

Two Exotic Ferns, *Dryopteris erythrosora* and *Marsilea quadrifolia*, Newly Naturalized in Arkansas.—Continued field work on the Arkansas flora has led to the discovery of two non-native species of ferns that have escaped from cultivation and become established as persistent plants in natural settings in Arkansas. Two years ago, John Simpson noticed a curious, single plant of *Dryopteris* on the edge of an old timber access road through the lower portion of his property in Hot Spring County, Arkansas. The property is located approximately seven miles southwest of Hot Springs in the Ouachita Mountain region of Arkansas. The fern persisted through two winters, grew to 8 fronds, was fertile, and did not quite fit the reported species known in Arkansas. During the fall 2007 Arkansas Native Plant Society annual meeting, the fern was presented as a “puzzle” plant to the members. The fern was examined by the authors and identified as *Dryopteris erythrosora* (D.C. Eaton) Kuntze, Autumn Fern, an Asian exotic and commonly cultivated log fern found in arboreta and ferneries in the southeastern United States. The lowland portion of the preserve is a *Quercus rubra* L. (Northern Red Oak) and *Carya alba* (L.) Nutt. ex Ell. (Mockernut) dominated forest with minor amounts of *Acer rubrum* L. (Red Maple) and *Liquidambar styraciflua* L. (Sweet Gum). A previous owner introduced *Pinus taeda* L. (Loblolly Pine) to the site as a timber crop. Those now mature pine trees are being harvested, returning the forest to its native canopy species composition. Other ferns present were *Asplenium platyneuron* (L.) Britton, Sterns, & Poggenberg, *Athyrium filix-femina* (L.) Roth ex Mert. var. *asplenioides* (Michx.) Farwell, *Botrychium biternatum* (Sav.) Underw., *Equisetum hyemale* L. *Osmunda cinnamomea* L., *Polystichum acrostichoides* (Michx.) Schott, *Pteridium*

aquilinum (L.) Kuhn var. *pseudocaudatum* (Clute) Heller, and *Woodwardia areolata* (L.) Moore.

The Autumn Fern spore source is not local to the preserve. The closest potential source is Garvan Woodland Gardens, located 10 mi to the east on the southeast of Hot Springs, Garland County, Arkansas. There the fern has naturalized and spread from cultivation. A secondary potential source is 150 miles distant in southern Arkansas on private property at Calion, Union County, Arkansas. The actual source is not known. This report is the first instance in Arkansas where the fern has escaped well away from any potential source plant by long distance dispersal of spores and has established and matured into a successful colonization that can replicate itself in the preserve by local spore dispersal. The lack of similar reports from other states, published or in web-based data bases also suggests that this might be the first such report for the United States. The fern has not been eradicated from the preserve.

ARKANSAS: Hot Spring Co.: A single plant of eight fronds with four fertile, persisting for two years along an old timber access road (Weyerhaeuser 33150) near the Garland Co. line, at the base of a western peak on the north side of Trapp Mountain, within the Simpson Preserve, now owned and managed by the Nature Conservancy as Trap Mountain Preserve; T4S R21W S13. Vouchered 13 October 2007 by *Witsell 07-578* (ANHC) and 30 October 2007 by *Peck 07-2041 LRU*; compared to material from Garvan Woodland Gardens, *Crank 07-142* (LRU).

Marsilea quadrifolia L., European Waterclover Fern, was discovered for the first time in Arkansas during a preliminary survey of the summer shore and aquatic macrophytes flora found along the lower 6 km of the Little Maumelle River, where it empties into the Arkansas River, just west of the City of Little Rock in western Pulaski County, Arkansas. Along this downstream reach, the river broadens and slows, becoming almost slough-like, and is dominated with *Taxodium distichum* (L.) Rich. (Bald Cypress) and *Nyssa aquatica* L. (Tupelo Gum). Here the river supports a particularly rich aquatic macrophyte flora composed of many native emergent, floating-leaf, and submerged macrophytes and exotic and invasive species, such as *Hydrilla verticillata* (L.f.) Royal (Water-thyme) and *Eichhornia crassipes* (Mart.) Solms (Water Hyacinth). The fern population appeared to be of one patch or spreading clone, suggestive or a recent introduction, probably by waterfowl. The population will be monitored. Previous reports of this species in Arkansas were misidentified *Marsilea vestita* Hook. & Grev. (Prairie Water-clover Fern).

ARKANSAS: Pulaski Co.: Growing with floating-leaf and emergent macrophytes vegetation on the north shore of the Little Maumelle River, 200 meters upstream of the Pinnacle Valley Road bridge that spans the river; T2N R13W S7. Vouchered on 16 July 2007 by *Peck 07-1514* (LRU).—JOHN SIMPSON and DON CRANK, Hot Springs, AR, C. Theo Witsell, Arkansas Natural Heritage Commission (ANHC), Little Rock, AR, and JAMES H. PECK, University of Arkansas – Little Rock (LRU), Little Rock, AR.