

Notes on Two Newly Naturalized Plants in Taiwan

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ABSTRACT: *Ipomoea hederifolia* L. and *Mecardonia procumbens* (Mill.) Small are recently found naturalized in the eastern part of Taiwan. *M. procumbens* represents a new record for not only the species but also the genus on this island. The present study gives the taxonomic description and line drawings of the two species. In addition, their distribution and notes on ecology are provided.

KEY WORDS: Convolvulaceae, *Ipomoea hederifolia*, *Mecardonia procumbens*, Scrophulariaceae, Taiwan, Taxonomy, Weeds.

INTRODUCTION

During the course of the botanical survey for biodiversity study in eastern Taiwan, two newly naturalized species, *Ipomoea hederifolia* L. and *Mecardonia procumbens* (Mill.) Small were collected in Hualien county. *Ipomoea* is a cosmopolitan genus of probably more than 500 species, the majority of them occur in America and Africa (Austin, 1980). Taiwan is comparatively poor in species, and only 21 species are presently known (Staples and Yang, 1998). The occurrence here of *I. hederifolia* brings the total to 22.

Mecardonia is a small genus of about 9 species, native to both North and South America (Pennell, 1946). It closely resembles *Bacopa*, but differs in having a more distinctly two-lipped corolla, two bracts at the base of the long flower-pedicel and pinnately-veined leaves. It was not reported in the treatment of Scrophulariaceae of Taiwan (Liu, 1998). The finding of *M. procumbens* represents a new record for both the species and the genus on this island.

TAXONOMIC TREATMENT

1. *Ipomoea hederifolia* L., Syst. Nat. ed. 10. 925. 1759 ; Backer & Bakh. f., Fl. Java 2: 491. 1965; Austin, Ann. Missouri Bot. Gard. 62: 211-212. 1975; Austin in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 1: 325-326. 1980. 心葉蔦蘿(新擬) Figs. 1-2, 5

Annual herbs, the stem twining, slender, 1-1.5 mm across, green or somewhat flushed with purple at the base, glabrous or puberulent at the apex. Leaf-blades ovate in outline, 5-6.5 cm long and 3-4.5 cm wide, entire to dentate with 3-5 teeth, or 3-lobed, basally cordate, the lobes ovate to oblong, apically acuminate, glabrous or remotely puberulent above; petioles 3-5 cm long, smooth or muricate above. Flowers axillary, 2-3 flowered in cymes or solitary,

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Fig. 1. *Ipomoea hederifolia* L. showing the showy flower and its accompanists: *Ipomoea triloba* L. and *Bidens pilosa* L. var. *minor* (Bl.) Scherff. (at the left).



Fig. 2. *Ipomoea hederifolia* L. showing the corolla with style and stamens exserted, and the capsules.

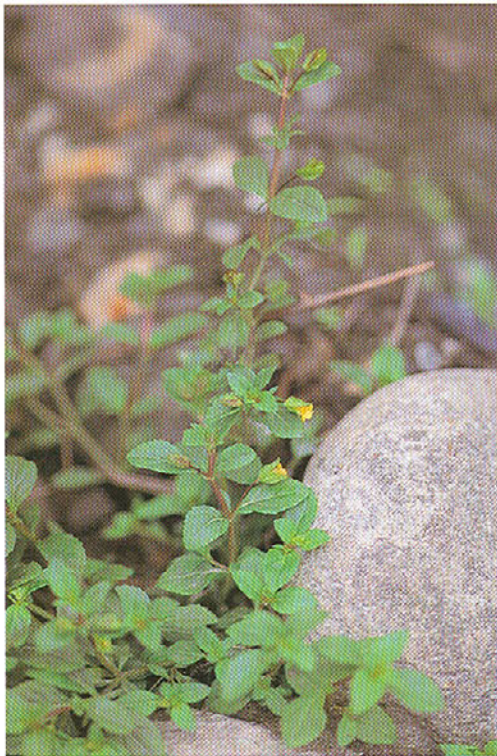


Fig. 3. *Mecardonia procumbens* (Mill.) Small in it's natural habitat.

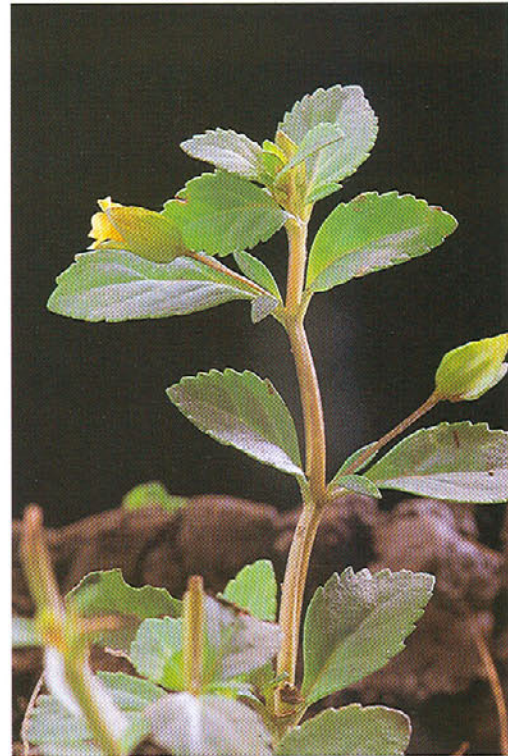


Fig. 4. *Mecardonia procumbens* (Mill.) Small closer view of the flower, noting the bracts at the base of the flower-stalk.

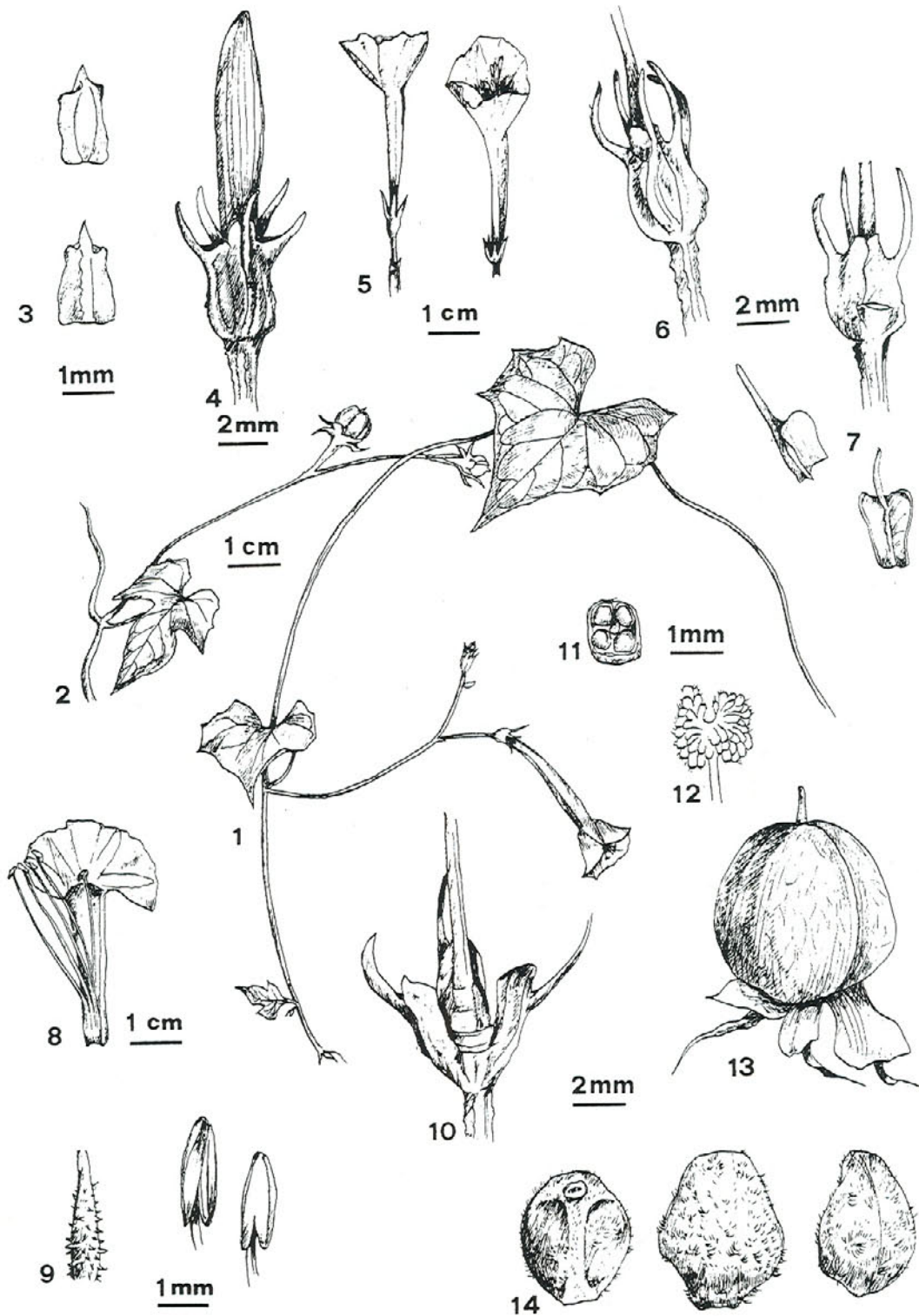


Fig. 5. *Ipomoea hederifolia* L. 1: habit; 2: fruiting branch; 3: bracts; 4: flower bud; 5: flowers; 6: dissected flower with corolla and stamens removed; 7: sepals; 8: vertical section of corolla with stamens and pistil; 9: filament base and anther portions of stamens; 10: ovary and disc with three inner sepals; 11: cross section of ovary; 12: stigma; 13: capsule; 14: seeds.

with peduncles 5-10 cm long; bracts 2, on the base of pedicels, lanceolate 2 mm long, aristate apically, the dorsal median portions fleshy, muricate, green flushed with dark purple; pedicels 2-7 mm long, smooth or muricate on the angles. Sepals 5, unequal, 4-4.5 mm long, 2 mm wide, the outer a little shorter than the inner, oblong to subquadrate, apically truncate to emarginate, the edges membranous, the dorsal median portions thicker, fleshy or keel-shaped, smooth or muricate, all aristate, the arista caudate, subterminal, 3 mm long; corolla salverform, red to orange-red, 3-3.5 cm long, glabrous, the tube 2-5 cm long and 2-4 mm in diameter, with the inside light yellow, the limb 1.5 cm across; stamens 5, exerted, the filament inserted on the tube base, unequal, 2.3-2.8 mm long, white, the base swelled, minutely echinate, the anthers linear oblong, 1 mm long, whitish yellow; ovary ovoid, 2 mm long, 4-locular, white, with a whitish yellow cupuliform disc at the base, the style white, 2.7 cm long, slightly exerted beyond the stamens, the stigma white, capitate, 1.2 mm in diameter, 2-globose. Capsule subglobose, 7 mm in diameter, with an apiculum 1 mm long, dark brown; seeds 4, pyriform, 5 mm long and 2.3 mm wide, finely tomentose with short trichomes, the tomentum black, reticulate on the surface, and in two lines on the dorsal surface, the trichomes clustered along the edges.

Specimens examined: HUALIEN CO.: Feng-Lin, along open roadsides of waste fields and pasturelands, September 26, 2000, Chen, *s. n.*(HLTC).

Distribution and notes: The species is distributed through the southern United States, the West Indies, Mexico, to Central America and South America, and is introduced into Malaysia and Africa (Austin, 1975). It also occurs in Java (Baker and Bakhuizen, 1965) and Ceylon (Austin, 1980). In China it was reported in cultivation and escape from gardens (Fang and Staples, 1995).

In Taiwan, *I. hederifolia* occurs at lowlands in the eastern part of the island. It is seen along road sides or wastelands, associate with other weedy plants commonly found in disturbed areas, such as *Aster subulatus* Michx., *Bidens pilosa* L. var. *minor* (Bl.) Scherff, *Conyza canadensis* (L.) Cronq. var. *canadensis*, *Ipomoea triloba* L. Flowering period is between March and October.

2. Mecardonia Ruiz & Pav., Fl. Peruv. Prod. 95. 1794.

過長沙舅屬(新擬)

Mecardonia procumbens (Mill.) Small, Fl. Southeastern U.S. 1065. 1903; Winderlin, Guid. Vasc. Pl. Florida 556. 1998.

黃花過長沙舅(新擬) Figs. 3-4, 6

Erinus procumbens Mill., Gard. Dict. ed. 8, no. 6. 1768.

Bacopa procumbens (Mill.) Greenman, Field Col. Mus. Bot. Ser. 2: 261. 1907; Backer & Bakh. f., Fl. Java 2: 507. 1965.

Pagesia procumbens (Mill.) Pennell, Monog. Acad. Nat. Sci. Phila. 1: 68-69. 1935.

Perennial herbs, often becoming black upon drying; plants glabrous, much branched in the lower parts, procumbent or ascending, 10-15cm tall, the stem 4-angled, 1-1.5mm wide, more or less winged. Leaves opposite; blade elliptic to ovate, 1.5-2.5cm long and 1-1.5cm wide, subacute at apex, sessile or obliquely tapering at base to a winged petiole 2-5mm long, the margin serrate and flushed with purple, conspicuously veined, glandular punctate on the surface. Flowers solitary, in axils on pedicels, 7-12mm long; bracts 2, opposite at base of petioles, narrowly oblanceolate, 4-7mm long and 1-2mm wide, entire or inconspicuously serrulate above the middle. Sepals 5, unequal, the outer 3 broadly ovate to ovate-elliptic, 6-7mm long and 3.5-4mm wide, the outermost slightly wider than the other two, entire or

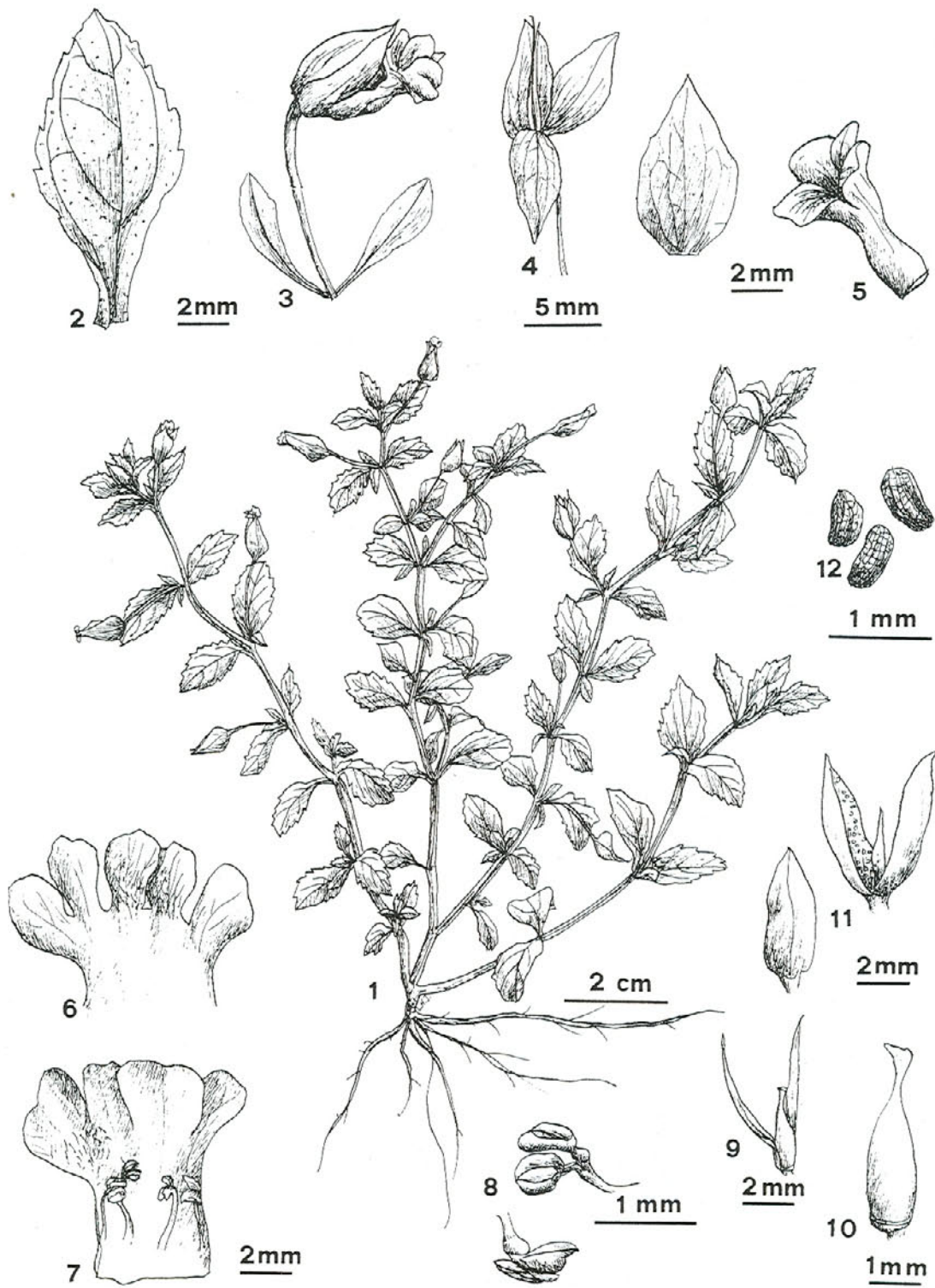


Fig. 6. *Mecardonia procumbens* (Mill.) Small. 1: habit; 2: leaf with glandular dots; 3: flower with bracts at the base of pedicel; 4: sepals and the outermost sepal; 5: corolla; 6: corolla lobes; 7: vertical section of corolla with stamens; 8: portion of stamens; 9: pistil with two inner sepals; 10: pistil with annular disc; 11: capsules; 12: seeds.

remotely serrulate, 7-veined, the inner 2 linear lanceolate, 5-6mm long and 0.5mm wide, 1-veined; corolla cylindric-campanulate, yellow, slightly longer than the sepals, 6-8mm long, glabrous without, bilabiate, upper lip notched or 2-lobed, 3mm long and 3.5mm wide, reddish brown veined and yellow pubescent within at base, lower 3-lobed, the lobes 3mm long and 2-3mm wide; stamens 4, adnate to corolla tube, didynamous, the long filament 2mm long, the short filament 1.5mm long, anthers 2-celled, 0.5mm long, the connective collar-like; pistil 3.5mm long, the ovary ellipsoid, 2.5mm long and 1mm wide, with a yellow annular disk, the style short, the stigma capitate, green. Capsule ellipsoid, 5mm long and 2mm wide, brown, septicidally dehiscent, valves bifid; seeds cylindric, 0.5mm long, black, reticulate on the surface.

Specimens examined: HUALIEN CO.: Nan-Hua, along Mu-Gua River in wet wastelands, March 2, 1999, Chen, *s. n.* (HLTC); campus of National Hualien Teachers College, on lawn in a rather large mass, December 20, 2000, Chen, *s. n.* (HLTC).

Distribution and notes: *M. procumbens* is a weedy plant distributed from tropical America to Texas and Florida of the United States (Small, 1903; Pennell, 1935), also naturalized to Java (Baker and Bakhuizen, 1965).

It occurs in open sunny moisture soils along streams and on lawns in university campus. Associated with the following weeds: *Mazus pumilus* (Burm. f.) Steenis, *Lindernia crustacea* (L.) F. Muell., *Youngia japonica* (L.) DC. subsp. *japonica*, *Ixeris chinensis* (Thunb.) Nakai, *Conyza canadensis* (L.) Cronq. var. *canadensis*, *Phyllanthus embergeri* Haicour and Rossingnol, *Chamaesyce hirta* (L.) Millsp., *Cynodon dactylon* (L.) Pers., *Paspalum conjugatum* Berg., *Eragrostis amabilis* (L.) Wight and Arn. *ex* Nees, *Kyllinga brevifolia* Rottb. Flowering year round.

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記二種台灣新歸化植物

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摘 要

心葉蔦蘿 (*Ipomoea hederifolia* L.) (新擬中名) 及黃花過長沙舅 (*Mecardonia procumbens* (Mill.) Small) (新擬中名) 為新歸化於台灣東部之旋花科與玄參科植物，黃花過長沙舅之發現且為台灣植物誌新增一屬。本文描述這兩種植物，除提供形態、解剖圖外並報告其分佈與生態。

關鍵詞：旋花科，心葉蔦蘿，黃花過長沙舅，玄參科，台灣，分類學，雜草。

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