

Pine Creek/Sulphurbeds Allotment Permanent Range Cage: Riparian

INSIDE (Former Little North Creek #5; outside until May 2009)

OUTSIDE: (Former Little North Creek #3)

Riparian Browse Assessment

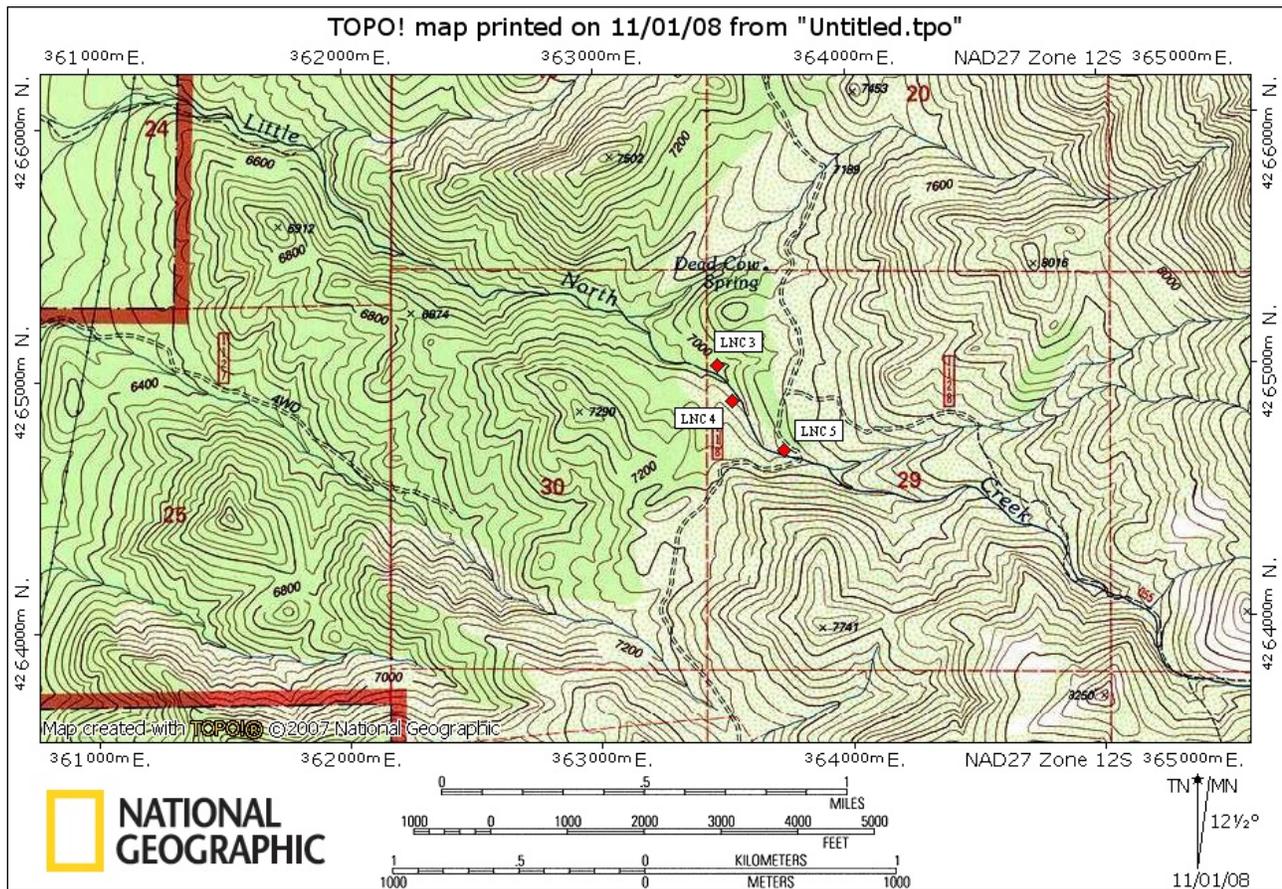
- (1) May 8, 2008
- (2) October 8, 2008
- (3) October 7, 2009
- (4) October 9, 2010
- (5) September 7, 2011

Bank Stability

- (1) October 7, 2009

Riparian Grass/Grasslike Utilization

- (1) October 8, 2008
- (2) October 7, 2009
- (3) October 9, 2010
- (4) June 7, 2011
- (5) September 7, 2011



Pine Creek/Sulphurbeds Riparian Permanent Range Cage	May 8, 2008 Hoskisson/O'Brien October 8, 2008 Hoskisson/O'Brien October 7, 2009 Hoskisson/Chilcoat (LNC #3 became the outside comparison for LNC5, now enclosed as a permanent riparian range cage October 9, 2010 Hoskisson/Wheeler June 11 and September 7, 2011 Hoskisson/ Ratcliff/Young
Fishlake NF/Beaver RD	Allotment: Pine Creek/Sulphurbeds Pasture: Little North Creek
Range Cage Location: NAD CONUS 27 12N 363727E 4264681N NAD83: 363661E 4264885N Outside transect Location 12N 0363475E 4265011 N NAD83: 363410E 4265215N Stake is at downstream end, at upstream side of the middle of 3 large cottonwoods w/in 10' of the creek.	Elevation: 7,010' Aspect: Generally N facing
Ave. Width of Riparian Area: 69' for younger cottonwood trees. Older cottonwoods continue beyond 100' in openings.	
Dominant Vegetation: Narrowleaf cottonwood, big tooth maple, Gambel's oak, ballhead waterleaf (<i>Hydrophyllum capitatum</i>), Asteraceae sp., <i>Astragalus</i> , bunchgrass sp., Kentucky bluegrass, juniper, Wood's rose, chokecherry	
Other notes: Browse of young cottonwoods is extensive. The transect is near the division of reaches A20-7 and A20-8 described in the 2003 Level II Riparian Inventory (Petty 2003). The report states: (1) "The mean Pfankuch (1978) stream score was measured at 92.8, which is considered "fair", although some of the reaches were rated as "poor", using the adaptation of the Pfankuch rating to Rosgen's stream type classification. The stream in these sections is suffering from the impacts of heavy grazing on the riparian areas. This results in low bank vegetation cover and vigor, mass wasting of the upper banks and bank cutting. These problems were considerable in reaches A20-1 through A20-3 and A20-6, A20-7, A20-11 and A20-12." (2) "Reaches A10-6 through A20-10 are Mollisols. Areas of higher soil structure and organic matter were identified as Mollisols, however, due to compaction and loss of organic matter cycling the soils are losing structure. This is primarily due to cattle grazing." (3) "The lower and middle reaches show the impacts of continuous grazing, which were evident from the measured stubble height in the riparian of 1-3 inches, in reaches A20-8 and A20-12. . . Most of these measurements were made on Kentucky bluegrass and tufted hairgrass. Also documented were large barren areas in reaches below A20-12 where cattle have removed all of the vegetation." The report recommended, "Better grazing management is needed on this stream as many areas are showing grazing over use. The cattle are confined to the riparian area in this watershed, as shrub growth is so heavy in the uplands that cattle cannot use them. Therefore, cattle spend most of their time on the riparian." Petty recommends prescribed fire among the dense Gambel oak; "In addition, water developments located to water livestock on the slopes and mesas of the area would be needed, as well as better herding, and possibly riparian exclosures." [O'Brien note: Cheatgrass expansion would have to be considered as a potential result of prescribed fire at this elevation.]	

“Reaches A20-12 and A20-8 would be excellent locations for Level III Riparian Surveys. However, these areas are in the poorest condition and the forage trend can only go up.”

Question: No cottonwoods are reaching maturity and have not for many years. Eventually the lack of cottonwoods will lead to further degradation of Little North Creek. **How will the Fishlake NF assure that cottonwoods will reach maturity?**

Little North Creek runs roughly southeast to northwest on the western boundary of the Pine Creek/Sulphurbeds Allotment. The canyon bottom has a gentle slope of about 2% in the area of Little North Creek Transect #3. The site is a mix of juniper, bigtooth maple, Gambel’s oak and narrowleaf cottonwood (Fig. 1). An aging narrowleaf cottonwood gallery extends >100’ back from the creek in openings with younger cottonwood shorter than 6’ tall (Fig. 2). The stream banks lack willows. The creek is incised 3’-5’. (Fig. 3)

Large ungulates can walk in the creek and young cottonwood growing on the bank slope are being browsed (Fig. 4). The creek banks upstream and downstream of Little North Creek #3 are often nearly denuded (Fig. 5).

Whether there is sufficient forage for cattle in the area of Little North Creek #3 would seem a valid question (see grass/grasslike utilization report that follows this report). Young cottonwood was being browsed to 2” (Fig. 6) and even rabbitbrush was being browsed (Fig. 7).

(1: May 8, 2008 – LNC#3 – Outside transect) As of May 8, 70% of the tallest leaders and 76% of the subleaders of cottonwood <6’ have been browsed. Cattle are scheduled to be present in the pasture after leaving Sulphurbeds Pasture (at least by August 15) and are to leave when grazed to allowable use standards or by Sept. 30, whichever comes first.

(2: October 8, 2008 – LNC #3- Outside transect) By October 8, 75% of the tallest leaders and 80% of the subleaders of cottonwood <6’ have been browsed.

In both May and October, the height classes of 3.1’-6’ are largely absent (p. 4), and the cottonwood >6’ have an average diameter of 11”-14” (p. 5). Cottonwood of 3’-4’ have an average of 6 (Oct) to 8 (May) leaders, indicating repeated consumption of the leaders (p. 6).

1: 5/8/08 – LNC #5 – in 2008, LNC#5 was an outside transect As of May 8, 78% of the tallest leaders of the 22 cottonwood <6’ were browsed, and 100% were browsed or dead; 82% of the subleaders were browsed and 88% dead (Fig. 4). The ground was already largely bare (Fig. 2). Cattle were scheduled to be present in the pasture after leaving Sulphurbeds Pasture (at least by August 15, i.e., more than 2 months later than this survey) and were to leave when allowable use standards were reached or by Sept. 30, whichever comes first.

2: 10/8/08 – LNC #5 – in 2008 LNC#5 was still an outside transect By October 8, 92% of the tallest leaders and 90% of the subleaders of cottonwood <6’ were browsed (again, 100% of the tallest leaders browsed or dead) (Figs. 5-6).

The height classes of 4.1’-6’ are essentially absent (except for one individual encountered; p. 4), and the few cottonwood >6’ tall average diameters of 16” (p. 5). This means that this is a gallery with a few old cottonwood and essentially no recruits into the overstory.

Cottonwood of 3’-4’ have average 4-5 leaders, indicating repeated consumption of the leaders (p. 6), which prevents the trees from reaching 6’ or taller, above browsing height, and into the overstory.

Whether there is sufficient forage for cattle in the area of Little North Creek #3-#5 would seem a valid question (see “Further notes”, pp. 2-3, and Little North Creek #3 and #4 reports).

While cattle were to have been removed from this pasture by Sept. 30, a dozen cows were photographed along the road crossing Little North Creek on Oct. 8.

In May of 2009, a 16' X 16' enclosure was built in LNC #3 to determine the level of browsing on narrowleaf cottonwoods in the area. It was believed that this would be the best way to gather the most meaningful information for this area. In subsequent years, data from this transect area will be presented as level of browse inside and outside the enclosure. The data outside the enclosure will be provided by Little North Creek #3.

3: October 7, 2009 – LNC #3 – Outside transect The 75% browse of the tallest leaders and 83% browse of subleaders (see, e.g., Fig. 8) was virtually identical to 2008 (70% and 76%). As in 2008, one cottonwood is 4.1'-5'tall, but no 5.1'-6' cottonwood were encountered in 2009 (one in 2008). LNC #3 will serve as the "outside" comparison to LNC #5, which is now a permanent range cage.

[LNC#5 was not read in 2009]

4: October 9, 2010

The Little North Creek Pasture was to be utilized at 30% in 2010.

Inside range cage (LNC #5): There are 29 cottonwood sprouts within the 16' X 16' range cage, six of which are between 4.1' and 6' (Figure 9). The majority (62%) of the cottonwoods in the enclosure are between 2 and 4'. A small amount of tall leaders were browsed (4%), and no subleaders were browsed.

The cottonwoods inside the enclosure have noticeably more leaders and subleaders per height class (and overall). The absence of browsing within the enclosure has allowed the continued growth of each of the branches of the cottonwoods that were formerly browsed.

Outside transect (LNC #3) Since this pasture was at 30% utilization this year, the level of browse in 2010 as opposed to previous years is markedly reduced. In 2010, 25% of the tallest leaders of narrowleaf cottonwoods were browsed and 62% subleaders browsed. The browse level had decreased from 75% on tall leaders and 83% on subleaders in 2009 (Figure 10).

In 2009 and 2008 along LNC#3 ('outside' transect), the level of browse ranged from 70-75% on tall leaders and 80%-84% on the subleaders. However, in 2010, browse on the top leaders was only 25%, although subleaders were browsed at 62%.

The height distribution of the cottonwoods outside the enclosure, within the belt transects, still lacks any individuals between 4.1 and 6' in height

2010 LNC #5- Ground Cover- inside range cage

Ground cover data taken on transects inside the range cage in the 2010 field season were misplaced and could not be found.

2010 LNC #3- Ground Cover- outside transect, read as a graminoid utilization transect

These data were gathered 9 days after the cattle were to exit from this pasture. Plants were encountered only 18% of the time along the transects. Much of the ground cover was litter (69%), although newly fallen leaves in the fall season often covered bare ground underneath. Bare ground was encountered 13% of the time.

5 and 6: June 7 and September 15, 2011

The Little North Creek Pasture was to be utilized at 30% for the second year in 2011.

Inside range cage (LNC #5): As of September 2011, there were 26 cottonwood sprouts within the 16' X 16' range cage, 9 of which are between 4.1' and 6'.. Fourteen percent of tall leaders were browsed, and 22% of

subleaders were browsed. In 2008, before this site was caged, tall leader browse was 92%; subleader browse was 90%.

The browse inside the range cage appears to be occurring along the sides of the cage which ungulates can reach, however, some saplings weren't particularly healthy and were infested with ants. The cottonwoods inside the enclosure have fewer leaders per cottonwood particularly in the 2.1'-4' height (outside enclosure lacks any cottonwood 4.1'-5' tall), indicating that the tallest leader is being allowed to grow beyond most subleaders.

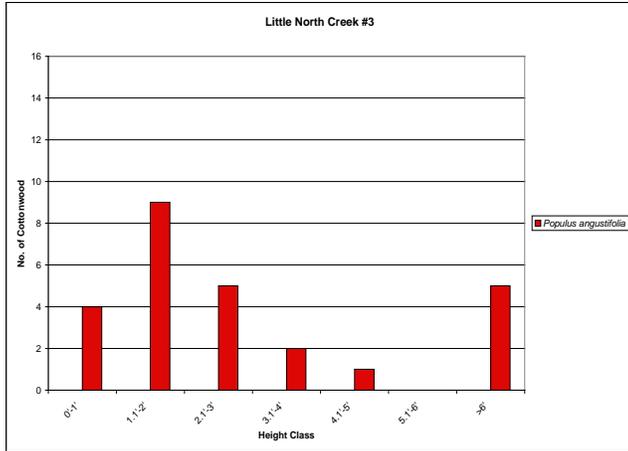
Outside (LNC #3) Although this pasture was at 30% utilization again this year, browse of the tallest leaders was once again high: 70%; browsed (75% in 2009; 25% in 2010) but only 9% subleaders browsed (83% in 2009 and 62% in 2010). The graminoids were closely grazed.

The height distribution of the cottonwoods outside the enclosure, within the belt transects, still lacks individuals between 4.1 and 6' in height.

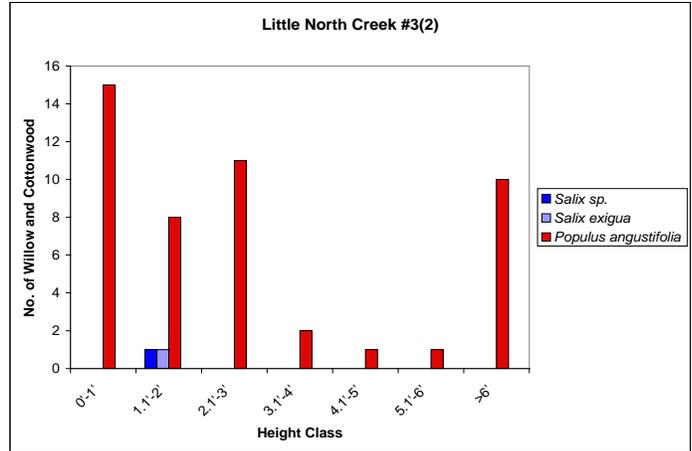
The aspen inside/outside graphs below show that the cottonwood within the range cage are gaining recruitment. Of the 23 aspen, two have joined a third that are > 6', three are now 5.1-6', and six are 4.1-5'. Outside the cage, only one of 46 aspen <6' is taller than 4'.

Cottonwood Height Distribution Outside Exclosure (LNC3)

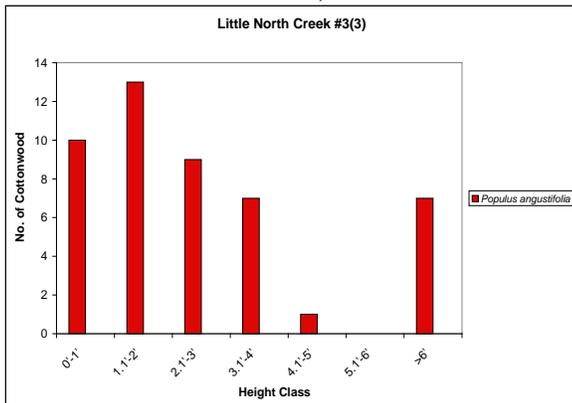
May 8, 2008



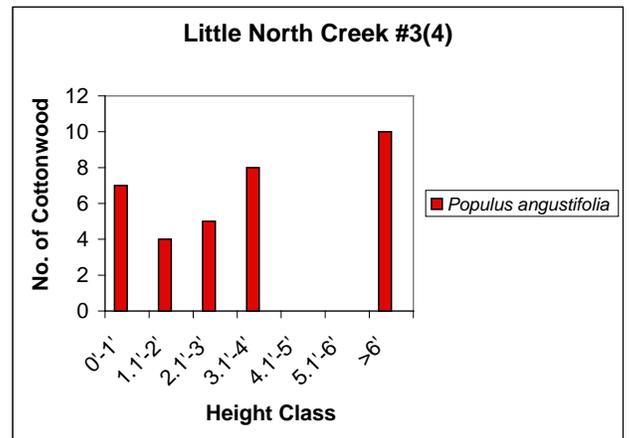
October 8, 2008



October 7, 2009

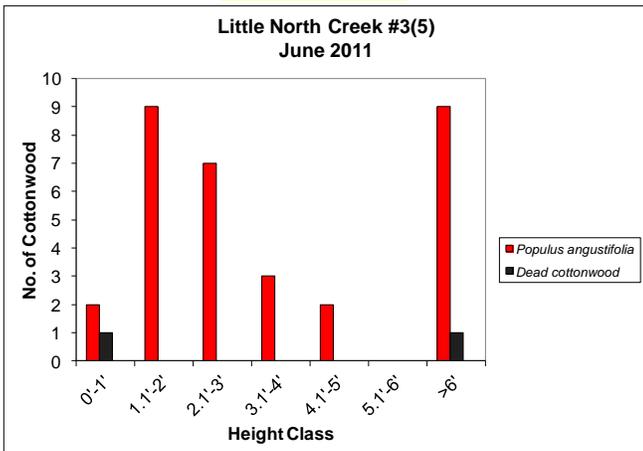


October 2010

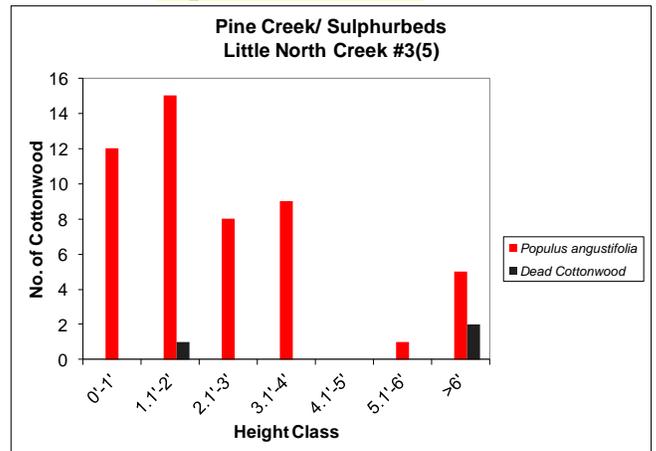


Outside (LNC #3) 2011

June 11, 2011

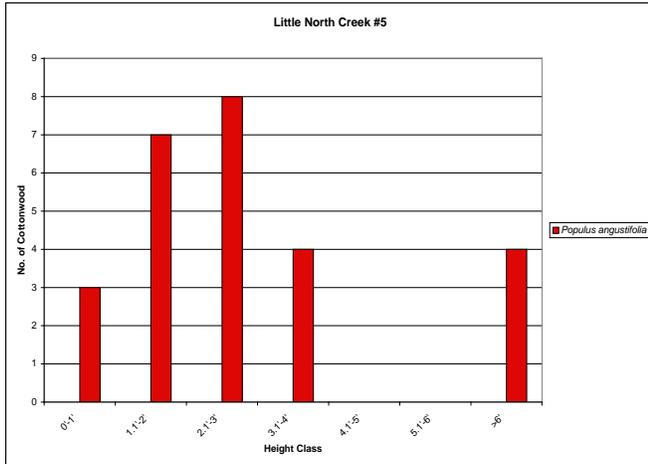


September 15, 2011

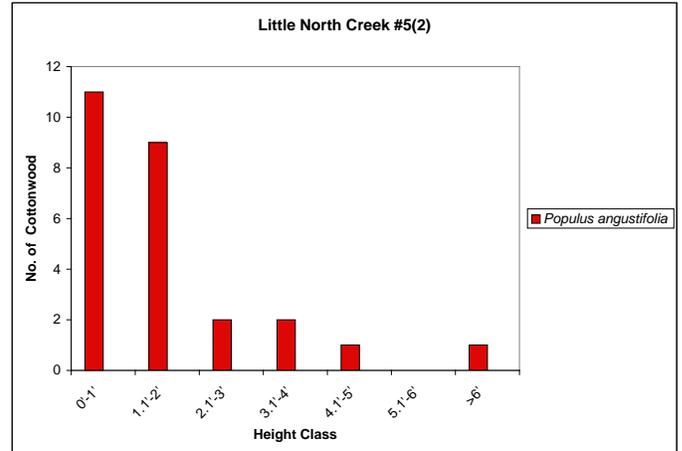


LNC #5: Height Distribution Inside after May 2009 (outside in 2008)

LNC#3 (Outside)
May 8, 2008

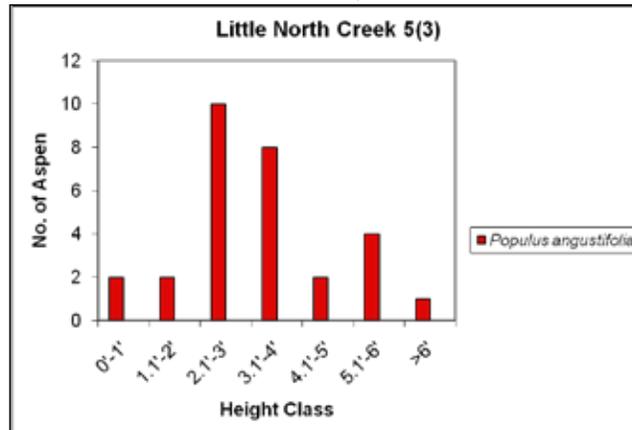


LNC #5 (still outside)
October 8, 2008



[Note: LNC #5 transect was not read in 2009]

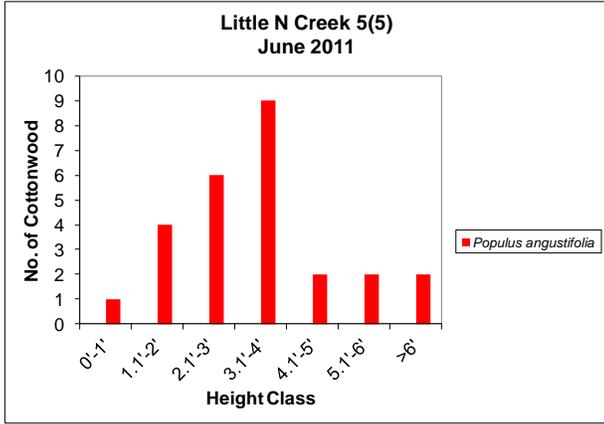
Inside Exclosure
October 9, 2010



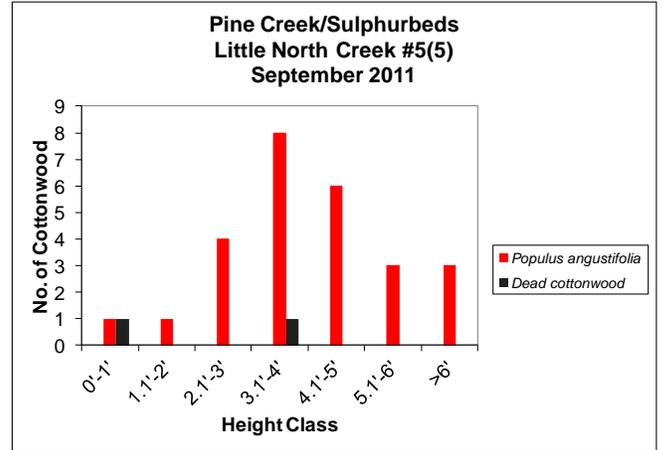
2011

Inside Exclosure (LNC #5)

June 11, 2011

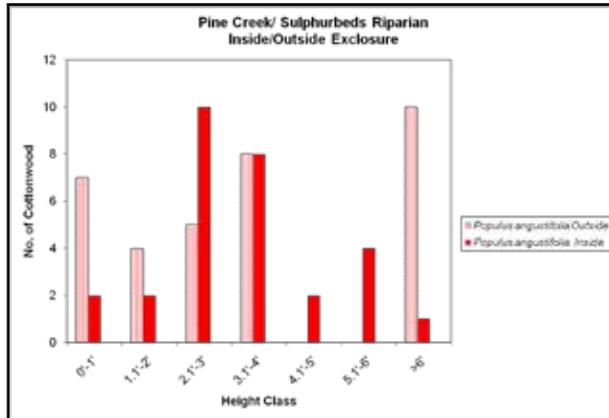


September 7, 2011



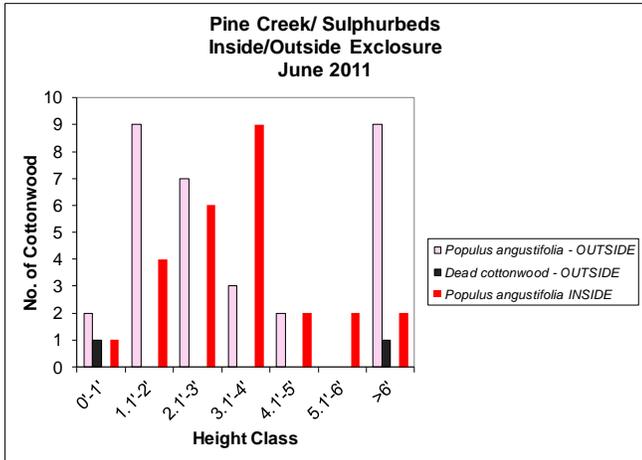
**Height Distribution:
Cottonwood inside and outside**

October 9, 2010

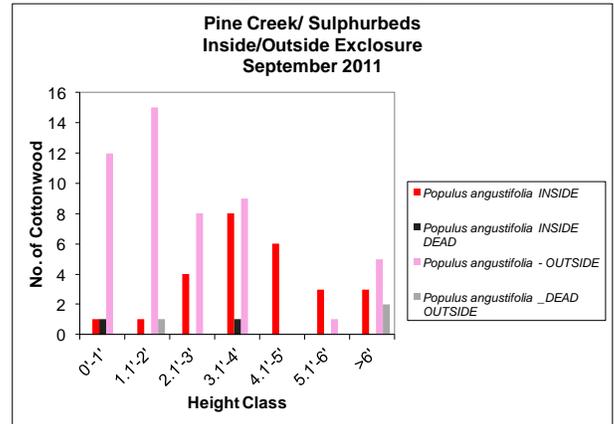


2011

June 2011



September 2011



Browse

Outside Exposure LNC #3

May 8 and October 8, 2008

LNC #3 Percent Browsed or Dead Leaders			
	May 8, 2008 21 <i>Populus angustifolia</i> <6' 4 <i>Populus angustifolia</i> >6: Ave.DBH 13.6"	October 10, 2008 36 <i>Populus angustifolia</i> <6' 10 <i>Populus angustifolia</i> >6: Ave. DBH 10.8" 1 <i>Salix exigua</i> <6' 1 dead <i>Salix</i> sp. <6'	
	<i>Populus angustifolia</i>	<i>Populus angustifolia</i>	<i>Salix exigua</i>
% tall leaders browsed	70.0	75.0	100.0
% tall leaders browsed or dead	70.0	75.0	100.0
% subleaders browsed	76.4	79.8	25.0
% subleaders browsed or dead	80.0	83.3	25.0

October 7, 2009

Little North Creek 3(3)- Outside enclosure 40 <i>Populus angustifolia</i> <6' 7 <i>Populus angustifolia</i> >6': Ave. DBH 9.1"	
	<i>Populus angustifolia</i>
% tall leaders browsed	75.0
% tall leaders browsed or dead	75.0
% subleaders browsed	83.5
% subleaders browsed or dead	83.5

October 9, 2010

Little North Creek 3(3)- Outside enclosure 40 <i>Populus angustifolia</i> <6' 7 <i>Populus angustifolia</i> >6': Ave. DBH 9.1"	
	<i>Populus angustifolia</i>
% tall leaders browsed	75.0
% tall leaders browsed or dead	75.0
% subleaders browsed	83.5
% subleaders browsed or dead	83.5

June 11, 2011

Little North Creek #3(5) June 2011 9 <i>Populus angustifolia</i> >6'	
23 <i>Populus angustifolia</i> /1 dead cottonwood <6'	
	<i>Populus angustifolia</i>
% tall leaders browsed	41.7
% tall leaders browsed or dead	45.8
% subleaders browsed	44.2
% subleaders browsed or dead	44.2

Sept. 15, 2011

Little North Creek #3(5) Sept 2011 7 <i>Populus angustifolia</i> > 6' Ave dbh 25" 3 Dead Cottonwood	
46 <i>Populus angustifolia</i> <6"	
	<i>Populus angustifolia</i>
% tall leaders browsed	69.8
% tall leaders browsed or dead	69.8
% subleaders browsed	8.8
% subleaders browsed or dead	8.8

Browse Inside Exclosure (LNC#5)

May 8, 2008 (Transect – no enclosure)

4 *Populus angustifolia* >6': Ave. DBH 16.5"

Little North Creek #5 Percent Browsed or Dead Leaders 22 <i>Populus angustifolia</i> <6'	
	<i>Populus angustifolia</i>
% tall leaders browsed	77.8
% tall leaders browsed or dead	100.0
% subleaders browsed	82.4
% subleaders browsed or dead	88.2

October 8, 2008 (Transect – no enclosure)

1 *Populus angustifolia* >6': DBH 17"

Little North Creek #5(2) Percent Browsed or Dead Leaders 25 <i>Populus angustifolia</i> <6'	
	<i>Populus angustifolia</i>
% tall leaders browsed	92.0
% tall leaders browsed or dead	100.0
% subleaders browsed	90.1
% subleaders browsed or dead	90.1

Oct. 9, 2010

Little North Creek #5(3) – Inside Enclosure 28 <i>Populus angustifolia</i> <6' 1 <i>Populus angustifolia</i> >6' Ave. DBH 0.5"	
	<i>Populus angustifolia</i>
% tall leaders browsed	4.0
% tall leaders browsed or dead	12.0
% subleaders browsed	0.0
% subleaders browsed or dead	0.0

2011

June 11, 2011 (Inside)

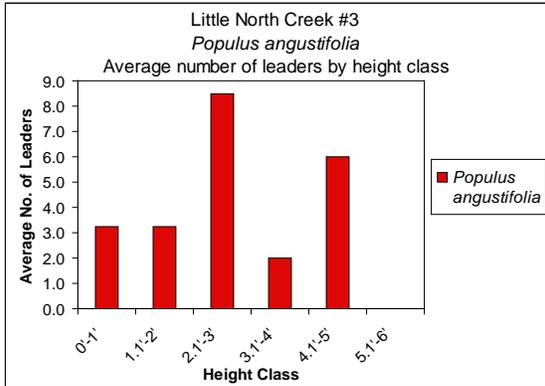
Little North Creek #5(5) 2 <i>Populus angustifolia</i> >6' 24 <i>Populus angustifolia</i> <6'	
	<i>Populus angustifolia</i>
% tall leaders browsed	16.0
% tall leaders browsed or dead	16.0
% subleaders browsed	2.4
% subleaders browsed or dead	2.4

Sept 7, 2011 (Inside)

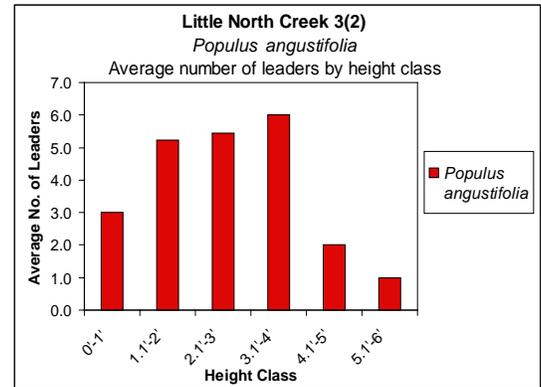
PC/S Little North Creek #5(5) Sept 2011 3 <i>Populus angustifolia</i> >6' 3 dead cottonwood 23 <i>Populus angustifolia</i> <6'	
	<i>Populus angustifolia</i>
% tall leaders browsed	13.6
% tall leaders browsed or dead	13.6
% subleaders browsed	22.2
% subleaders browsed or dead	22.2

Number Leaders by Height Class Outside Exclosure (LNC #3)

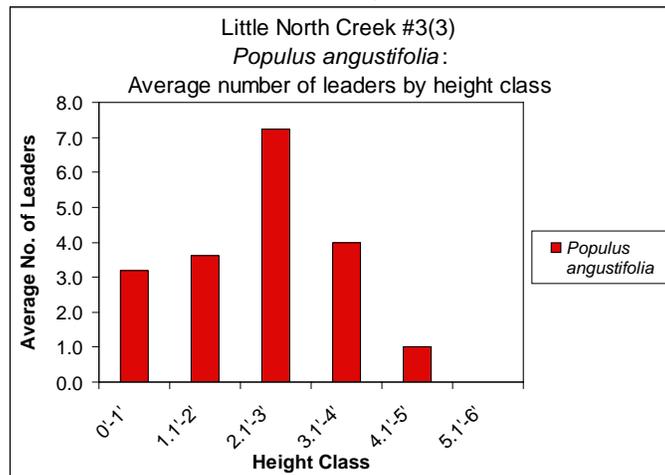
May 8, 2008



October 8, 2008

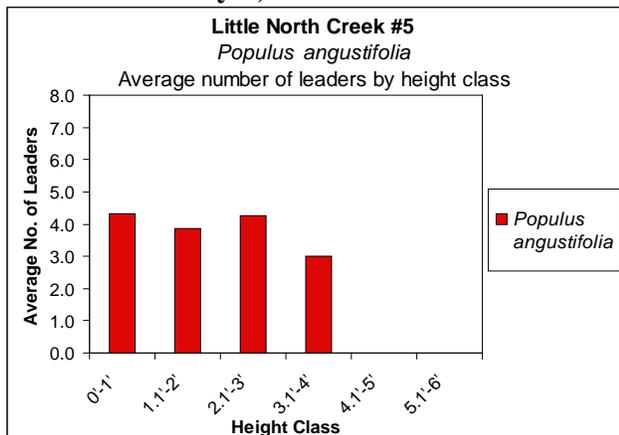


October 7, 2009

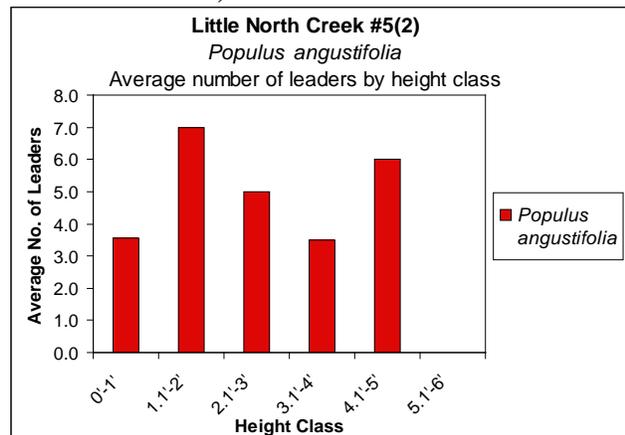


Number of Leaders by Height Class Inside Exclosure (LNC #5)

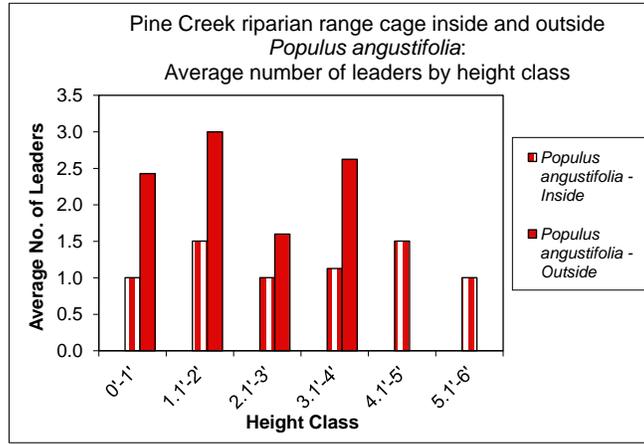
May 5, 2008



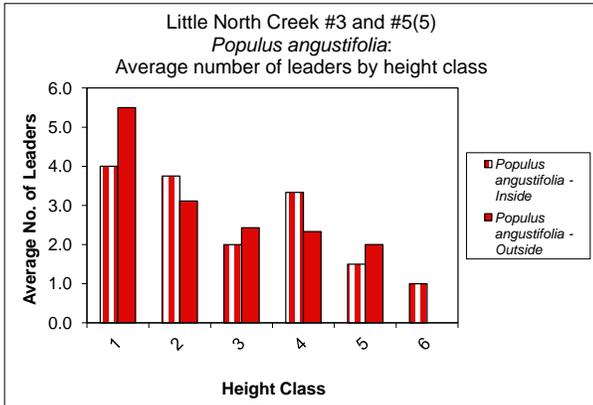
Oct. 8, 2008



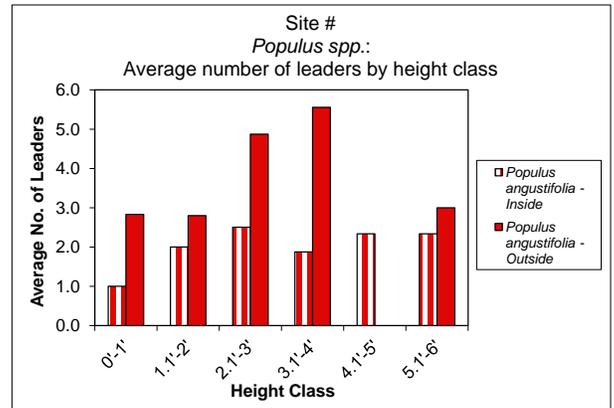
October 9, 2010 Inside and Outside Exclosure
2010



June 2011



September 2011



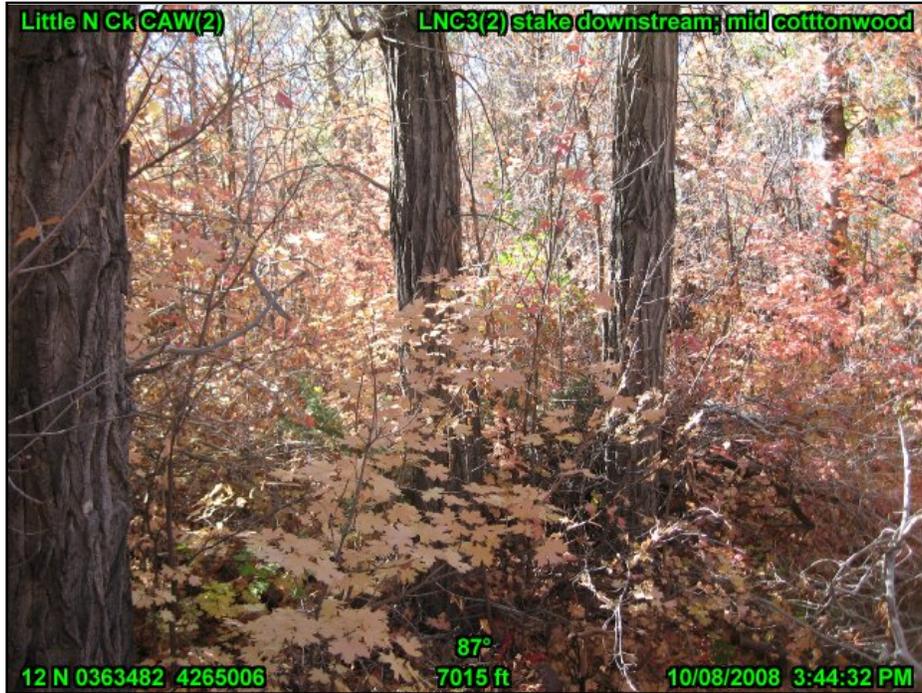


Fig. 1 (October 8, 2008) LNC3 site: bigtooth maple, mature willow, Gambel oak, juniper.



Fig. 2 (10/08/08) Browsed cottonwood 100' from creek.



Fig. 3 (May 8, 2008) Little North Creek is incised 3/-5' at LNC #3.



Fig. 4 (October 8, 2008) Cottonwood on the bank are reached by ungulates walking in the creek.



Fig. 5 (October 8, 2008) Banks of Little North Creek are denuded at locations upstream and downstream of Little North Creek #3.



Fig. 6 (October 8, 2008) Cottonwood browsed to 2.4"



Fig. 7 (October 8, 2008) Browsed rabbitbrush <1' tall.



Fig. 8 (Oct 7, 2009) Typical browsed, bushy cottonwood



Fig. 9 (10/8/08) The south bank, opposite LNC5, is largely denuded.



Fig 10 (10/9/2010) Riparian (cottonwood) exclosure (LNC #5)



Fig 11 (10/9/2010) Inside riparian enclosure.



Fig 12 (10/9/2010) Outside Exclosure (LNC3).



Fig 13 (10/9/2010) Pine Creek /Sulphurbeds outside riparian transect



Fig 14 (10/9/2010) LNC #5 – Inside riparian enclosure



Fig 15 (9/7/2011) Freshly browsed cottonwood outside transect



Fig 16 (9/7/2011) Bushy browsed cottonwood outside transect



Fig 17 (9/7/2011) Browsed cottonwood and excessive bare ground outside transect



Fig 18 (9/7/2011) Incised and bare creek bank



Fig 19 (9/7/2011) Trampled banks, and grazed meadow beyond standard



Fig 20 (9/7/2011) Bare banks, short stubble in riparian area



Fig 21 (9/7/2011) USFS utilization cage near road close to Little No. Creek



Fig 21 (9/7/2011) Trampled, incised and bare banks



Fig 22 (9/7/2011) Cottonwood saplings inside range cage



Fig 23 (9/7/2011) Tall cottonwood leaders inside range cage



Fig 24 (9/7/2011) Young, tall cottonwoods inside range cage



Fig 25 (9/7/2011) Another view of cottonwood range cage

Reference

Petty, Jeff. 2003. Fishlake National Forest 2003 Level II Riparian Inventory: Little North Creek Area. Shell, WY: Shell Valley Consulting.

LITTLE NORTH CREEK #3 (LNC3)

Bank Stability

(1) October 7, 2009

Stable	40%
Recent slumping	40%
Recent shearing	20%

(Oct. 7, 2009) Much of the greenline on Little North Creek along this transect is at the edge of an old flood plain with the stream now flowing about five feet below the flood plain. (Fig. 10 below and Figs 3 and 4 above, from 2008). The bank continues to be trampled and is slumping (Figs. 9 and 10). There is very little vegetation on the steep cut in the streambank. Virtually no graminoids grow along the streambank. Any water from spring run-off or rain would carry sediments off the bare bank into the stream. Thick shrubbery armors the downstream, stable portion of this transect..



Fig. 9 (Oct 7, 2009) Shearing and slumping on bank



Fig. 10 (Oct 7, 2009) Trampling, shearing of bank.

Bank Stability Methodology

Stream bank stability is measured using a modified Daubenmire monitoring frame. Appendix D of Burton, et al, 2007 (Multiple Indicator Method; MIM). The first version described on pages D-1 and D-2 is used for these surveys. The Daubenmire frame indicates five points along the 50 cm frame where stability is assessed every 12.5 cm.

The Daubenmire frame is laid along the riparian greenline. The stability of the bank is assessed in terms of slumping or sloughing of the bank, trampling, bare soil, steepness, ground cover, vegetation, shearing, or any other noticeable change in the bank. Notes are made on unusual conditions.

The five measuring points along the Daubenmire frame are the points where stability is assessed. These points are visually extended from the frame on the greenline to the point where the extension hits the edge of the water or the scour line whichever comes first.

Contrary to MIM, we include impacts of both present and past years, as the two are often a judgment call, and both may be affecting riparian functioning. We note when the impacts are clearly not current year.

Reference

Burton, TA, ER Cowley, and SJ Smith. 2007. *Monitoring Stream Channels and Riparian Vegetation—Multiple Indicators*. Idaho Technical Bulletin 2007-01, BLM/ID/GI-07/001+1150. April.

**LITTLE NORTH CREEK #3 and #5 (LNC3, LNC 5)
Riparian Grass/Grasslike Utilization**

(2) October 8, 2008

(3) October 7, 2009

(4) October 9, 2010

(5) June 11, 2011

(6) September 7, 2011

Allotment: Pine Creek/Sulphurbeds

Pasture: Little North Creek

Creek/Stream: Little North Creek

2008 Annual Operating Instructions dates of livestock entry/exit: Cattle were scheduled to enter the pasture after leaving Sulphurbeds Pasture (at least by Aug 16), and to remain until allowable use standards were met, or by Sept 30, whichever comes first.

2009 AOI: Aug. 16-September 30 or when utilization standards were met, whichever comes first.

2010 AOI: Aug 16 – September 30, when utilization standards were met (which was to be 30% this year as a result of the Tushar Collaboraion), whichever comes first

Surveyors 2008: O'Brien and Hoskisson

Surveyors 2009: Hoskisson and Chilcoat

Surveyors 2010: Hoskisson/ Wheeler

Syrveyors 2011: Hoskisson/ Young/ Ratcliff

Little North Creek runs roughly southeast to northwest on the western boundary of the Pine Creek/Sulphurbeds Allotment. The canyon bottom has a gentle slope of about 2% in the area of Little North Creek Transect #3. The site is a mix of juniper, bigtooth maple, Gambel's oak and narrowleaf cottonwood (Fig. 1, above).

2008 (LNC#3 Outside exclosure read as a graminoid utilization transect): This transect was read approximately eight days after cattle were to be moved from the pasture. Kentucky bluegrass was the dominant grass, but was sparse; other (unidentified) grasses were encountered (Fig.11) A grass or sedge was encountered within 3" of the transect at 41% of the 110 transect points; forbs were rare. The average height of Kentucky bluegrass was 2.1" (within utilization standard) and the three sedge plants averaged 1.8" (less than the 4" utilization standard).

Grass/Grasslike Utilization: October 8, 2008 LNC #3 (Outside exclosure)											
Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Ave. ht(in) Accessible	N	Ave. ht(in) Inaccessibl e	N	Ave. ht(in) Accessible	N	Ave. ht(in) Inaccessible	N	Ave. ht(in) Accessible	N	Ave. ht(in) Inaccessible	N
2.1"	19	5.2"	11	1.8"	8	3.2"	2	1.8"	3	NA	0

(2008- LNC #5 (read as a graminoid utilization transect before it was enclosed as a range cage)) This transect was read approximately eight days after cattle were to be moved from the pasture. Kentucky bluegrass was the dominant grass, but was sparse; only one other grass was occasionally encountered (likely *Deschampsia caespitosa*, but it is difficult to identify when browsed to 2.5"). No sedges or rushes were encountered.

A grass was encountered within 3" of the transect at 21 of the 125 transect points, i.e., 17% of the time. Most of the ground is bare (Figs. 2,4, and 5, above). The average height of Kentucky bluegrass was 2.1" (within the utilization standard of 1.5"), but many of the grasses were shorter than 1.5" (Fig.

Grass/Grasslike Utilization: 10/10/2008 LNC#5 (Transect, before in enclosure)											
Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Ave. ht(in) Accessible	N	Ave. ht(in) Inaccessible	N	Ave. ht(in) Accessible	N	Ave. ht(in) Inaccessible	N	Ave. ht(in) Accessible	N	Ave. ht(in) Inaccessible	N
2.1"	21	3"	3	1.5"	3	NA	0	NA	0	NA	0

2009 (LNC #3 - read as a graminoid utilization transect): This transect was read approximately seven days after cattle were to be moved from the pasture. As in 2008, the riparian bank is excessively bare (Fig. 12) and graminoids are often less than 2" (Fig. 13; standard is 4") and are generally grazed below the 4" stubble height standard. Plants were encountered at 22% of the points.

Grass/Grasslike Utilization: October 7, 2009 (LNC#3 – Outside transect)												
	Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Graminoids	Ave. ht(in) Access-ible	% pts	Ave. ht(in) Not Access-ible	% pts	Ave. ht(in) Access-ible	% pts	Ave. ht(in) Not Access-ible	% pts	Ave. ht(in) Access-ible	% pts	Ave. ht(in) Not Access-ible	% pts
	1.9	4	4.0	2	3.4	10	4.1	5	-		-	
Other	Forb	1	Bare	18	Rock	1	Litter	59	Lichen, moss, biological crust			0

[Note: LNC #5 transect was not read in 2009 or 2010]

2010 (LNC #3- outside transect, read as a graminoid utilization transect): These data were gathered 9 days after the cattle were to have exited from this pasture. The height of the grasses and sedges along LNC#3 in 2010 was substantially greater than in previous years, likely as a result of the utilization of this pasture being set at 30% (as opposed to 50% as in previous years). Kentucky bluegrass averaged almost 18" in height in 2010 as opposed to right around 2 inches in 2008 and 2009. Further, bare ground also was also less in 2010 (13%) than in 2009 (18%).

Plants were encountered only 18% of the time along the transects. Much of the ground cover was litter (69%), although newly fallen leaves in the fall season often covered bare ground underneath. Bare ground was encountered 13% of the time.

Grass/Grasslike Utilization: October 9, 2010 (LNC #3 – Outside transect)												
	Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Graminoids	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts
	17.6	4.9	22.6	3.1	17.0	0.9	0.0	0.4	4.4	4.9	16.3	1.3
Other	Forb	2	Bare	13	Rock	0	Litter	69	Lichen, moss, biological crust			0

2011 LNC #3 - outside transect, read as a graminoid utilization transect): Data were gathered in mid June prior to cattle entry as well as early September – almost 2 months following cattle exit (according to scheduled 2011 AOD). LNC3 is largely covered by thickets of big tooth maple (*Acer grandidentatum*) interspersed with openings and a small meadow opening within the area that is directly adjacent to Little North Creek (see photos 16 and 17). June data show relatively tall grasses and sedges and rushes averaging about 6” in height. September data show both Kentucky bluegrass and sedges and rushes grazed beyond standard. Bare ground increased June to September (16% to 44%) and litter decreased (82% to 59%) as well, likely as a result of the removal of vegetation from grazing and trampling.

Grass/Grasslike Utilization Outside: June 11, 2011												
	Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Graminoids	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts
	10.8	3	14.7	4	10.6	7	11.3	5	6.5	2	6	1
Other	Forb	17	Bare	16	Rock	N/A	Litter	82	Lichen, moss, biological crust, water			2

Grass/Grasslike Utilization Outside: Sept. 7, 2011												
	Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Graminoids	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts	Ave. ht(in) Access- ible	% pts	Ave. ht(in) Not Access- ible	% pts
	1.7	4	5.8	7	2.5	3	N/A	N/A	1	3	N/A	N/A
Other	Forb	1	Bare	44	Rock	N/A	Litter	59	Lichen, moss, biological crust, water			N/A

2011- LNC #5 – inside range cage - read as a graminoid utilization transect): The 16' X 16' cottonwood enclosure has very little vegetation cover. Three grasses and an aster were intercepted along the transects, but other early seral forbs (e.g. chickweed, peppergrass and prickly lettuce) were also present in the range cage. Throughout the year, litter cover increased with a corresponding decrease in bare ground.

Grass/Grasslike Utilization Exclosure: June 11, 2011												
	Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Graminoids	Ave. ht(in) Accessible	% pts	Ave. ht(in) Not Accessible	% pts	Ave. ht(in) Accessible	% pts	Ave. ht(in) Not Accessible	% pts	Ave. ht(in) Accessible	% pts	Ave. ht(in) Not Accessible	% pts
	N/A		N/A		N/A		unknown	5	N/A		N/A	
Other	Forb	21	Bare	51	Rock	3	Litter	41	Lichen, moss, biological crust, water			N/A

Grass/Grasslike Utilization Exclosure: Sept 7, 2011												
	Kentucky Bluegrass (<i>Poa pratensis</i>)				Other Grasses				Sedges and/or Rushes			
Graminoids	Ave. ht(in) Accessible	% pts	Ave. ht(in) Not Accessible	% pts	Ave. ht(in) Accessible	% pts	Ave. ht(in) Not Accessible	% pts	Ave. ht(in) Accessible	% pts	Ave. ht(in) Not Accessible	% pts
	N/A		5	4	N/A		15	7	N/A		N/A	
Other	Forb	4	Bare	26	Rock	4	Litter	69	Lichen, moss, biological crust, water			N/A

Methodology note

2008 method: The average height (inches) of a grass or sedge was measured every 2' from the creek (0') to 48' along the five browse transects. Kentucky bluegrass (KBG) was recorded separately from other grasses, as a Fishlake NF stubble height standard of 1.5" is applied to KBG rather than 4" for other hydric grass/grasslike species.¹

¹ The four inch stubble height for hydric (i.e., adapted to a wet, but not flooded habitat) plants is part of the allowable forage utilization criteria that were revised through a Fishlake National Forest Plan amendment in 2002. These revised forage utilization criteria prescribe allowable use levels for both upland and riparian sites. As the Fishlake NF explains this: "The description for riparian areas is a uniform 4" stubble height. Reaching the 4" stubble height triggers the time to move livestock, either between units or off the allotment. These criteria allow no manipulation to plan use of expected regrowth—once the 4" stubble height is reached, livestock are moved, without the opportunity for twice-over use. Livestock are moved to the next pasture or removed from the allotment when any utilization threshold (upland forage utilization, stream bank alteration, riparian forage utilization, riparian vegetation stubble height, or riparian woody browse utilization) is reached. Meeting or exceeding one of these threshold levels initiates a move of livestock." (USFS 2006)

The droop height of plants accessible to large ungulate grazing was recorded separately from the droop height of plants inaccessible to grazing, e.g., at the base of a rock or under a shrub.

2009 method changes: In 2009, plants or ground cover were recorded on five point-intercept transects (the same transects used as belt transects for browse/height of cottonwood/aspen/willow). The five point-intercept transects at each site were extended only as far back from the bank as the last cottonwood or willow encountered within the 6' belt (i.e., 3' to each side of the point-intercept transect).

When the blade length of a grass or grasslike plant is >4X as long as the droop height, the actual blade length is recorded and reported e.g., a grass with a droop height of 3" and a blade length of 17" would be noted and described in a footnote to the graminoid chart.

2010 method changes: Per a request from the USFS, the main transect (LNC #3) was lengthened to 150' (in comparison to a 100' transect in previous years) to capture more of the riparian area. The five perpendicular transects for graminoid utilization and willow browse were then set at 30' apart.

2011 method changes Bare ground beneath plants is recorded as well as between plants, thus graminoid ground cover totals may exceed 100%.

Fishlake National Forest riparian utilization standards include (USFS 2006):

Riparian hydric species:

4" triggers the time to move livestock between units or off the allotment

Riparian Emphasis Management Areas

6" triggers the time to move livestock between units or off the allotment

Non-hydric Sod-Forming Grass Species in Riparian Areas

1 ½ " Primarily Kentucky bluegrass--Triggers the time to move livestock between units or off the allotment



Fig. 11 (October 8, 2008) Sparse grass; Kentucky bluegrass <1.5" (red mark on yellow tab, which is 4" tall).



Fig. 7 (10/8/2008). LNC#5 - Riparian grasses <1.5" tall (the red line is 1/5" on the 4" tall yellow tab).



Fig.12 (Oct 7, 2009) Excessive bare ground; also note trampled bank in center foreground.

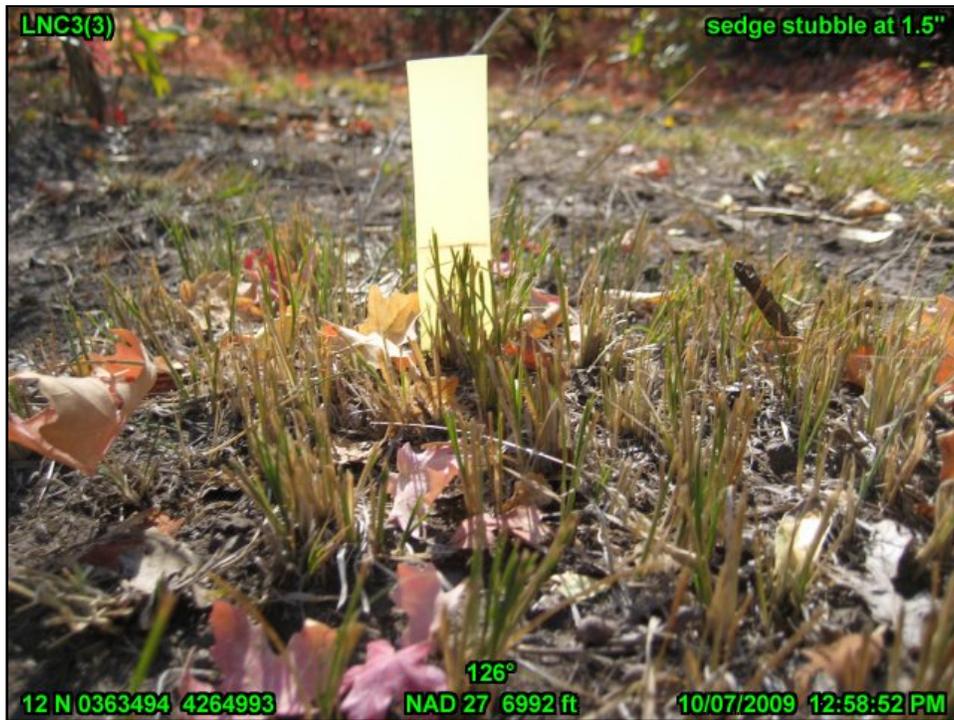


Fig.13 (Oct 7, 2009) Sedge stubble at 1.5'' (4'' tab; line is at 1.5''; stubble height standard for sedges is 4'').



Fig 14 (10/9/2010) Perpendicular transect along LNC#3. Note young, relatively little browsed cottonwoods (Pasture at 30% utilization in 2010)



Fig 15 (9/7/2011) Stubble height <1" in Little North Creek area



Fig 16 (9/7/2011) Grazed beyond standard in Little North Creek riparian area



Fig 17 (9/7/2011) Grazed beyond standard in seep area in Little North Creek

Reference

[USFS] US Forest Service, Fishlake National Forest, Beaver Ranger District. 2006. *Final Environmental Impact Statement Reissuance Of Term Grazing Permits On Eight Cattle Allotments Beaver Mountain Tushar Range*. Beaver, UT.