

**Ten Mile Allotment**  
**Riparian Permanent Range Cage**  
 Established May 20, 2009

The 16' X 16' Ten Mile Allotment riparian permanent range cage is located in the Price/Cougar Pasture, adjacent to FS 132, in a riparian meadow dominated by Kentucky bluegrass and Nebraska sedge with some dandelions (Fig. 1). The nearly-level meadow is in the Price Spring drainage about one mile north of its confluence with Order Canyon. The riparian meadow resulted from an old check dam along the drainage. Below the check dam the drainage enters a narrow canyon. Several more check dams were constructed in the drainage below the meadow at some time in the past. There are also check dams on the small brook above the riparian meadow. The riparian meadow is bordered by slopes on the east and west sides. Pinyon, juniper, mountain mahogany, bitter brush, service berry and other shrubs grow on the slopes. The meadow is immediately surrounded by sagebrush and rabbit brush. The sagebrush and rabbit brush grow into the meadow on the drier upper end of the meadow. After joining Order Canyon the Price Spring drainage eventually flows into City Creek and then into the Piute Reservoir just north of the town of Junction. The meadow is adjacent to FS 132.

The riparian meadow is heavily grazed by cattle, with both the Kentucky bluegrass and sedges being grazed to the same height.

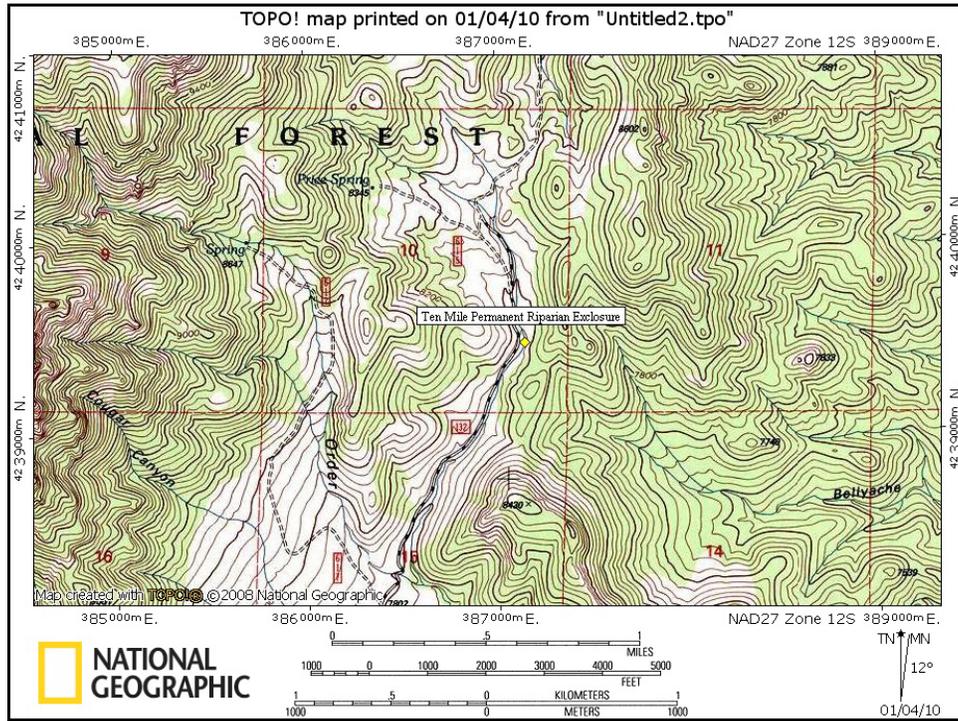
On May 20, 2009, Grand Canyon Trust photographed the enclosure from each side for a record. No detailed survey of all species within and outside the enclosure has been made.

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 and the ground cover were recorded every 2"

The outside comparison to this permanent riparian range cage is a 100' point-intercept transect starting 51' from the SW corner of the enclosure (see table below for details). On October 14, 2009 Grand Canyon Trust read the outside transect as within the range cage, but at 6' intervals rather than 2".

<b>Ten Mile Allotment Riparian Permanent Range Cage</b>	<b>Established</b> May 20, 2009
<b>Fishlake NF/Beaver RD</b>	<b>Allotment:</b> Ten Mile <b>Pasture:</b> Price/Cougar
<b>Aspect:</b> an almost level riparian meadow facing south.	<b>Elevation:</b> 7931 ft
<b>Range Cage Location:</b> (NAD CONUS 27) 12S 387136E 4239464N	<b>Outside Transect Location</b> <b>Begins</b> 12S 387125E 4239442N <b>Ends</b> 12S 387114E 4239470N
<b>Inside Transects</b> Two transects run N-S from within 6" of cage fence. A: begins at the 3 <sup>rd</sup> wire from the W end on the N side B: begins at the 5 <sup>th</sup> wire from the E side on the S side.	<b>Outside Transect</b> The beginning stake is 51' from the SW corner of enclosure, bearing 108° ESE. The transect is 100' long, bearing 340° NNW. It begins near a headcut at the lower end of the riparian meadow and passes through wetter and drier portions of meadow.

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



Map 1. Ten Mile Riparian Enclosure



Fig. 1 (5/20/09) Riparian meadow permanent range cage



Fig. 2 (5/20/09) Sedges, grasses, dandelion in the meadow 1.5"-2" tall at the time of range cage construction.



Fig. 3. (05/20/09) A photo was taken at each corner showing inside and outside of the range cage. This is the SW corner looking E.

## Transect Readings

(1) October 14, 2009

The first transect reading was made just four months after the riparian meadow range cage was established, but it encompassed the mid- and later portions of the growing season. Figures 4 and 10 show the overall contrast between the range cage and meadow.

Within the range cage, voles had built grass tunnels through the sedges/grass in the SE quadrant of the range cage, but sign of voles was absent from the meadow outside the range cage. The only plant diversity beyond sedges and Kentucky bluegrass in the enclosure was found on the vole mounds where rabbitbrush, dandelion, and an aster were found (Figs. 5-6).

Kentucky bluegrass averaged 13" tall within the enclosure; 1.1" (standard is 1.5") outside. *Carex nebrascensis* (dominant) and *Juncus balticus* (less common) averaged similar height (13") inside. *Carex nebrascensis* was grazed to 1.9" (standard is 4") outside (Figs. 8-9). No *J. balticus* was encountered on the outside transect). Dandelion (*Taraxacum officinale*) was the only forb encountered along the outside transect.

Bare soil was 7% inside the cage; 14% outside. Both *Carex nebrascensis* and *Kentucky bluegrass* are rhizomatous, forming dense vegetation.

A second range cage (8' X 16') was constructed (by the Forest Service?) at some time after this range cage (Fig. 10). Chicken wire encases the lower portion.

## Understory/Ground Cover

### Inside Exclosure

Plants	Cover (%)	# Species	Height (in.) (average)	Two most common species
Tree	0	0		
Shrub	0	0		
<i>Poa pratensis</i>	72	1	13	<i>Poa pratensis</i>
Other Grass	0	0		
Grass-like Plant	74	2	13	<i>Carex nebrascensis</i> , <i>Juncus balticus</i> var. <i>littoralis</i>
Forb	4	2	5	<i>Brassica</i> sp., <i>Aster</i> sp.
Totals	88	5		
Non-plant Cover %:	Bare	Rock	Litter	Lichen, moss, biological crust
	7	0	93	0

### Plants intercepted on transect inside range cage, in order of frequency

<i>Poa pratensis</i>	41
<i>Carex nebrascensis</i>	34
<i>Brassica</i> sp.	1
Asteraceae sp.	1

### Outside Exclosure

Plants	Cover (%)	# Species	Height (in.) (average)	Two most common species
Tree	0	0		
Shrub	0	0		
<i>Poa pratensis</i> *	55	1	1.1	
Other Grass	0	0		
Grass-like Plant	43	1	1.9	<i>Carex nebrascensis</i>
Forb	6	1	0.7	<i>Taraxacum officinale</i>
<b>Totals</b>	86	3		<i>Poa pratensis</i> , <i>Carex nebrascensis</i>
<b>Non-plant Cover %:</b>	<b>Bare</b>	<b>Rock</b>	<b>Litter</b>	<b>Lichen, moss, biological crust</b>
	14	0	86	0

### Plants intercepted on transect outside exclosure, in order of frequency

<i>Poa pratensis</i>	27
<i>Carex nebrascensis</i>	22
<i>Taraxacum officinale</i>	3



Fig. 4 (10/14/09) The range cage four months after establishment. Note drier eastern portion of the meadow within the cage. Voles have established mounds within the drier, SE quadrant.



Fig. 5. (10/14/09) Rabbitbrush and dandelion seedlings on one of the vole mounds.



Fig. 6. (10/14/09) An aster rooted on one of the vole mound



Fig. 7. (10/14/09) Outside transect, 0' to 100'. Note drier and wetter portions of meadow along transect.



Fig. 8. (10/14/09) Generally, sedges are less than 1.5" tall (standard is 4") outside the range cage.

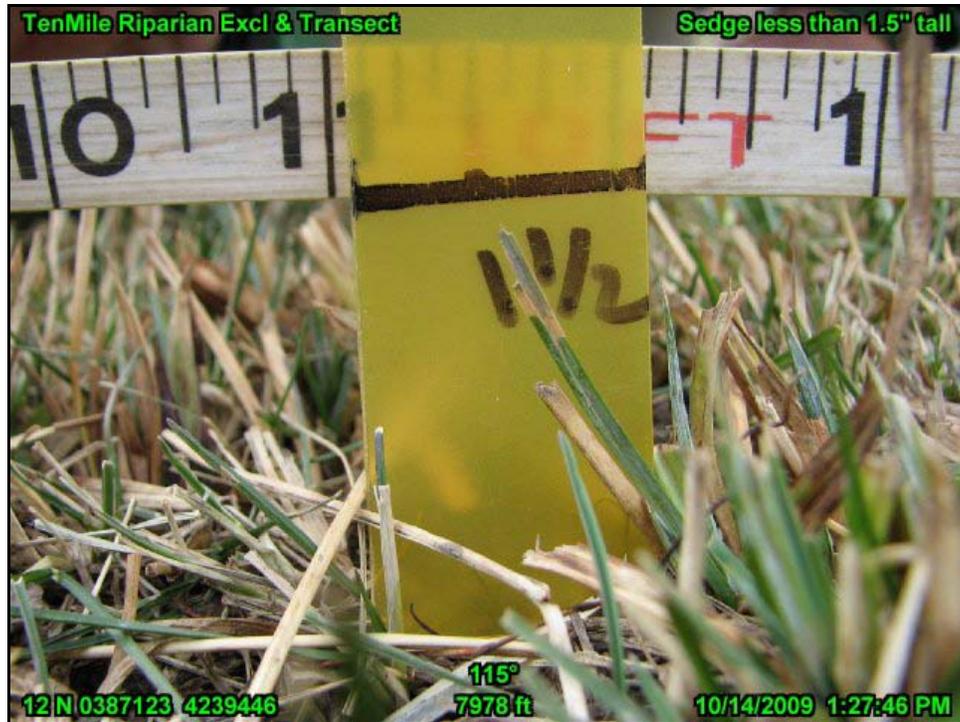


Fig. 9 (10/14/09) A sedge less than 1.5" tall along transect outside the range cage.



Fig. 10 (10/14/09) Second, 8' X 16' range cage built by the FS sometime after May 20, 2009.