

## Shorter Notes

**Five Pteridophytes New to Iowa.**—During the last 16 years, a series of reports on the status of the Iowa pteridophyte flora was prepared to summarize herbarium collections, published reports, nomenclatural changes, and new field collections (Peck, Proc. Iowa Acad. Sci. 82:203–208, 1976; 83:143–160, 1976; 87:39–40, 1980; 90:28–31, 1983; 91:82–84, 1984). We report an additional five taxa to the Iowa flora based on new field collections or on re-examination of problematic specimens. With these additions, the Iowa pteridophyte flora now consists of 70 taxa, a surprisingly high total for a state originally about 85% prairie and now predominantly in intensive row-crop agriculture.

*Botrychium campestre* W. Wagner & Farrar, Prairie Moonwort, is a North American endemic that occurs sporadically in the Great Plains of Canada and the United States. The Iowa plants were originally discovered growing in loess soils on xeric, steep hill prairies in western Iowa (Plymouth Co.) by Ted Van Bruggen in 1982. They were recognized as plants new to Iowa by Lawrence Eilers, studied by Donald Farrar (Proc. Iowa Acad. Sci., 1985), Florence Wagner, and Warren Wagner, Jr., and described as a new species (Wagner & Wagner, Amer. Fern J. 76:33–47, 1986). The Prairie Moonwort is encountered from late-April to mid-June when soil and climate conditions are moderated. It is now known from loess hill prairies in five counties in extreme western Iowa (Fremont Co., *Pusateri* s.n., ISC; Monona Co., *Farrar 875181*, ISC; Plymouth Co., *Eilers* s.n., ISC, *Farrar 845303*, ISC; Pottawattamie Co., *Farrar 835291*, ISC; Woodbury Co., *Farrar 835261*, ISC) and from a midgrass prairie on glacial moraines in northwest Iowa (Dickinson Co., *Farrar 885291*, ISC). The habitat at the last locality is more like sites in which the species occurs in western Minnesota.

*Botrychium matricariifolium* A. Braun ex Koch, Daisey-leaved Moonwort, is an amphiatlantic species that occurs in northeastern North America westward into the Great Lakes Region with a southwestward extension into the Driftless Area of Wisconsin (Peck, Contr. Milwaukee Pub. Mus. Geol. Biol. 53:1–143, 1982). It was collected in 1986 from Yellow River State Forest (Allamakee Co., *Rogers 004*, ISTC) in a relatively pure stand of sugar maple on a north-facing slope with a sparse understory, thick leaf litter, and deep humus. This locality is 15 km west of the nearest known population of the species at Wyalusing State Park, Grant Co., Wisconsin.

*Cystopteris fragilis* (L.) Bernh., Fragile Fern, co-occurs in Iowa with other species and hybrids in the Fragile Fern complex that were previously reported from Iowa. These taxa are particularly abundant on algific and north-facing, moist, sandstone outcrops in northeastern Iowa (Peck, Contr. Milwaukee Pub. Mus. Geol. Biol. 53:1–143, 1982). Some particularly problematic specimens from these mixed populations and specimens of major Iowa herbaria were re-examined, based on new data provided by subsequent work on the biosystematics of the genus (Moran, Amer. Fern J. 72:41–44, 1982, Amer. Fern J. 72:93–95, 1982, *Castanea* 48:218–223, 1983, *Castanea* 48:224–229, 1983;

Haufler, Proc. Roy. Soc. Edinburgh 86B:81–92, 1985; Haufler et al., Canad. J. Bot. 68:1855–1863, 1985; Lellinger, 1985). Fragile Fern is now known from nine counties: Allamakee Co., Peck 7845, ISTC; Clayton Co., Peck 76619, ISC; Delaware Co., Eilers 1814, IA; Fayette Co., Peck 76620, ISTC; Hardin Co., Farrar 1102, ISC; Howard Co., Peck 7861, ISTC; Jackson Co., Peck 76626, ISTC; Lyon Co., Farrar 1248, ISC; Winneshiek Co., Peck 87243, ISTC).

*Cystopteris laurentiana* (Weath.) Blasdell, is a North American endemic that occurs in northeastern North America, westward to the Great Lakes Region and southward into the Driftless Area (Peck, Contr. Milwaukee Pub. Mus. Geol. Biol. 53:1–143, 1982). It is a putative hybrid of *C. fragilis* (L.) Bernh. and *C. bulbifera* (L.) Bernh. that has undergone polyploidy to become a fertile hexaploid. In Iowa, *C. laurentiana* co-occurs with *C. bulbifera*, *C. fragilis*, *C. protrusa*, and *C. tenuis* on algific and north-facing, moist, sandstone outcrops. The small, dark, scaly, and abortive bulblets on *C. laurentiana* do not readily abscise, making this taxon easy to distinguish from its parents. It differs from *C. tennesseensis* Shaver by foliar morphology and its larger spore size. Based on re-examination of herbarium specimens and additional field work in 1987, this hybrid is now known from six counties in extreme northeastern Iowa: Allamakee Co., Peck 80624, ISTC; Clayton Co., Roosa 1814, ISTC; Dubuque Co., Peck 80617, ISTC; Howard Co., Eilers 2121, IA; Jackson Co., Peck 80607, ISTC; Winneshiek Co., Peck 87242, ISTC, Nekola sn., COE.

*Lycopodium inundatum* L., Bog Clubmoss, was discovered 17 July 1987 near Walker in extreme southern Buchanan Co. (Nekola sn., COE), disjunct 300 km to the west from populations of this species in Illinois and Wisconsin (Peck, Contr. Milwaukee Pub. Mus. Geol. Biol. 53:1–143, 1982). The population was found in vernal pools along a paha ridge crest of a vegetated sand dune currently being grazed. It was associated with species that are quite rare in Iowa and that were also reported with *L. inundatum* in abandoned sand pits in northeastern Illinois: *Hypericum gentianoides*, *Lechea intermedia*, *Polygala cruciata*, *Polygala polygama* var. *obtusata*, *Viola lanceolata*, and *Xyris torta* (Swink & Wilhelm, *Flora of Chicago region*, 1979). *Lycopodium inundatum* occurred only in areas with sparse cover. The microsite of the prostrate stems remains moist from seepage through summer and into autumn. By late September, the plants had released their spores (Peck 87003, ISTC).—JAMES H. PECK, Dept. Biology, University of Arkansas at Little Rock, Little Rock, Arkansas 72204, JEFFERY NEKOLA, Curriculum in Ecology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27599; DONALD R. FARRAR, Dept. Botany, Iowa State University, Ames, Iowa 50011.

**The Flavonoids of *Polystichum acrostichoides*.**—Hiraoka (Biochem. Syst. Ecol. 6:171–175, 1978) reported flavonoids in the leaves of five species of *Polystichum*: *P. lepidocaulon*, *P. tsus-simense*, *P. craspedosorum*, *P. tripterum*, and *P. polyblepharum*. These flavonoids are O-glycosides of the flavonols kaempferol (3-glucoside, 7-arabinoside, 3-rhamnoglucoside, 3-diglucoside, and 3-rhamnodiglucoside) and quercetin (3-glucoside and 3-rhamnoglucoside),