

ATTACHMENT SS2

REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: ***Ophioglossum pusillum* Raf. northern adder's-tongue**

SYNONYMS: *O. vulgatum* L. var. *pseudopodum* (S.F. Blake) Farw. [Great Plains Flora Association 1977; Brooks 1991; Dorn 1992; Hartman 1997]

Evaluator's note: In this account, I follow Wagner & Wagner (1993), who recognize *O. pusillum* as a distinct species, separable from *O. vulgatum* by several characters, including blade color and shape, the presence or absence of an ephemeral membranous basal sheath, and chromosome number. For its part, *O. vulgatum* is reported by Wagner & Wagner to be restricted in North America to the e US and Mexico. [Wagner & Wagner map that taxon as approaching R2 in extreme sw MO; however, Yatskievych (1999) maps *O. vulgatum* from se ¼ of MO only.]

Criteria	Rank	Rationale	Literature Citations
1 Distribution within R2	A	e ½ (?) of SD and n-central NE. One historical collection from se-most (Crawford Co) KS, where it is believed to be extirpated. [Vouchers at KANU from Crawford Co, KS (photocopy); and Cherry and Grant Cos, NE.] Absent from CO. Reported (as <i>O. vulgatum</i>) by Dorn from Yellowstone Park and by Hartman from Teton Co WY, outside R2. Not reported by Van Bruggen from SD, but mapped for e ½ of that state by Wagner & Wagner, who also map species for the ne ¼ of NE. Status: G5; KS SX; NE S2; WY (as <i>O. vulgatum</i>) S1 Confidence in Rank High or Medium or Low	<ul style="list-style-type: none"> • Brooks 1991 • Dorn 1992 • Freeman in prep. • Great Plains Flora Association 1977 • Hartman 1997 • Van Bruggen 1976 • Wagner & Wagner 1993
2 Distribution outside R2	C	Range mapped by Wagner & Wagner from ne US and se-most Canada (from e ½ of ND, e through s-most Canada to NB; thence s to n VA; thence w to ne NE); and Pacific NW (s BC, s through nw MT, n ID, WA, OR, and into n CA). Confidence in Rank High or Medium or Low	<ul style="list-style-type: none"> • Wagner & Wagner 1993
3 Dispersal Capability	B	Evaluator was unable to find any direct information about species' dispersal capability. <i>Ophioglossum</i> has very light spores, easily dispersed over very long distances and species is reported by Wagner & Wagner from a wide variety of habitats. However, species is known in R2 from comparatively few collections from NE (and SD?), and appears to be restricted to fens and –to a lesser degree– seeps [see sect 6], rare communities in R2. Confidence in Rank High or Medium or Low	<ul style="list-style-type: none"> • Wagner & Wagner 1993
4 Abundance in R2	B	Wagner & Wagner report species to be “frequent and widespread” throughout its range, adding that it is “inconspicuous and may be more common than collections indicate.” Nevertheless, species appears to be rather narrowly restricted to n-central NE and the e ½ (?) of SD in R2. Evaluator was unable to find any information on species' range in SD. Confidence in Rank High or Medium or Low	<ul style="list-style-type: none"> • Wagner & Wagner 1993
5 Population Trend in R2	A	Evaluator was unable to find any information on population trends within R2. Given its restricted habitat requirements and the evidence for habitat loss and degradation in the NE Sandhills [see sect 6], however, it seems likely that populations have declined somewhat [rank A is qualified]. Confidence in Rank High or Medium or Low	

ATTACHMENT SS2

Species: ***Ophioglossum pusillum* Raf. northern adder's-tongue**

SYNONYMS: *O. vulgatum* L. var. *pseudopodium* (S.F. Blake) Farw. [Great Plains Flora Association 1977; Brooks 1991; Dorn 1992; Hartman 1997]

Evaluator's note: In this account, I follow Wagner & Wagner (1993), who recognize *O. pusillum* as a distinct species, separable from *O. vulgatum* by several characters, including blade color and shape, the presence or absence of an ephemeral membranous basal sheath, and chromosome number. For its part, *O. vulgatum* is reported by Wagner & Wagner to be restricted in North America to the e US and Mexico. [Wagner & Wagner map that taxon as approaching R2 in extreme sw MO; however, Yatskievych (1999) maps *O. vulgatum* from se ¼ of MO only.]

Criteria	Rank	Rationale	Literature Citations
6 Habitat Trend in R2	A	Species is reported by Wagner & Wagner to inhabit "open fens, marsh edges, pastures, and grassy shores and roadside ditches." However, it is reported by Steinauer et al. only from fens (and rarely, seeps) in the NE Sandhills. Steinauer et al. note that current management of NE fens is generally detrimental to natural communities there. They report widespread channelization (ditching) of peatlands for improvement of hay meadows. Ditching has resulted in lowered water tables and changes to groundwater flow patterns, which in turn have resulted in degradation and loss of some native species. Species composition has also changed in ditched fens, due to overseeding with non-native, cool-season grasses and legumes, and regular mid- to late-summer haying. Steinauer et al. postulate that management in this way may serve to explain large losses of organic soils in Cherry Co, NE, between 1982 and 1995. To a lesser extent, the use of Sandhills fens for livestock grazing has also resulted in degradation and destruction of these communities, due to trampling by cattle. Habitat is fragile and comparatively scarce in R2; it should be protected wherever possible. Confidence in Rank High or Medium or Low	<ul style="list-style-type: none"> Steinauer et al. 1996 Wagner & Wagner 1993
7 Habitat Vulnerability or Modification	A	Steinauer et al. report on two management practices that adversely affect fens, the primary community from which species has been reported in NE. Habitat is very fragile and subject to degradation through management for haying and livestock forage. Confidence in Rank High or Medium or Low	<ul style="list-style-type: none"> Steinauer et al. 1996
8 Life History and Demographics	B	Perennial fern. Wagner & Wagner report that "leaves appear midspring." Observation of vouchers at KANU suggest that sporophylls are evident from mid June through mid August. Evaluator was unable to find any other on species' life history. Confidence in Rank High or Medium or Low	
Evaluator: Caleb A. Morse, R.L. McGregor Herbarium (KANU), University of Kansas Campus West, 2045 Constant Ave, Lawrence KS 66047			Date: 01/02/02

National Forests in the Rocky Mountain Region where species is KNOWN (K) or LIKELY (L)¹ to occur:

¹ Likely is defined as more likely to occur than not occur on the National Forest or Grassland. This generally can be thought of as having a 50% chance or greater of appearing on NFS lands.

ATTACHMENT SS2

<u>Colorado NF/NG</u>	<u>Known</u>	<u>Likely</u>	<u>Kansas NF/NG</u>	<u>Known</u>	<u>Likely</u>	<u>Nebraska NF/NG</u>	<u>Known</u>	<u>Likely</u>	<u>South Dakota NF/NG</u>	<u>Known</u>	<u>Likely</u>	<u>Wyoming NF/NG</u>	<u>Known</u>	<u>Likely</u>
Arapaho-Roosevelt NF			Cimmaron NG			Samuel R. McKelvie NF	X2		Black Hills NF			Shoshone NF		
White River NF						Halsey NF		X	Buffalo Gap NG			Bighorn NF		
Routt NF						Nebraska NF			Ft. Pierre NG			Black Hills NF		
Grand Mesa, Uncompahgre, Gunnison NF						Ogalala NG						Medicine Bow NF		
San Juan NF												Thunder Basin NG		
Rio Grande NF														
Pawnee NG														
Pike-San Isabel NF														
Comanche NG														

2 KANU catalog # 116193: NE, Cherry Co: ca 2 mi downstream from Anderson Bridge (10 mi S, 2 mi E Kilgore), NE corner McKelvie NF, T32N R31W S1 SE ¼ NE ¼, 24 Jul 1995, S.B. Rolfsmeier 11860; KANU catalog # 116412: NE, Cherry Co: 10 mi S, 12 mi E Nenzel, 1.5 mi SE Anderson Bridge, near NE corner McKelvie NF, T32N R30W S6 S ½ NW ¼, 11 Jun 1995, S.B. Rolfsmeier 11614 & G. Steinauer; KANU catalog # 316740: 11 mi S, 5 mi W Nenzel, N side McKelvie NF, T32N R32W S2 N ½ NE ¼, 11 Jun 1995, S.B. Rolfsmeier 11610.

REFERENCES

Brooks, R.E. 1991. Ophioglossaceae, pp. 45–48 in Great Plains Flora Association, *Flora of the Great Plains*. University Press of Kansas. Lawrence, Kansas. vii + 1402 pp.

Dorn, R.D. 1992. *Vascular Plants of Wyoming*. Mountain West Publishing. Cheyenne, Wyoming. iv + 340 pp.

Freeman, C.C. (in prep.) Checklist of the Vascular Plants of the Grassland Biome of Central North America.

Great Plains Flora Association. 1977. *Atlas of the Flora of the Great Plains*. Iowa State University Press. Ames, Iowa. xii + 600 pp.

Hartman, R.L. 1997. *Atlas of the Vascular Plants of Wyoming*. Published by the author at Rocky Mountain Herbarium, University of Wyoming. Laramie, Wyoming. [unpaginated]

Steinauer, G. S. Rolfsmeier, and J.P. Hardy. 1966. Inventory and floristics of Sandhills fens in Cherry County, Nebraska. *Trans. Nebraska Acad. Sci.* 23: 9–21.

Van Bruggen, T. 1976. *The Vascular Plants of South Dakota*. The Iowa State University Press. Ames, Iowa. xxvi + 538 pp.

Wagner, W.H. and F.S. Wagner. 1993. Ophioglossaceae, pp. 85–106 in Flora of North America Editorial Committee, *Flora of North America North of Mexico, Vol. 2: Pteridophytes and Gymnosperms*. Oxford University Press. New York, New York. xvi + 475 pp.

Yatskievych, G. 1999. *Steiermark's Flora of Missouri, Vol. 1*. Missouri Department of Conservation and Missouri Botanical Garden. Jefferson City and St. Louis, Missouri. xii + 991 pp.