

ATTACHMENT SS2

REGION 2 SENSITIVE SPECIES EVALUATION FORM

Species: <i>Thalictrum heliophilum</i> /Sun-loving Meadowrue			
Criteria	Rank	Rationale	Literature Citations
<p><b>1</b> Distribution within R2</p>	<p><b>A</b></p>	<p><i>T. heliophilum</i> is a small, delicate member of the buttercup family. It has small, <i>yellow</i>, dangling flowers and columbine-like leaves. It was first collected in 1977, but was not recognized as a new species until 1983. It only occurs in Rio Blanco, Garfield, and Mesa Counties, in CO (S3). This species is one of several that are endemic to the Eocene Parachute Creek Member of the Green River Formation in the arid basins and mesas of western CO It is found on steep talus slopes on open, sunny sites. Soils are undeveloped and consist of a matrix of light colored clays with shards of thin shale fragments covering most of the surface with very sparse vegetation, primarily rabbitbrush. It grows on sites with continually shifting substrates and is considered a pioneer species with the ability to colonize unstable, environmentally severe sites. This species has evolved to withstand heat in summer, extreme cold in winter, long dry spells, high incident light, saline and clayey soils, and shifting substrates.</p> <p>There are 36 known occurrences from the Piceance Basin, the Parachute and Roan Creek drainages, and the watershed divide between the GMUG and WRNF. The USFS plant list for species evaluations also lists an occurrence in the Collbran RD. One report indicates, 21 populations can be grouped into 7 meta-populations based on geographic proximity. One of these populations occurs on the GMUG the Grand Valley RD. This population was first observed in 1986 and last observed in 1995. In the 1980s, intense botanical surveys were conducted in the Piceance Basin in association with oil shale development in western CO. However, since the decline of oil shale development, no information is available on survey efforts.</p> <p>This species is considered rare and occurs on very restricted habitats and is ranked A.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> <li>• CNHP</li> <li>• USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<a href="http://plants.usda.gov">http://plants.usda.gov</a>). <a href="http://plants.usda.gov">National Plant Data Center</a>, Baton Rouge, LA 70874-4490 USA. (Accessed October 1, 2002)</li> <li>• NatureServe Explorer: An online encyclopedia of life [web application]. 2001. Version 1.6 . Arlington, Virginia, USA: <a href="http://www.natureserve.org/explore">http://www.natureserve.org/explore</a>. (Accessed: October 1, 2002)</li> <li>• O’Kane, Steve L., 1987. Status report for <i>Thalictrum heliophilum</i>, Colorado Natural Areas Program, Denver, CO (Unpublished: February 15, 1987)</li> </ul>
<p><b>2</b> Distribution outside R2</p>	<p><b>A</b></p>	<p><i>T. heliophilum</i> is not known to occur outside R2.</p> <p>Confidence in Rank: Medium</p>	<ul style="list-style-type: none"> <li>• IBID</li> </ul>

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<b>3</b> Dispersal Capability	<b>A</b>	<p>Little detailed information is available on dispersal capability of <i>T. heliophilum</i>. However, floral morphology indicates it is wind pollinated. Mature fruits (achenes with one seed) are dispersed by gravity and precipitation, and possibly wind. Based on this information, this species likely has limited dispersal capabilities and is ranked A.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> <li>• IBID</li> </ul>
<b>4</b> Abundance in R2	<b>A</b>	<p>The total number of <i>T. heliophilum</i> in CO is estimated to be roughly 130,000 individuals. The Mt. Callahan population is estimated to have 1000,000 individuals; 4 populations with 1000 to 10000; ten populations with 100 to 1000; and five populations consisted of less than 100 individuals. Other occurrences do not report population size. Based on this information, the abundance of this species is likely low in R2.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> <li>• IBID</li> </ul>
<b>5</b> Population Trend in R2	<b>D</b>	<p>No information is available on population trends for this species.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> <li>• IBID</li> </ul>
<b>6</b> Habitat Trend in R2	<b>A</b>	<p>Habitat for this species is restricted to unique, shale formations. Although no information is available on trends in these habitats, their limited occurrence and unique characteristics are likely vulnerable and may be declining. This species is ranked A with low confidence.</p> <p>Confidence in Rank Low</p>	<ul style="list-style-type: none"> <li>• IBID</li> </ul>
<b>7</b> Habitat Vulnerability or Modification	<b>A</b>	<p>In the 1980s, oil shale development in the Piceance Basin threatened this species and its associated habitats. In 1987, it was reported that 82,000 acres had recently been patented for mineral claims, including the type locality of this species. There are occurrences in 2 State Natural Areas in the Mount Callahan Natural Area; this area was protected in cooperation with Occidental Oil Shale, Inc.; 13 occurrences are on BLM land; 14 occur on private oil company land, 1 on Department of Energy land; and 1 on USFS land. Further oil shale exploration and extraction could threaten natural populations of <i>T. heliophilum</i>. Mining could cause a direct threat to habitat for this species by increasing soil and substrate erosion and shifting; and direct destruction. This species is ranked A based on its limited distribution and potential vulnerability to mining and exploration disturbances.</p> <p>Confidence in Rank Medium</p>	<ul style="list-style-type: none"> <li>• IBID</li> </ul>

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8 Life History and Demographics	<b>D</b>	Information on life history, ecology, and demography are included in Sections 1-7 of this evaluation. However, no information is available on reproductive rates or mortality of this species.	<ul style="list-style-type: none"> <li>IBID</li> </ul>
Initial Evaluator(s): Janice P. McKee, Botanist			Date: 10/01/02

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

<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.