

Research note

## *Amorpha* L. (Leguminosae), a Newly Recorded Naturalized Genus in Taiwan

Ming-Jer Jung<sup>1,2)</sup>

### [ Summary ]

Herein the author describes a newly recorded naturalized genus, *Amorpha* L. (Leguminosae), and its newly naturalized species to the flora of Taiwan, *A. fruticosa* L., which is native to North America. This shrub species is naturalized in a low-elevation area of northern Taiwan, and its diagnosable characters and its flowering behavior are also described herein.

**Key words:** *Amorpha*, naturalization, new-record.

**Jung MJ. 2014.** *Amorpha* L. (Leguminosae), a newly recorded naturalized genus in Taiwan. Taiwan J For Sci 29(4):285-90.

---

<sup>1)</sup> Independent Researcher, 3rd Fl., No. 27, Lane 13, Jinghua St., Wenshan District, Taipei 11683, Taiwan. 自由研究者，11683臺北市文山區景華街13巷27號3樓。

<sup>2)</sup> Corresponding author, e-mail:15692401@gmail.com 通信作者。

Received August 2014, Accepted November 2014. 2014年8月送審 2014年11月通過。

## 研究簡報

異槐屬(*Amorpha* L., Leguminosae), 台灣新紀錄歸化屬鍾明哲<sup>1,2)</sup>

## 摘要

本文描述一台灣豆科新紀錄之歸化屬：異槐屬(*Amorpha* L.)及本屬中原產於北美洲，新歸化於台灣北部低海拔山區灌木：紫穗槐(*A. fruticosa* L.)，並描述其生育地、鑑定特徵與開花現象。

關鍵詞：異槐屬、歸化、新紀錄。

鍾明哲。2014。異槐屬(*Amorpha* L., Leguminosae)，台灣新紀錄歸化屬。台灣林業科學29(4):285-90。

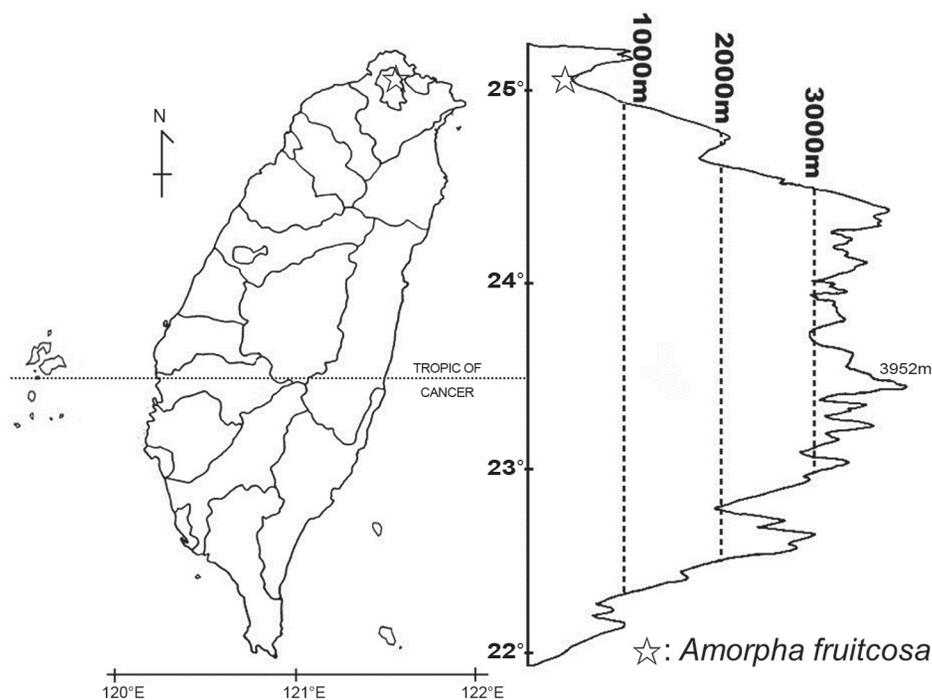
## INTRODUCTION

The Leguminosae is one of the main contributors to the naturalized flora of Taiwan, and more than 80 alien species have been naturalized in Taiwan (Huang and Ohashi 1993, Boufford et al. 2003, Wu et al. 2010, Ku et al. 2011, Wang and Chen 2012, Wang and Tseng 2014). Members of *Amorpha* L. (Papilionoideae, ca. 15 spp.) are all native to North America (Linnaeus 1753, Chen et al. 1994, Lewis et al. 2005). All of them are shrubs, and present only a standard petal in each flower (Linnaeus 1753, Chen et al. 1994, Lewis et al. 2005). In recent botanical surveys, the author found a sustainable population of *Amorpha* sp. in a low-elevation area of northern Taiwan (Fig. 1). After reviewing the relevant literature (Linnaeus 1753, Huang and Ohashi 1993, Chen et al. 1994, Mito and Uesugi 2004, Lewis et al. 2005, Ku et al. 2011), the author confirmed these plants to be *A. fruticosa* L., which is new to the flora of Taiwan. In this brief research note, the author describes this newly naturalized plant and its genus, and offers a line drawing for identification. All vouchers were deposited in the Herbarium of Taiwan Forestry Research Institute (TAIF).

*Amorpha* L., Sp. Pl. 2: 713. 1753. Chen et al. In: We et al., editors. Fl. China, 40: 265. 1994; Ohashi. In: Iwatsuki K, et al., editors. Fl. Jpn. 2b: 279. 2001; Lewis et al. Legumes of the World: 302. 2005. .... 異槐屬  
Perennial shrubs or subshrubs. Flowers arranged in raceme; flower papilionaceous, keels and wings absent, stamens 10, filaments free or united at base.

*Amorpha fruticosa* L., Sp. Pl. 2: 713. 1753. Chen et al. 1994. In: We et al., editors. Fl. China 40: 265. 1994; Ohashi. In: Iwatsuki K, et al., editors. Fl. Jpn. 2b: 279. 2001; Lewis et al. Legumes of the World: 302. 2005. .... 紫穗槐

Perennial, deciduous shrub, 1~4 m tall. Stems pubescent, glabrescent. Leaves 10~15 cm long, stipules bristle-like; petiole 1~2 cm long, odd-pinnate; leaflets 11~25, ovate to elliptic, 1~4 cm long, 0.6~2 cm wide, abaxially whitish puberulent, adaxially glabrous or sparsely pubescent, black glandular-dotted, base broadly cuneate or rounded, apex acute, obtuse, or retuse, with a shortly curved spinose tip. Racemes 1 or many, terminal or subterminal, 7~15 cm long, densely pubescent; pedicel 1.5~2.5 mm long, sparsely hairy. Calyx 2~3



**Fig. 1.** Distribution map of *Amorpha fruticosa* in Taiwan.

mm, teeth 5, triangular, shorter than tube. Standard purplish, obcordate, 3~6 mm long, to 3 mm wide. Anthers 10, united at base, filament to 4.5 mm long, anther ca. 0.5 mm long. Pistil 1, ovary ellipsoid, ca. 0.8 mm long, ca. 0.6 mm wide, surface glabrous and smooth; style puberulent, 4.8~5.2 mm long. Legume dark-brownish, oblong, curved, 6~10 mm long, 2~3 mm wide, apex beaked, strongly glandular-dotted, 1-seeded. Seed lustrous, oblong-reniform, ca. 5 mm long, curved up ward.

**Specimens examined:** TAIWAN. Taipei City, Shihlin District, Fonggueiko, 11 August 2012, *Ming-Jer Jung 5917* (TAIF), same loc., 18 May 2013, *Ming-Jer Jung 6055* (TAIF).

**Notes:** *Amorpha fruticosa* is native to North America, and has been widely introduced in North Asia and Europe as wind-breaks; it is naturalized in China, Japan, and Romania (Chen et al. 1994, Mito and Uesugi 2004, Lewis et al. 2005, Sărățeanu 2010). In

Taiwan, this plant was found on roadsides in secondary forests at low elevations, near the mountains of Yangmingshan National Park. Based on the following morphological characters of only 1 petal (as standard) per flower, glandular-dotted legumes, and 1 oblong-reniform seed per legume (Figs. 2, 3), this plant can easily be discriminated from other Leguminosae spp. that have been recorded in Taiwan. Based on our field observations, this alien shrub has protogynous flowers, the style of which is initially reflexed (Fig. 3D), but which then becomes straight when the anthers dehisce (Figs. 2D, 3E, F).

## LITERATURE CITED

**Boufford DE, Ohashi H, Huang TC, Hsieh CF, Tsai JL, Yang KC, et al. 2003.** A checklist of the vascular plants of Taiwan. In: Huang TC, et al., editors. *Fl. Taiwan*, 2<sup>nd</sup> ed. Taipei,



Fig. 2. *Amorpha fruticosa* L. A, Habit; B, flowering branches; C, odd-pinnate leaf; D, flowers; E, pods (left) and seeds (right). Bars: 5 cm in A and B, 1 cm in C-E.

Taiwan: Editorial Committee, Department Botany, National Taiwan Univ. 6:15-139.

**Chen TH, Chen PY, Fang YY, Zheng CZ, Chang RW, Ding CS, Li JL. 1994.** Leguminosae. In: We Z, Raven PH, editors. *Fl. China*. Beijing, China: Science Press; St. Louis, MO: Missouri Botanical Garden Press. 40:239-325.

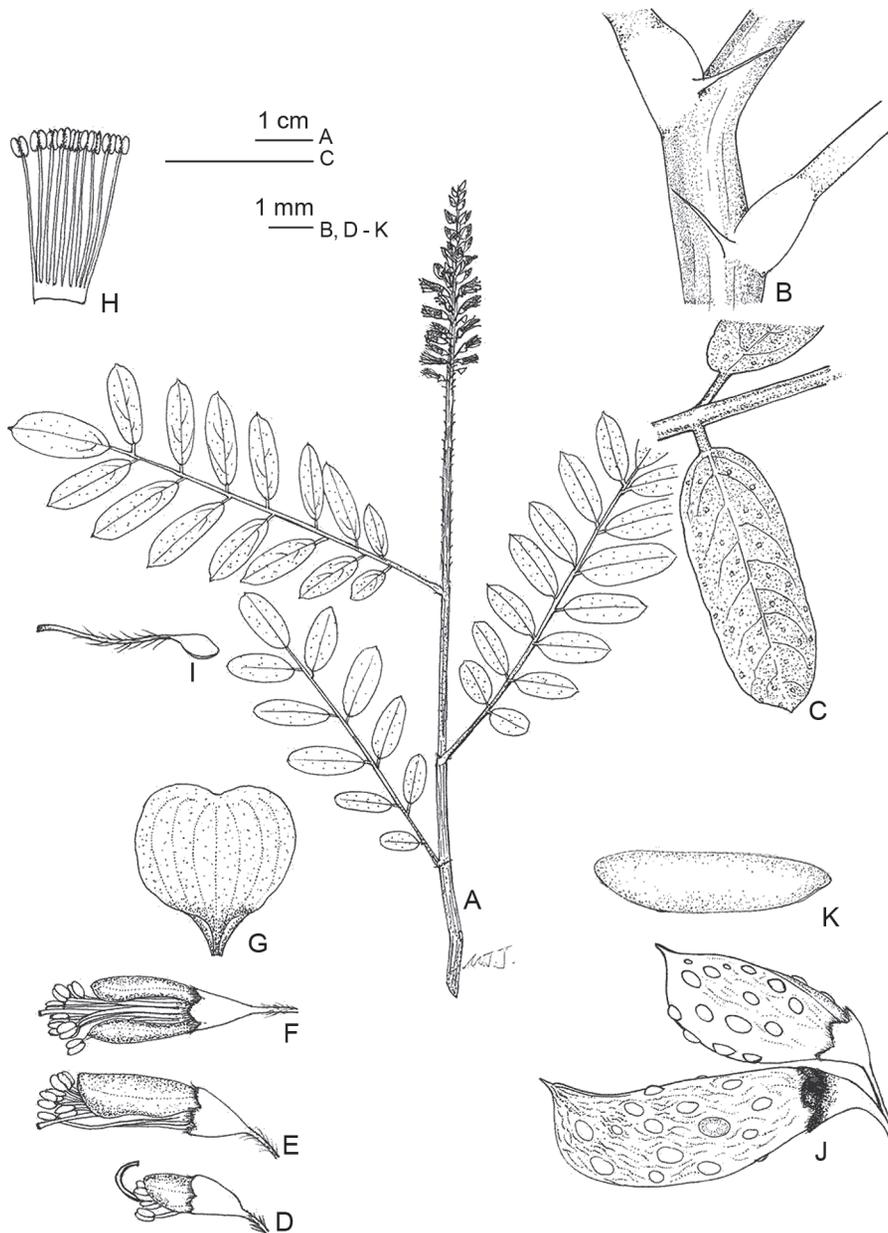
**Huang TC, Ohashi H. 1993.** Leguminosae. In: Huang TC, et al., editors. *Fl. Taiwan*, 2<sup>nd</sup> ed. Taipei, Taiwan: Editorial Committee, Department Botany, National Taiwan Univ. 3:160-

396.

**Ku HL, Song WK, Li HM, Yi HL, Lin CY, Lin JJ, et al. 2011.** In: Wang JC, et al., editors. Possible threats for Taiwanese ecosystem --- catalogue of alien plants (I). Taipei, Taiwan: Forestry Bureau, Council of Agriculture, Executive Yuan. 155 p. [in Chinese].

**Lewis G, Schrire B, Mackinder B, Lock M. 2005.** *Legumes of the world*. Surrey, UK: Royal Botanic Gardens, Kew. 577 p.

**Linnaeus C. 1753.** *Species plantarum* 2.



**Fig. 3.** *Amorpha fruticosa* L. A. Flowering branch; B, petiole bases and stipules; C, leaflets; D-F, flowers; D, with reflexed style and enclosed anthers, lateral view; E and F, with straight style and dehiscent anthers, E, lateral view, F, ventral view; G, petal; H, anthers; I, pistil; J, pods; K, seed.

Stockholm, Sweden: Laurentii Salvii. 784 p.  
**Mito T, Uesugi T. 2004.** Invasive alien species in Japan: the status quo and the new regulation for prevention of their adverse effects. *Glob*

*Environ Res* 8(2):171-91.

**Ohashi H. 2001.** Flora of Japan. In: Iwatsuki K, et al., editors. Tokyo, Japan: Kodansha. 2b:213-79.

**Sărățeanu V. 2010.** Assessing the influence of *Amorpha fruticosa* L. invasive shrub species on some grassland vegetation types from western Romania. Res J Agric Sci 42(1): 536-540.

**Wang CH, Chen CH. 2012.** Two newly naturalized plants of the Leguminosae in Taiwan: *Macroptilium bracteatum* (Nees & Mart.) Marechal & Baudet and *Cyamopsis tet-*

*ragonoloba* (L.) Toubert. Coll Res 25:17-23.

**Wang CH, Tseng YH. 2014.** *Neptunia plena* (L.) Benth. (Leguminosae), a newly naturalized plant in Taiwan. Q J For Res 36(1):1-6.

**Wu SH, Yang TYA, Teng YC, Chang CY, Yang KC, Hsieh CF. 2010.** Insights of the latest naturalized flora of Taiwan: change in the past eight years. Taiwania 55(2):139-59.