

***ASPENIUM RHIZOPHYLLUM* (ASPENIACEAE) IN THE FLORA OF TEXAS**

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ABSTRACT

Asplenium rhizophyllum L. is documented for the flora of Texas from a historic collection by Emil Dapprich in 1873 in either Comal, Dallas, or Mason county, Texas. The specimen is housed in the Milwaukee Public Museum Herbarium (MIL).

Asplenium rhizophyllum L., a small, clonal fern commonly known as walking fern because of its propensity to root at the tips of its long-attenuate fronds, occurs across eastern North America, usually on or associated with exposed limestone. The species closely approaches the Texas border on bluffs and rock outcrops along the Little River in southeastern Oklahoma (McCurtain County) and south-central Oklahoma (Johnston County), but it has not been known to occur in Texas (Correll & Johnson 1970; Hatch et al. 1990; Turner et al. 2003; Warren et al. 2004; Kartez 2015). A recent update of online herbarium specimen data from the Milwaukee Public Museum Herbarium (MIL), however, includes information on a historic specimen of *A. rhizophyllum* from Texas. This is the first report of this species for the flora of Texas.

The collection of *Asplenium rhizophyllum* (Fig. 1) was made by Emil Dapprich (1841--1903) in 1873 or 1881. Dapprich was a noted German teacher and avid plant collector (Geiser 1958). Upon the death of Fernald Lindheimer, his private herbarium collection came into the hands of Emil Dapprich of Milwaukee, Wisconsin (Winkler 1915). Dapprich's plant collections together with Lindheimer's were exhibited at the 1900 World's Fair in Paris, France. The combined collection of Lindheimer and Dapprich, consisting of about 6000 specimens, was donated to the museum of National German-American Academy and Teacher's Seminary in Milwaukee. This museum was later incorporated into the City Museum of Milwaukee, now known as the Milwaukee Public Museum (Blankinship 1907).

Voucher specimen. Texas. Comal, Dallas, or Mason county, 1873, *Dapprich s.n.* (MIL-7608). Figure 1.

In 1873, Dapprich made approximately 200 plant collections in Dallas, Comal, and Mason counties, Texas (Shinners 1949). In 1881, he collected an additional, unknown number of specimens from Comal, Kendall, Gillespie, and Mason counties (Geiser 1958). According to museum records, Dapprich's *Asplenium rhizophyllum* collection was cataloged by the Milwaukee Public Museum in January 1890. The specimen, however, only indicates the state of Texas, without further locality information. Therefore, we cannot know in which county the *A. rhizophyllum* collection was made.



Figure 1. *Asplenium rhizophyllum* collected in 1873 in Texas (Dapprich s.n., MIL-7608).

Asplenium rhizophyllum occurs from southern Quebec and Ontario along the Appalachians and Piedmont southwestward to Mississippi and Alabama, along the Ohio Valley and into the Ozarks west to Nebraska, Kansas, and Oklahoma, and along the Mississippi Valley north to Wisconsin and Minnesota. It has become extirpated from Maine and Delaware. The species is locally abundant where it occurs, but it is typically restricted to areas of limestone and limy soils.

Given this, we speculate that the Dapprich collection was mostly likely from Comal or Dallas county, where moist limestone bluffs and shaded slope forest with limestone outcrops exist. Some insight on where in Texas Dapprich collected *Asplenium rhizophyllum* comes from Dapprich's other Texas collections. These include ferns from New Braunfels, Texas (Comal County): *Thelypteris patens* (MIL-7602), *Aspidium juglandifolium* (MIL-7603), *Asplenium resiliens* (MIL-7609), *Cheilanthes horridula* (MIL-7612), *Pellaea atropurpurea* (MIL-7613); *Argyroschisma dealbata* (MIL-7615); *Pellaea ovata* (MIL-7616); and *Adiantum capillus-veneris* (MIL nos. 7618, 7619, 7620). All of these species grow in shaded limestone oak woodland canyons, a habitat found throughout Comal County.

Comal County contains numerous plants species in moist oak woodland canyons that are more commonly found in eastern USA. Comal County contains numerous spring fed canyons but urbanization, hydrological alteration of springs, and land use practices such as overgrazing and cedar clearing have changed the landscape since 1873, when Dapprich made his collection. It's also possible that *A. rhizophyllum* could have been collected in Dallas County, which is closer to its range in nearby Oklahoma. Dallas County primarily lies on the Austin Chalk limestone geologic formation. Although Dallas County is mostly urbanized, there are still several limestone streams such as White Rock Creek that contain limestone bluffs and shaded oak woodland slopes.

Another specimen of interest documented by Dapprich is *Pellaea wrightiana* (MIL-7614) near Loyal Valley, Texas, an unincorporated community in Mason County. This area of Mason County is part of the Llano Uplift, and *Pellaea wrightiana* is still found there on granite domes and granite outcrop rocks.

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