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Arkansas Academy of Science

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DRYOPTERIS CARTHUSIANA AT MT. MAGAZINE, LOGAN, CO., ARKANSAS

Until the present, the only verifiable Arkansas population of the spinulose wood fern, *Dryopteris carthusiana* (Villars) H. P. Fuchs (*D. spinulosa* [O. F. Muell.] Watt), was one discovered by D. M. Moore on 7 August, 1960, at the entrance to Rowland Cave in Stone Co. This population represents the most extreme southwestern population of this species in eastern North America (Carlson & Wagner, Contr. Unif. Michigan. Herb. 15:141-162, 1982). In spite of the phytogeographic importance of this species in Arkansas, its presence and location has not been known with much certainty.

It was first reported for Arkansas by Lesquereux (A catalog of the plants of Arkansas, Pp. 346-399 in Owen, *Second report of a geological reconnaissance of the middle and southern counties of Arkansas made during the years 1859 and 1860*, 1860) from "woods". Based on this report, it was included in state lists by Harvey (Bot. Gaz., Crawfordsville 6:188-190, 1881) and Branner & Coville (A list of the plants of Arkansas, Pp. 155-242, in Branner, *Annual report of the Geological Survey of Arkansas for 1888*, Vol. IV, 1891). Buchholz (Am. Fern J. 14:33-38, 1924) expressed doubt about the presence of this species in Arkansas, in that he could not locate voucher material. Based on a discovery by Dwight M. Moore in 1924 (Moore, Am. Fern J. 31:63-71, 1941), Buchholz and Palmer (Trans. Acad. Sci. St. Louis 25:91-155, 1926) reported this species from the north side of Mt. Magazine, Logan Co., Arkansas. Recent efforts to locate a voucher or plants at that locality were also unsuccessful (Taylor & Demaree, *Rhodora* 81:503-548, 1979; Taylor, *Arkansas ferns and fern allies*, 1984, p. 106).

On 5 October, 1985, while surveying the status of *Woodsia scopulina* D. C. Eat. on Mt. Magazine, I located 4 plants of *D. carthusiana* on the northside of the mountain, near its summit, in the vicinity of Brown's Spring. This population, associated with three other fern species also occurring as peripheral populations (*Dennstaedtia punctilobula* [Michx.] Moore, *Dryopteris marginalis* [L.] Gray, and *Woodsia scopulina* D. C. Eat.), is most probably the population initially discovered by Moore in 1924. Verification of the occurrence of a Mt. Magazine population extends the known range of *D. carthusiana* 300 km to the southwest of the Stone Co. population. The occurrence of this northern species in Arkansas appears to be related to "northern" environmental factors provided in Logan Co. by elevation (860 m) at the top of the tallest mountain in Arkansas and in Stone Co. by moderated, cool, moist air blowing from a cave entrance. Based on the known locations of *D. carthusiana* in Arkansas, it is most improbable that Lesquereux ever saw this species in Arkansas during his travels; the earlier attributions of this species in the Arkansas flora must be considered spurious.

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A SURVEY OF THE INTERIOR LEAST TERN ON THE ARKANSAS AND WHITE RIVERS IN ARKANSAS

Potential tern sites were first identified by aerial surveillance and then explored by boat. The initial step involved a two-day helicopter search for evidence of nesting terns on the Arkansas River from Little Rock to the Oklahoma state line (26 June), and from Newport to St. Charles on the White River and again on the Arkansas River from Lock and Dam #3 to Little Rock (27 June). Due to a need to refuel frequently, and the limited availability of refueling stations, the lower 30 miles of the White River and the Arkansas River from its mouth to Lock and Dam #3 were not surveyed from the air.

All potential tern colonies identified by air on the Arkansas River, upstream from Little Rock, were visited by boat (1, 2, and 8 July), and the lower White River from Lock and Dam #1 to the Mississippi River and back up the Arkansas River to Dam #2 also was surveyed by boat (17 July).

The helicopter, provided by the Corps of Engineers and piloted by Army Reserve pilots, flew at heights of 100 to 200 feet above the ground at speeds of 30 to 75 m.p.h. Care was taken not to disturb tern colonies with prop wash. Visits to sandbars upstream from Little Rock were made in early morning (before 9:00 a.m.) and evening (after 6:30 p.m.) hours to avoid exposing young birds and eggs to the heat of the mid-day sun. However, sandbars on the lower White and Arkansas rivers were searched from the water in mid-day due to the late start of that survey.

Four rookeries were observed, one of them previously known, on the Arkansas River above Little Rock, and one rookery was found at the mouth of the Arkansas River. Approximately 80 adult least terns, 86 juveniles, and 40 eggs were counted at the five rookeries. No terns were found elsewhere on the Arkansas River or on the White.

The rookery at river mile 147, located on a side channel bar (spoilbank), was surveyed three times. On 1 July, 14 adults and one downy chick were found. No eggs or egg fragments were seen. A second trip to the ternery on 19 July proved more fruitful. Eight juvenile birds, seven of which were highly mobile, and 16 adults were counted. On a third visit, made 27 July, two flying young of the year were seen, but only six adults and no nests or flightless young. Though adults dive-bombing in one area of the spoilbank indicated that at least one nest was still active,