

FALLOPIA JAPONICA (HOULT.) RONSE DECR. (POLYGONACEAE): A
NEW RECORD FOR THE ALIEN FLORA OF CHILE

FALLOPIA JAPONICA (HOULT.) RONSE DECR. (POLYGONACEAE), UN
NUEVO REGISTRO PARA LA FLORA ADVENTICIA DE CHILE

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RESUMEN

La especie introducida *Fallopia japonica* (Houtt.) Ronse Decr. es registrada por primera vez en Chile fuera de zonas urbanas. Se entrega descripción y fotografía de esta especie, potencial invasora de áreas silvestres protegidas. Los especímenes fueron colectados en la localidad de Correntoso, borde del Parque Nacional Alerce Andino (41°27'11"S; 72°39'32"W).

The Polygonaceae family includes 62 species in Chile (Marticorena 1990). The number of alien plant species are 20 including this new record. Originally an East Asian native, *Fallopia japonica* (Houtt.) Ronse Decr. has been introduced as a garden ornamental plant to northern and central Europe, North America, Australia, and New Zealand (ISSG 2009). The species of the genus *Fallopia* possess many of the features of an "ideal invader" and are considered among the most vigorous European aliens (Beerling *et al.* 1995). A previous study has shown that once *Fallopia* taxa invade a site, their persistence is very high (Pyšek *et al.* 2001). *Fallopia japonica* is cultivated as an ornamental plant throughout southern Chile, but to our knowledge, it is not reported as an invasive plant in natural environments.

TAXONOMY

Fallopia japonica (Houtt.) Ronse Decr.

L. Ronse Decraene, Bot. J. Linn. Soc. 98(4): 369. 1988.

Basionym: *Reynoutria japonica* Houtt. Nat. Hist. 2(8): 640, pl. 51, f. 1. 1777.

Synonyms: *Pleuropterus cuspidatus* (Siebold & Zucc.)

Gross, *Polygonum confertum* Hook.f., *P. cuspidatum*

Siebold & Zucc., *P. reynoutria* Makino, *Reynoutria*

hastata Nakai, *Tiniaria japonica* (Houtt.) Hedberg.

Icon: Institute of Botany of Chinese Academy of Sciences. 1972. Iconographia Cormophytorum Sinicorum Tomus I: 1157, fig. 1134.

Rather stout dioecious, herbaceous perennial with thick rhizomes; stems ascending from an erect base, 50-150 cm long, hollow, branched above; leaves broadly ovate, 6-15 cm long, acuminate, papillose to scabrous beneath, usually truncate at base, the petioles 1-3 cm long, sheaths thinly membranous (Figs. 1a, 1c); spike branched, numerous, terminal, paniculate, flowers densely arranged (Fig. 1b), white, 2.5-3 mm long, the pistillate accrescent after anthesis; fruit with the outer perianth segments winged on back, 6-10 mm long, subcuneate at base; achenes ovate-elliptic, 2-2.5 mm long, black-brown, lustrous, acutely trigonous (Jisaburo 1965).

Fallopia contains 12 climbing and erect, annual and perennial, herbaceous and woody species, native to China, Taiwan, Korea, southeastern Siberia, and Japan (Jisaburo 1965, Kim & Park 2000). The taxonomy of *Fallopia* has long been debated. Some authors separate the annual and perennial climbers from the erect, herbaceous perennials, giving generic rank to the latter under *Reynoutria* (e.g. Haraldson 1978). In the present paper, we adopt the taxonomic classification of Ronse Decraene & Akeroyd (1988), which is supported by the results of cytological examinations (Bailey & Stace 1992) and sequence data from the chloroplast genes *rbcl* (Frye & Kron 2003), *trnL-F* and *matK* (Yu *et al.* 2008), and recognize *Fallopia japonica* as a member of *Fallopia* Sect. *Reynoutria*.



FIGURA 1. *Fallopia japonica* (Houtt.) Ronse Decr. a) Tallos con hojas e inflorescencias axilares en antesis. b) Detalle de las inflorescencias axilares. c) Detalle de la hoja (fotografías de N. Fuentes; espécimen CONC N° 168552).

FIGURE 1. *Fallopia japonica* (Houtt.) Ronse Decr. a) Branch with leaves and axillars inflorescences in anthesis. b) Detail of the axillar inflorescences. c) Detail of the leaf (photographs by N. Fuentes; specimen CONC N° 168552).

ECOLOGICAL CHARACTERISTICS

Invaded habitats are woodland, forest edge, riparian environments, wetlands, floodplains, and disturbed sites. Plants spread easily by vegetative fragments in water and thus represent a major threat to the adjacent riparian vegetation (Brabec & Pyšek 2000). Forming monoespecific stands, an extensive *F. japonica* population may reduce river flow and promote soil erosion (Weber 2003). The high regeneration potential of *F. japonica* has been documented not only for rhizomes but also stem fragments (Brock *et al.* 1995, Seiger & Merchant 1997) and establishment from fallen leaves has even been observed (Brabec & Pyšek 2000). Affinity to human settlements reflects their crucial role as dispersal foci for *F. japonica* that is planted in cities, towns and villages from where it is spread into open landscape by people, water courses or soil movement during building activities. The stout rhizome forms a deep mat and can grow more than two meter in depth and 15-20 m in length (Child & Wade 2000, Weber

2003). Control is difficult due to vigorous rhizome growth. Frequent cutting, e.g. at least every four weeks, reduces belowground biomass allocation but cutting alone does not eliminate the plant (Seiger & Merchant 1997, Weber 2003). Besides, there is growing evidence of sexual reproduction events by hybridization between *F. japonica* and congeneric species in their adventive range in Europe (Pyšek *et al.* 2003, Mandák *et al.* 2005, Tiébré *et al.* 2007), which may result in rendering *Fallopia* species even more aggressive invaders.

Given the reported invasive potential of *F. japonica*, its ability to function as an ecosystem engineer (Kappes *et al.* 2007), and the fact that we found a population of this species established at the border of Alerce Andino National Park, further surveys will be necessary to determine whether this species will spread as other alien shrub species that became invasive in southern Chile (e.g. *Ulex europaeus* L., *Cytisus scoparius* (L.) Link).

MATERIAL STUDIED

CHILE. Región de los Lagos, Prov. Llanquihue, Correntoso locality (41°27'11"S - 72°39'32"W), January 25, 2009, 158 m a.s.l. altitude. A. Saldaña (CONC 168552).

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