

SPECIES EVALUATION

Machaeranthera coloradoensis, Priority 2. *Machaeranthera coloradoensis* (A. Gray) Osterhout (MACO13). Colorado tansy-aster. CNHP G2? / S2, Track A
 FS: R2. -- G2?. CO S2.

Criteria	Rank	Confidence	Rationale	Sources of Information
1 Distribution within R2	B	L	Patchy distribution; but the terminology in the ranking description does not apply, hence the low confidence. Ranked S2 in Colorado and S1 in Wyoming.	Herbarium specimens at COLO and RM, Johnston 2001-2002, Fertig 2000, Weber and Wittmann 2001ab.
2 Distribution outside R2	A	H	Entirely within Wyoming and Colorado, within R2.	Herbarium specimens at COLO and RM, Johnston 2001-2002, Fertig 2000, Weber and Wittmann 2001ab, Hartman 1976.
3 Dispersal Capability	C	L	“It may be inferred that the bristly pappus is appropriate for wind dispersal across unsuitable habitat” (Handley and Laursen 2002). Otherwise dispersal mechanisms unknown.	Handley and Laursen 2002.
4 Abundance in R2	B	L	An uncommon species, but the concept “demographic stochasticity” is not relevant for plants. Five to fifteen occurrences in Wyoming, of which five or so represent hybrid populations between <i>M. coloradoensis</i> and <i>M. grindelioides</i> in northern Albany County. Twenty to 25 recorded occurrences in Colorado. Potential habitats have not all been searched, so I expect 20-25 more sites remain to be discovered. In Colorado, seven populations have been counted, ranging 100 – 1,500 individuals, average over 550 individuals. So eventually perhaps there will be 80-90 populations, and total 60,000 individuals.	CNHP records, herbarium specimens at COLO and RM, Johnston 2001-2002, Fertig 2000, Weber and Wittmann 2001ab, Hartman 1976.
5 Population Trend in R2	B	M	Populations seem to be stable in size, based on a few repeat visits to sites.	My observations, CNHP records.
6 Habitat Trend in R2	B	M	On National Forests in Colorado, elevations range 9,500–12,600 ft (2,895–3,840 m), averaging 11,200 ft (3,420 m). In Wyoming, elevations range 8,300–8,500 ft (2,530–2,590 m). In Colorado, populations of <i>Machaeranthera coloradoensis</i> are often associated with limestone, dolomite, shale, or other calcareous substrates. In Wyoming, the species occurs in gravelly places in mountain parks, dry tundra, and on sandstone or limestone outcrops. “Gravelly places in the higher mountain parks and on dry tundra” (Weber and Wittmann 2001ab). These habitats are fairly stable in size and quality, while being partially characterized by continuous natural disturbance.	Johnston 2001-2002, Weber and Wittmann 2001ab.
7 Habitat Vulnerability or Modification	C	M	These habitats are fairly resilient, but since they are characterized by natural disturbance, I can infer that <i>Machaeranthera coloradoensis</i> is at least somewhat resilient to disturbance. A site in Colorado seems to be resilient to continual long-term grazing, although the habitat itself is little grazed because of low cover. The relationships of <i>Machaeranthera coloradoensis</i> to disturbance and other factors of the habitat are unknown.	My observations.
8 Life History and Demographics	D	H	Details of life history and demographics are insufficiently known to determine this rating.	

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

* 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		K	L	NEBRASKA NF/NG		K	L	WYOMING NF/NG		K	L
Arapaho-Roosevelt NF				Samuel R. McKelvie NF				Shoshone NF			
White River NF		K		Halsey NF				Bighorn NF			
Routt NF			L	Nebraska NF				Black Hills NF			
Grand Mesa Uncompahgre Gunnison NF		K		Ogalala NG				Medicine Bow NF		K	
San Juan NF		K		SOUTH DAKOTA NF/NG				Thunder Basin NG			
Rio Grande NF		K		Black Hills NF				KANSAS NF/NG			
Pike-San Isabel NF		K		Buffalo Gap NG				Cimarron NG			
Comanche NG				Ft. Pierre NG							
Pawnee NG											

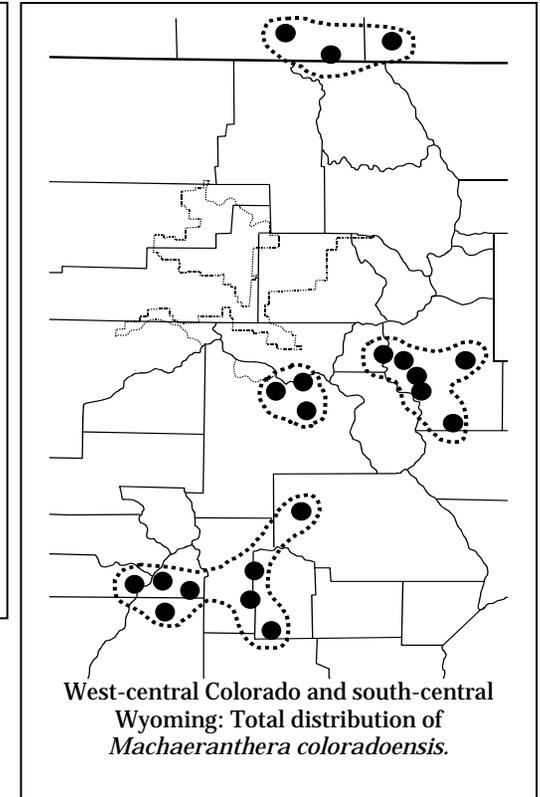
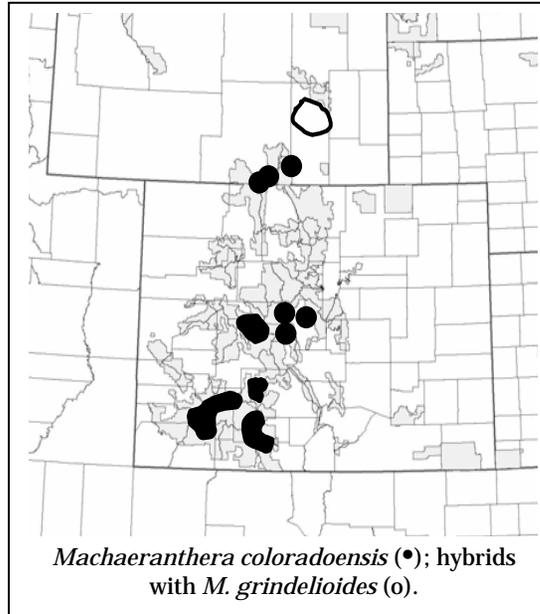
Taxonomy. This is accepted as a species by all Rocky Mountain botanists, usually *Machaeranthera coloradoensis* (A. Gray) Osterhout; but Harrington (1954) called it *Aster coloradoensis* A. Gray. Reportedly, this is about to be transferred to another genus.

Hartman (1976) delineated two varieties within *M. coloradoensis*: var. *coloradoensis* and var. *brandegei* (Hartman 1976). The plants from southern Wyoming, South Park, and Cochetopa Park are smaller and appear more gray-green and are more pubescent than the Alpine plants from south-central and Central Colorado, but those characters are variable and there does not seem to be sharp distinctions. I have been unable to consistently separate the two varieties, but I have not had time to complete the study, nor have I seen a full range of specimens. If var. *brandegei* is decided to be valid, then all the plants of the Alpine Zone with longer, broader leaves, and larger heads would be in var. *brandegei*.

Discussion. This interesting species is still uncommon, but there are still populations being discovered. Some of the populations are large, and the habitat seems to be resilient to grazing and some trampling. There do not seem to be great viability concerns with this species.

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