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## Occurrences of *Petalophyllum* (Fossombroniaceae) in the Interior Highlands of Arkansas

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In 1914 the liverwort *Petalophyllum* was first found in North America in Brazos County, Texas, by Evans (1919). In 1950 Dwight Moore found a population in Union County, Arkansas (Wittlake, 1951). Wittlake (1954) observed plants at the same site the following year, but was unable to find additional populations. In 1971 Schuster and Reese found it in Lafayette Parish, Louisiana (Schuster, 1992). Schuster's 1992 publication termed it a rarity in North America, but suggested that it might be less rare than the few stations suggest. He listed it for only six sites: four counties in Texas, one in Arkansas, and one in Louisiana. The three areas are widely separated on the Gulf Coastal Plain.

An Arkansas bryophyte floristic project initiated in 1997 at Henderson State University located populations of *Petalophyllum* in eleven additional counties in Arkansas (Marsh et al., 1997). These populations were found in or around rural cemeteries and church yards, a habitat not previously known for *Petalophyllum*. One of the populations was at the edge of the Interior Highlands in Hot Spring County; the others were in the Gulf coastal Plain. During the next two collection seasons for this plant species (late October to May) the authors and Tim Golden found enough additional populations on the Gulf Coastal Plain of Arkansas, Louisiana, and Texas between the three areas known earlier to suggest a more or less continuous geographical range for the taxon.

After Kyzer noticed cemeteries in the Ouachita Mountain region of Arkansas that appeared similar to those of the Gulf Coastal Plain, he suggested a search for *Petalophyllum* in the Interior Highlands. During February and March, 1999, four populations were found in different subdivisions of the Ouachita Province. Observation of similar cemeteries in the Arkansas Valley suggests that populations are likely to be found in that geographic division also.

The northernmost populations found were in the Fourche Mountains subdivision in Perry County. *Kyzer 046* was found on February 6 at Nimrod Cemetery in the valley of the Fourche La Fave River just south of an upland escarpment. *Kyzer 058* was found on March 27 near Hollis in the Goat Bluff Cemetery just north of the South Fourche La Fave River. It is 10.5 km overland SSE of the Nimrod site. A series of high ridges separates the two sites.

Two populations were found in the Mazarn Basin of the Central Ouachita Subdivision. *Kyzer 052* was found on February 20 in Montgomery County at Old Mt. Tabor Cemetery east of Welsh off U.S. 70. Although it is in the Mazarn Basin according to generalized maps, it is drained

by Little Sugarloaf Creek, a tributary of the Caddo River. *Kyzer 056*, found on March 20 in Garland County east of Meyers at Cross Roads Cemetery, is in the drainage valley of Meyers Creek, a tributary of Mazarn Creek.

Another subdivision of the Ouachita Mountains, the Athens Piedmont Plateau, is represented by the population reported by Marsh et al. (1997) just north of the "fall line" boundary between the Interior Highlands and the Gulf Coastal Plain. Additional locations in other subdivisions of the Interior Highlands seem likely.

All voucher specimens cited were deposited in the Henderson State University Herbarium (HEND); duplicate specimens with mature sporophytes were sent to the bryological team at Southern Illinois University for their monographic study of the Fossombroniaceae.

All the *Petalophyllum* populations we found in the Interior Highlands are in grassy cemeteries associated with key indicator species: *Asterella tenella*, *Fossombronia foveolata* and other species of *Fossombronia*, *Ophioglossum crotophoroides*, and *O. nudicaule*. Other associates are various grasses, mosses, and often common species of *Hedyotis*. One frequent associate of *Petalophyllum* on the Gulf Coastal Plain is *Lepuropetalon spathulatum*. This species was abundant at the Old Mt. Tabor site in Montgomery County, but was not found at the other Interior Highlands sites.

Human cultural features such as rural cemeteries provide similar habitats in different natural divisions of the landscape and consequently may offer opportunities for geographic expansion of species adapted for such habitats. *Petalophyllum* and other small plants may be easily overlooked anywhere because they are often nearly hidden among the grasses with which they grow. They are even more likely to be overlooked in geographic areas where they are unexpected. It seems likely that other small plants of the Gulf Coastal Plain may be found in similar habitats of the Interior Highlands.

In the above report we have deliberately avoided identifying the species of the American *Petalophyllum*. It has been treated as conspecific with a European species, first as *P. lamellatum* (Nees) Lindb. (Evans, 1919; Frye and Clark, 1937). Frye and Clark (1947) corrected their nomenclature to *P. ralfsii* (Wils.) Nees & Gottsche ex Lehm., but Wittlake (1951, 1954) continued to use the binomial *P. lamellatum*. Schuster's (1992) treatment of American populations as *P. ralfsii* was followed by Marsh et al. (1997). Based on photographs of *P. ralfsii* from Wales (the type area of the European species) and its very different ecology, Marsh is

strongly inclined to think the American populations do not belong in *P. ralfsii*. The bryological group at Southern Illinois University is now comparing Arkansas and Texas material with plants obtained from Europe, and they have indicated tentative agreement with Marsh's position (personal communication). In addition, they find that variation in the Arkansas populations suggests that more than one taxonomic entity may be present within American *Petalophyllum*.

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