

Castanea 56: 128–134. 1991). It is considered common in Europe and rare in the eastern United States. The South Dakota locations are disjunct by more than 2000 km from the sites reported by Wagner *et al.*—HOLLIS MARRIOTT, 655 N. Cedar St., Laramie, WY 82072, and JAN AND HERB CONN, HCR 83 Box 93, Custer, SD 57730.

***Dryopteris goldiana* and its Hybrid with *D. celsa* New to Arkansas.**—Wood Ferns (*Dryopteris*) were studied intensively in Arkansas for twenty years (Peck *et al.*, Amer. Fern J. 75:71, 1985; Peck and Peck, Proc. Arkansas Acad. Sci. 42: 74–78, 1988; Peck and Taylor, Proc. Arkansas Acad. Sci. 49:130–137, 1995), yet surprises remain to be found in a state with no less than 16 previous lists of its pteridophyte flora. *Dryopteris celsa* (W. Palmer) Knowlton, Palmer & Pollard was discovered in the Ozark National Forest, Sylamore District, in 1992 by Phil Hyatt [4947.03 (UARK)]. J. H. Peck's efforts in 1997 and 1998 to relocate and inventory that population were unsuccessful. Unfortunately, the specimen's label coordinates were incorrect, being off by six miles to the west. Earl Hendrix relocated the population and told Peck that "more than *D. celsa* is present." A brief visit by Hendrix and Peck on 20 July 1999 confirmed that it was a most exceptional woodfern community for Arkansas. We noted three species plus three hybrids of *Dryopteris*, including a species and a hybrid new to Arkansas. Additional specimens, locality data, and habitat observations were gathered by Theo Witsell on 27 November 1999. All specimens are deposited at LRU.

The locality (Merrill Ridge Road Blowing Cave, Baxter Co., AR, T17N, R12W, S30, Norfolk SE Quad.), is located in a remote portion of north-central Arkansas within the Sylamore District, Ozark National Forest. The locality has three special microhabitats for Arkansas, including limestone bed-rock, a breakdown strewn and partially blocked entrance of a blowing-cave, and a hillside seep and stream located on a north-facing toe-slope. These microhabitats occur at the bottom of a forested ravine with 100 m of vertical relief. The associated vegetation is composed of canopy trees such as *Carya* spp., *Nyssa sylvatica*, *Quercus alba*, and *Quercus rubra*, with understory plants of *Cornus florida*, *Rhamnus caroliniana*, *Vaccinium pallidum*, and *Vitis rotundifolia*. The adjacent Stewart Fork stream, cave-cooled spring-seepage water, and cool-blowing air from the cave provide a cool, moist, and moderated local environment.

This is a very protective habitat for ferns of a more northerly habitat and range. The humus-rich soils on the toe-slope supports three species of *Dryopteris*, including five plants of *D. goldiana* (Hooker ex Goldie) A. Gray [Peck 99417 (LRU)]. Adjacent to the seepage area and stream are several dozen plants of *D. celsa* (Palmer) Knowlton, Palmer, & Pollard. *Dryopteris marginalis* (L.) A. Gray occurs throughout the valley at various elevations on or near rock outcrops. This population of *D. goldiana* occurs at the extreme southwestern edge of its range, modestly disjunct about 200 km from outliers in Missouri,



an isolation distance far less than that evident in western Missouri or in northern Minnesota (see Fig. 2, Werth, Syst. Bot. 16:446–461, 1993).

The habitat is moist enough to promote the occasional formation of hybrids. A few plants of each of three hybrids were found: *D. ×australis* Small (*D. celsa* × *ludoviciana*) [Peck 99701 (LRU)], *D. ×leedsii* Wherry (*D. celsa* × *marginalis*) [Peck 99704 (LRU)], and *D. celsa* × *goldiana* [Peck 99425 (LRU)]. *Dryopteris celsa* × *goldiana* was discovered for the first time in Arkansas. *D. ×leedsii* Wherry was noted at its second Arkansas location. The Arkansas range *D. ×australis* Small, was expanded from its previously known occurrence in the Ouachita Mountain Region to include the Ozark Mountain Region as well. Although not found at this locality, another hybrid might be present in the area, *D. ×neowherryi* W. H. Wagner (*D. goldiana* × *marginalis*). All previous reports of *D. ×neowherryi* in Arkansas (J. D. Montgomery and E. T. Paulton, Fiddlehead Forum 8:25–31, 1981; J. D. Montgomery and D. E. Fairbrothers, New Jersey Ferns and Fern Allies, Rutgers Press, 1992) actually refer to *D. ×leedsii*.

With this report, five *Dryopteris* species [*D. carthusiana* (three localities in three counties; *D. celsa* (23 localities in five counties), *D. goldiana* (one locality in one county), *D. ludoviciana* (one locality in one county), and *D. marginalis* (numerous localities in 38 counties)] plus three *Dryopteris* hybrids [*D. ×australis* (nine localities in four counties), *D. ×leedsii* (two localities in two counties), and *D. celsa* × *goldiana* (one locality in one county)] are known from Arkansas.—JAMES H. PECK, Department of Biology, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204; C. Theo Witsell, Arkansas Dept. Natural Heritage, Little Rock, AR 72201; EARL HENDRIX, Sylamore District, Ozark National Forest, Mt. View, AR 72560.



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