

ATTACHMENT SS2

REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: *Botrychium virginianum* / Rattlesnake Fern (*B. virginianus* ssp. *europaeus*)

Criteria	Rank	Rationale	Literature Citations
1 Distribution within R2	AB	<p>Rattlesnake Fern occurs sporadically in the mountains of western Wyoming and central Colorado and is reported for western Nebraska and South Dakota as well as Kansas (Great Plains Flora Association 1986). In Wyoming, it is known from the Black Hills, Bighorn, and Absaroka ranges in Crook, Park, and Sheridan counties, corresponding with the Black Hills, Bighorn and Shoshone national forests. In Colorado, this species is known from Boulder, El Paso, and Teller counties (Colorado Natural Heritage Program 1999; Spackman et al. 1997). Additional information is needed from the other three states to determine its Region 2 status.</p> <p>In Wyoming, this species occurs in moist, shaded areas, in gulch bottoms, the understory of Spruce forests, and limestone cliffs. Elevation ranges from 3900-7000 feet. The substrate is often described as calcium rich. These habitats are interrupted and uncommon in the state.</p> <p>Confidence in Rank: High</p>	<ul style="list-style-type: none"> <li>• Dorn 2001</li> <li>• Fertig 1998, 1999</li> <li>• Fertig and Jones 1992</li> <li>• Great Plains Flora Association 1986</li> <li>• Jones and Fertig 1998</li> <li>• Marriott 1989</li> <li>• O’Dea and Fertig 2000</li> <li>• Spackman et al. 1997</li> </ul>
2 Distribution outside R2	C	<p>The species ranges from southern Alaska to Labrador, south to California, Arizona, Texas, and Florida. Outside of Region 2 in Wyoming, it is known from the Teton Range in Teton County. It was also recently reported from the Yellowstone Plateau (Jennifer Whipple, personal comm.) based on a specimen at the Denver Botanical Garden Herbarium.</p> <p>Confidence in Rank: High</p>	<ul style="list-style-type: none"> <li>• FNA 1993</li> <li>• Hitchcock et al. 1969</li> <li>• Lellinger 1985</li> <li>• Markow and Fertig 1993</li> <li>• NatureServe 2002</li> <li>• O’Dea and Fertig 2000</li> </ul>
3 Dispersal Capability	BC	<p><i>Botrychium</i> spp. reproduce by wind-borne spores.</p> <p>Confidence in Rank: Low</p>	<ul style="list-style-type: none"> <li>• -</li> </ul>
4 Abundance in R2	B	<p>It is known from 6-7 occurrences in Wyoming, 5 in Region 2, and 4 of which have been observed or discovered since 1982. Most Wyoming populations are small in area and number of individuals. Census data are needed for populations throughout USFS Region 2.</p> <p>It is ranked “S1” in Colorado and Wyoming. It is present but not ranked in Kansas, Nebraska and South Dakota.</p> <p>Confidence in Rank: Medium</p>	<ul style="list-style-type: none"> <li>• O’Dea and Fertig 2000</li> </ul>

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5 Population Trend in R2	D	Trends are not known.  Confidence in Rank: High	•
6 Habitat Trend in R2	DA	Not known. The montane conifer forest and cliff habitat of this species may have declined in area and quality over the past 150 years from impacts of forestry, grazing, mining, or recreation use.  Confidence in Rank: High	• -
7 Habitat Vulnerability or Modification	D	It may be threatened by forestry and road construction activities in the Black Hills and recreational development in the Tetons. It is protected on the Swamp Lake Botanical Area and the Mann Creek potential Research Natural Area, and at least 3 other areas in Wyoming that are permanently managed with an emphasis on biodiversity conservation (Fertig, unpubl. GAP data). Additional information needed on habitat threats in Colorado, Nebraska, and South Dakota.  Confidence in Rank: Medium	• O'Dea and Fertig 2000
8 Life History and Demographics	D	Rattlesnake Fern is an herbaceous perennial that produces one vegetative leaf blade (frond) and one fertile frond joined to it. The sporangia produce spores that germinate to produce the gametophyte, a haploid life cycle stage.  Members of the Ophioglossales are generally mycorrhizal, and many have been shown to exhibit season-long dormancy in which above-ground plant material is not produced each year. Additional basic life history information is needed for Rattlesnake Fern to better assess its status. Information on the species, including population structure, longevity, and mortality, are not available.  Confidence in Rank: High	• Wagner and Wagner 1993 • Lellinger 1985
Initial Evaluator(s): Bonnie Heidel, Walter Fertig and Scott Laursen			Date: 19 February 2002

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

<u>Colorado NF/NG</u>		<u>Kansas NF/NG</u>		<u>Nebraska NF/NG</u>		<u>South Dakota NF/NG</u>		<u>Wyoming NF/NG</u>	
Known	Likely	Known	Likely	Known	Likely	Known	Likely	Known	Likely
		Cimmaron NG		Samuel R. McKelvie NF		Black Hills NF		Shoshone NF	X
				Halsey NF		Buffalo Gap NG		Bighorn NF	X
				Nebraska NF		Ft. Pierre NG		Black Hills NF	X
				Ogalala NG				Medicine Bow NF	
								Thunder Basin NG	

Literature cited

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<sup>1</sup> 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.

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