REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: *Pellaea atropurpurea* / Purple Cliff-brake, Purple-stem Cliff-brake

Criteria	Rank	Rationale	Literature Citations
1 Distribution within R2	AD	Purple-stem Cliff-brake occurs in the Black Hills in Crook County, Wyoming, on the Black Hills National Forest, and presumable in the Black Hills National Forest of South Dakota (Dorn and Dorn 1972). It also occurs in Colorado, Kansas, Nebraska, and South Dakota. Therefore, additional information is necessary in order to determine its status in Region 2. This species is generally found on shaded cliffs and ledges, usually on limestone. Wyoming populations occur on sandstone or limestone cliffs and boulders in shady canyons and streamsides, often among mesic birch-ironwood communities. Its habitat is patchy, discontinuous and geographically restricted in the state. Note: Wyoming specimens may represent the recently described *Pellaea gastonyi*. RM material is being reviewed by Dr. Michael Windham. Confidence in Rank High	• Dorn 2001 • Great Plains Flora Association 1986 • Fertig 2000 • Flora of North America Committee 1993 • Harrington 1954 • Lichvar and Dorn 1980 • Marriott 1995 • Spackman et al. 1997 • University of Wyoming 1998 • USDA Forest Service 2001
2 Distribution outside R2	C	Purple-stem Cliff-brake is known from Quebec to Minnesota, south to Florida, South Dakota, Colorado, Arizona, and northern Mexico. Confidence in Rank High	• Flora of North America Committee 1993 • Gleason and Cronquist 1991 • Hitchcock et al. 1969 • Larson and Johnson 1999 • Lellinger 1985 • Welsh et al. 1993
3 Dispersal Capability	D	Its spores readily disperse across unsuitable habitat. Confidence in Rank High	• -
4 Abundance in R2	AD	Purple-stem Cliff-brake is known from 5 extant populations in Wyoming, all observed since 1979 (most recently in 1995). Only one occurrence is on the Black Hills National Forest. It was reported as “rare” at one site by Robert Dorn in 1979. Hollis Marriott observed only 10 plants in surveying the Black Hills NF population in 1995. This species is ranked “S1?” in Wyoming, “S2S3” in Colorado, “S2” in Nebraska, and it is present but not ranked in Kansas and South Dakota. Confidence in Rank High	• Fertig 2000 • Lichvar and Dorn 1980 • Marriott 1995 • NatureServe 2002 • Spackman et al. 1997 • University of Wyoming 1998 • WYNDD 2002

Species: *Pellaea atropurpurea* / Purple Cliff-brake, Purple-stem Cliff-brake

Criteria	Rank	Rationale	Literature Citations
5 Population Trend in R2	BD	Trends are not known. Confidence in Rank High	• -
6 Habitat Trend in R2	DC	Not known but probably stable to slightly declining. Confidence in Rank Low	• -
7 Habitat Vulnerability or Modification	BD	This species' shady canyon habitat may be sensitive to logging. Purple-stem Cliff-brake occurs on state lands and on lands managed for multiple use by the Black Hills National Forest and the BLM Newcastle Field Office. Confidence in Rank High	• Fertig 2000 • Lichvar and Dorn 1980 • Marriott 1995 • University of Wyoming 1998 • WYNDD 2002
8 Life History and Demographics	D	Purple-stem Cliff-brake is a rhizomatous fern. Spores are produced on fertile fronds that tend to be longer and more divided than sterile leaves, in the summer and fall. It is an autopolyploid derivative of a sngle diploid taxon that has not yet been located. Additional information on the species, including life history stages, population structure, longevity, mortality, and sporophyte biology, are not available. Confidence in Rank High	• Fertig 2000 • Flora of North America Committee 1993 • Gleason and Cronquist 1991 • Great Plains Flora Association 1986 • Hitchcock et al. 1969 • Welsh et al. 1993

Initial Evaluator(s):	Date:
Joy Handley, Bonnie Heidel and Scott Laursen	April 19, 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 appearing on NFS lands.

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	X	
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

Dorn, R.D. 2001. Vascular Plants of Wyoming, third edition. Mountain West Publishing, Cheyenne, WY.

Dorn, R.D. and J. L. Dorn. 1972. The ferns and other pteridophytes of Montana, Wyoming and the Black Hills of South Dakota. Unpublished report, Laramie, WY.

Fertig, W. 2000. State Species Abstract: *Pellaea atropurpurea*. Wyoming Natural Diversity Database. Available on the internet at www.uwyo.edu/wyndd

Flora of North America Editorial Committee. 1993. Flora of North America North of Mexico. Vol. 2 Pteridophytes and Gymnosperms. Oxford Univ. Press, New York.

Gleason, H.A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Canada. New York Botanical Garden, Bronx, NY.

Great Plains Flora Association. 1986. Flora of the Great Plains. Univ. Kansas Press, Lawrence, KS.

Harrington, H. D. 1954. Manual of the Plants of Colorado. Sage Books, Chicago, IL.

Hitchcock, C.L., A. Cronquist, and M. Owenbey. 1969. Pt. 1. Vascular Cryptograms, Gymnosperms, and Monocotyledons, IN: Hitchcock, C.L., A. Cronquist, M. Owenbey, and J.W. Thompson (eds). Vascular Plants of the Pacific Northwest. University of Washington Publications in Biology 17(1): 1-914.

Larson, G.E. and J.R. Johnson. 1999. Plants of the Black Hills and Bear Lodge Mountains. South Dakota State University College of Agriculture and Biological Sciences & South Dakota Agricultural Experiment Station, Brookings, SD.

Lellinger, D.B. 1985. A Field Manual of the Ferns and Fern Allies of the United States and Canada. Smithsonian Institution Press, Washington, D. C.

Lichvar, R.W. and R.D. Dorn. 1980. Noteworthy Collections. Madrono 27(3):140-141.

Marriott, H. 1995. Botanical assessment: Reinecke and Haiar properties, Crook County, WY (Sand Creek Project). Unpublished report prepared for the Wyoming Field Office, The Nature Conservancy.

NatureServe. 2002. Explorer – an encyclopedia of life. Plant and animal data posted at www.natureserveexplorer.org, Arlington, VA.

Spackman, S., B. Jennings, J. Coles, C. Dawson, M. Minton, A. Kratz, and C. Spurrier. 1997. Colorado Rare Plant Field Guide. Prepared for the Bureau of Land Management, US Forest Service, and US Fish and Wildlife Service by the Colorado Natural Heritage Program, Ft. Collins, CO.

Tryon, A. 1957. A revision of the genus *Pellaea.* Section Pellaea. Annals of Missouri Botanical Gardens 44:125-193.

University of Wyoming – Rocky Mountain Herbarium. 1998. Atlas of the Flora of Wyoming. Posted electronically through 1998 at: http://www.esb.utexas.edu/tchumley/wyomap/ and unposted accession information at the Rocky Mountain Herbarium through 2001.

USDA Forest Service – Region 2. 2001. “Wyoming plant species” evaluation list and criteria provided to Wyoming Natural Diversity Database. Denver, CO.

Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins, (eds). 1993. A Utah Flora, second edition, revised. Brigham Young University Print Services, Provo, UT.

Wyoming Natural Diversity Database. 2002. Ongoing documentation of sensitive species distribution, biology, status, and references for the state of Wyoming. University of Wyoming, Laramie.