

HEXASTYLIS SHUTTLEWORTHII
VAR. *HARPERI* (ARISTOLOCHIACEAE),
A NEW VARIETY OF HEARTLEAF FROM
ALABAMA AND GEORGIA

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ABSTRACT

Hexastylis shuttleworthii var. *harperi*, a new heartleaf from Alabama and Georgia, is described. Unlike *Hexastylis shuttleworthii* (Britten & Baker) Small var. *shuttleworthii*, *H. shuttleworthii* var. *harperi* has elongated and branched rhizomes, often forming a continuous ground cover in and around bogs where it is usually found. This heretofore undescribed variety is well-known in cultivation.

On June 5, 1927, in the swamp of Bridge Creek in Autauga County, Alabama, in the coastal plain, about a half mile from the type locality of *H. speciosa*, I found a few specimens of a *Hexastylis* with small cordate leaves, resembling *H. shuttleworthii*....

Roland Harper (1936) made these observations on an unidentified *Hexastylis* he had seen in 1927 at Bridge Creek swamp and in other "sour" non-alluvial swamps in the Coastal Plain of Alabama. He further pointed out that "... the plant usually grows in colonies connected by running rootstocks, and covering a few square feet," Harper noted that flowers of the *Hexastylis* resembled those of *H. shuttleworthii* (Britten & Baker) Small. The flowers of plants Harper sent to E.V. Coville were identified as *H. memmingeri* (Ashe) Small [= *H. virginica* (L.) Small]; however, Harper (1936) determined that the flowers were intermediate in size between those of the latter taxon and those of *H. shuttleworthii*. Still unsure of the identity of the *Hexastylis*, Harper revisited the Bridge Creek population and another "swamp" population in Marion County, Alabama in 1935. Although he noticed considerable variation in flower size among the two populations, he finally concluded that the plant must be *H. shuttleworthii* (Harper 1936). The Alabama Coastal Plain populations of *H. shuttleworthii* were not mentioned again in the literature until 1945. In describing *Hexastylis pilosiflora* (Fern.) Blomq. & Oosting, Blomquist (1945) cited Harper (1936) and noted that Harper's plant could be an undescribed species closely related to *H. lewisii* (Fern.) Blomq. & Oosting, a species which occurs in the Piedmont and Coastal Plain of Virginia and North Carolina. Like *H. lewisii*, Harper's plant had "elongate rhizomes."

Blomquist did not then propose, as did Harper (1936) earlier, that the Alabama plants were *H. shuttleworthii* (Blomquist 1945). In a subsequent revision of *Hexastylis*, Blomquist (1957) placed his *H. pilosiflora* in synonymy with *H. lewisii*; he did not mention Harper's bog *Hexastylis* per se, but apparently included Harper's Coastal Plain specimens under *H. shuttleworthii*. He pointed out that *H. shuttleworthii* occurred along the "borders of boggy areas" near the southern limit of its range.

In 1982, while examining herbarium specimens for the taxonomic treatment of *Hexastylis* for the *Vascular Flora of the Southeastern United States*, I noticed several small-flowered specimens of *H. shuttleworthii* from Alabama. I did not pursue the matter further until I saw several specimens from Auburn University (AUA) with very small, cordate leaves and small flowers labelled *H. harperi* (no authority given) and *H. lewisii* (Fern.) Blomq. & Oosting. Discussions with Dr. John Freeman of Auburn University, Mrs. L.G. Smith of Birmingham, correspondence with Dr. Robert Kral of Vanderbilt University, and a re-reading of Harper's (1936) paper further piqued my interest in the bog heartleaf from Alabama. In 1984, I found a population of the bog heartleaf in the Piedmont of Georgia, and in 1985, John Freeman took me to several Alabama Coastal Plain populations of the taxon. In all populations, the plant grew in large clumps, as Harper (1936) had indicated, sometimes covering more than a square meter of ground. After examination of about 50 flowers from four populations, I could find no extrafloral or intrafloral characters that separated the plant from *H. shuttleworthii*. The flowers were usually smaller (15 – 25 mm long) than those of *H. shuttleworthii* (15 – 40 mm long), but occasionally large flowers were found in the four populations. The plant was different from *H. shuttleworthii* primarily in growth form. Most *Hexastylis* species, including typical *shuttleworthii*, have short rhizomes with several terminal leaves only (usually only one new leaf is produced per year). The shallow rhizomes of the bog heartleaf had leaves along their entire length. A closer examination revealed that the rhizomes of the bog plant were elongated and branched in a complex manner. It was evident from the rhizomes that, instead of flowering every year, some years the plant produced a new growth shoot at the point where the flower normally appears (Fig. 1). This may explain Harper's (1936) comment that in some years flowers of the bog heartleaf are difficult to find. This shoot develops into a new branch of the rhizome and eventually produces flowers and roots yet still remains attached to the primary rhizome. Some new rhizomes may break off and grow independently of the primary rhizome. After several years, with the addition of new rhizome branches, the annual leaf production of the bog heartleaf increases dramatically. Furthermore, the leaves of

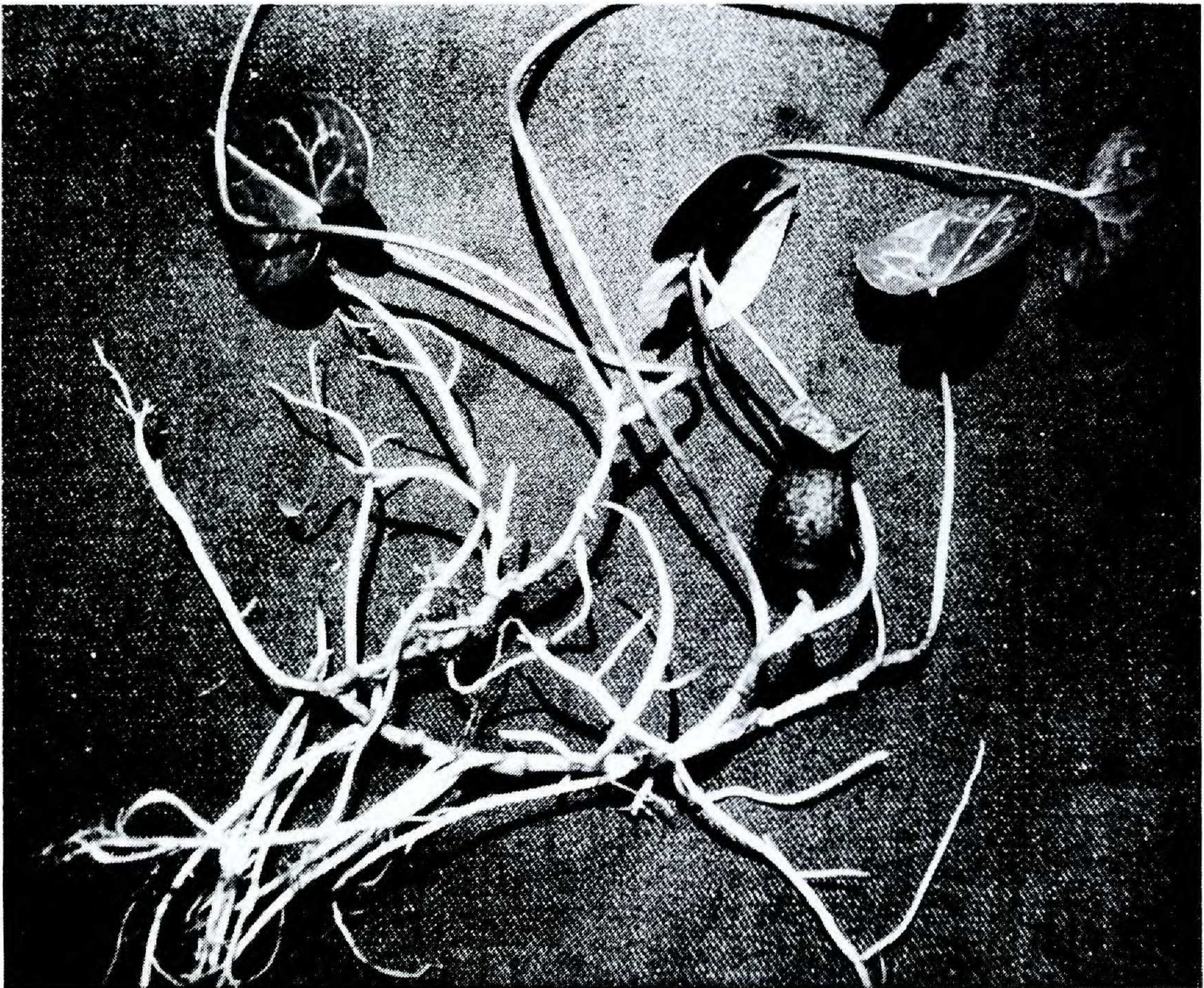


Figure 1. *Hexastylis shuttleworthii* var. *harperi*.

the bog *Hexastylis* often persist along the rhizome as do those of *H. lewisii* (Fernald 1943; Blomquist 1945). The many-branched rhizome and the persistent leaves give clumps of the plant the appearance of being large clones, although each clump is usually several interwoven individual rhizomes.

I concluded from my studies that the plant was either a variety of *H. shuttleworthii* or possibly only a modified growth form associated with boggy conditions. First in 1982 and then again in 1985, I examined several clumps of the bog *Hexastylis* that had been transplanted from a swamp in the Coastal Plain of Georgia (Webster County) to an upland situation in the University of Georgia Botanical Garden. In 1982, when it had only recently been transplanted, the plant seemed to be typical *H. shuttleworthii*, but with smaller flowers. (Young clumps of the bog heartleaf in Alabama populations are often indistinguishable from *H. shuttleworthii*.) By 1985, however, the transplanted clumps in Athens each covered nearly a square meter of ground; the rhizomes had begun to elongate and branch

and were producing leaves along the length of the rhizomes. The heartleaf thus retained its unusual growth form in an upland habitat. On the basis of diagnostic vegetative differences noted above, I am convinced that this taxon represents a new variety of *H. shuttleworthii* (Britten & Baker) Small and name this new variety in honor of Roland Harper, its original discoverer.

HEXASTYLIS SHUTTLEWORTHII (Britten & Baker) Small var. **harperi**
Gaddy, var. nov. (Fig. 1)

A *H. shuttleworthii* rhizomatibus elongatis atque ramosis differt.

Variety *harperi* differs from var. *shuttleworthii* by its elongated and branched rhizomes, by its smaller (2.5 – 7 cm long and wide) orbicular to cordate-orbicular leaves, and by its smaller (15 – 25 mm long) flowers. Variety *harperi* may be separated from all other species of *Hexastylis* except *lewisii* by its growth form. The long white hairs on the inner surface of the calyx lobes of *H. lewisii* distinguish it from *H. shuttleworthii* var. *harperi*. Although clumps of plants are occasionally found in other species of *Hexastylis*, these clumps seem to be aggregated plants resulting from poor seed dispersal, rather than rhizome branching.

TYPE: UNITED STATES. GEORGIA. **Madison Co.**: acidic bog under *Acer rubrum*, *Liriodendron tulipifera*, and *Nyssa sylvatica* var. *biflora*. Growing on small hammocks with *Osmunda cinnamomea* and along bog edges with *Medeola virginiana* and *Isotria verticillata* just N of GA 106, 14.2 mi NE of Athens, 9 May 1986, Gaddy *s.n.* (HOLOTYPE: CLEMS; ISOTYPES: AUA, GA, GH, MO, NCU, NY, TENN, UNA, VDB).

Specimens examined: ALABAMA: **Autauga Co.**: swamp of Bridge Creek about 2 mi southeast of Booth, 15 Jun 1936, R. Harper 3524 (GH, NY). **Chilton Co.**: rich mesophytic woods in seepage ravine S of U.S. Hwy 82, ca 0.5 mi E of its crossing of Big Mulberry Creek, ca 3 mi SSE of Maplesville, 20 May 1971, J.D. Freeman 731 (AUA). **Macon Co.**: piney woods, 2 – 3 mi N of Tuskegee on U.S. 29 – turn right on dirt road at second bridge, 7 May 1971, E.M. Tatum 151 (AUA). **Marion Co.**: drier spots in non-alluvial swamp west of Guin, 3 Jun 1936, R. Harper 3515 (GH). **Perry Co.**: rich woods on mesophytic slope, 6 mi NW of Selma at tributary to Oakmulgee Creek, 1.5 mi W of creek, 3 May 1977, A. Sessler, J.D. Freeman, & H.D. Moore 1221a (AUA). GEORGIA: **Sumter Co.**: 1 mi S of Americus, small non-alluvial swamp, 20 Mar 1949, R.E. Thorne & W.C. Muenscher 9012 (GH, CU). **Webster Co.**: Kinchafoonee Creek floodplain along U.S. 280, near Pearson, 22 Apr 1981, A. Tate & R. Allen *s.n.* (GA).

In 1984, Mrs. L.G. Smith directed my attention to a paper by (Galle 1984). Galle described moving several clumps of a “stoloniferous” *Hexastylis* from a private garden in Decatur, Georgia to Calloway Gardens in Pine Mountain, Georgia. Mr. Galle concluded that the plant was a form of *H. shuttleworthii* and proposed it be called *H. shuttleworthii* “Calloway.” After examining Galle’s description, the illustrations in his paper, and live material from Calloway Gardens, I have concluded that the “Calloway”

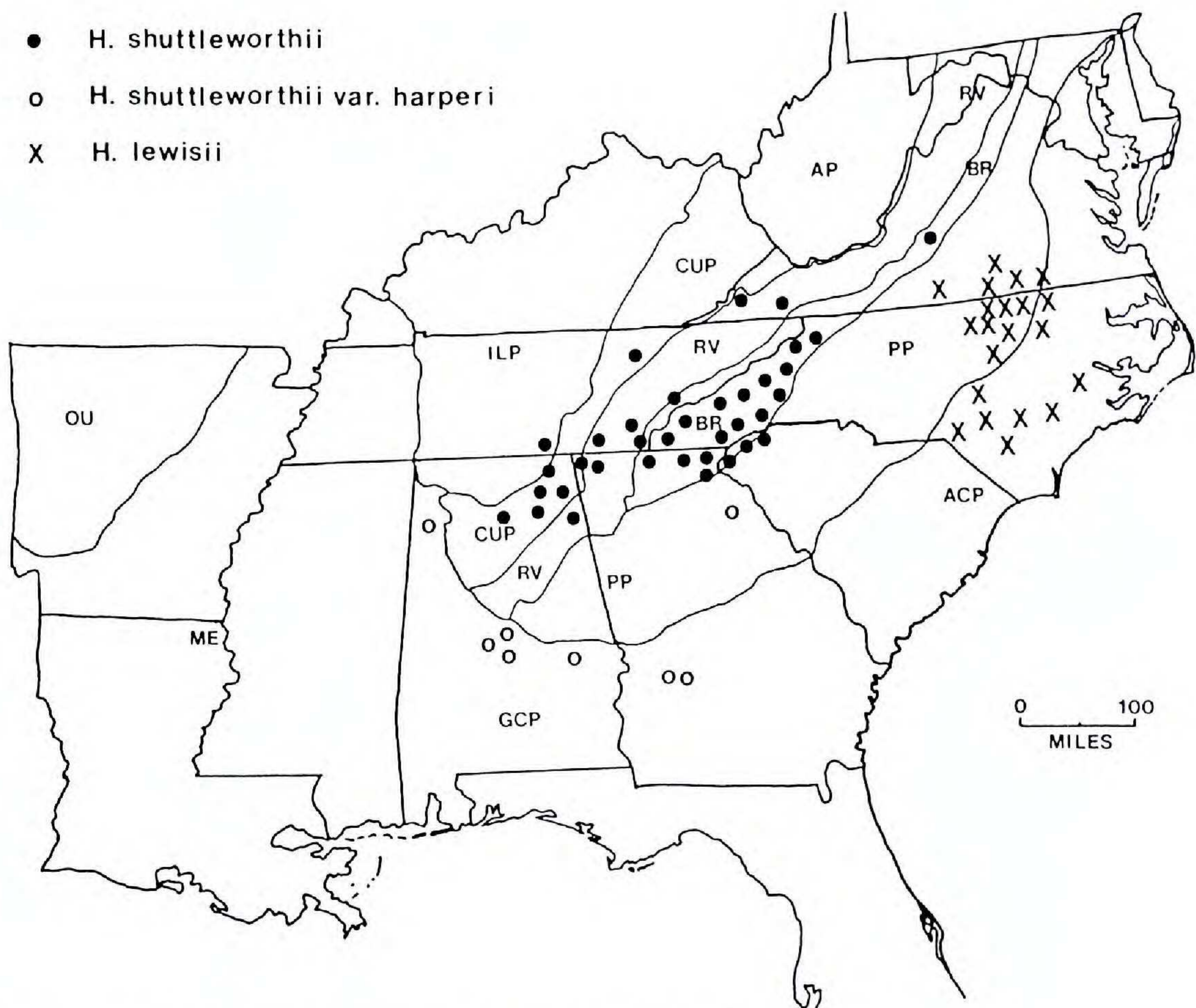


Figure 2. Distribution of *Hexastylis shuttleworthii* and its allies.

ginger is *H. shuttleworthii* var. *harperi*. The plant is very hardy in cultivation, having been successfully grown in several eastern states (Galle 1984). In fact, var. *harperi* may be more common in cultivation than in the wild. Unfortunately, the original source of the plants now growing in Calloway Gardens is unknown (Galle 1984).

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