

**THE SPONTANEOUS OCCURENCE OF KIWIFRUIT,
ACTINIDIA CHINENSIS VAR. *DELICIOSA* (ACTINIDIACEAE),
IN OHIO**

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ABSTRACT

Kiwifruit, *Actinidia chinensis* var. *deliciosa*, has been discovered from a wild site in Ohio, the first report of this species outside of cultivation in the state. It was collected in Hamilton County, in the southwest corner of the state, along a creek bank ca. 10 km north of the Ohio River.

Plants of *Actinidia chinensis* var. *deliciosa* (kiwifruit) have been reported to occur sporadically outside of cultivation in the eastern USA (see below). An apparently spontaneous occurrence of the species in Ohio is documented here.

Voucher specimen. Ohio. Hamilton Co.: Cincinnati, Spring Grove Cemetery and Arboretum, along the bank of Indian Creek in an undeveloped 300-acre area, 39.18331, -84.53964, ca. 185 m, 27 Aug 2017, *Conover s.n.* (CINC, MU).

A sewer outlet runs along Indian Creek at the Ohio site, and it is suspected that the seed may have arrived via the sewer. The species was reported in Kansas from along a sewer outlet (Serviss et al. 2012). During February 2018, the Ohio River and tributaries experienced the highest water levels since 1997, and most of the vegetation along the banks of Indian Creek, including the *Actinidia*, did not survive. It is thus not known whether or not the plant would have survived the winter. Nevertheless, the viny habit and the aggressive growth of this species raises concern that it could become a problematic invasive. When revisited two weeks after its initial discovery, the Hamilton County plant had increased considerably in size.

A survey of Ohio herbaria did not reveal any other collections of this species, nor have escapees from cultivation been observed (R. Gardner, ODNR, pers. comm.). The first report of a spontaneous occurrence outside of cultivation in the USA was published by Serviss et al. (2012) from a collection made in Arkansas. Herbarium specimens in online databases suggest the possibility of additional escapes from cultivation in Georgia (*Moore & Cruse 2256*, GA), Missouri (*Rimer s.n.*, MO), North Carolina (*Giencke s.n.*, NCU), Tennessee (*Estes & Beck 6861*, APSC; *Levy et al. 16305*, ETSU; *McCoy s.n.*, TENN), and Virginia (*Fleming et al. 15448*, NCU; *Fleming 16325*, GMUF).

In the USA, *Actinidia chinensis* var. *deliciosa* is hardy in zones 7a to 9b (NC Extension, n.d.). *Fleming et al. 15448* from Albemarle Co., Virginia (hardiness zone 7a/7b), was fruiting at the time of collection. The label of the *Rimer s.n.* collection from Howell Co., Missouri (hardiness zone 6b), states “plants invasive along bank of pond ..., very aggressive, never becoming fertile, dying back partially each winter but recovering the following spring.” Hamilton Co., Ohio, which lies in the extreme southwest corner of the state, includes areas of zones 6a and 6b.



Figure 1. *Actinidia chinensis* var. *deliciosa*. Voucher for Ohio record reported here (Conover s.n., CINC).



Figure 2. *Actinidia chinensis* var. *deliciosa* growing in uncultivated land in Cincinnati, Ohio. Top: Plant on 5 November 2017. Bottom: Stem with characteristic reddish brown, persistent pubescence.

Actinidia chinensis var. *deliciosa* is an herbaceous twining vine — it is perennial and becomes woody with age. It is native to the mountains of the Chinese interior between 800–1400 m (Huang & Ferguson 2001; Li et al. 2007). Seeds were first exported to France in 1899 and England in 1900. It is not known what became of the plants in France, but they appear not to have persisted. The plants grown in England generated interest among the gardening public, but they are believed to have all been functionally male and did not persist (Ferguson 1983; Testolin et al. 1995). The seeds that first arrived in the USA in 1904 may have been from the same collection as those first grown in England — similarly, they were all functionally male and did not produce fruit (Ferguson 2004).

The first successful introduction of kiwifruit outside of China took place in 1904, when Isabel Frasier carried seeds home to New Zealand following a visit to Yichang, China (Ferguson 2004). These seeds produced both male and female plants, and are the origin of today's kiwifruit industry, including the 'Hayward' cultivar which is the most widely cultivated and, until relatively recently, the only variety of 'kiwi' encountered by most consumers (Ferguson 1999). Kiwifruit is cultivated commercially in California and, on a much smaller scale, in other states.

The nomenclature of the cultivated kiwifruit has a relatively short but unsettled history – being first described less than 80 years ago – a history that is rife with disagreement and uncertainty. Auguste Chevalier first described the kiwifruit as *Actinidia latifolia* var. *deliciosa* A. Chev. from a plant cultivated at the Jardin des Plantes in Paris (Li et al. 2010). Shortly after publication, Chevalier realized that he had assigned his new taxon to the wrong species and in 1941 transferred it to *A. chinensis* as var. *deliciosa* (A. Chev.) A. Chev. Liang and Ferguson (1984) raised the taxon to specific rank, as *A. deliciosa* (A. Chev.) C.F. Liang & A.R. Ferguson. Since then, considerable debate has centered around whether the taxon merits specific or varietal rank (see Li et al. 2000), and both are frequently seen in the literature. This present report follows the taxonomy of Li et al. (2007).

Actinidia chinensis var. *deliciosa* (A. Chev.) A. Chev. has gone by a number of common names including kiwifruit, kiwi, bowerberry, tara vine, Chinese gooseberry, and the Chinese *mei wei mi hou tao*.

Three other species of *Actinidia* are cultivated in Ohio: *A. arguta* (Siebold & Zucc.) Planch. ex Miq., *A. kolomikta* (Maxim. & Rupr.) Maxim., and *A. polygama* (Siebold & Zucc.) Maxim. *Actinidia arguta*, which is hardy in zones 3–8, has been documented out of cultivation in Cuyahoga County in northeast Ohio (Wilder & McCombs 2002) and appears to be becoming problematically invasive in the northeastern USA (BEAT et al, 2019). *Actinidia kolomikta* has been cultivated at The Dawes Arboretum in Newark, Ohio (D. Johnson, pers. comm.), but it has not been documented out of cultivation in Ohio. Cultivation of *A. polygama* (silver vine) in Ohio has not been recorded in recent years, but the species was praised as an attractive climber in 1897 by the Ohio State Horticultural Society (Carr 1898). *Actinidia chinensis* var. *deliciosa* can be easily distinguished from the other three species by the pubescence on the stems, which is more or less densely strigose with reddish brown trichomes. Stems of the other three species are glabrous to occasionally glabrate (*A. arguta*) with whitish trichomes. Similarly, the fruits of *A. chinensis* var. *deliciosa* are densely pubescent, whereas those of the other species are glabrous.

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