ATTACHMENT SS2

REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: *Botrychium crenulatum* / Crenulate Moonwort

Criteria	Rank	Rationale	Literature Citations
1 Distribution within R2	D	This species may not occur in USFS Region 2. It was initially reported for NW Wyoming by Wagner and Wagner (1993) in the *Flora of North America*. Wagner later recanted his report for Wyoming, noting that he suspected the species could occur there, but had no evidence to support it (Wagner, personal communication to W. Fertig). Faye Streier of the Bureau of Reclamation in South Dakota reported observing *Botrychium crenulatum* in 1997 at the French Creek wetland in Bighorn National Forest, but did not collect a voucher specimen for confirmation. Walter Fertig of the WY Natural Diversity Database revisited this site in 2001 but was unable to locate *B. crenulatum*. He did, however, discover the closely related *B. ascendens* (a voucher was confirmed by Robert Dorn). Wagner and Wagner (1993) report that *B. crenulatum & B. ascendens* can co-occur in NE Oregon. Crenulate moonwort has been re-ranked "SR" (state reported) by WYNDD and is placed on the heritage program's "status uncertain" list. If the species does occur in Wyoming, it is likely to be in hummocky bogs and probably occurs at low densities. No other populations have been reported in USFS Region 2. Confidence in Rank: High	* Fertig 1999 * Fertig 2001 * Wagner & Wagner 1993 * Welp et al. 2000
2 Distribution outside R2	C	Crenulate moonwort occurs from Western Montana and northern Idaho to southern California and SW Utah. Confidence in Rank: High	* Wagner & Wagner 1981 * Wagner & Wagner 1993
3 Dispersal Capability	A?	*Botrychium* spp. reproduce by wind-borne spores. Crenulate moonwort occurs in fairly specific and localized habitats, so environmental barriers may be significant in limiting dispersal. Confidence in Rank: Low	
4 Abundance in R2	A?	If present in USFS Region 2, *B. crenulatum* is probably very uncommon. Faye Streier reported seeing a single individual at the French Creek wetland site in 1997. Confidence in Rank: Medium	* Fertig 1999 * Fertig 2001 * Welp et al. 2000

Species: *Botrychium crenulatum* / Crenulate Moonwort

Criteria	Rank	Rationale	Literature Citations
5 Population Trend in R2	D	Trends in USFS Region 2 are not known. Confirmation is still needed as to whether this species even occurs in the Region. Confidence in Rank: High	
6 Habitat Trend in R2	D	Montane wetlands in general have been impacted to varying degrees by past grazing, logging, and mining activities, although the one reported site for this species in Wyoming does not appear to have been adversely impacted in these ways. Confidence in Rank: Low	
7 Habitat Vulnerability or Modification	D	Not known. Small population size and distribution makes species vulnerable to habitat disturbance. Confidence in Rank: High	
8 Life History and Demographics	D	Many moonwort species are considered rare because of their limited distribution and habitat specificity, although in some cases this rarity may be an artifact of the difficulty inherent in locating and identifying these low-growing plants. Additional basic life history information is needed for Crenulate moonwort throughout its range to better assess its conservation status. Confirmation of its presence in Wyoming and Region 2 is essential. There is a thesis on the conservation biology of this and other Botrychium from Kootenai NF (Ferreil in progress) that may provide relevant information. Confidence in Rank: High	

Initial Evaluator(s): Walter Fertig and Scott Laursen	Date: 7 February 2002

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

Colorado NF/NG	**Known**	**Likely**	**Kansas NF/NG**	**Known**	**Likely**	**Nebraska NF/NG**	**Known**	**Likely**	**South Dakota NF/NG**	**Known**	**Likely**	**Wyoming NF/NG**	**Known**	**Likely**
Arapaho-Roosevelt NF			Cimmaron NG			Samuel R.McKelvie NF			Black Hills NF			Shoshone NF		
White River NF						Halsey NF			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														
Pike-San Isabel NF														
Comanche NG														

Literature cited

Fertig, W. 1999. The status of rare plants in the Bighorn Landscape. Report prepared for The Nature Conservancy Wyoming Field Office by the Wyoming Natural Diversity Database, Laramie, Wyoming.

Fertig, W. 2001. State Species Abstract: *Botrychium crenulatum*. Wyoming Natural Diversity Database. Available on the internet at www.uwyo.edu/wyndd

Wagner, W.H. Jr. and F.S. Wagner. 1981. New species of moonworts, *Botrychium* subgenus *Botrychium* (Ophioglossaceae), from North America. American Fern Journal 71(1): 20-22.

Wagner, WH., Jr. and F.S. Wagner. 1993. Ophioglossaceae. In: Flora of North America Editorial Committee. Flora of North America North of Mexico. Vol. 2 Pteridophytes and Gymnosperms. Oxford Univ. Press, New York.

Welp, L., W.F. Fertig, G.P. Jones, G.P. Beauvais, and S.M. Ogle. 2000. Fine filter analysis of the Bighorn, Medicine Bow, and Shoshone National Forests in Wyoming. Wyoming Natural Diversity Database, Laramie, WY

appearing on NFS lands.