

A First Record of *Polypodium saximontanum* for the Flora of Montana

Author(s): Erin M. Sigel, Anne K. JohnsonChristopher H. Haufler

Source: American Fern Journal, 104(1):22-23.

Published By: The American Fern Society

DOI: <http://dx.doi.org/10.1640/0002-8444-104.1.22>

URL: <http://www.bioone.org/doi/full/10.1640/0002-8444-104.1.22>

BioOne (www.bioone.org) is a nonprofit, online aggregation of core research in the biological, ecological, and environmental sciences. BioOne provides a sustainable online platform for over 170 journals and books published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Web site, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/page/terms_of_use.

Usage of BioOne content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

SHORTER NOTES

A First Record of *Polypodium saximontanum* for the Flora of Montana.—Recent fieldwork in western Montana has yielded a new locality for *Polypodium saximontanum* Windham, a species previously known only from scattered populations in northern New Mexico, Colorado, eastern Wyoming, and western South Dakota. *Polypodium saximontanum* is an allotetraploid member of the *Polypodium vulgare* reticulate complex, derived originally through hybridization between the diploid species *Polypodium amorphum* Suksd. and *Polypodium sibiricum* Sipliv. (Windham, Contr. Univ. Michigan Herb. 19:31–61. 1993; Haufler et al., *Polypodium*. Pp. 315–323 in *Flora of North America North of Mexico*, vol. 2. Oxford University Press, New York. 1993). The collection of *P. saximontanum* from the Bitterroot Mountains in Ravalli County, Montana, greatly expands the geographic range for this species, occurring approximately 800 kilometers to the northwest of the closest known population in the Laramie Range of Wyoming. As is characteristic of *P. saximontanum*, the new specimen was obtained from a population growing on granitic rock, but at elevations lower than previously reported (1237 m versus 1800–3000 m; Windham 1993; Haufler et al. 1993).

Initially, the Montana collection was identified as *Polypodium hesperium* Maxon, a relatively common species in the mountains of western Montana (pers. obs.) and the only *Polypodium* species reported in the Checklist of Montana Vascular Plants (S. Mincemoyer, Checklist of Montana Vascular Plants. Montana Natural Heritage Program, Helena, Montana. 2012). Morphologically similar to *P. saximontanum*, *P. hesperium* is an allotetraploid derived from the diploids *P. amorphum* and *Polypodium glycyrrhiza* D.C. Eaton. Microscopic inspection of the sori (10–40× magnification) revealed the presence of glandular sporangiasters among the sporangia, a character diagnostic of *P. saximontanum*, but absent from *P. hesperium* (Windham 1993; Haufler et al. 1993). Spores removed from the sporangia were well formed, with an average length of 67 µm, consistent with the size class of other tetraploids in the complex. Analysis of biparentally inherited *gapCp* nuclear sequence data revealed that the Montana collection contains alleles inherited from both *P. amorphum* and *P. sibiricum* (Sigel et al., unpubl.), further supporting its identification as *P. saximontanum*.

Polypodium saximontanum Windham. U.S.A. Montana, Ravalli County, Bitterroot National Forest, Sweathouse Creek, on the north side of Sweathouse Creek trail, 46°25'5.3"N, 114°13'44.4"W, locally common with several large colonies on granite cliffs in *Pseudotsuga menziesii* var. *glauca* forest, southwestern aspect, with *Cystopteris fragilis* and *Rubus*, elevation 1237 meters, 14 Aug 2011, Erin M. Sigel 2011-41a & b, with Anne K. Johnson (DUKE, MONTU). Determined by Christopher Haufler, 20 Nov

2013. Collected under National Forest Service Forest Products Free Use Permit for Region 1, permit number 2011-7 to E. M. Sigel.

The authors thank A. R. Smith and G. Yatskievych for their helpful comments and suggestions.—ERIN M. SIGEL and ANNE K. JOHNSON, Department of Biology, Duke University, Box 90338, Durham, North Carolina, 27708, U.S.A., and CHRISTOPHER H. HAUFLE, Department of Ecology and Evolutionary Biology, University of Kansas, 1200 Sunnyside Avenue, Haworth Hall, Lawrence, Kansas, 66045, U.S.A.