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Prunus glandulosa Thunb. (Rosaceae) and its distribution on the Korean Peninsula

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Prunus glandulosa Thunb. [=*Cerasus glandulosa* (Thunb.) Sokolov] (Rosaceae) is native to the warm-temperate region of China (Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Jiangsu, Shaanxi, Shandong, Sichuan, Yunnan, and Zhejiang Provinces). It is naturalized in the United States (i.e. Alabama, Michigan and North Carolina) and Canada (Ontario). This species, previously only recorded as introduced or cultivated plants on the Korean Peninsula, was confirmed to be naturally distributed in the southwestern coast islands (i.e. Geomun-do, Chuja-do and an uninhabited island in Shinan-gun of Jeollanam-do). *Prunus glandulosa* Thunb. is distinguished from a related taxon *P. japonica* var. *nakaii* (H. Lév.) Rehder by pedicel 8−12 (−16) mm long, linear stipules, glabrous style, and pink petals. The morphological characters and illustration of *P. glandulosa* Thunb. are provided with line drawings and photographs from the natural habitat. In addition, it is likely that a new habitat will be found by plant biodiversity investigations through the southwestern coast islands. Further research is needed to determine its population size, distribution, and threats, as well as identify appropriate locations for conservation collection of germplasm.

Keywords: description, distribution, *Prunus glandulosa*, Rosaceae

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Introduction

Rosaceae Juss., the largest plant family, includes 95−125 genera and 2,825−3,500 species globally, and is primarily found in the northern temperate zone (Lu *et al*., 2003). Rosaceae are distributed throughout Korea with about 37 genera and 144 species (Lee *et al*., 2007).

The genus *Prunus* L. (Rosaceae), with over 200 species of shrubs and trees, is an important component of northern hemisphere forest and desert communities (Rehder, 1940; Robertson, 1974). Many species are economically significant, especially those that are used for ornamentals and food (e.g., plums, peaches, apricots, cherries, and almonds) (Lee and Wen, 2001; Shaw and Small, 2004; Wen *et al*., 2008). In Korea, 24 taxa of *Prunus* have been reported (Kim *et al*., 2011).

Among them, *Prunus glandulosa* Thunb. [=*Cerasus glandulosa* (Thunb.) Sokolov] is native to the warm-temperate region of China (Li, 2003).

This species is an introduced or cultivated plant in Korean Peninsula (Lee and Kim, 2007; Chang *et al*., 2011; Kim and Kim, 2011). Recently, we found *P. glandulosa* native to Geomun-do, Chuja-do and an uninhabited island in Shinan-gun of Jeollanam-do. In this study, *P. glandulosa* is reported as a newly found taxon on the Korean Peninsula. In addition, we provide a description, illustrations, photographs, and a key of related taxa.

Materials and Methods

The *Prunus glandulosa* Thunb. was collected from southwestern coast islands of the Korean Peninsula. Descriptions of this species were checked (Chang *et al*., 2012) by using their habits following photographs (Fig. 1) and drawings (Fig. 2).

Nomenclature of *Prunus* followed Chang *et al*. (2012). All voucher specimens are deposited at the Herbarium of the National Institute of Biological Resources in Korea (KB).

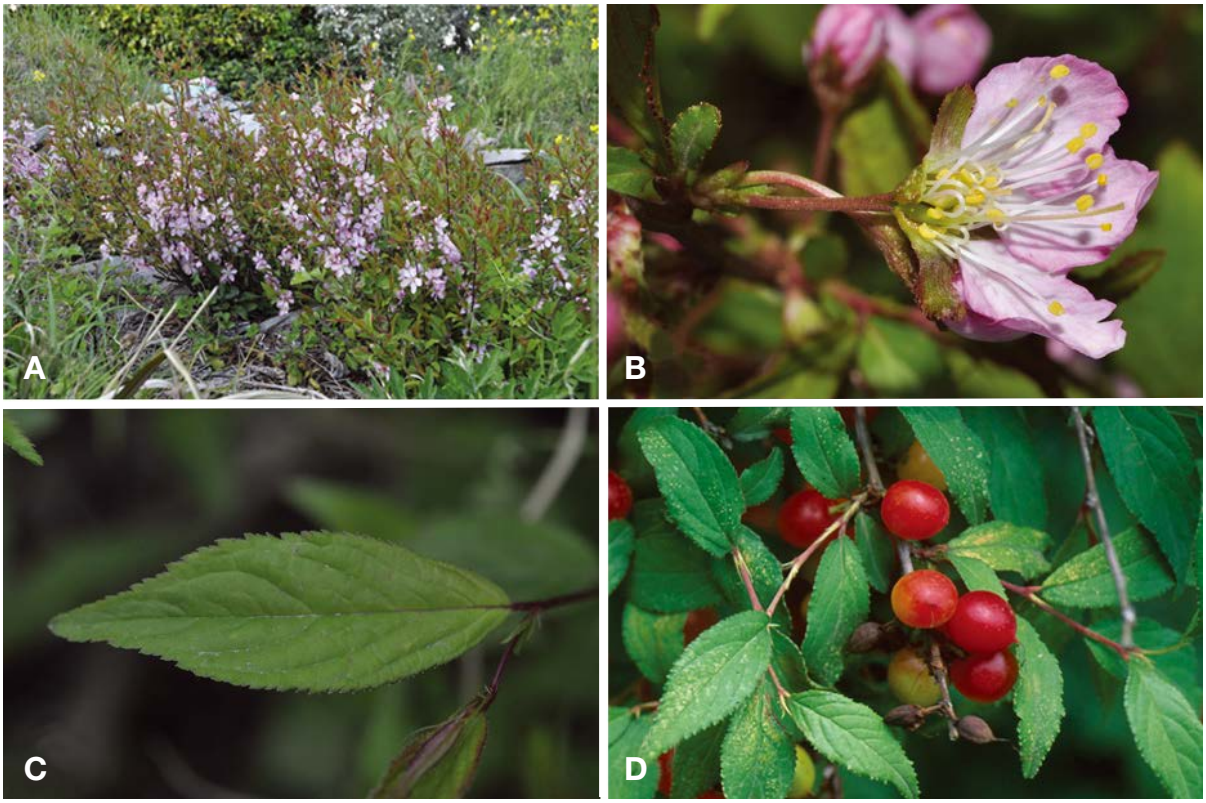

Fig. 1. Photographs of *Prunus glandulosa* Thunb. A. Habitat; B. Flower; C. Leaf blade adaxial surface; D. Fruit.

Taxonomic Treatment and Description

***Prunus glandulosa* Thunb.,** Syst. Veg. (ed. 14) 463. 1784.
Cerasus glandulosa (Thunb.) Sokolov, Trees & Shrubs URSS 3: 751. 1954.
Korean name. San-ok-mae (산옥매)

Shrubs (0.3−)0.5−1.5 m tall. Branchlets grayish brown to brown, glabrous or pubescent when young. Winter buds ovoid, glabrous, or pubescent. Leaves alternate, oblong to elliptic-lanceolate, 0.8−5.2 × 0.4−1.5 cm. Petiole 2−4 mm, glabrous or pilose; leaf blade abaxially pale green and glabrous or pilose along midvein, adaxially green, base cuneate, margin obtusely finely biserrate, apex acuminate. Stipules linear, ca. 5 mm. Flowers solitary or 2−3 in a fascicle, opening at the same time as leaves. Pedicel 8−12(−14) mm, subglabrous. Sepals triangular-elliptic, 4−6 × 2−3 mm, recurved, margin frequently glandular dentate, apex acute. Petals pink, 10−12 × 5−7 mm, ovate or obovate. Stamens 30−35. Style longer than stamens, 10 mm long, glabrous. Fruit Drupe, red to purplish, subglobose, 10 mm in diam.
Distribution. Korea, China, Japan, and Taiwan. In thickets, mountain slopes, and also cultivated.
Flowering. Apr. to May
Fruiting. Jul. to Aug.
Specimens examined. Korea, Jeollanam-do, Yeosu-si, Samsan-myeon, Geomun-ri, Geomun-do (Isl.), Huiyangbong, 07 Apr. 2014, *J.-H. Kim and S.-Y. Kim. KIMJH140054* (3 sheets, KB), *140055* (3 sheets, KB), *140056* (2 sheets, KB); Shinan-gun, uninhabited island, 01 May 2019, *image by Dr. Hyun* (image seen); Jeju-do, Jeju-si, Chuja-myeon, Daeseo-ri, Chuja-do (Isl.), 18 Apr. 2019, *J.-S. Kim. kjs19024* (3 sheets, KB).

A key to *Prunus glandulosa* Thunb. and its related taxa on the Korean Peninsula

1. Pedicel to 2.5 mm or flowers sessile ····· *P. tomentosa*
1. Pedicel 5−30 mm.
   2. Leaf blade lanceolate or oblanceolate; ovary glabrous throughout
      3. Leaf blade lanceolate, apex acuminate; style glabrous throughout ····· ***P. glandulosa***
      3. Leaf blade oblanceolate, apex acute; style pilose basally ····· *P. choreiana*
   2. Leaf blade ovate; ovary pilose or glabrous throughout

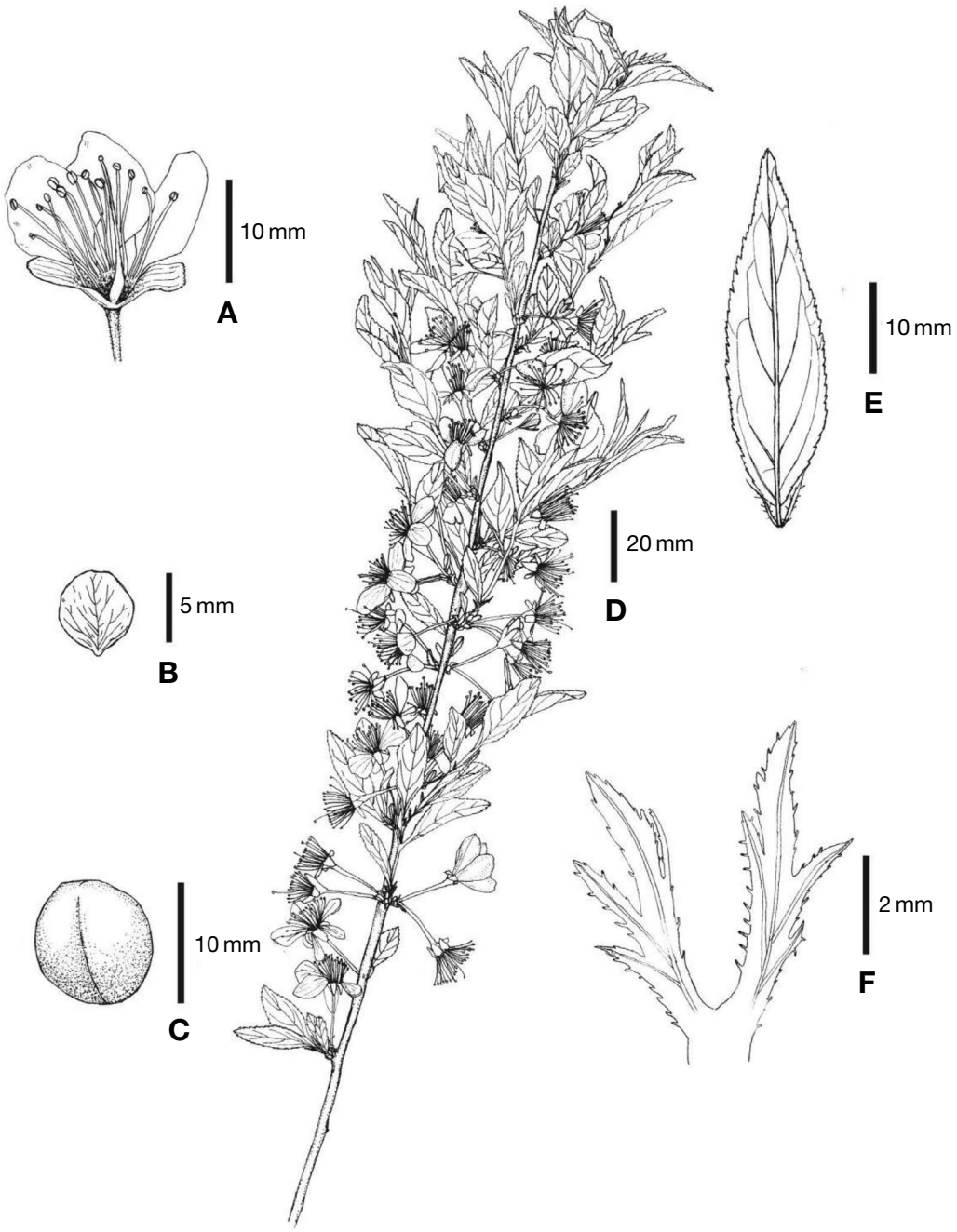

Fig. 2. Illustrations of *Prunus glandulosa* Thunb. A. Flower; B. Petal; C. Fruit; D. Habit; E. Leaf; F. Stipule.

4. leaf margin biserrate; pedicel 5–10 mm····· ····· *P. japonica* var. *japonica*
4. leaf margin erose; pedicel 10–30 mm····· ····· *P. japonica* var. *nakaii*

Discussion

Prunus glandulosa Thunb. is different from *P. japonica* var. *nakaii* (H. Lév.) Rehder in having characters like shorter pedicel ca. 1 cm, linear stipule, and pink color flowers (Figs. 1, 2). Meanwhile, this species is known as an introduced or cultivated plant originating from China (Lee and Kim, 2007; Chang *et al*., 2011; Kim and Kim, 2011).

Previously, Chung *et al*. (1986) reported unidentified *Prunus* sp. which was sparsely distributed on some mountain submits of Chuja-do. They were initially re-

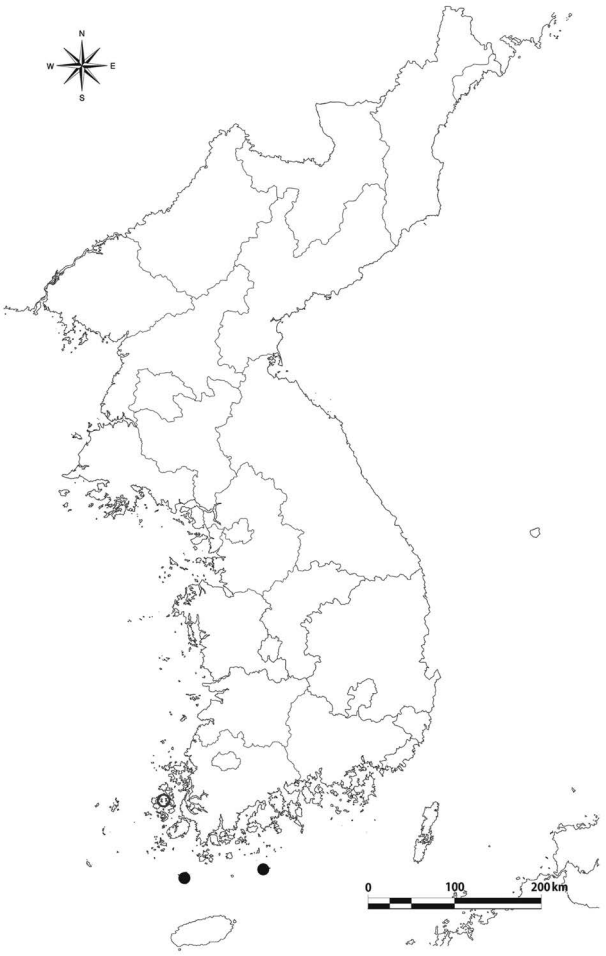

Fig. 3. Distribution map of *Prunus glandulosa* Thunb. on the Korean Peninsula. ●. field survey; ○. image data.

garded as a variety of *P. japonica* var. *nakaii* (H. Lév.) Rehder or new species which was characterized by ca. 30 cm height and bigger fruits than those of *P. japonica* var. *nakaii* (H. Lév.) Rehder. Perhaps Chung *et al.* (1986) identified the specimens as *Prunus* sp. by a lack of awareness of *P. glandulosa* Thunb. and uncertainty in distribution. According to description and images (Chung *et al.*, 1986), *Prunus* sp. is considered *P. glandulosa* Thunb. Therefore, a field expedition was carried out in the same flowering and fruiting time with literature of Chung *et al.* (1986), *Prunus* sp. was discovered in this study. Natural habitat was recently found in southwestern coast islands (Fig. 3). Twenty individuals were growing within a 5×5 m area. The upper vegetation was dominated by *Camellia japonica* L. and *Ligustrum japonicum* Thunb., consisted of *Litsea japonica* (Thunb.) Juss., *Clematis apiifolia* DC., *Pittosporum tobira* (Thunb.) W.T. Aiton, *Rosa multiflora* Thunb., *R. lucieae* Franch. & Rochebr. ex Crép., *Elaeagnus macrophylla* Thunb., *Mallotus japonicus* (L. f.) Müll. Arg., and *Trachelospermum asiaticum* (Siebold & Zucc.) Nakai etc. The low vegetation was made up of *Asplenium incisum* Thunb., *Viola japonica* Langsd. ex Ging., *Agrimonia pilosa* Ledeb., *Vicia hirsuta* (L.) Gray, *V. sativa* subsp. *nigra* (L.) Ehrh., *Mercurialis leiocarpa* Siebold & Zucc., *Lactuca indica* L., *Luzula capitata* Kom., and *Lilium lancifolium* Thunb.

The main growing place of *P. glandulosa* Thunb. is mostly in the natural forests, which is completely different from the environment where alien plants are introduced. This growing environment is evidence that *P. glandulosa* Thunb. can be considered a native plant, and considering the global distribution of *P. glandulosa* Thunb., it is highly possible to grow in the southern part of the Korean Peninsula.

Prunus glandulosa is relatively widely distributed in the central and southern regions of China. In other words, south-central China is the center of distribution, and the southern part of the Korean Peninsula is considered to be the edge of the distribution, and small populations are thought to have formed.

This species is regarded as heliophyte in view of the results, since they are growing open habitat like as ridgeline and the edge of evergreen broadleaf forest. Although the same environmental situation, this species could not grow in dense evergreen broadleaf forests. So, it could be said that *P. glandulosa* Thunb. has a weakness for shade. Since this situation is found in habitats repeatedly disturbed by human activity, like as cutting shoots in forest roads, a conservation strategy should be established.

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