

***Fallopia* × *conollyana* The Railway-yard Knotweed**

J. P. BAILEY

*Biology Department, University of Leicester, United Kingdom, LE1 7RH*

## ABSTRACT

The hybrid between *Fallopia japonica* and *F. baldschuanica* has been known to exist in Britain as seed since 1983, and as an established plant since 1986. Over the last 15 years there have been a number of reports of this hybrid from continental Europe, both as open-pollinated seed on *F. japonica* plants and as established plants. In the light of the wide occurrence of the hybrid and the absence of a hybrid binomial, it is accordingly named *Fallopia* × *conollyana*. The hybrid and its current distribution are described and its significance and potential for further distribution are discussed briefly.

**KEYWORDS:** *Fallopia japonica*, *Fallopia baldschuanica*, wide-hybridisation, invasive plants, Japanese Knotweed, Russian Vine.

## INTRODUCTION

The hybrid between *F. japonica* (Houtt.) Ronse Decraene (Japanese Knotweed) and *F. baldschuanica* (Regel) Holub (Russian Vine) was first discovered in Wales in 1983, as open pollinated seed from *F. japonica*, and subsequently confirmed by artificial hybridisation the same year (Bailey & Conolly 1984). Despite the almost ubiquitous occurrence of seed pollinated by *F. baldschuanica* on *F. japonica* plants, it was not until 1987 (Bailey 1988) that a plant of some considerable size and age was discovered by David Bevan in Haringey, Middlesex v.c. 21 (Bailey 1992). Since that date there have not been any confirmed sightings of further hybrids of this constitution as established plants in the British Isles. However, increasing reports of this hybrid in continental Europe convince me that this taxon should be given a hybrid binomial name. Accordingly I am naming it *Fallopia* × *conollyana* in recognition of the decades of research into alien Polygonaceae carried out by my close colleague Ann Conolly at Leicester.

***Fallopia* × *conollyana* J.P. Bailey, *hybrida nova***

Hybrida sterilis inter *Fallopia japonica* (Houtt.) Ronse Decr. et *F. baldschuanica* (Regel) Holub. A *Fallopia japonica* caulibus basi lignosis minus quam 1 cm diametris tepalis per anthesin validius carinatis differt. A *F. baldschuanica* planta rhizomatosa, caulibus cavis, foliis basi subcordatis vel truncatis, stigmatibus fimbriatis differt.

**HOLOTYPE:** Overgrown railway marshalling yard at Haringey (Railway Fields), Middlesex, v.c. 21, map reference TQ317882. 2 October 1987 J. P. Bailey & D. Bevan. (LTR)

Herbaceous perennial, younger plants weakly rhizomatous, but stout woody rhizomes in long-established plants; stems erect but bowing over, hollow, up to 2 m long, slender with red blotches, less than 1 cm diameter, becoming woody at the base; leaves glabrous with slender petioles 1.5–0.5 cm; lamina up to 13 × 6.5 cm, triangular ovate, acuminate to acuminate cuspidate at apex, subcordate to truncate at base; inflorescence axillary and terminal panicles; flowers superficially similar to, but larger (up to 3 mm diameter) and more conspicuous than those of *F. japonica*, the 3 keeled petals much more conspicuously winged than those of *F. japonica*; style trifid with 3 club shaped stigmata with short fimbriae (resembling more closely the stigmas of the *F. japonica* parent). Flowering occurs from September to early October. In spite of the woody lignified stem with buds, the plant is herbaceous, overground growth dying back to ground level or near ground level in winter, to be replaced by new canes in the spring. 2n=54

Identification of this hybrid is problematic, particularly if only dried material is available. Neither of its parents possesses distinctive epidermal trichomes and unfortunately the leaf shape and overall growth-form are very similar to post-herbicide treatment regrowth of *F. japonica*. The flowers are diagnostic, but even in well-established plants flowers are not often produced. It is possible to distinguish young plants of the hybrid from weed-killed *F. japonica*, if the whole plant complete with root system is collected, since young hybrid plants will not yet have developed rhizomes. Chromosome counts are the most reliable means of identification, but are obviously of limited utility.

*F. × conollyana* can be raised readily from seed, which germinates freely under greenhouse conditions. However as the plants do not compete well with surrounding vegetation, and tend to get blown down if not staked, flowering is very rare. Plants have occasionally flowered at Leicester, but most of the information on flower structure comes from the plant at Haringey. Meiotic behaviour is reported in Bailey & Stace (1992).

#### DISTRIBUTION

In 1994, Petr Horn informed me that he suspected that the plants that he had grown from seed collected from open-pollinated *F. japonica* var. *japonica* plants in Ceske Budejovice (Czech Republic) were hybrids with *F. baldschuanica*. Subsequent chromosome counts confirmed this as the first occurrence of the hybrid outside Britain. Alberternst (1995) reported that seed collected from a Japanese Knotweed plant growing near a plant of *F. baldschuanica* in Germany produced plants as a result of pollination by *F. baldschuanica*. In 1995 I was sent a herbarium specimen of a whole plant, including the root system, of *F. × conollyana* collected from an old railway yard in Oldenberg, Germany by Bernd Hayen. He reported that he thought the plants were about six to eight years old, certainly not much older since the railway yard had only been closed for 10 years at that time. In 2000 Lajos Balogh sent me material from plants growing at the MTA Botanical garden at Vácrátót, Hungary. It is not known whether the plants originated spontaneously or were deliberately planted, but they were quite well established. Fremstad & Elven (1997) reported the hybrid growing in Stavanger, Norway.

#### TAXONOMY

Holub (1992) published the hybrid genus name *× Reyllopia* (*Reynoutria × Fallopia*) based on my earlier report of the hybrid (Bailey 1988). Ironically, the existence of this hybrid was the final piece of evidence needed to convince me that the genera *Fallopia* and *Reynoutria* should be amalgamated; it follows that a hybrid generic name is no longer required.

#### DISCUSSION

*F. × conollyana* is a most unlikely hybrid for a number of reasons. Firstly, it is a cross between an octoploid with a base number of 11 and a diploid with a base number of 10. Secondly its two parents have contrasting growth-forms and over-wintering strategies, *F. japonica* is a herbaceous perennial which stores reserves in underground stems or rhizomes, whilst *F. baldschuanica* is a deciduous woody perennial that stores reserves in woody, overground stems. Hence *F. × conollyana* may fall between two stools in terms of resource partitioning for over-wintering, and this may contribute to its failure to establish more generally in the British Isles. Finally, the parental species are not generally sympatric in their native distribution. Based on the somewhat crude measure of herbarium specimen labels, there does appear to be some slight geographical overlap of the two species in northern China.

Although vast amounts of seed are produced every year by *F. japonica* throughout Europe bearing *F. × conollyana* embryos, only a minute proportion of them seem ever to have germinated or become established in nature. I suspect that for this to occur, a long warm autumn (for maximum seed ripening), followed by a cold winter (to stop the seed from rotting), followed by a warm winter (for seedlings to survive the all-important first winter) are required - a rare but admittedly not impossible combination!

## ACKNOWLEDGMENTS

I am very grateful to Clive Stace for preparing the Latin diagnosis and for reading through the paper, and to Lajos Balogh and Bernd Hayen for sending me material of *F. × conollyana*.

## REFERENCES

- ALBERTERNST, B. (1995). *Handbuch Wasser 2: Kontrolle des Japan-Knöterichs an Fließgewässern: II. Untersuchungen zur Biologie und Ökologie der neophytischen Knöteriche-Arten*. Landesanstalt für Umweltschutz Baden-Württemberg.
- BAILEY J. P. (1988). Putative *Reynoutria japonica* Houtt. × *Fallopia baldschuanica* (Regel) Holub hybrids discovered in Britain. *Watsonia* **17**: 163–164.
- BAILEY, J. P. (1992). The Haringey Knotweed. *Urban Nature Magazine* **1** : 50–51.
- BAILEY, J. P. & CONOLLY, A. P. (1984). A putative *Reynoutria* × *Fallopia* hybrid from Wales. *Watsonia* **15**: 162–163.
- BAILEY, J. P. & STACE, C. A. (1992). Chromosome number, morphology, pairing, and DNA values of species and hybrids in the genus *Fallopia* (Polygonaceae). *Plant Systematics and Evolution* **180**: 29–52.
- FREMSTAD, E. & ELVEN, R. (1997). Fremmede planter i Norge. De store *Fallopia*-artene. *Blyttia* **55**: 3–14.
- HOLUB, J. (1998). Reclassifications and new names in vascular plants 1. *Preslia* **70**: 97–122.

(Accepted May 2001)