

Plantago lanceolata L., A Newly Naturalized Plant in Taiwan

Shih-Huei Chen⁽¹⁾, Yen-Hsueh Tseng⁽²⁾, Ming-Jou Wu⁽¹⁾ and Ching-Yu Liu⁽²⁾

(Manuscript received 25 March 1996; accepted 29 April 1996)

ABSTRACT : *Plantago lanceolata* L. is recently found naturalized in the central and northern parts of Taiwan. It is easily distinguished from other Taiwanese *Plantago* by its densely clustered flowers in a short-cylindric spike. The distribution, a detail line drawing, along with some taxonomic notes and a key for the species of Taiwan are given.

KEY WORDS : *Plantago lanceolata*, Taxonomy, Taiwan.

The genus *Plantago* L. is represented by about 200 species throughout most of the world (Li, 1978). Four species and one variety were previously reported in the flora of Taiwan (Matsumura and Hayata, 1906; Masamune, 1932; Yamamoto, 1932a, 1932b, 1938). But, Hsu (1971) and Li (1978) recognized only two species, namely *P. asiatica* L. and *P. major* L. The different opinions as to the identification may be due to the widely morphological variations of some populations caused by ecological environments (Chen and Wu, 1986) or genetic factors. Thus a further study of the entire genus in Taiwan is needed in the future.

Several years ago, a naturalized species, *P. virginica* L. was reported in Taiwan (Chen and Wu, 1986). Recently, a new naturalized *P. lanceolata* L., is also collected from northern and central parts of this island. They are easily distinguished from the native *Plantago* of Taiwan by several characters.

The specimens examined were deposited in the Herbarium of National Hualien Teachers College and Taiwan Endemic Species Research Institute. Some specimens were examined in TAI Herbarium. The morphology, growth environments, the periods of the flowering and fruiting, were observed.

Key to species

1. Plant glabrous or pubescent; the blade narrowly to broadly ovate; seeds more than 4.
 2. Seeds 4-6, elliptic, 1.5-1.8 mm long *P. asiatica* L.
 2. Seeds 6-18, rounded, elliptic or triangular, 1.0-1.5 mm long *P. major* L.
1. Plant strongly villose; the blade narrowly to broadly lanceolate, seeds 2.
 3. Spikes long-cylindric; bract hairy; sepals 4; filaments not extrude from the corolla tube
.....*P. virginica* L.

1. Department of Mathematics and Science, National Hualien Teachers College. Hualien 970, Taiwan, Republic of China.

2. Taiwan Endemic Species Research Institute. Nantou 552, Taiwan, Republic of China.

3. Spikes conic or short-cylindric; bract glabrous; sepals 3 (outer sepals united); filaments extrude from the corolla tube. *P. lanceolata* L.

***Plantago lanceolata* L.** Sp. Pl. 113. 1753; Ohwi, Fl. Jap. 1077. 1956; Walker, Fl. Okinawa South. Ryukyu Is. 964. 1976. 長葉車前 Fig. 1

Perennial herb, plant body very villose, 20-50 cm high, to 80 cm at flowering. Stem stout as a short rhizome with numerous adventitious fibrous roots. Leaves numerous, in more or less erect to spreading rosette; petiole as long as the blade; blade lanceolate to oblong-lanceolate, 10-50 cm long, 2-3 cm wide, entire or shallowly dentate. Scapes up to 80 cm. Spikes conic to short-cylindric, up to 10 cm long, 2 cm wide; bracts broadly lanceolate, glabrous, 5 mm long, 1.2 mm wide, mucronate, midrib greenish, slightly incised at margin; Flowers densely clustering on the spikes; outer sepals (the two adjacent to the bract) united, cymbiform; inner sepals 2, ovate or ovate-lanceolate, 2.2 mm long, 1.2 mm wide, midrib greenish, hairy at the tip; corolla tubular, 4 mm long, membranous, translucently flushed with brown color, 4-lobed, the segments lanceolate-triangular, 1.5 mm long, 1 mm wide, extrose, midrib extinct; stamens 4, exerted on corolla tube and alternate to corolla-segment, filament 7 mm long, extrude from the corolla tube; anther ovate-lanceolate, 3 mm long, 1 mm wide, yellow flushed with green color; pistil 1, 6 mm long, style slender, villose, extrude from the corolla tube; ovary depressed ovoid, 1 mm long, green. Capsule ovoid, 3.5 mm long, 2 mm wide, brownish at mature. Seeds 2, oblong, concave, 2.5 mm long, 1.3 mm wide, blackish brown.

Distribution: Endemic to Europe, now is widely introduced to Northern America, Japan, Ryukyu, Mainland China (Liaoning, Shantung, Kiangsu, Chekiang, Kiangsi) and Taiwan.

Habitat and Ecology: It is growing in sunny grassland at altitude *ca.* 7 m of lowlands to high mountains (altitude *ca.* 2700 m), flowering in February to June, and fruting in July to November.

TAIPEI: N.T.U. Campus *Wu 1711*; *Chen s. n.* Mar. 24, 1991, & Apr. 15, 1995 (Herbarium National Hualien Teachers College).

NANTOU: Hsinyi, Tataga, *Tseng 598, s. n.* Apr. 28, 1991, Dec. 8, 1993, Jun. 10, 1994, Sep. 27, 1995 (Taiwan Endemic Species Research Institute Herbarium).

Note: The present species is easily distinguished from other Taiwanese *Plantago* by its densely clustered flowers in a conic or short-cylindric spike. This species was previously known from Europe, naturalized to Northern America and Eastern Asia. Now it extends southward to the central part of Taiwan.

ACKNOWLEDGMENT

The authors wish to thank the director of the TAI— Herbarium who kindly made his loan available to us. Thanks also extend to Ms. M. J. Lee for her high quality of line drawing.

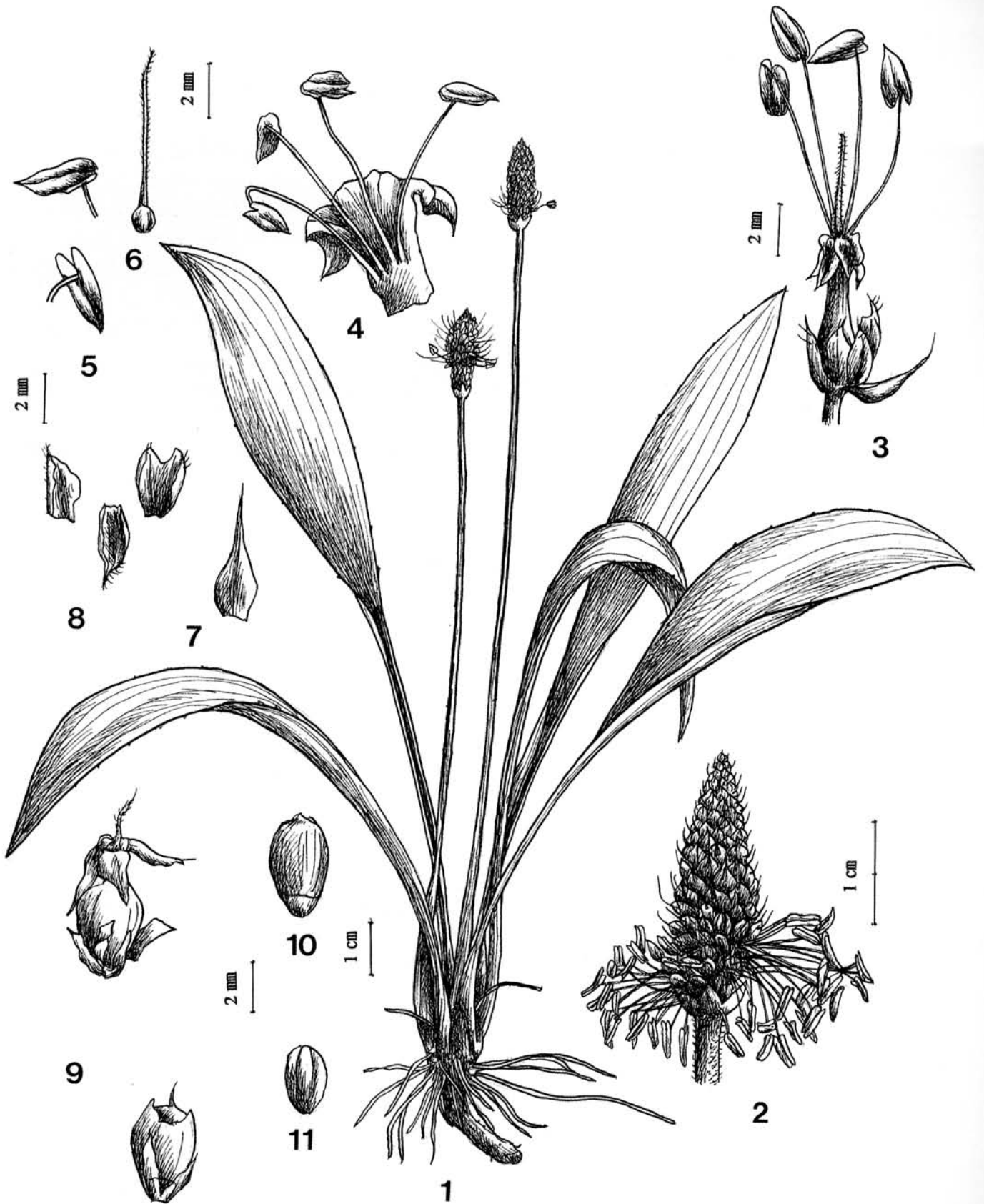


Fig. 1 *Plantago lanceolata* L., 1. habit, 2. spike, 3. flower, 4. dissected corolla, 5. stamen, 6. pistil, 7. bract, 8. sepal, 9. fruit with persistent perianth, 10. fruit, 11. seed.

LITERATURE CITED

- Chen, S.-H. and M.-J. Wu. 1986. *Plantago virginica* L. A new record to the flora of Taiwan. *Yushania* **3**(3): 21-23.
- Hsu, C.-C. 1971. Illustrations of Common Plants of Taiwan. Vol. 1: Weed. Taiwan Prov. Edu. Asso. Press, pp. 201-202.
- Li, H.-L. 1978. Plantaginaceae. In: Li, H.-L. *et al.* (eds.) Flora of Taiwan. Vol. 4. Epoch Publ. Co., Taipei. pp. 701-703.
- Masamune, G. 1932. Symbolae Florae Australi-Japonicae I. Journ. Soc. Trop. Agr. **4**: 191-197.
- Matsumura, J. and B. Hayata. 1906. Enumeratio plantarum Formosanarum. Journ. Coll. Sci. Univ. Tokyo **22**: 321.
- Yamamoto, Y. 1932a. Observationes ad floram Formosanum. III. Journ. Soc. Trop. Agr. **4**: 187-190.
- Yamamoto, Y. 1932b. Supplementa Iconum Plantarum Formosanum V. Dept. For. Res. Govern. Res. In. Press, Taihoku. pp. 29-30.
- Yamamoto, Y. 1938. Observationes ad floram Formosanum. XXI. Journ. Soc. Trop. Agr. **10**: 274-280

台灣新歸化植物--長葉車前

陳世輝⁽¹⁾、曾彥學⁽²⁾、吳明洲⁽¹⁾、劉靜榆⁽²⁾

(收稿日期：1996年3月25日；接受日期：1996年 4月29日)

摘 要

長葉車前發現於台灣中部及北部，為台灣新歸化植物，其緊密聚生小花的圓錐形或短柱狀的穗狀花序，極易與本省產同屬植物區別。台灣應為本種植物地理分佈之南界。本文報告其形態特徵、地理分佈及生長環境，並提供繪圖及檢索表。

關鍵詞：長葉車前，分類學，台灣。

1. 國立花蓮師範學院數理教育學系。花蓮 970，台灣，中華民國。
2. 台灣省特有生物研究保育中心。南投(集集) 552，台灣，中華民國。