

Ten Mile Allotment
Mt. Mahogany Permanent Range Cage
 Established May 20, 2009

The Ten Mile Allotment mountain mahogany permanent range cage is in Price/Cougar Pasture. This 16' X 16' permanent range cage (Fig. 1) is adjacent to FS 614 on a sagebrush toe slope with aspen, oak, and pinyon-juniper, downslope from Price Spring. A small brook flows from Price Spring along the northern edge of the 100' transect. The drainage joins Order Canyon and eventually flows into City Creek. City Creek Peak is the dominant peak above Price Spring. City Creek eventually flows out of the Tushar Mountains just north of the town of Junction and enters Piute Reservoir. A low pass separates the Price Spring drainage from the Ten Mile Creek drainage just to the north.

The mountain mahogany in the area are heavily browsed by ungulates, generally being browsed back to the height of sagebrush that are otherwise protecting the mountain mahogany (Fig. 4). Sedges in the area are also closely grazed (Fig. 5).

On May 20, 2009, Grand Canyon Trust photographed each mountain mahogany within the enclosure for a record (e.g., Figs. 2-3). No detailed survey of all species within and outside the enclosure has been made.

On October 14, 2009, Grand Canyon Trust read two point-intercept transects running N-S within the transect (starting 6" from inside the cage fence). The height of all plants intercepted in addition to the ground cover were recorded every 6". In addition, the height and location of each mountain mahogany plant within the range cage were recorded.

The outside comparison to this permanent mountain mahogany range cage is a 100' point-intercept transect located 37' and 180 from the SE corner of the range cage. On October 14, 2009 Grand Canyon Trust read the outside transect as within the range cage, but at 2' intervals rather than 6". The height of all mountain mahogany within 3' of either side of the transect was recorded.

Ten Mile Allotment Mt Mahogany Permanent Range Cage	Established May 20, 2009
Fishlake NF/Beaver RD	Allotment: Ten Mile Pasture: Price/Cougar
Aspect: gentle, east facing slope	Elevation: 8283 ft.
Range Cage Location: (NAD CONUS 27) 12N 386501 E 4240265	Outside Transect Location Begins 12N 386499 E 4240250 N Ends 12 N 386486 E 4240222 N
Inside Transects Two transects run E to W from within 6" of cage fence. A: 3rd wire from south side. B: 9th wire from north side.	Outside Transect 37' from and 108° south of SE corner. Starts in a sage brush.

Transect readings: (1) October 14, 2009 surveyors: Hoskisson/O'Brien

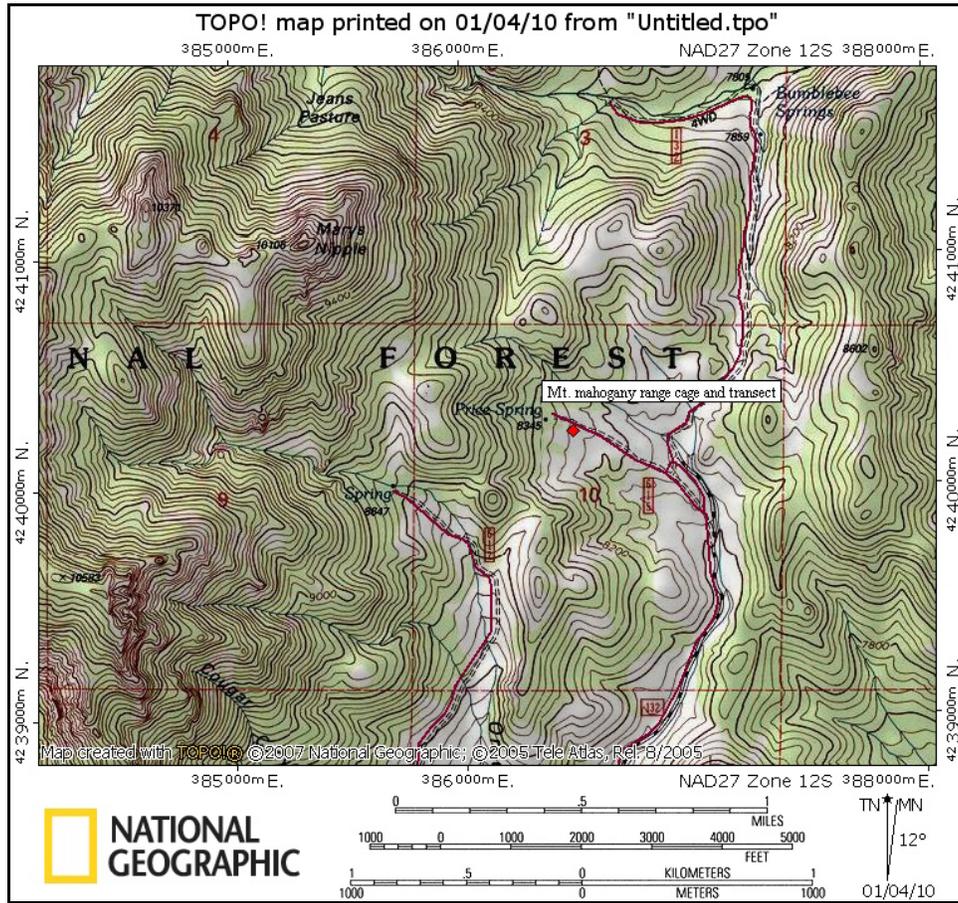




Fig. 1 (5/20/09) Mt. mahogany permanent range cage



Fig. 2 (5/20/09) 4' mt. mahogany protected within sagebrush, SE quadrant of enclosure



Fig. 3 (5/20/09) 5" mountain mahogany within SW quadrant of exclosure.



Fig. 4. (10/14/09) Mt. mahogany in area of transect and exclosure are often browsed back to height of protective sagebrush.



Fig. 5 (10/14/09) Watercourse outside of enclosure

Transect Readings

(1) October 14, 2009

The first transect reading was made just four months after the mountain mahogany range cage was established, but it encompassed the mid- and later portions of the growing season. The range cage encompasses more mountain mahogany than were encountered within the 6-foot wide belt transect. Perhaps in 2010 it would be wise to add a second belt transect.

The height structure inside and outside the range cage is similar, with both missing any shrubs in the 2.1'-2.5' height class. The fate of the five seedlings within the range cage (Fig. 6) and the 4.5" young mt. mahogany on the transect (Fig. 9) will be interesting to track.

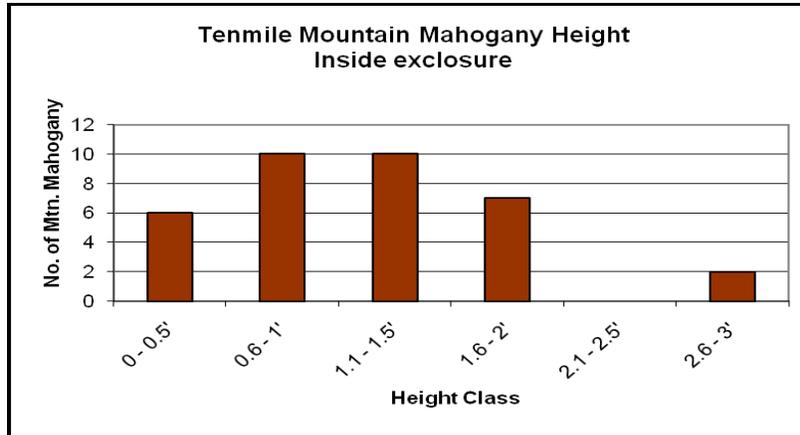
The understory grass heights are quite different (15" inside; 6" outside). *Carex* accounts for 24% of the cover inside (Fig. 8), while none was encountered on point-intercept transect outside, though the outside transect does cross a narrow waterway (Fig. 5).

Graminoid and forb cover within the cage is 57%; 26% outside. Bare ground is similar inside (6%) and outside (8%).

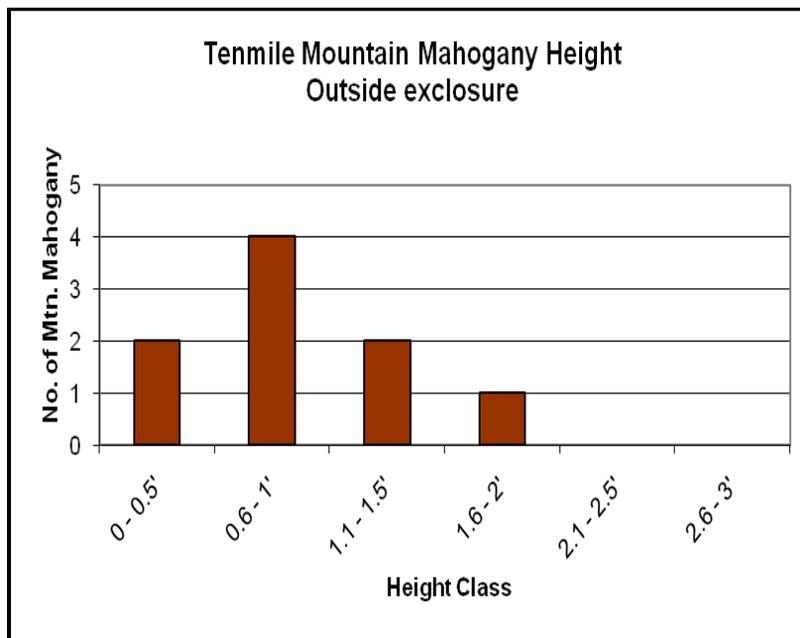
Sedges outside the range cage are being grazed beyond the standard of 4".

Mt. Mahogany Height Distribution

Inside Exclosure



Outside Exclosure



Understory/Ground Cover

Inside Exclosure

Plants:	Cover (%)	# Species	Height (in.) (average)	Two most common species
Mountain Mahogany	3	1	31	<i>Cercocarpus</i> sp.
Shrub	43	1	31	<i>Artemisia tridentata</i> subsp. <i>vaseyana</i> , <i>Symphoricarpos</i> sp.,
Grass	27	6	15	<i>Poa fendleriana</i> , <i>Elymus trachycaulus</i>
Grass-like Plant	24	1	4	<i>Carex</i> sp.
Forb	6	2	17	<i>Lupinus</i> sp., perennial forb
All Veg Types	83	11		<i>Artemisia tridentata</i> subsp. <i>vaseyana</i> , <i>Carex</i> sp.
Non-plant Cover %:	Bare	Rock	Litter	Lichen, moss, biological crust
	6	2	92	0

Plants intercepted on transect inside exclosure, in order of frequency

<i>Artemisia tridentata</i> subsp. <i>vaseyana</i>	18
<i>Carex</i> sp.	15
<i>Poa fendleriana</i>	6
<i>Elymus trachycaulus</i>	4
<i>Lupinus</i> sp.	3
<i>Mahonia aquifolium</i>	3
<i>Agropyron cristatum</i>	2
<i>Agropyron repens</i>	2
<i>Cercocarpus</i> sp.	2
<i>Bromus tectorum</i>	1
Perennial forb	1

Outside Exclosure

Plants:	Cover (%)		# Species	Height (in.) (average)		Two most common species
Shrub	33	4	2	41	22	<i>Artemisia tridentata</i> subsp. <i>vaseyana</i> , <i>Symphoricarpos</i> sp.
Grass	20		4	6		<i>Poa pratensis</i> ; single occurrence of three other grass spp.
Grass-like Plant	0		0			
Forb	6		2	5		<i>Astragalus convallarius</i> , perennial forb
Totals	61		8			
Non-plant Cover %:	Bare		Rock		Litter	Lichen, moss, biological crust
	8		0		92	0

Plants intercepted on transect outside exclosure, in order of frequency

<i>Artemisia tridentata</i> subsp. <i>vaseyana</i>	15
<i>Poa pratensis</i>	8
<i>Artemisia tridentata</i> subsp. <i>vaseyana</i> (dead)	2
<i>Astragalus convallarius</i>	2
<i>Symphoricarpos</i> sp.	2
<i>Agropyron cristatum</i>	1
<i>Bromus inermis</i>	1
<i>Agropyron cristatum</i>	1
<i>Poa fendleriana</i>	1
Perennial forb	1



Fig. 6 (10/14/09) Three of five mt. mahogany seedlings, SE quadrant



Fig. 7 (10/14/09) Two mt. mahogany with new growth inside the enclosure



Fig. 8 (10/14/09) Sedges are increasing within the enclosure.



Fig. 9 (10/14/09) Mt. mahogany 4.5", outside enclosure under shrub, not browsed.



Fig. 10 (10/14/09) Mt. mahogany outside transect, in open, browsed to 5”.



Fig. 11 (10/14/09) Sedge on bank crossed by transect; grazed to 1” (standard is 4”)