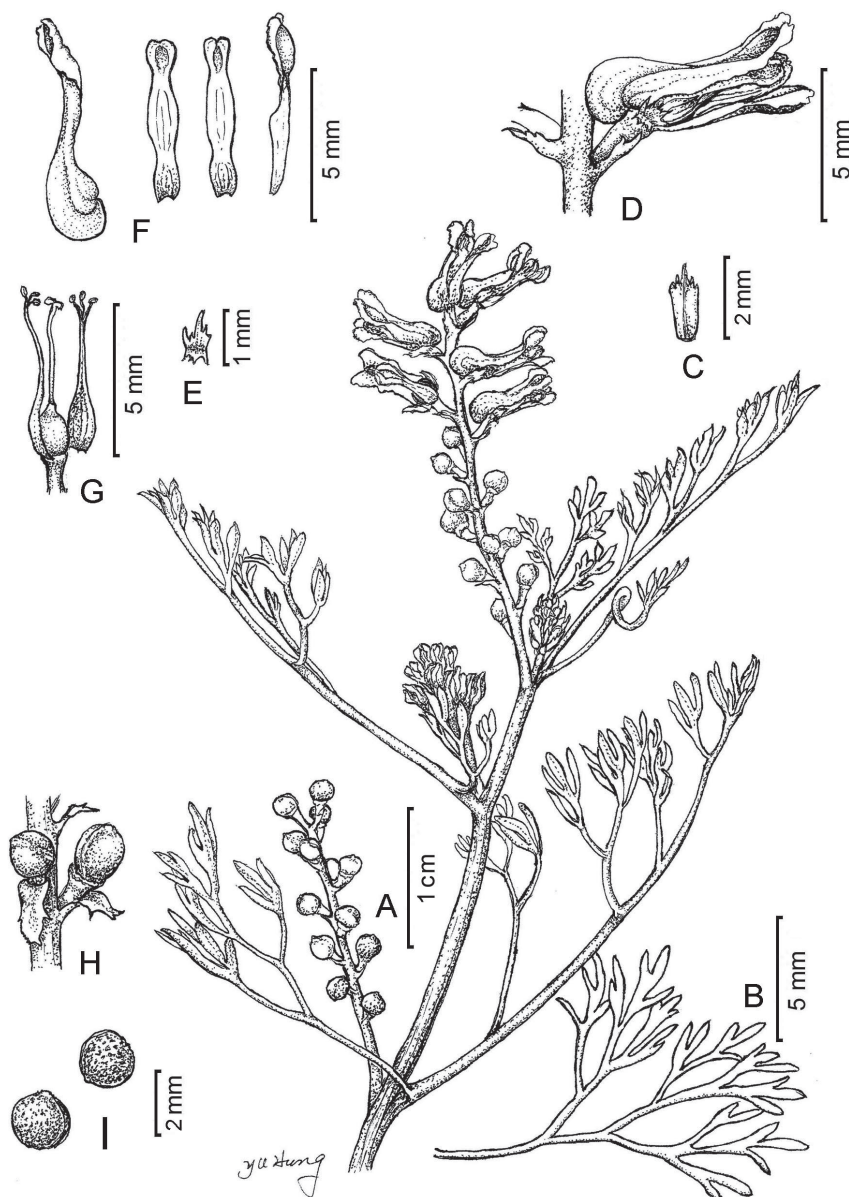


Fig. 1. *Fumaria parviflora*. A, habit; B, leaf; C, bract; D, flower; E, sepal; F, petals; G, pistil and stamens; H, fruits; I, seeds.

2. *Nelsonia canescens* (Lam.) Spreng. Syst. Veg. 1:42. 1824.
 瘤子草 (Figs. 2, 3) (中文引自 Hu 2002)
Justicia canescens Lam. Tabl. Encycl. 1:41. 1791.

Ascending herb. Stems prostrate and rooted at proximal nodes, with spreading

erect to flexuose, silky glandular trichomes. Leaves ovate to elliptic, petioles ca. 6–12 mm long; blades ca. 15–40 mm long, 5–15 mm wide. Inflorescence of cylindric spikes to ca. 4 (5.5) cm long and ca. 1.5 cm in diameter, peduncles almost absent; bracts spirally arranged, broadly ovate to elliptic, 5–7 mm

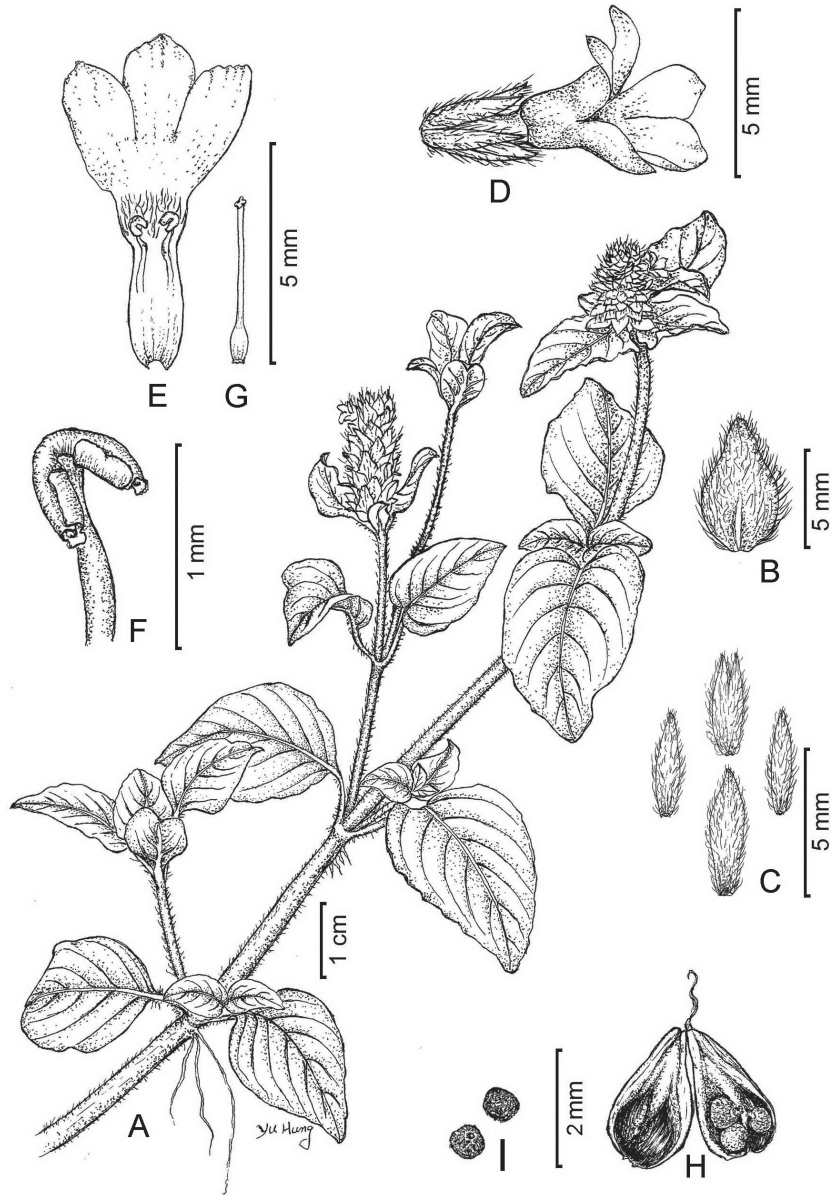


Fig. 2. *Nelsonia canescens*. A, habit; B, bract; C, calyces; D, flower; E, corolla; F, stamen; G, pistil; H, capsule with seeds; I, seeds.

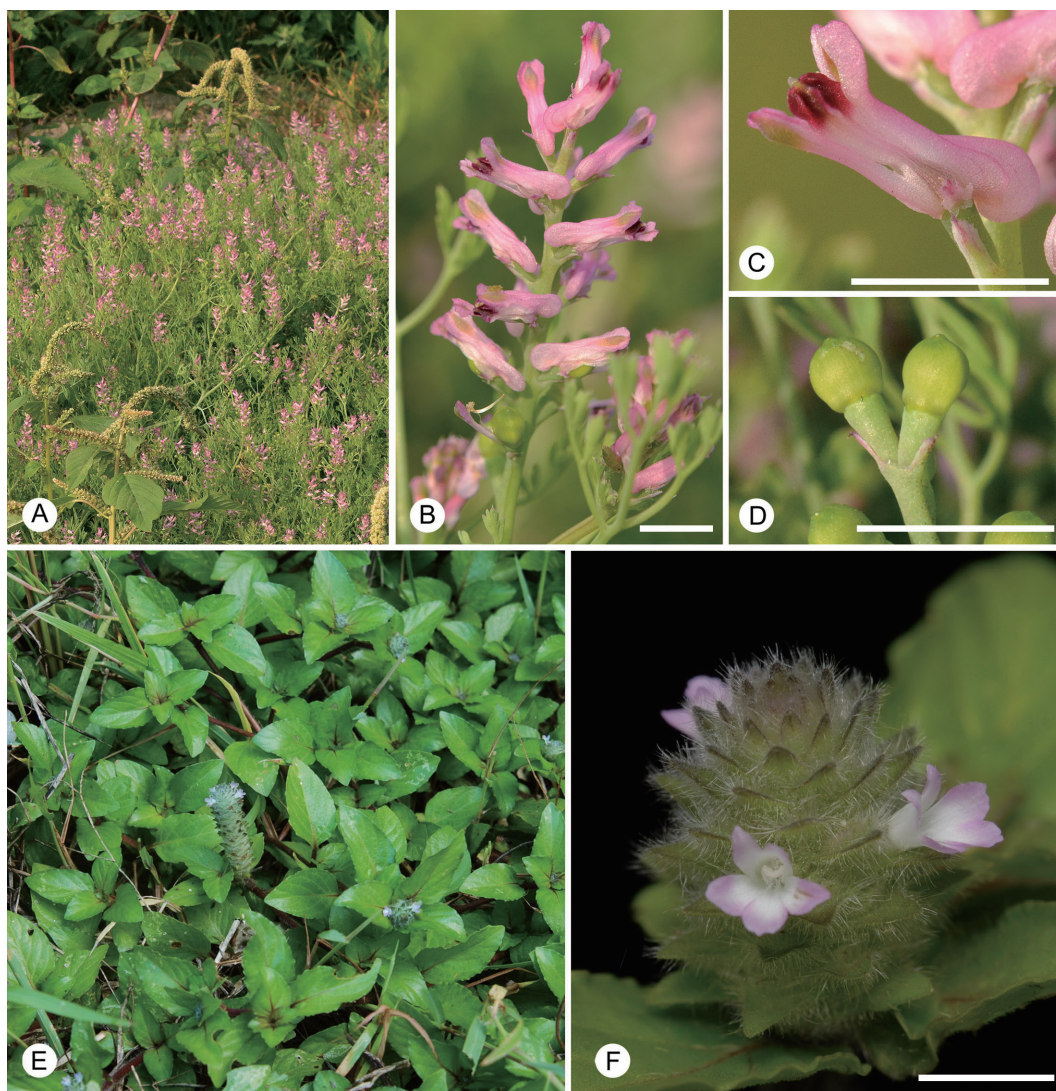


Fig. 3. *Fumaria parviflora*. A, habit; B, inflorescence; C, flower; D, fruits; *Nelsonia canescens*. E, habit; F, inflorescence. Bar = 5 mm.

long, 3~5 mm wide, abaxial surface and margin pubescent with silky trichomes. Flowers sessile; calyces 4, anterior lobe split 2 in front, cleft 0.2~1 mm long; corolla white with pink lobes, glabrous, 4~6 mm long, upper lip ca. 1.5 mm long, lower lip ca. 2.5 mm long; anther thecae V-shaped, ca. 0.5 mm long. Capsule teardrop-shaped, ca. 3 mm long. Seeds subglobose, a dozen per capsule, surface rugose, 0.3~0.5 mm long.

Specimens examined: Tainan City, Anding District, C. H. Chen 11309 (TNM); Kaohsiung City, Daliao Dist, C. M. Wang 16175 (TNM); Fongshan District, C. M. Wang 16137 (TNM); Sinsing District, C. M. Wang 16174 (TNM); Pingtung County, Hengchun Town, C. M. Wang 15469 (TNM).

Distribution and notes: *Nelsonia* is a pantropical genus that is native to tropical Africa, southern Asia, and Australia (Wen and

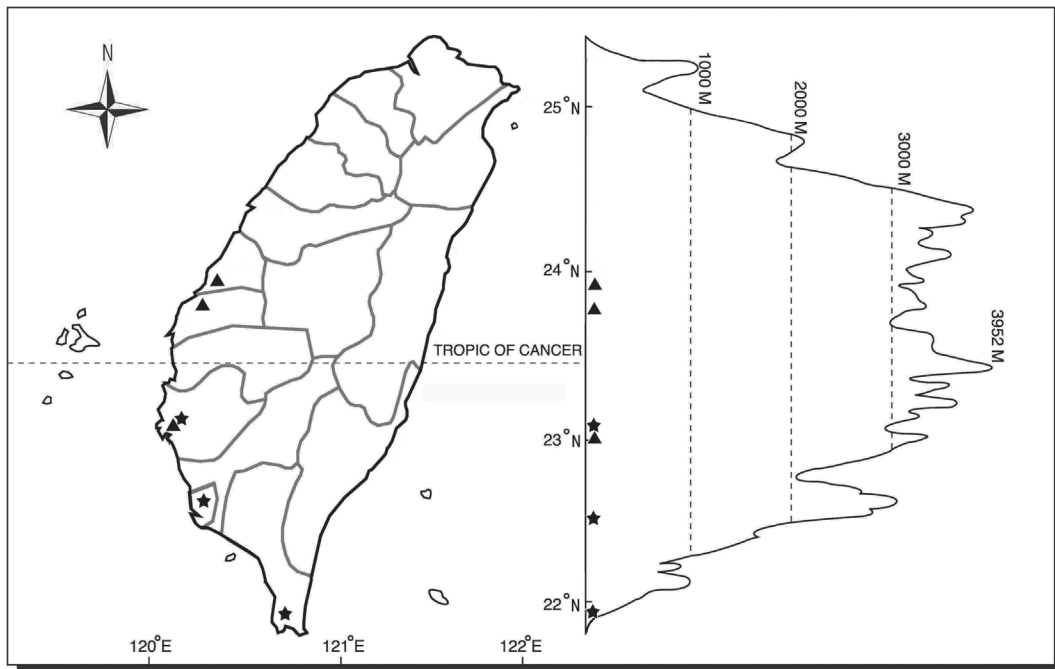


Fig. 4. Distribution map of *Fumaria parviflora* (triangles) and *Nelsonia canescens* (stars) in Taiwan.

Daniel 2009). This genus has been treated as consisting of a single variable species (Hossain 1984) or 5 somewhat loosely delimited species (Vollesen 1994, Frank and Daniel 2011). Additionally, specimens collected from the same locality but growing in different habitats can exhibit different morphologies (Hossain 1984). This species was also reported from southern North America, Central America, tropical South America, and the West Indies (Frank and Daniel 2011). *Nelsonia canescens* is currently found in central to southern Taiwan (Fig. 4), and is often adjacent to paved roadsides. This species grows very advantageously and forms a high coverage in grasslands, so it is obviously a naturalized plant.

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