

NEW COMBINATIONS IN *ASARUM* (ARISTOLOCHIACEAE) FOR TWO RECENTLY DESCRIBED *HEXASTYLIS* SPECIES

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ABSTRACT

New combinations in the genus *Asarum* are proposed for *Hexastylis finzelii* B.R. Keener and *Hexastylis rollinsiae* B.R. Keener & Todia, two species recently described from Alabama. ***Asarum finzelii*** (B.R. Keener) Diamond and ***Asarum rollinsiae*** (B.R. Keener & Todia) Diamond, comb. nov., provide names for these species in *Asarum*.

RESUMEN

Se proponen nuevas combinaciones en el género *Asarum* para *Hexastylis finzelii* B.R. Keener y *Hexastylis rollinsiae* B.R. Keener & Todia, dos especies recientemente descritas de Alabama. ***Asarum finzelii*** (B.R. Keener) Diamond y ***Asarum rollinsiae*** (B.R. Keener & Todia) Diamond, comb. nov., proporcionan nombres para estas especies de *Asarum*.

The genus *Hexastylis* (Aristolochiaceae) was named by Rafinesque (1825) and described as “Cal. tubular, trifold, connivent, cor. o. anthers twelve, sessile, bilobe admate, epigyne; pistil half free, cylindrical, end concave; styles six, lateral erect; stigmas six, truncate, oblique, bicorne; caps. six locul. few central seeds. Type *Asarum arifolium*, Mx.” Blomquist (1957) in his revision of *Hexastylis* characterized the genus as having sepals fused into a tube, extrorse stamens, and bifurcate style extensions. It is comprised of 11–18 taxa (Kartesz 2015; Weakley 2022), all restricted to eastern North America (Whittemore & Gaddy 1997). However, the morphological characteristics used to segregate *Hexastylis* are plesiomorphic with respect to not just Asian species, but also other North American species in *Asarum* s.s., and perhaps have been over emphasized, relying heavily on the work of J.K. Small (1903) and other regional authors (Sinn 2017). This has been especially true in the southeastern United States where the two groups are relatively distinct.

The question of recognizing *Hexastylis* as a genus distinct from *Asarum* has been much debated, especially in the United States. Certain authors such as Ashe (1897), Barringer (1993), Kelly (1998), and Sinn et al. (2015a) have adopted a broadly circumscribed *Asarum*, while others such as Small (1903), Blomquist (1957), Gaddy (1987), Whittemore and Gaddy (1997), Keener (2020), Weakley and Poindexter (2020), Keener and Todia (2021) and Weakley (2022) have chosen to recognize *Hexastylis* as a distinct genus. The original description of *Asarum* by Linnaeus (1753) was broad, and included *Asarum virginicum*, a species later treated as *Hexastylis* by J.K. Small (1903). In addition, molecular studies have failed to find *Hexastylis* as monophyletic based on nuclear and plastid DNA, and support subsuming it into a broadly circumscribed *Asarum* that includes the Asian genera *Heterotropa*, *Geotaenium*, and *Asiasarum* (Kelly 1997, 1998; Sinn et al. 2015a, 2015b; Sinn et al. 2018).

The concept of a broader treatment of *Asarum* supports the earlier assertion of Barringer who (1993), transferred all *Hexastylis* taxa to *Asarum* that had not previously been treated as such. *Hexastylis* is treated as a section of *Asarum* by Sinn and Kelly, and is defined by the following characteristics: “evergreen leaves, lack stamen movement, bear flowers with abaxial sculpturing of high relief that does not extend from the proximal end of the sepal to the flower orifice, and have a chromosome number of $2n = 26$.”

New nomenclatural combinations are needed for two recently described species of *Hexastylis* (*Asarum* subgenus *Heterotropa* section *Hexastylis*) from Alabama to bring their names in line with current understandings of the genus. Both species appear to be narrow endemics to Alabama and members of the informal

“Speciosa” group of Blomquist (1957) (Keener 2020; Keener & Todia 2021). This group is composed of species with leaves mottled with light green between the veins and distinct style extensions. *Hexastylis finzelii* B.R. Keener is known to occur in two populations on Bishop Mountain in Marshall County, Alabama (Keener 2020), and *Hexastylis rollinsiae* B.R. Keener & Todia was described from material in cultivation, with its native distribution unknown at the time of publication (Keener & Todia 2021). It has since been relocated in the wild, growing along a single small drainage in Baldwin County, Alabama.

I propose the following new names to accommodate recognition of these taxa within *Asarum*.

Asarum finzelii (B.R. Keener) Diamond, **comb. nov.** *Hexastylis finzelii* B.R. Keener, J. Bot. Res. Inst. Texas 14:161–166. TYPE: U.S.A. ALABAMA. Marshall Co.: 6.75 air mi NW of Guntersville, along N side of Tennessee River near the SE corner of Bishop Mountain, W of Hambrick Hollow, 34.42600°N –86.38011°W, 11 Apr 2019, B.R. Keener 11,076 with Brian Finzel (HOLOTYPE: UWAL; ISOTYPES: AMAL, APSC, AUA, BRIT, MO, NCU, TROY, UNA, US).

Asarum rollinsiae (B.R. Keener & Todia) Diamond, **comb. nov.** *Hexastylis rollinsiae* B.R. Keener & Todia, J. Bot. Res. Inst. Texas 15:319–325. TYPE: U.S.A. ALABAMA. Baldwin Co.: from cultivation, Fairhope, garden of Gena & Jay Todia, 22 May 2021, Brian R. Keener 12,225 with Gena Todia & Fred Nation (HOLOTYPE: UWAL).

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