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Louisiana Log Fern (*Dryopteris ludoviciana*) New to Arkansas

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General Notes

SOUTHERN WOODFERN, *DRYOPTERIS X AUSTRALIS*, NEW TO ARKANSAS

The southern woodfern, *Dryopteris X australis* (Wherry) Small, is the sterile, triploid backcross hybrid between the fertile, allotetraploid *D. celsa* (Palmer) Small with the fertile, diploid *D. ludoviciana* (Kunze) Small (Carlson and Wagner, Contr. Univ. Michigan Herb. 15:141-162, 1982). Since its discovery in 1927, the hybrid was found at only seven localities on the Coastal Plain of Southeastern North America: North Carolina (two), South Carolina (one), Alabama (two), and Louisiana (two) (Wagner and Musselman, Castanea 47:182-190, 1982). The hybrid was located in Arkansas by Orzell on 26 July, 1984, at a wooded acid seep adjacent to Meyers Creek in Garland Co. (T3S R22W S16). The population consisted of a nearly pure stand of *D. X australis*. A few plants of one parent species (*D. celsa*) were present at the periphery. As the other parent was not evident, this was another example of "hybridization by remote control" noted by Wagner (Amer. Fern J. 33:71-73, 1943).

The population was revisited on 20 September and 27 October. Specimens from the first two visits (Orzell 1429, UARK) were identified by one of us (Peck) and W. Carl Taylor, Milwaukee Public Museum; specimens from the last site visit (Peck 84680, LRU) were verified by Warren H. Wagner, University of Michigan, Ann Arbor, MI. This is an important discovery in that this is the first report of *D. X australis* from Arkansas and only the eighth population known of this hybrid. It occurs 200 km to the northwest of one of its parents (*D. ludoviciana* at Warren Prairie, Bradley, Co., AR) and 500 km northwest of the nearest hybrid populations (Baton Rouge, LA). The Arkansas population is the westernmost and northwesternmost locality of the hybrid; this is also the third and currently the only extant population known west of the Mississippi River. From initial observations, we would expect to find other localities in the Ouachita Mountains, where populations of *D. celsa* have been reported (Taylor, Arkansas ferns and fern allies, Milwaukee Public Museum, 1984) or in the southeastern portion of the state, where *D. ludoviciana* was recently located at Warren Prairie, Bradley, Co., AR.

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LOUISIANA LOG FERN (*DRYOPTERIS LUDOVICIANA*) NEW TO ARKANSAS

Dryopteris ludoviciana (Kunze) Small (Polypodiophyta: Asplenaceae), a fertile diploid fern of the Southeastern United States, has a relatively restricted distribution, frequenting low or wet hammocks, cypress swamps or rocky woods in the Coastal Plain, mainly in Florida, extending northward to North Carolina (Carlson and Wagner, Contr. Univ. Mich. Herb. 15:141-162, 1982) and westward with four populations in Alabama, three in Louisiana (Thieret, Ferns and fern allies of Louisiana, 1980), and two in Texas (Correll and Correll, Aquatic and wetland plants of Southwestern United States, 1972). *D. ludoviciana* exhibits frond dimorphism caused by abrupt differences between constricted, terminal spore-bearing pinnae and the fully expanded sterile pinnae below them. *D. ludoviciana* was first discovered in Arkansas by Eric Sundell and D. McIntyre on 18 September, 1982, at Warren Prairie Natural Area (Bradley Co.: T13S R9W S13), 20 km west of Monticello, AR (Sundell & McIntyre 2864, UAM). Over 100 plants were growing in a lowland *Quercus phellos* L. woods along with another fern, *Lorinseria areolata* (L.) Presl. The identity of the specimen was noted in annotation by J. Peck in October, 1984. Additional specimens (Peck & Peck 84641, LRU) were verified by Warren H. Wagner, University of Michigan (Ann Arbor, MI).

This discovery of *Dryopteris ludoviciana* new to Arkansas also represents an important range extension for the species. Only three other populations (Hardin Co. and Tyler Co., Texas and St. Mary Parish, Louisiana) are known to occur west of the Mississippi River; the latter, which is the closest population to Warren Prairie, is located 350 km to the south of the Arkansas locality (Thomas, Wagner & Messler, Castanea 38:269-274, 1973). The occurrence of this most northwestern station of *D. ludoviciana* at Warren Prairie, 123 ha of which were recently purchased for preservation by the Arkansas Natural Heritage Commission, further attests to the importance of the area to Arkansas' natural heritage.

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OBSERVATIONS AND NEW RECORDS OF FERNS NATURALIZING IN ARKANSAS

Three alien fern species have become naturalized in Arkansas: *Lygodium japonicum* (Thunb.) Sw., *Pteris multifida* Poir. ex Lam., and *Thelypteris torresiana* (Gaud.) Alston (Taylor and Demaree, 1979; Taylor, 1984). Their presence here represents the consequences of either natural colonization from a distant naturalized population or escape from local cultivation. Careful observation, collection, and documentation of plant occurrence and distribution data are required to determine which fern plants are truly native and which are recently adventive, escaped, or naturalized (Wagner, 1972). Attention must, therefore, be given to what species are being cultivated. Native Arkansas ferns, alien species, and ferns native to the southeastern United States and recently found in Arkansas (e.g., *Thelypteris kunthii* [Desv.] Morton), are cultivated throughout Arkansas as horticultural/landscape material. Populations that escaped from cultivation will be difficult to distinguish from populations derived from natural range expansions into or across Arkansas.

Lygodium japonicum (Schizaeaceae), native to eastern Asia, became established in Florida in the 1920's (Small, 1938) and spread northward to North Carolina and eastward to Texas. It was first collected in Arkansas by C. M. Meyer on 14 October, 1981, in Ashley Co. (Meyer s. n., LRU). Since then it has been collected at a second Ashley Co. locality (Shepherd s. n., LRU), and at Union Co. (Thomas s. n., LRU). These populations became established relatively far from known sites of cultivation, and are considered to be naturalized populations. However, in 1983