

***Arachniodes simplicior* Newly Reported From Lee County, Alabama, U.S.A.**

Curtis J. Hansen* 

Auburn University Museum of Natural History, Department of Biological Sciences, Auburn University, Auburn, AL 36849

*hansecj@auburn.edu

Abstract

The fern species *Arachniodes simplicior* (Makino) Ohwi (Dryopteridaceae) is documented for the first time from Lee County, Alabama, U.S.A. The habitat where it was found is consistent with other known localities of this species. Originally reported from one county in South Carolina in 1981, it has now spread to 28 counties in ten states, with unknown consequences of the spread of this species and its invasive potential.

Background

A distinctive but unfamiliar fern species was discovered along the Creekline Trail system in Opelika, Alabama (Figure 1). It was observed growing on a steep slope above the creek in a somewhat rocky substrate with large concrete blocks apparently derived from an old roadbed. The plants were growing around the edges of larger rocks and concrete pieces (Figure 2). The surrounding vegetation was dominated by *Carpinus caroliniana* Walt., *Celtis laevigata* Willd., and *Ligustrum sinense* Lour., all of which were intertwined with *Wisteria sinensis* (Sims) DC. Eight to ten individuals were present growing in partial shade and cascading down the stream bank.

New Lee County Occurrence Record

Arachniodes simplicior (Makino) Ohwi (DRYOPTERIDACEAE)

U.S.A. Alabama. Lee County: near the intersection of Waverly Pkwy and US Hwy 280, near the Creekline Trailhead; 2.1 mi NW from intersection of US Hwy 280 and AL Hwy 14 (Pepperell Pwky) in Opelika. Elevation 640 ft. 31 March 2025, *C.J. Hansen 8644* & *S.J. Hansen* (AUA, AMAL).

Growing on a forested slope above the margin of the Pepperell Branch of Saugahatchee Creek. Slope strewn with old reinforced concrete blocks. Rich, dark humus soil. Mostly shaded area under a canopy of *Ligustrum sinense*, *Carpinus caroliniana*, *Celtis laevigata*, and *Wisteria sinensis*. LEE COUNTY RECORD.



Figure 1. *Arachniodes simplicior*, Lee County, Alabama (*Hansen 8644*, AUA).

Significance

Commonly called East Indian Holly Fern or Variegated Shield Fern, *Arachniodes simplicior* is native to China, SW Tibet, South Korea, Japan, and Vietnam (Hassler 2025). The species was first documented in the United States from collections made in North Augusta, Aiken County, South Carolina (Gordon 1981). The earliest vouchered specimen listed in SERNEC (2025) is housed at Valdosta State University (VSC; J.E. Gordon s.n., 29 October 1983). Based on growth patterns, it was estimated that the first discovered population was approximately 20-25 years old and its establishment was likely due to disturbance caused by the installation of a sewer line in 1954 (Gordon 1981). It was also noted that several commercial nurseries existed within a one-mile radius of the site, and they could serve as possible sources for spores or rhizomes in establishing the population (Gordon 1981).



Figure 2. *Arachniodes simplicior* habitat on rocky slope with concrete block remnants. Lee County, Alabama.

Another possible source of spore introduction may have been from plants in home gardens grown by fern enthusiasts and producers. The American Fern Society has long maintained a fern spore exchange, and lists of available spores were sent to subscribing members. Spores of *Arachniodes simplicior* first appeared on the exchange in 1979 (Mickel 1979), indicating this plant was being cultivated by the late 1970s. Though spores of *A. simplicior* were available by at least 1979 and this plant was beginning to be shared and grown by home gardeners, it was not until 1985 that *A. simplicior* began to appear in fern books and gardening publications (Lellinger 1985, Jones 1987, Hoshizaki 2001, Rickard 2003, Olson 2007). Other species of *Arachniodes* (primarily *A. aristata* (G. Forst.) Tindale and *A. standishii* (T. Moore) Ohwi) were known and cultivated even earlier, as seen in published sources from at least 1975 to 1984 (Bailey 1976, Hoshizaki 1975, Perl 1977, Foster 1984). Surprisingly, *A. simplicior* was not included in *Ferns of the Coastal Plain* (Dunbar 1989), published eight years after the population was first discovered in South Carolina.

Internet sources report this plant from southern Virginia to Florida and west to northeast Texas (iNaturalist 2025). As of 10 April 2025, iNaturalist showed 53 research-grade occurrences in the United States, all in southeastern states (Figure 3). The earliest report on iNaturalist was 21 Feb 2013 from North Augusta, South Carolina, near the original site documented in 1981.

The potential harm from the spread of this non-native fern is not well-understood. Since its original discovery in South Carolina, this plant has spread across much of the southeastern United States and is reported in ten states and 28 counties from Texas to Virginia. Database searches (iNaturalist 2025, SERNEC 2025) for *A. simplicior* resulted in some reports listed as “cultivated,” while others are listed as “not cultivated” or “escaped from cultivation,” demonstrating that this plant has adapted to native landscapes. Wyatt and Harris (2022) present an excellent discussion of the spread of three non-native ferns in Georgia and the southeastern United States, including *Arachniodes simplicior*.

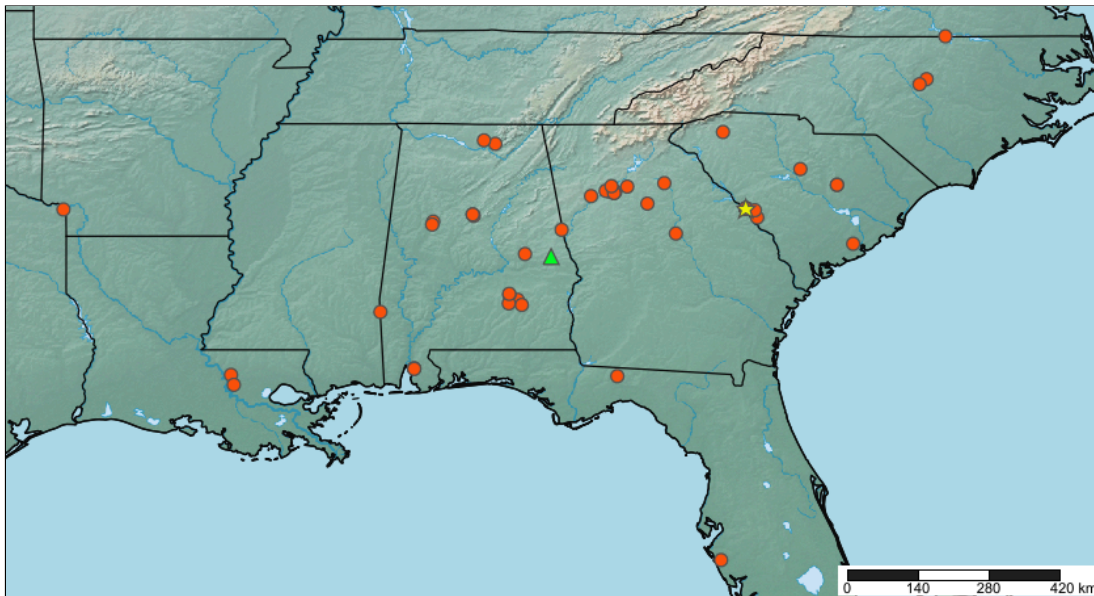


Figure 3. Locations of research-grade iNaturalist observations of *Arachniodes simplicior*, as of April 2025. Orange dots represent existing observations, the yellow star indicates the location of the original discovery site in the United States, and the green triangle represents the Lee County Alabama location described here.

In Alabama, this plant has been documented from Colbert, Madison, Randolph, and Shelby Counties (D. Spaulding pers. comm.) with additional research-grade observations reported from Baldwin, Montgomery, Pike, and Tuscaloosa Counties (iNaturalist 2025). This new county record brings the number of counties in Alabama where *Arachniodes simplicior* is known to occur to nine.

Acknowledgments

I am grateful to Sabrina Hansen for assistance with field work, Leslie Goertzen and Dan Spaulding for sharing comments on an earlier draft of the manuscript, and to Dan Spaulding for generously sharing distribution information of *A. simplicior* from his ongoing research. I thank Larry Davenport and Al Schotz for helpful reviews that improved this manuscript.

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Citation: Hansen CJ. 2025. *Arachniodes simplicior* newly reported from Lee County, Alabama, U.S.A. *Paysonia* 6: 1–6.

Keywords: floristics, ferns, Alabama, Dryopteridaceae, county record.

Peer Review: Lawrence J. Davenport, Samford University; Alfred R. Schotz, Alabama Natural Heritage Program.

ISSN: 2378-0665

DOI: <https://doi.org/10.35099/3c05-0c24>

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Paysonia is a publication of the Auburn University Museum of Natural History.

