

Centratherum punctatum Cass. ssp. *fruticosum*, A Newly Naturalized Sunflower Species in Taiwan

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ABSTRACT : *Centratherum punctatum* Cass. ssp. *fruticosum*, originally native to the Philippines, was recently found naturalized in ruderal sites of northern and eastern Taiwan. It represents a new record for both the species and the genus on this island. The present study provided taxonomic description, line drawings and other relevant information.

KEY WORDS : Asteraceae, *Centratherum punctatum* ssp. *fruticosum*, Distribution, Flora of Taiwan, Taxonomy.

INTRODUCTION

On a field trip to Kuo-Fu area in Hualien, the third author collected an unknown taxon assignable to the genus *Centratherum* Cass. and sent to the first author for identification. It turned out that this collection represent *Centratherum punctatum* Cass. ssp. *Fruticosum* (Vidal) Kirkman, a species not previously reported in the literature relating to the Flora of Taiwan. When a search was undertaken to locate the population in 1999, it was found that *C. punctatum* Cass. ssp. *fruticosum* was naturalized also in Taipei areas (Fig. 1).

In the systematic survey of Asteraceae of Taiwan, Peng *et al.* (1998) indicated that three genera, *Veronia*, *Elephantopus* and *Pseudoelephantopus*, were represented in the tribe Veronieae on this island. Our recent finding of *Centratherum* in Taiwan has resulted in an additional genus for the flora of Taiwan.

Centratherum Cass. is a tropical genus distributed in the warmer regions of the old world and Australia (Backer and Bakhuizen Van Den Brink, 1965; Bailey, 1900; Bentham, 1866; Jones, 1980; Willis, 1973), and recently to Florida, the United States of America (Wunderlin, 1997). It has traditionally been characterized by pedunculate heads subtended by leafy involucre bracts, naked receptacles and caducous uniseriate pappus bristles (Backer and Bakhuizen Van Den Brink, 1965; Bailey, 1900; Bentham, 1866). However, by an analysis of the gross-morphological characteristics combined with pollen and chromosome studies,

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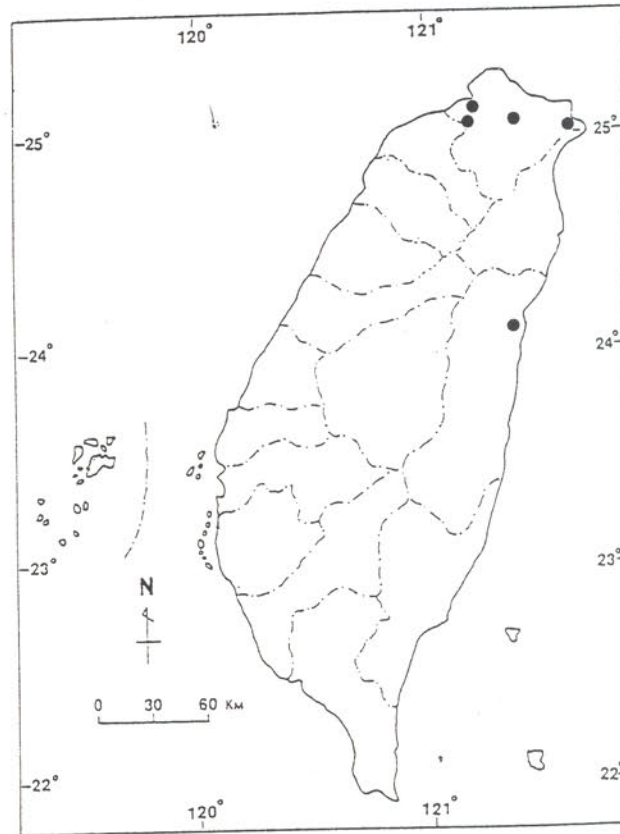


Fig. 1. Distribution of *Centratherum punctatum* Cass. ssp. *fruticosum* in Taiwan.

Kirkman (1981) proposed a generic distinction of the respective taxa, *i.e.*, *Centratherum* with the chromosome number of $n=16$ or 32 , the t-shaped and uniseriate leaf trichomes, the spiny pollen grains and the distribution in the New World, Australia and the Philippines, and *Phyllocephalam* with the chromosome number of $n=9$, the flagelliform and uniseriate leaf trichomes, the polyhedral pollen grains and the distribution in India and Java.

TAXONOMIC TREATMENT

***Centratherum punctatum* Cass. ssp. *fruticosum* (Vidal) Kirkman in *Rhodora* 83: 20. 1981**
 菲律賓鈕扣花 (新擬中名) Figs. 2-4.

C. fruticosum Vidal Rev. Pl. Vasc. Filip. 159.1886; Elmer Leaflet. Philip. Bot. 1: 88. 1906.

Herbs or small shrubs, up to 130cm tall, pubescent, white-tomentose at young shoot. Stems ridged, glabrous and woody at base, up to 1.2 cm across. Leaves fascicled in the branches, t-shaped and uniseriate trichomes; petioles up to 2 cm long, indistinct in small blades; blades 1-6 cm long and 0.5-3 cm wide, elliptic, obovate-elliptic to rhombic, dark green, with gland dots above and below, the apex broadly acute, with a resemblance to margin teeth, the base attenuate to truncate, the margin irregularly crenate-serrate. Inflorescences terminal or terminal to axillary dichotomous branches. Heads many-flowered,

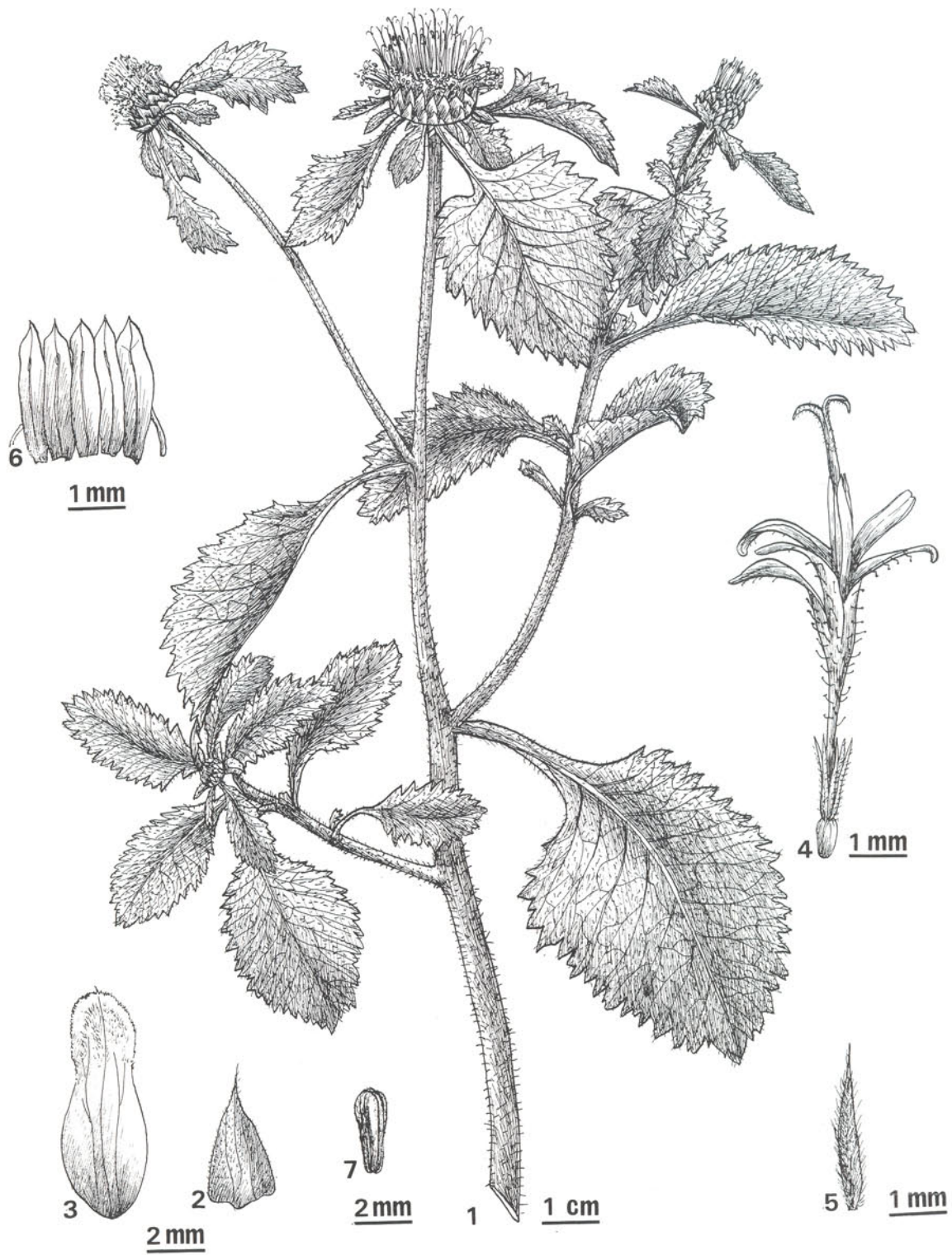


Fig. 2. *Centratherum punctatum* Cass. ssp. *fruticosum* (Vidal) Kirkman. 1. habit; 2. outer phyllary; 3. inner phyllary; 4. tubular floret 5. pappus; 6. stamens; 7. achene



Fig. 3. *Centratherum punctatum* Cass. ssp. *fruticosum* (Vidal) Kirkman in its natural habitat.



Fig. 4. *Centratherum punctatum* Cass. ssp. *fruticosum* (Vidal) Kirkman closer view of the showy heads.

2-2.5 cm across, 2 cm tall from the involucre base; peduncles 3-11 cm long; receptacle naked; involucre broadly campanulate to semiglobose, up to 1 cm tall, the base with leafy bracts, whorled; phyllaries imbricate in 5-7 series, minutely pubescent, 3-veined, the inner ones linear, linear oblanceolate to fiddle-shaped, about 7.5 mm long and 3 mm wide, constricted at middle, the apex mucronate to cuspidate, the margin scarious, purplish and fringed to sinulate, the outer ones triangular, acuminate to spine at the apex and indurate at the base, 5-7 mm long and 2.5 mm wide. Pappus of 6 to 12 bristles, up to 2.5 mm long, chaff-like, straw-colored, pubescent, deciduous. Corollas tubular, reddish-purple, up to 1.6 cm long, 5-lobed, the lobes linear lanceolate, 2-4 mm long, the corolla-tube 0.8-1.2 cm long, with glandular-hairs on the back; stamens 5, white, more or less excluded the corolla-tube, the anthers linear, obtuse at base and acute at apex, up to 2.5 mm long, connate into a tube around the style; style white, up to 1.5 cm long, the style-branches filiform, acuminate, flushed with purple and hispidulous; ovary cylindrical, less than 2 mm long. Achens obconic-cylindrical, 2.5-2.7 mm long, 1.5 mm wide, black, glabrous, with 10 ribs. Flowering and fruiting throughout the year.

Specimens examined: HUALIEN CO.: Hualien, Kou-Fu, along the trail, November 20, 1997, *Chen & Li s. n* (HLTC*). TAIPEI CO.: Nankang, foothills, graveyard, February 15, 1984, *C.-I Peng 6395* (HAST); Kuanyinshan, around a graveyard, November 23, 1985, *S.-Y. Lu* (HAST); Linkou, on road side of Linkou table land, June 24, 1991, *C.-H. Chen 1137* (HAST); Kungliao, secondary broadleaf forest, February 9, 1995, *K.-Y. Wang 723* (HAST).

* Recently assigned acronyms for the Herbarium, National Hualien Teachers College

Notes: *Centratherum punctatum* Cass. ssp. *fruticosum* is a native of the Philippines. In Hualien County, it was found along roadsides or waste lands, and associated with *Bidens pilosa* L. var. *radiata* Schultz-Bip., *Celosia argentea* L., *Cenchrus echinatus* L., *Cynodon dactylon* (L.) Pers., *Ipomea acuminata* (Vahl) Roem. & Schult., *Panicum maximum* Jacq. and *Pennisetum alopecuroides* (L.) Spreng. Based on the available specimens (*C.-I Peng 6395*, HAST), *C. punctatum* Cass. ssp. *fruticosum* apparently occurred on this island as early as 1984. However by its probable escape from cultivation, Peng *et al.* (1998) in the treatment of the *Flora of Taiwan* did not consider this species as naturalized in Taiwan.

According to Kirkman's revisionary treatment (1981), *Centratherum* is a genus of two species and three subspecies occurred in the tropics of the New World, Australia, and the Philippines. *Centratherum punctatum* Cass. ssp. *fruticosum* was found only in the Philippines and is readily separable from the other taxa by its rhombic to elliptic leaves that are broadly acute at apex and serrate margins with minute mucro teeth, and phyllaries indurate at the base and not awned (Kirkman, 1981).

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台灣新歸化之菊科植物－菲律賓鈕扣花

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摘 要

菲律賓鈕扣花(*Centratherum punctatum* Cass. ssp. *Fruticosum* (Vidal) Kirkman) 屬於菊科之鈕扣花屬(新擬中名)，菲律賓原產，近年發現分佈於台灣東部及北部之廢棄地，為台灣植物誌增添一屬。本文描述其分類特徵、分佈及相關分類報導，並提供植物外形及解剖圖以供辨識。

關鍵詞：菊科，菲律賓鈕扣花，植物分佈，台灣植物誌，分類學。

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