

PHEGOPTERIS DECURSIVE-PINNATA (THELYPTERIDACEAE),
NEW TO THE ALABAMA (U.S.A.) FLORA

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ABSTRACT

Phegopteris decursive-pinnata is documented as new to the flora of Alabama. Included is a key to aid in distinguishing it from native North American species *P. connectilis* and *P. hexagonoptera*.

RESUMEN

Phegopteris decursive-pinnata es documentada por primera vez en la flora de Alabama. Se incluye una clave para distinguirla de las dos especies nativas de América del Norte *P. connectilis* y *P. hexagonoptera*.

Phegopteris (C. Presl) Fée (Thelypteridaceae) is a genus of five Northern Hemisphere species. *Phegopteris connectilis* (Michx.) Watt is the most wide-ranging in distribution, occurring in the colder parts of North America, Asia, and northern Europe. *Phegopteris tibetica* Ching (from China) and *P. koreana* B.-Y. Sun & C.H. Kimin (from Korea) are narrow-ranging species of eastern Asia, while *P. hexagonoptera* (Michx.) Fée is endemic to eastern North America. The natural range of *P. decursive-pinnata* (H.C. Hall) Fée includes much of southeastern Asia including China, India, Indonesia, Japan, Korea, Indochina, Vietnam, and Taiwan (Smith 1993; Kim et al 2004; Lin & Smith 2013).

A recent collection of *Phegopteris decursive-pinnata* from a naturalized population in Alabama is deemed noteworthy and is cited below.

Voucher specimen: **ALABAMA. Cleburne Co.:** Cheaha State Park, along Lake Trail ca. 0.25 mi from trailhead at Cabin 1, 33.48077°N, 85.81423°W, elev. 1919 ft, crevices of sandstone in vertical cliff where recessed with small waterfall, 21 Jun 2014, Brian R. Keener 8505 (UWAL, duplicates to be distributed) (**Fig. 1**).

The above specimen is the first vouchered Alabama collection of *Phegopteris decursive-pinnata*, which was not included in the Alabama Checklist (Kral et al. 2011), Alabama Plant Atlas (Keener et al. 2016), or other comprehensive fern treatments for the state (Dean 1969; Spaulding et al 2001; Short & Spaulding 2012). The specimen appears to be the second collection of the taxon from North America (Kartesz 2015; Peck 2011).

The first North American report of *Phegopteris decursive-pinnata* was based on a collection from a fern garden in Garland Co., Arkansas [Peck 2010236 (BRIT)]. Even though the occurrence was clearly in a cultivated setting, Peck (2011) contends that the species was not one of the actual ferns in cultivation but was possibly introduced through the plantings of other material.

The Alabama population was found in a much more natural setting. The plants occurred at 584 m elevation in crevices of a vertical sandstone/quartzite cliff face on Cheaha Mountain, the tallest peak in Alabama at 735 m. The plants occurred in the spray zone of a small waterfall of a stream that drains from the mountain top. The population, which appeared to be well established, included 25–30 individuals of all sizes and levels of development.

Most of Cheaha Mountain's summit is part of Cheaha State Park, an Alabama recreation spot noted for its beautiful mountain views. The park also has long maintained various planted gardens of native and non-native species in and around cabin areas. The waterfall where *Phegopteris decursive-pinnata* was discovered is on a cliff some distance below the mountain summit along "Lake Trail." However, the stream that creates the waterfall actually drains through and near the gardens on the mountain top. While *P. decursive-pinnata* was not observed



FIG. 1. *Phegopteris decursive-pinnata*, Keener 8505 (UWAL).

during brief surveys of the cultivated areas in 2014, we believe that it has been cultivated some time in years past. If so, it is possible that viable spores landed in the stream, flowed off the mountain summit, down the waterfall, and ultimately lodged in cliff crevices. The alcove of shaded rock within the spray zone of the waterfall is clearly suitable for gametophyte establishment and the production of sporophytes.

With *Phegopteris decursive-pinnata* now an element of the North American flora, a key is provided below to distinguish it from the other two native species. The couplet that discerns the native taxa *P. hexagonoptera* and *P. connectilis* follows Weakley (2015).

KEY TO NATIVE AND NATURALIZED *PHEGOPTERIS* OF NORTH AMERICA

1. Blade of frond elliptic, widest near middle; lowest few pinnae of blade much reduced; primary pinnae alternate along rachis _____ **P. decursive-pinnata**
1. Blade of frond triangular, widest at base; lower pinnae longest of entire blade; primary pinnae opposite along rachis.
 2. Rachis wings absent between the two basal pinna pairs; rachis bearing on its lower surface numerous tan to brown, lanceolate scales (these mostly 6–12 cells wide at the base) and acicular hairs 0.3–1.0 mm long _____ **P. connectilis**
 2. Rachis wings present between the two basal pinna pairs; rachis bearing on its lower surface relatively few, white to pale tan, narrowly lanceolate scales (these mostly 3–5 cells wide at the base) and hairs 0.1–0.25 mm long _____ **P. hexagonoptera**

ACKNOWLEDGEMENTS

We thank Richard and Nancy Cobb, who first discovered this population and brought a frond to the junior author for identification. We appreciate Larry Davenport (SAMF) and Dan Spaulding (AMAL) who provided prompt and thorough reviews which greatly improved the manuscript. The senior author greatly appreciates funding from the Alabama Wildflower Society.

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