



## NOTE

## A New Alien Distribution Record and Addition to the Flora of Taiwan: *Jacquemontia polyantha* (Schltdl. & Cham.) Hallier f. (Convolvulaceae)

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**ABSTRACT:** *Jacquemontia polyantha* (Schltdl. & Cham.) Hallier f., a species of the Convolvulaceae native to Mexico, was found established in Pingtung County, southern Taiwan. *Jacquemontia polyantha* can be distinguished from the other species of the genus in Taiwan by the pubescence density, inflorescence type, presence and shape of bracts, and shape of the outer sepals. This note provides a description of the species, keys to the three species of *Jacquemontia* in Taiwan and colour photographs to aid in identification.

**KEY WORDS:** Alien plant, Convolvulaceae, *Jacquemontia polyantha*, Taiwan, taxonomy.

### INTRODUCTION

In April 2011, Miss S.-H. Wu, a zealous plant collector particular interesting in limestone flora and research staff at the Hengchun Experimental Station, Taiwan Forestry Research Institute, sent three photographs of an unknown plant to the first author. To better understand this plant in question, Yang visited the locality to collect specimens and took photographs. Although the plant was clearly attributable to *Jacquemontia* (Convolvulaceae), Yang was unable to identify it. Subsequently, photographs and specimens were sent to Dr. G. Staples of the Singapore Botanical Garden. Although Dr. Staples was also unable to identify the plant, he forwarded the information to the second author, a doctoral student of the Universidade Federal de Pernambuco, Brazil, currently revising the Brazilian *Jacquemontia*. Through extensive communication, this plant was identified as *Jacquemontia polyantha* (Schltdl. & Cham.) Hallier f., a species native to Mexico that appears to become established in southern Taiwan.

### TAXONOMIC TREATMENT

*Jacquemontia polyantha* (Schltdl. & Cham.) Hallier f., Bot. Jahrb. Syst. 16: 543. 1893.

Basionym: *Convolvulus polyanthus* Schltdl. & Cham., Linnaea 5: 117. 1830.

Type: MEXICO. Veracruz: Hacienda de la Laguna,

anno 1828, C.J.W. Schiede & F. Deppe 220 (HAL, holotype; BM!, iso).

Leaves obviously stellate hairy on the adaxial surface, but not visibly so on upper surface, margins faintly repand. Flowers 1 cm diameter; sepals 5, imbricate, stellate hairy on both sides; corolla white to pale pink; stamens 5, one stamen longer than the others, filament bases united to corolla tube and covered by some short hairs. Capsules glabrous, commonly with 4 seeds; seeds winged on the margins.

Specimen examined: TAIWAN. Pingtung County, Hengchun Town, Houwan Village, Shiashueijue, county route 153, 27 April 2011, Kung-Cheng Lin & Sheng-Zehn Yang 001 (BM, SING, SP, UFP and PPI). Fig 1.

The newly discovered population of *Jacquemontia polyantha* in Pingtung County, southern Taiwan, grows on raised coral reef about 50 cm above sea level with direct exposure to intense sunlight. The vegetation at the site is composed of tree species of *Aglaia formosana* (Hayata) Hayata, *Broussonetia kaempferi* Siebold, *Planchonella obovata* (R. Br.) Pierre, *Leucaena leucocephala* (Lam.) de Wit, *Antidesma pentandrum* Merr. var. *barbatum* (C. Presl) Merr., *Macaranga tanarius* (L.) Müll. Arg., *Melanolepis multiglandulosa* (Reinw. ex Blume) Rchb. f. & Zoll., *Gelonium aequoreum* Hance, *Capparis micracantha* DC. var. *henryi* (Matsum.) Jacobs, *Severinia buxifolia* (Poir.) Ten., *Premna serratifolia* L., *Phoenix hanceana* Naudin, *Abutilon indicum* (L.) Sweet, and *Ehretia dicksonii* Hance. Herbaceous plants include *Tridax procumbens* L., *Passiflora foetida* L. var. *hispida* (DC. ex Triana & Planch.) Killip, *Bidens pilosa* L., *Blechum*

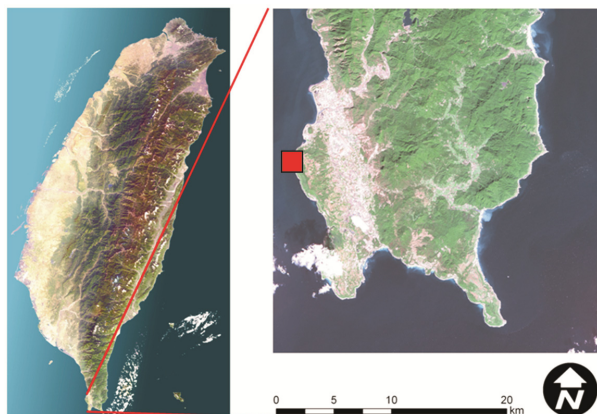


Fig. 1. Distribution of *Jacquemontia polyantha* (Schltdl. & Cham.) Hallier f. (■) in Taiwan.

*pyramidatum* (Lam.) Urb., *Hypoestes cumingiana* (Nees) Benth. & Hook.f., and *Euphorbia cyathophora* Murray. This alien species often climbs on the *E. cyathophora* or grows prostrate on the thin soil of the exposed coral reef (Fig. 2).

In Taiwan, *Jacquemontia polyantha* is most similar to *J. paniculata* (Burm. F.) Hallier f. (Staples and Yang, 1998). The following key separates *J. polyantha* from the other two species recorded in Taiwan.

#### Key to *Jacquemontia* in Taiwan

1. Inflorescences capitata, subtended by large foliaceous bracts, peduncle 6–8 cm long ..... *Jacquemontia tamnifolia*
1. Inflorescences umbelliform cymes, bracts tiny, peduncle 3–5 cm long.
2. Leaves ca. 3 × 1.4 cm, obviously stellate hairy on the abaxial surface; sepals stellate hairy on both sides, broadly ovate narrowed to a short basal stipe, apex short-acuminate; capsule about 3mm in diameter ..... *J. polyantha*
2. Leaves ca. 8 × 5 cm, glabrous or nearly so on both surfaces; sepals pilose or glabrescent on both sides, ovate, base rounded, apex acuminate or long-acuminate; capsule about 4 mm in diameter ..... *J. paniculata*

## DISCUSSION

The specimen collected in Taiwan is referable to a complex of species centred on *J. pentanthos* (Jacq.) G. Don. This complex comprises climbing plants with ovate leaves, dichasial cymes, and ovate outer sepals. The specific delimitation remains a challenge in this group and, for this reason, data about geographic distribution can be confusing. Many herbarium specimens are misidentified and when geographical distribution is compiled based on wrongly determined materials, an erroneous distribution results.

*Jacquemontia polyantha*, in contrast to *J. pentanthos* and *J. abutiloides* Benth., has sepals with short-acuminate apices, which are closer to those of

*J. smithii* B.L. Rob. & Greenm., *J. pinetorum* Standl. & Steyerl., *J. eastwoodiana* I. M. Johnst. and *J. albida* Wiggins & Rollins (Robertson, 1971). *Jacquemontia pinetorum* seems to be morphologically the most similar species, because it shares the common characters of pubescence with 3-armed trichomes, leaf margins faintly repand, the outer sepals broadly ovate narrowed to a short stipe, and the inner sepals smaller and lanceolate. However, in *J. pinetorum*, the cymes are more compact and the corollas are blue.

*Jacquemontia polyantha* was previously reported only from Mexico (Robertson, 1971; McDonald, 1993), where it occurs in areas of tropical deciduous forests at altitudes from 200 to 1500 m. There are some collections reported from areas with anthropogenic influences such as roadsides. However, there are no references that *J. polyantha* shows any weedy or invasive behaviour. However, similar to *J. pentanthos*, *J. polyantha* typically presents few individuals per population, but those individuals occupy large areas and produce many flowers.

In Mexico, *J. polyantha* is a rather variable species in terms of the morphology. There are variations on shape and size of leaf blade, number of flowers, pubescence density, presence and shape of bracts, colour of flowers (white, blue or lavender). The specimens collected in Taiwan differ mostly by having smaller leaves (ca. 3 × 1.4 cm), denser pubescence, and smaller seeds (ca. 3 mm instead of 4 mm). However, in most species of *Jacquemontia*, all these characters can be affected by environmental conditions and vary accordingly.

Given that the species has never been found outside Mexico before, how then did *Jacquemontia polyantha* come to be in southern Taiwan? Could there have been mechanisms for soil/seeds/plants to be moved by humans from Mexico to the southern peninsula in Taiwan? The site of this population is in the neighborhood of the National Museum of Marine Biology and Aquarium in southern Taiwan. The construction of the Museum had taken many years and needed different materials from foreign countries. It is likely that some seeds of *J. polyantha* have been brought accidentally along with the constructing materials from Mexico. Other possibilities are equipments or machineries used for road building, farming, construction, or any number of other purposes. The soils stuck on tires may contain seeds. Alternatively seeds could be mixed with agricultural products as contaminants. Could the species was deliberately introduced for some reason? While it may not be possible to find out how and why *J. polyantha* appeared in Taiwan, we will try and discover any clues about where the plants came from.



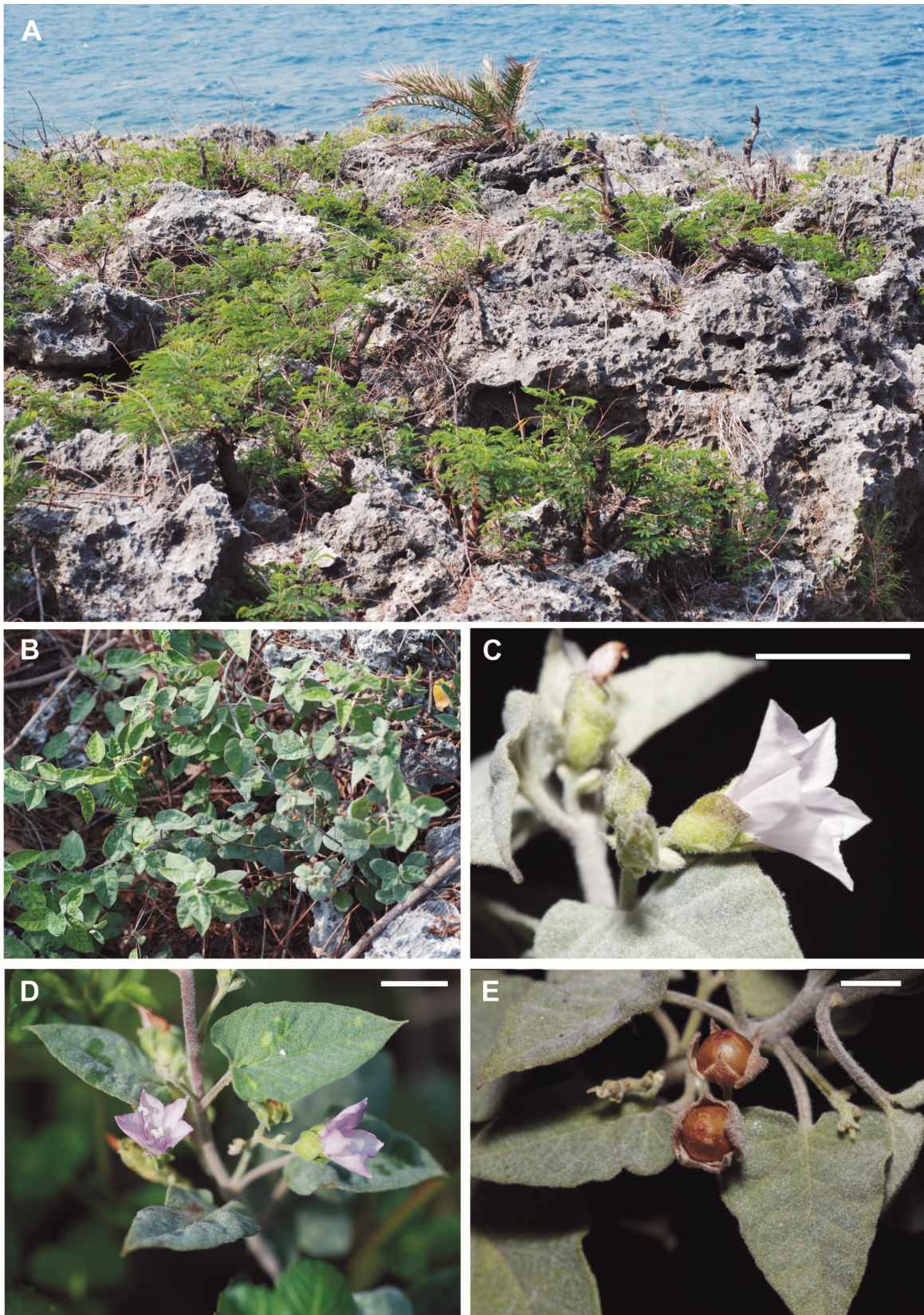


Fig. 2. A: Habitat of *Jacquemontia polyantha*. Upraised coral reef in Pingtung County. B–E: *Jacquemontia polyantha*. B: Habit. C: Flower detail, scale bar: 1 cm. D: Variation in corolla colour, scale bar: 1 cm. E: Fruits, scale bar: 5 mm (all photos by S.-Z. Yang).



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## LITERATURE CITED

### 台灣旋花科外來種—多花娥房藤的新分布紀錄

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摘要：旋花科多花娥房藤 *Jacquemontia polyantha* (Schltdl. & Cham.) Hallier f. 原產於墨西哥，日前在台灣南部的屏東縣被發現。多花娥房藤與台灣其他娥房藤屬植物有明顯的區別，包括了絨毛密度、花序、苞片形狀以及外萼片形狀。本文提供此物種的描述、台灣3種娥房藤屬物種檢索表以及彩色照片幫助鑑別。

關鍵詞：外來植物、旋花科、多花娥房藤、台灣、分類學。