

ATTACHMENT SS2

REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: (*Mentzelia multicaulis* (Osterh.) Darlington/Many-stem stickleaf /MEMUM – USDA PLANTS)

Synonym: *Nuttallia multicaulis* (Osterhout.) Osterhout. Another common name is the Uinta Basin stickleaf

Criteria	Rank	Rationale	Literature Citations
<p>1 Distribution within R2</p>	<p>B</p>	<p><i>Mentzelia multicaulis</i> var. <i>multicaulis</i> occurs in Eagle, Garfield, Grand, Mesa, Moffat, Rio Blanco, Routt and Summit Counties. Occurrences are in the Colorado River and White River drainages (Weber and Wittman 2001). The geological region in which it grows is called the Piceance Basin (Donnell 1969). There are reports of its presence in southwestern Colorado but the records are somewhat doubtful. It occurs on private land and land managed by the Bureau of Land Management.</p> <p>A “B-rank” is awarded because this species has a patchy distribution. The habitat exists primarily as patches, some of which are small or isolated to the degree that species interactions are limited by movements between patches. Local sub-populations in most of the species’ range are likely to interact as a metapopulation or patchy population, but some patches are so disjunct that sub-populations in those patches are essentially isolated from other populations.</p> <p>Confidence in Rank High</p>	<ul style="list-style-type: none"> • Occurrence data from: The University of Colorado Herbarium records provided by Nan Lederer September 2002; The Colorado State University Herbarium records provided by J. Rowens Ackerfield, September 2002; The Colorado Natural Heritage Program records provided by Michael Menefee September 2002. • Additional records were provided by The Colorado Natural Heritage Program – courtesy of Susan Spackman and David Anderson September 2002. • Weber WA and RC Wittman. 2001. Colorado Flora-Western slope. University Press of Colorado, Boulder, CO. • Donnell, J.R.1969. Paleocene and Lower Eocene Units in the southern part of the Piceance Creek Basin, Colorado. Contributions to Stratigraphy. U.S. Geological Survey Bulletin 1274-M.

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2 Distribution outside R2	B	<p><i>Mentzelia multicaulis</i> is a Colorado Plateau endemic. Variety <i>librina</i> is endemic to Utah. Variety <i>multicaulis</i> is occurs in limited areas in Utah and Colorado.</p> <p>There are reports that it occurs in Arizona and New Mexico but these are historical and likely in error.</p> <p>A "B rank is awarded because this species has a limited distribution outside the Rocky Mountain Region.</p> <p>Confidence in Medium</p>	<ul style="list-style-type: none"> • Occurrence data from The Herbarium at the New York Botanical Garden. Catalog last updated April 29, 2002. Internet site: http://www.nybg.org/bsci/hcol/vasc [Accessed September 2002] • Occurrence data from the herbarium at San Juan College. Internet site:
3 Dispersal Capability	B	<p>Species of <i>Mentzelia</i> are frequently self-pollinating and therefore dispersal of genetic material, other than by seed, may be limited (Grant 1981). Seeds may be winged or essentially wingless. The significance of this morphological difference to seed dispersal is unknown but it is likely the wingless seeds are less well dispersed by wind. Seeds are generally not widely dispersed if wind is the only vector (Silver town 1987). <i>Mentzelia multicaulis</i> has also been observed on the sides of gullies and it is speculated that seeds are also dispersed by water.</p> <p>Although there is the potential for very limited dispersal ability, a "B rank" is awarded because it is likely to disperse only through suitable habitat. Efficient seed dispersal may not be critical to the life cycle because this is a perennial species</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> • Welsh, SL, ND Atwood, S Goodrich, LC Higgins, 1993.A Utah Flora, Brigham Young University, Provo Utah. • Grant, V. 1987. Plant speciation. 2nd ed. Columbia University Press, New York, NY. • Silvertown, JW. 1987. Introduction to plant population ecology. 2nd ed. Longman Scientific and Technical & John Wiley & Sons, Inc., New York, NY.
4 Abundance in R2	B	<p>Occurrence size ranges from a few (less than 10) plants to 100 or more individuals.</p> <p>A B-rank is awarded because it appears to be un common but the current abundance appears large enough that demographic stochasticity is not likely to lead to rapid extinction, but, in combination with highly variable environmental factors, could pose a threat.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> •

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<p>5 Population Trend in R2</p>	D	<p>There is little quantitative historical or current information on which to base trends. One problem with herbarium specimens that have not been carefully studied/annotated is that many <i>Mentzelia</i> species have been misidentified, primarily due to the morphological plasticity of the species.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> •
<p>6 Habitat Trend in R2</p>	B	<p>The habitat is on generally sparsely vegetated shale and clay formations in sagebrush, winterfat, rabbitbrush, and pinyon-juniper communities at elevations between 5,000-8,800 feet (Harrington 1964, Welsh 1993, Occurrence data 2002 - see Criteria 1 Citations).</p> <p>A “B-rank” is awarded because there seems to be adequate habitat for this species but the confidence is low because its habitat requirements are not well defined.</p> <p>Confidence in Rank LOW</p>	<ul style="list-style-type: none"> • Harrington, H.D. 1964. Manual of the plants of Colorado. Sage Books, Denver, CO. • Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins. 1993. A Utah Flora. 2nd ed. Brigham Young University, Provo, Utah.
<p>7 Habitat Vulnerability or Modification</p>	B	<p>Much of the habitat is vulnerable to modification by extractive industry developments (Hinaman and Judson 1976). The Piceance Basin is currently experiencing a large amount of exploration and development activity. Invasive, aggressive weed species are a potential problem. <i>Mentzelia multicaulis</i> generally grows in barren areas, which suggests that it has not evolved to compete with competitive species. Currently the areas in which it grows tend not to support invasive weeds (Occurrence data 2002 – see Citations in Criteria 1). Although it seems tolerant of some disturbance its potential vulnerability to invasive weed species may be a particular concern in areas that are frequently traveled. Right-of-way and road cut habitat are also vulnerable to herbicide spraying and other routine highway maintenance practices. Road widening may also be a threat to some populations.</p> <p>A “B rank” is awarded as the habitat seems somewhat vulnerable.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> • Hinaman, S.L. and J.P. Hudson. 1976. Developments in Eastern and Northwestern Colorado. The American Association of Petroleum Geologists Bulletin. 60 (8): 1234-1238

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8 Life History and Demographics	B	<p>This perennial grows from a branching woody caudex and the root systems are likely sensitive to a high degree of disturbance. It is unknown if seed production or the maintenance of the adult root system is most important to the life cycle of this particular species.</p> <p>Some species of annual <i>Mentzelia</i> are very disturbance-tolerant but perennial species appear to have different responses to disturbance. For example, <i>Mentzelia leucophylla</i> is apparently sensitive to disturbance (Anon 1986). Interestingly, this species is found on the sides of gullies where <i>Mentzelia multicaulis</i> has also been observed. One would think gullies were vulnerable to erosion and so perhaps the type and degree of disturbance is particularly important. Several occurrences of <i>Mentzelia multicaulis</i> have been reported on highway right-of-ways and road cuts that suggest either the ability to colonize, via seed dispersal, disturbed areas or a tolerance to at least some level of disturbance. However, vigorous populations have been found in areas covered by well-developed microbiotic crusts. Microbiotic crusts have been reported to benefit growth of another perennial <i>Mentzelia</i>, <i>Mentzelia multiflora</i>, and crusts are very sensitive to disturbance.</p> <p>A "B rank is awarded because this species seems to have life history characteristics that suggest populations will have an intermediate ability to respond to disturbance.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> Endangered Species Information System. 1986. <i>Mentzelia leucophylla</i>. An abstract prepared for the Fish and Wildlife Information Exchange, Conservation Management Institute, Virginia Tech. Roanoke, VA. Internet site: http://fwie.fw.vt.edu/WWW/esis [accessed September 2002].
Evaluator(s): Juanita A. R. Ladyman, Ph.D.			Date: September 18, 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.

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<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
	L	Cimarron NG		Samuel R. McKelvie NF		Black Hills NF		Shoshone NF	
White River NF	L			Halsey NF		Buffalo Gap NG		Bighorn NF	
Routt NF	L			Nebraska NF		Ft. Pierre NG		Black Hills NF	
Grand Mesa, Uncompahgre, Gunnison NF	L			Ogalala NG				Medicine Bow NF	
San Juan NF								Thunder Basin NG	
Rio Grande NF									
Pike-San Isabel NF									
Comanche NG									
Pawnee NG									