

1994

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### Recommended Citation

Bray, James R.; Whitehead, Greg A.; Marsh, Daniel L.; and McMasters, Dennis W. (1994) "Bryophyte and Pteridophyte Distribution Records of Southern Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 48 , Article 46.  
Available at: <http://scholarworks.uark.edu/jaas/vol48/iss1/46>

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## Bryophyte and Pteridophyte Distribution Records of Southern Arkansas

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This note catalogs distributional records for 22 species of hepatics and pteridophytes in southern Arkansas. We hope inclusion of four hepatics may stimulate more interest in the bryophytes of Arkansas. We wish either to initiate or contribute to the eventual preparation of an atlas and annotated list of the bryophytes of Arkansas in a format similar to that which Smith (1988) published for the vascular plants, an also to compile a photographic collection of the bryophytes to supplement the pteridophyte photographic collection compiled earlier by Crank.

*Trichocolea tomentella* (Ehrh.) Dumort. is a strikingly beautiful leafy liverwort (Order Jungermanniales) often mistaken for a delicate fern moss. Because of this appearance we use "mossy hepatic" as our English designation. It is widely distributed in the Northern Hemisphere, but is restricted to wet, low-acid sites often along mountain streams. The only location in Arkansas given by Schuster (1966) is at Camp Albert Pike in Montgomery Co. After studying that site, we located additional stands in Montgomery Co. Bray later found a new location in Garland Co. and another extensive stand in Hot Spring Co. We expect to find sites in other counties of the Interior Highland.

Another leafy liverwort which can form conspicuous mats is *Scapania nemorosa* (L.) Dumort., southern scapania or "carpet hepatic." It is widely distributed in the eastern half of North America and in Europe from 30-55° N. latitude. Schuster (1974) includes Arkansas and the adjacent states in the range, but gives no specific sites in Arkansas. This highly polymorphic species tolerates broad ranges of light, moisture, and soils, and it is likely to be found throughout the state. It forms extensive carpets in a city park in Arkadelphia and in a nearby cemetery (Clark Co.). Marsh has collected it from DeGray Lake State Park (Hot Spring Co.) and from the Ouachita National Forest south of Aplin in Perry Co. In addition we have student collections from Camp Albert Pike in Montgomery Co. and Needle's Eye Mountain in Hot Spring Co.

One of our most common ribbon-mosses (Order Metzgeriales) is *Pallavicinia lyellii* (Hook.) Carruthers, which we usually call "winged liverwort" because the thalli are clearly differentiated into a midrib and lateral wings which are only one cell layer thick. It is common in bogs

and on wet creek banks in our area. Schuster (1992) lists sites in 19 counties of Arkansas: Baxter, Conway, Cross, Franklin, Garland, Greene, Hempstead, Lafayette, Little River, Miller, Montgomery, Nevada, Newton, Polk, Pulaski, Saline, Stone, Union, and Van Buren. We have documented additional sites in Clark, Ouachita, and Pike counties.

The only member of the bottle hepatics (Order Sphaerocarpaceae) which we have found in Arkansas is *Sphaerocarpos texanus* Aust., which we call "Texas bottlewort." It is notable for the bottle-shaped involucre covering the sex organs and for being the first plant in which sex chromosomes were discovered. Schuster (1992) lists it for nine counties of Arkansas: Benton, Calhoun, Conway, Faulkner, Hempstead, Lafayette, Polk, Pulaski, and Washington. The new locations are in Clark, Dallas, Hot Spring, and Ouachita counties (the last was found by Michael Shepherd). Although it can be found on a wide variety of bare soils, it is undoubtedly much overlooked because of its small size and short growing season in cool weather.

In the fall of 1992 McMasters found a single shoot of the whisk-fern, *Psilotum nudum* (L.) Beauv., at the base of a retaining wall while cleaning out a dense growth of English ivy in the yard of his home in Arkadelphia. The aerial portion died during the late winter of 1993, possibly because it was no longer protected by the vine. This occurrence is documented by photographs but not by an herbarium collection. Presumably there was at least one gametophyte present in the soil, but the sporophyte could have developed apogamously. The nearest cultivated *Psilotum* is less than a mile from this site at the greenhouse on the Henderson State University campus. Several potted *Psilotum* plants there produce abundant spores, and young plants are found from time to time as weeds in pots containing other species. At present we regard this occurrence as a waif, but we suggest that botanists should be alert to the possibility that this species may occur as an escape. A stand of *Psilotum* was reported near Ruston, Louisiana (Rhodes, 1970) only 35 miles south of Arkansas within a forested area. Thieret (1980) indicates the species in both Lincoln and Ouachita parishes in northern Louisiana. In the case of occurrences under heavy

cover, as at Arkadelphia, the species could be easily overlooked.

*Lycopodiella prostrata* (Harper) Cranfill, creeping fox-tail club-moss, was first reported in Arkansas by Peck et al. (1987) who discovered it in Calhoun Co. Later it was reported in Saline Co. by Bray and Marsh (1993). We have now located it in Clark Co. associated with *L. appressa*.

*Selaginella eclipses* Buck, Buck's meadow spikemoss, is shown only for northern counties in Taylor (1984) and Smith (1988). An extension to Montgomery Co. in southern Arkansas was reported by Bates (1993). We have found the species in Garland and Hot Spring counties. It probably occurs in other counties in the Ouachita division, where it has perhaps been taken for *S. apoda*. For many years we have regularly visited one of the Hot Spring Co. sites north of Bismarck on Highway 7 but we had incorrectly identified the plant as *S. apoda*. The two taxa are morphologically similar, and it has been suggested that *S. eclipses* might prove to be a subspecies of *S. apoda* (Valdespino, 1993). The two taxa have remained distinctive under cultivation in the Henderson State University greenhouse.

We have found single county extensions for the following pteridophytes: *Isoetes melanopoda* Gay & Durieu, black-footed quillwort, in Cleveland Co.; *Equisetum hyemale* L., scouring rush, in Hot Spring Co.; *Asplenium bradleyi* D.C. Eat., Bradley's spleenwort, in Hot Spring Co.; *Asplenium resiliens* Kunze, black-stemmed spleenwort, in Montgomery Co.; *Cystopteris tennesseensis* Shaver, Tennessee bladder fern, in Montgomery Co.; *Pellaea atropurpurea* (L.) Link, purple-stemmed cliff brake, in Hot Spring Co.; *Thelypteris kunthii* (Desv.) Morton, southern shield fern, in Garland Co.; and *Thelypteris noveboracensis* (L.) Nieuwl., New York fern, in Hot Spring Co.

We report the mosquito fern *Azolla* in Clark and Ouachita counties, found without the sori needed to determine whether *A. caroliniana* Willd. or *A. mexicana* Presl. was represented. Thieret (1980) listed *A. caroliniana* as the only mosquito fern in adjacent Louisiana. Taylor (1984), with reservations, and Smith (1988) listed our mosquito fern as *A. mexicana*. Lumpkin (1993) included Arkansas in the mapped distributions of both species, but stated that the maps are tentative pending resolution of taxonomic difficulties. He pointed out that about 80% of the specimens studied lack sori.

During the last two years we have given some attention to the distribution of the Ophioglossales and have a number of additions to the county records provided by Taylor (1984) and Smith (1988). *Botrychium lunarioides* (Michx.) Sw., winter grape fern, was known in four counties; we have found a number of sites in four more counties: Clark, Dallas, Hot Spring, and Nevada. (The last was found by Tim Golden.) All of these locations are in rural

cemeteries.

*Ophioglossum crotalophoroides* Walt., bulbous adder's tongue, was also found in four more counties: Garland, Montgomery, Pike, and Saline. The location of *O. engelmannii* Prantl, limestone adder's tongue, in a cemetery at Okolona is a new record for Clark Co. This is in the calcareous blackland prairie region. *O. nudicaule* L. f., least adder's tongue, was found in four new counties: Calhoun, Clark, Dallas, and Pike, doubling the number of counties recorded. *O. petiolatum* Hook., stalked adder's tongue, was previously known in four counties. We have found a site in Clark Co. where it is locally rather common in a rural church yard, mixed with a population of *O. crotalophoroides*. *O. vulgatum* L., southern adder's tongue, was found in three additional counties: Clark, Garland, and Montgomery.

Based on published reports and our work, Clark Co. is the only county presently known to contain all five of the Arkansas adder's tongues. This is obviously because we have concentrated much field work there. Distributions of these five species in the southeastern United States (Wagner and Wagner, 1993) and particularly in northern Louisiana (Thieret, 1980) strongly suggest that they all could be found in most counties in the southern one-third of Arkansas.

Voucher specimens of all the species cataloged above, except *Psilotum nudum*, have been placed in the Henderson State University Herbarium.

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