REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: *Botrychium lanceolatum var lanceolatum* / Lance-leaved Moonwort, Lance-leaved Grapefern (*B. lanceolatum, B. l. ssp. lanceolatum*)

Criteria	Rank	Rationale	Literature Citations
1 Distribution within R2	B	Lance-leaved moonwort occurs widely, but sporadically, in the mountains of Colorado and Wyoming within USFS Region 2. In Colorado, it is known from Boulder, Chaffee, Conejos, Gunnison, Jackson, Larimer, Mineral, Montezume, San Juan, Summit, and Teller counties (Colorado Natural Heritage Program 1999). In Wyoming, it occurs in the Wind River, Medicine Bow, and Bighorn ranges in Fremont, Carbon, and Johnson counties, corresponding with the Bighorn and Shoshone national forests. It occurs along streams and springs in grassy meadows, aspen groves, or hummocky *Salix planifolia/Carex rostrata* marshes at elevations of 7760-8800 feet. These settings are mainly small and discontinuous on the landscape. Confidence in Rank: Medium	• Dorn 2001 • Fertig 1998, 2000 • Roderick et al. 1999 • Taylor 2000
2 Distribution outside R2	C	It is present in most of western North America, extending from Alaska to California, and from Saskatchewan to New Mexico. It has a bimodal distribution, also present from Greenland to Quebec. Confidence in Rank: High	• Cronquist et al. 1986 • FNA 1993 • NatureServe 2002
3 Dispersal Capability	C	*Botrychium* spp. reproduce by wind-borne spores. Lance-leaved moonwort occurs in fairly specialized habitats (at least in Wyoming) and may disperse poorly across habitat barriers. Confidence in Rank: Low	• -
4 Abundance in R2	BD	It is known from 3 records in Wyoming, two of which have been observed since 1996 (most recently in 2001). All are within the perimeter of Region 2. Population size is not known for 2 of the 3 Wyoming populations. The Bighorn NF population probably numbers fewer than 50-100 individuals. In Colorado, the species is ranked S2S3 (Colorado Natural Heritage Program 1999). Confidence in Rank: Medium	• Fertig 2000
5 Population Trend in R2	D	Not known. Confidence in Rank: High	• -

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6 Habitat Trend in R2	AD	Habitat in may have declined over the past 150 years with degradation of riparian areas for mining, logging (especially tie hacking), grazing, and recreation. More information needed on habitat trend in Colorado. Confidence in Rank: High	• -
7 Habitat Vulnerability or Modification	BD	Habitat in Wyoming is probably stable at present. It is found on lands managed for multiple use, including Bighorn and Shoshone national forests and state lands on Elk Mountain (incorrectly reported for Medicine Bow National Forest in the 1997 WYNDD Species of Special Concern list). The population on Elk Mountain is on state lands within a large private conservation easement. Confidence in Rank: High	• Fertig 2000
8 Life History and Demographics	D	Lance-leaved Moonwort 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. Members of the Botrychium subgenus Botrychium have often been shown to occur in “genus communities” of different species, further complicating demographic analysis. 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 Lance-leaved Moonwort throughout its range to better assess its conservation status. Additional information on the species, including population structure, longevity, and mortality, are not available. Confidence in Rank: High	• FNA 1993 • Wagner and Wagner 1983

Initial Evaluator(s):	Date: 19 February 2002
Bonnie Heidel, Walter Fertig and Scott Laursen	

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

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	X	
White River NF						Halsey NF			Buffalo Gap NG			Bighorn NF	X	
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														

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[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.

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