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PRELIMINARY REPORT ON THE ARKANSAS BRYOPHYTES

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To date, the study of the Bryophytes in the State of Arkansas has been very sporadic, and confined more or less to very restricted areas. Accounts of the Bryophytes, found in Arkansas, are scattered through the works of the various outstanding bryologists in the east and far western part of the United States. However, I am not unaware that there are individuals in the state who have assembled specimens from time to time, but no official record has been made of their collections.

In the days when Arkansas was yet a territory, Thomas Nuttall made numerous collections from both Missouri and Arkansas. In his later years and when Arkansas had become a state, he accompanied Leo Lesquereux on various trips into Arkansas. Nuttall, however, listed no bryophytes from Arkansas in almost thirty years of ardent collecting.

Our first official records of Arkansas Bryophytes were made by Mr. Lesquereux about the year 1859. This was published under the title of "A Botanical and Paleontological Report on the Geological Survey of Arkansas". This can be found in the **Second Geological Survey of Arkansas**, printed in Philadelphia in 1860.(6).

At that time, Mr. Lesquereux collected *Reboulia hemispherica* which F.V. Coville in 1888 called "*Asterella*" *hemispherica* in his account of Lesquereux's collections. All of Lesquereux's observations were made at Mammoth Springs and around Hot Springs. In the same locality he collected the mosses, *Bartramia radicalis*, *Bryum argenteum*, *Barbula unquiculata*, *Fissidens taxifolius* and *Hypnum noterophyllum*.

Later J.C. Branner and F.V. Coville published in the Annual Report of 1888 of the **Arkansas Geological Survey** a list of the plants of Arkansas. Their list of Bryophytes consisted entirely of liverworts found on Salado Creek near Batesville in Independence County, on the margins of a swamp near Argenta, Arkansas and from a range of hills, west of Little Rock. (1).

Coville reported finding *Riccia fluitans* var. *sullivantii*, *Riccia tenuis*, *Dumortiera hirsuta*, "*Conocephalus conicus*" which is now called *Conocephalum conicum*, "*Aneura*" *palmata* which is now called *Riccardia palmata*, and *Anthoceros laevis*. The leafy liverworts in their list included *Frullania squarrosa*, *Frullania virginica*, *Frullania kunzei*, and "*Phragmicoma*" *clypeata* which is now called *Leucolejeunea clypeata*. (1)

In the intervening years between the time of this report and 1924, little was done concerning the Bryophytes of Arkansas. Many references that we now have on them are in the works of A.W. Evans. Travelers passing through Arkansas sent him specimens and collectors, especially from Missouri, added to the list.

In 1924 Arthur Oxley, working on a Master's degree at the University of Arkansas, centered his attention on the mosses and made a brief survey of the mosses, occurring in the Fayetteville region. He collected specimens from 19 different localities from January to June, 1924. Oxley lists 33 species of mosses, although his list would have been much larger had he perhaps had the time to identify all the specimens he collected. Many specimens yet remain to be identified from his collections which are at the present time in the University of Arkansas' Bryophyte Herbarium. (7).

In 1941, Francis J. Scully collected and studied the mosses of Hot Springs National Park and vicinity. He lists 67 species of mosses and published his study in the *Bryologist*, Vol. 44 October, 1941. (8).

It is obvious that with the existing topography and substrata found in the State of Arkansas that a great diversity of plant life has been recorded. This is certainly true of the higher plants in Arkansas and all the more true of the bryophytes of the state. This should be more and more apparent as the increasingly greater number of these plants is recorded.

The one thing that will be apparent as far as the distribution of various leafy liverworts over the state is concerned will be the distribution and occurrence of micro-climatic areas. These include locations around springs, whether the spring is rather open or is in an extreme depression, deep crevices which get only diffused light the year around with a moderate moisture condition. For example, in "The Devil's Icebox" at Devil's Den, this formation is so situated that the air most of the year round is several degrees cooler than the air of the surrounding vicinity. In all the crevices leading from it to the open hill top, large sheets of liverworts grow on the walls. Where there are small areas that direct sunlight illuminates for a very short period of a day, only mosses are growing in the same moisture and temperature conditions.

On the walls of these crevices, I found *Metzgeria conjugata* and *Metzgeria furcata*. This genus is relatively common in the state yet no official record or report has been made of it. Where these crevices reach more or less open air, large mats of *Leucolejeunea clypeata* were found. This liverwort, although no report has been made of it with the exception of Coville's report, is probably one of the most common leafy liverworts in the state.

During the last year and a half that I have centered my attention on the Bryophytes of Arkansas, 30 different localities have been worked over and many of these have been visited a second time; for one soon learns, in the study of these plants, that the mature sporophyte must be obtained before a positive identification can be made. About 50 species of mosses have been collected and prepared for confirmation. And, in the same period, 40 different liverworts have been identified and also prepared for confirmation.

The Bryophyte Herbarium of the University of Arkansas now contains 90 species of mosses collected in the state, 42 species of liverworts, 66 genera of out of state mosses, 4 out of state liverworts, 7 foreign liverworts, and 175 genera of foreign mosses.

It might be well to mention here that over the world as a whole, there exist 80 families of mosses, consisting of 655 genera and 13,500 species; as far as liverworts are concerned, 175 genera and 8,500 species. As for publications and taxonomic works for the identification of specimens, the most complete work on the Hepaticae is T.C. Frye and Lois Clark's *Hepaticae of North America* in the University of Washington Publications in Biology. Four volumes of this work have already appeared with a fifth volume in the offing. (3). Several other investigators have published monographs on various Hepaticae genera.

The most complete work on the mosses is that of A.J. Grout, *The Moss Flora of North America* published by the author in three volumes. (5). An earlier work of Grout is entitled *Mosses With a Hand Lens* which is also very useful. A more recent semi -

popular work by Henry S. Conard, entitled **How to Know the Mosses** is one excellent for the inexperienced collector. (2).

In conclusion I would like to state that this report is preliminary and that I welcome and in fact solicit any information concerning specimens, herbaria, or works yet unpublished on the Bryophytes of Arkansas, that any one present might have or might know about. I hope in the near future to set up an exchange of specimens with other colleges in the state, which might be interested in consolidating and building up herbaria. The study of Bryophytes from the very start challenges the incentive of the interested investigator, for a veritable paradise of these lowly, green, land plants, lies before one and all around him in the landscape of the mountains and countryside of Arkansas.

REFERENCES CITED

1. Branner J.C. and Colville F.V. - **A List of the Plants of Arkansas**. Annual Report for 1888. Arkansas Geological Survey. - Volume IV, pp. 155-242 - Little Rock - 1891.
2. Conard Henry S. - **How to Know the Mosses** -, Mt. Pleasant, Iowa - 1944.
3. Frye T.C. and Clark, Lois - **Hepaticae of North America** - University of Washington Publications in Biology - Vol. VI, Nos. 1-5 - University of Washington Press - Seattle, Washington - 1937 - 1947.
4. Grout, A.J. - **Mosses With a Hand Lens** - Published by the Author - Staten Island, New York - 1924.
5. Grout, A.J. - **The Moss Flora of North America** - Vols. I - III - Published by the Author - Newfane, Vermont - 1928-1940.
6. Lesquereux, Leo - **Botanical and Paleontological Report on the Geological State Survey of Arkansas** - Second Report of a Geological Reconnaissance of Middle and Southern Counties of Arkansas by David Dale Owen - Philadelphia, Pennsylvania - 1860 - pp. 322, 341.
7. Oxley, Arthur D. - **Mosses Found in the Region of Fayetteville, Arkansas** - Master's Thesis, Unpublished - University of Arkansas - 1924.
8. Scully, Francis J. - **The Mosses of Hot Springs National Park and Vicinity** - The Bryologist, Vol. XLIV, No. 5, pp. 125-128, October, 1941.

