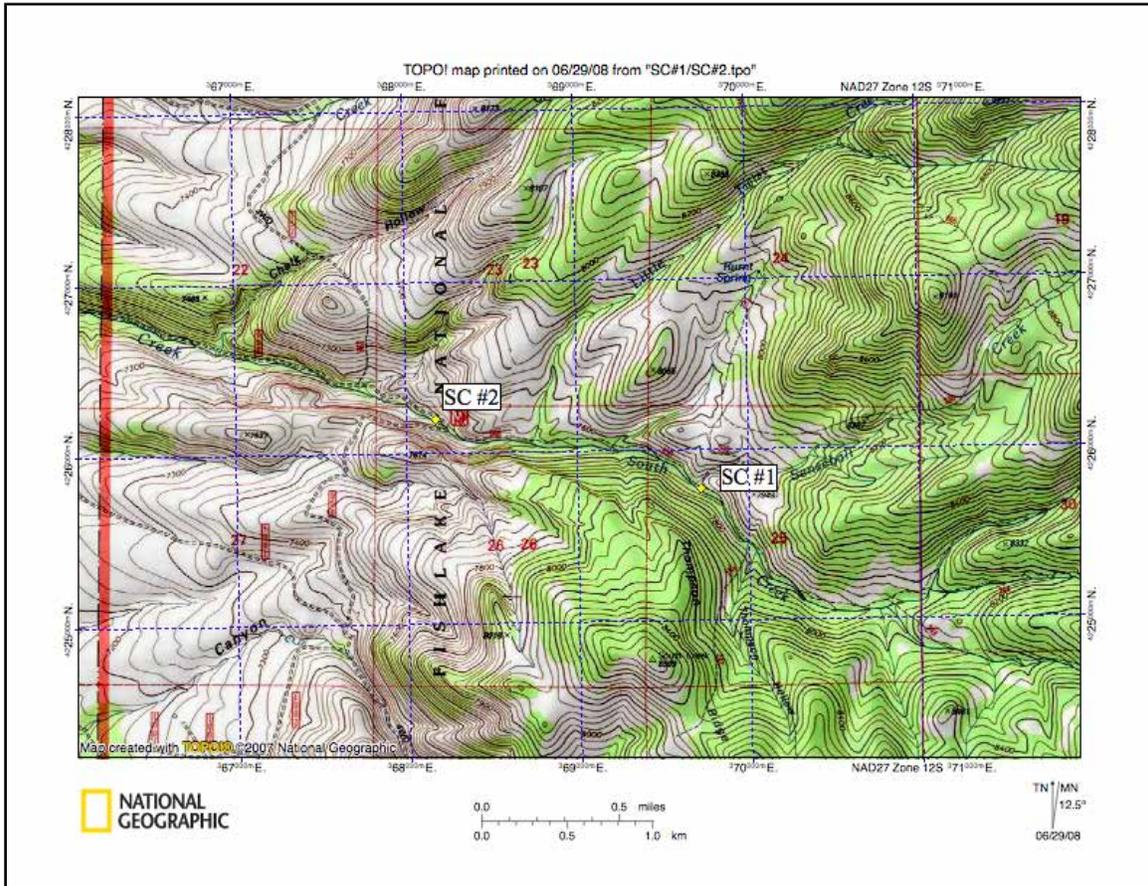


**South Beaver Allotment
South Creek #2(5) (SC2)
Riparian Browse Assessment**

- (1) June 1, 2008
- (2) September 10, 2008
- (3) October 20, 2009
- (4) October 17, 2010
- (5) September 8, 2011**



<p>South Creek #2 (SC2)</p>	<p>Dates and Surveyors:</p> <ol style="list-style-type: none"> (1) 6/1/08: Landrigan/ Hoskisson (2) 9/10/08: O'Brien/Moore/ O'Brien (3) 10/20/09: O'Brien/ Hoskisson/ Albano/ Watters (4) 10/17/2010 Hoskisson/Wheeler (5) 9/8/2011 Hoskisson/Ratcliff/ Young
<p>Fishlake NF/Beaver RD</p>	<p>Allotment: South Beaver Pasture: Big Twist</p>
<p>Stake: 12S E 0368172 N 4226177 NAD CONUS 27 Upstream end, near a large spruce at a bend in the creek NAD83:368107E 4226381N</p>	<p>Elevation: 7,424'</p>

Aspect: SSW (200 degrees)	Animal sign: cattle
Ave. Width of Riparian Area: 32.4'	
Dominant Vegetation: Booth's (<i>Salix boothii</i>), whiplash (<i>S. lucida</i>), coyote (<i>S. exigua</i>) and one other willow are present, Blue spruce, Rocky Mountain juniper, rose, snowberry, big sage, lupine, pinion, mullein, dandelion, Kentucky bluegrass, yarrow, <i>Carex</i> sp. (Section Ovals), Baltic rush, small amount of cheatgrass.	
Other notes: The transect is within reach A33-5 described in the 2003 Level II Riparian Inventory from Shell Valley Consulting (2003). The report notes several problems. (1) "An ATV trail on the south-facing slope is unstable and contributing sediments to reaches A33-4 and A33-6." (2) "All reaches showed a "slight" soil compaction." (3) "The forage trend was "down" on reaches A33-5 and reaches A33-8 through A33-13. All survey areas along this creek experienced heavy grazing, and the stubble height was measured at 3-5 inches." The report made specific recommendations for the ATV trail including rerouting and some closures. The report recommended grazing management changes. The reports stated, "The overall vegetation conditions of the watershed are not conducive to good ecological conditions. The upland slopes near the riparian area have poor herbaceous species composition and low ground cover. Cheatgrass and other annual plants dominate the uplands adjacent to the lower reaches, which lowers the soil's ability to resist erosion. This increases sediment delivery to the stream, shortens the storm response time and increases peak flows, which have more erosive power on the stream channel. Vegetation on the stream is inadequate to maintain bank stability. There is a direct relationship between the low stubble height, and poor riparian vegetation vigor, composition and low plant basal cover... Better livestock management is required if the watershed is to recover to a healthy productive state... There was little evidence that the permittees have spent much time on their allotment herding cattle away from the riparian areas. However, upland forage was scarce as well, leading us to believe that the area is over stocked, especially in note of the past four year drought period."	

South Creek transect #2 lies along the north side of South Creek which flows west, west of Circleville Mountain on the Beaver RD, just before the end of Forest Road 008 in South Creek Canyon. The road crosses the creek just upstream of the transect and ascends the south side of the canyon. There is a dense rose thicket between the road and the transect.

There is a great deal of bare earth in this riparian site (Figs. 1-2, 5). The variety of willows (Booth's, whiplash, coyote, and one other) and presence of *Carex* and *Juncus* indicates the riparian potential of this site, but the stream is incising, and a variety of upland species (rose, mullein, sagebrush, and pinyon pine) of drier soils are also present (Fig. 5). Sagebrush is growing even on the downcut banks of the stream. This indicates a drying of the site or a lowering of the water table. The stream no longer connects with the floodplain.

(1: 6/1/08) This Twist Pasture was to have been rested in 2007, but it was heavily grazed. In 2008 it was again to have been rested, and again was heavily grazed (see 9/10/08 report). As of June 1, 2008 none of the tallest leaders on the six willows encountered in the transect had been browsed, but 40% were dead, likely due to browse in the past. Fifty percent of the subleaders were browsed, and another 31% dead.

We found one 2" willow seedling near the creek. We found one 3' willow with the three tallest leaders dead but with a small shoot near the base. There was extensive browsing of the larger and taller willows particularly from the ground to the 4' level. We listed leaders as dead if we could not determine they had been browsed. Eleven of the 14 tallest leaders were browsed on a willow between 2' and 3' tall and the willow was growing in a stunted bushy manner.

(2: 9/10/08) As of September 10, the site had been grazed heavily with extensive cattle sign. Thirty-eight percent of the tallest leaders were browsed, and 52% browsed or dead; 29% of the subleaders were browsed; 91% browsed or dead. Several of the willows were broken. There is whiplash willow (*S. lucida*) regeneration (see height class chart, p. 4) but 100% of its subleaders are browsed or dead, leaving it unable to grow above browse height

(3: 10/20/09) The AOI for 2009 states, “We will strictly follow the utilization standards in the Forest Plan and will implement appropriate actions if the utilization is exceeded.” Stubble height standards are exceeded on South Creek, which was to have been rested in 2007 and 2008, but was not. In 2009 the Twist Pasture was to have been grazed “June 1 to July 15 or until utilization standards are met.” The three willow <6’ averaged 67% leaders browsed, 100% subleaders browsed (79 subleaders counted; see Fig.7). There was one narrowleaf cottonwood <1’ tall; its leader had not been browsed, nor two of its three subleaders – at least since July. The riparian bank remains denuded in large part (Fig. 8); and sedges are mostly 1”-2.5” (Fig. 9)

(4: 10/17/2010)

In 2010, the Big Twist Pasture was to have been rested. Although there was sign of trespass cattle in some parts of South Creek, the top leaders of both willow species and cottonwood were only lightly browsed at 20-25% in the South Creek #2 transect. However, the willow subleaders were excessively browsed at an average of 81%. This is a slight drop from earlier years. Bare ground remains abundant in the area and the height structure of the willow in the area remains bifurcate in that young and old willow are present (Figs 9 and 10), but very few individuals at intermediate height were found. This signifies that willow are being kept back below browse height limits and may eventually die. Given some unknown amount of cattle use, it remains unclear as to the contribution of wild ungulates and cattle to the willow browse. The tallest leader of the single aspen <6’ was not browsed; 33% of its subleaders were browsed.

(5: 9/8/2011) A riparian fence was built on June 17, three months before this reading. There was no browse on tall leaders, but subleaders were 75% browsed, which is similar to earlier years.. It is not clear whether this is wild ungulate browse earlier in the year. there was also a 23% reduction of the number of cattle on the pasture this year due to a non-use of one permittee. Appropriate levels of recruitment are still lacking. The site may improve over time if the fence is maintained.

Browse

June 1, 2008

South Creek #2 Percent Browsed or Dead Leaders 6 <i>Salix sp.</i> <6' 6 <i>Salix sp.</i> >6' tall: Ave. DBH = 10.2'	
	<i>Salix sp.</i>
% tall leaders browsed	0
% tall leaders browsed or dead	40
% subleaders browsed	50
% subleaders browsed or dead	81.8

September 9, 2008**South Creek #2(2)****Percent Browsed or Dead Leaders**3 *Salix* sp., 5 *S. exigua*, 10 *S. lucida* <6'4 *Salix* spp. >6' tall: Ave. width at base 2.4'

	Total willow	<i>Salix</i> sp.	<i>Salix boothii</i>	<i>Salix exigua</i>	<i>Salix lucida</i>
% tall leaders browsed	38.1	33.3	50.0	66.7	20.0
% tall leaders browsed or dead	52.4	33.3	100.0	83.3	30.0
% subleaders browsed	28.6	31.3	0.0	25.0	57.1
% subleaders browsed or dead	92.1	100.0	0.0	97.2	100.0

October 20, 2009**South Creek #2(3)**1 *Salix boothii*, 2 *S. lucida*, 1 *Populus angustifolia*, 1 dead *Salix* sp. <6'1 *Salix boothii*, 3 *S. lucida* >6': Ave. width 2.6'1 *Populus tremuloides* >6', DBH 6"

	Total willow	<i>Salix boothii</i>	<i>Salix lucida</i>	<i>Populus angustifolia</i>
% tall leaders browsed	66.7	100.0	50.0	0.0
% tall leaders browsed or dead	66.7	100.0	50.0	0.0
% subleaders browsed	100.0	100.0	100.0	33.3
% subleaders browsed or dead	100.0	100.0	100.0	33.3

October 17, 20103 *Salix lucida* >6': Avg. width 34"**South Creek #2(4)**10 *Salix* sp./*lucida*, 1 *Populus tremuloides* <6'

	Total willow	<i>Salix</i> sp.	<i>Salix lucida</i>	<i>Populus tremuloides</i>
% tall leaders browsed	20.0	25.0	0.0	0.0
% tall leaders browsed or dead	20.0	25.0	0.0	0.0
% subleaders browsed	80.8	79.2	100.0	50.0
% subleaders browsed or dead	80.8	79.2	100.0	50.0

September 8, 2011

South Creek #2 (5)

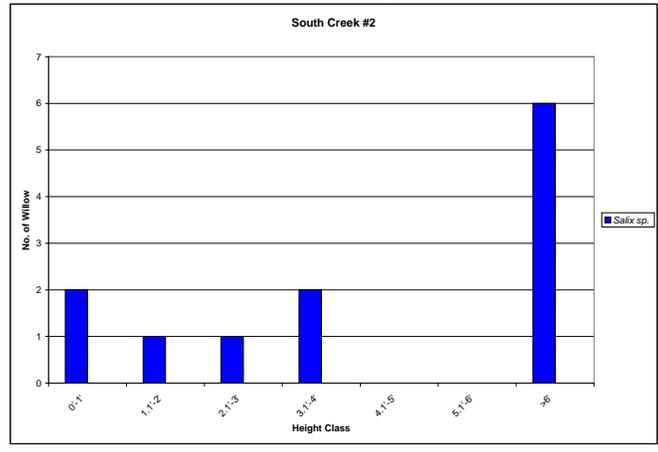
3 *Salix lucida* >6'13 *Salix lucida* <6'

	<i>Salix lucida</i>
% tall leaders browsed	0.0
% tall leaders browsed or dead	0.0
% subleaders browsed	75.0

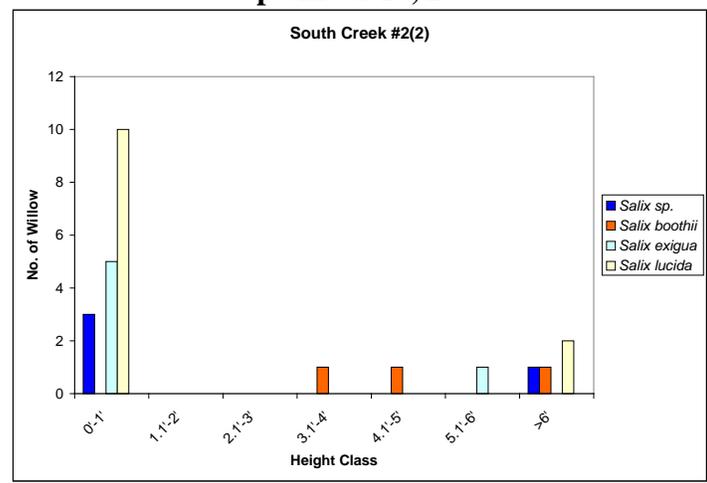
% subleaders browsed or dead	75.0
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Height Distribution

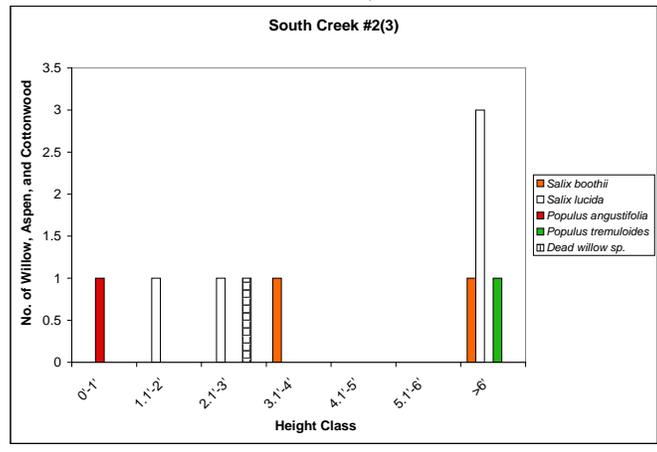
June 1, 2008



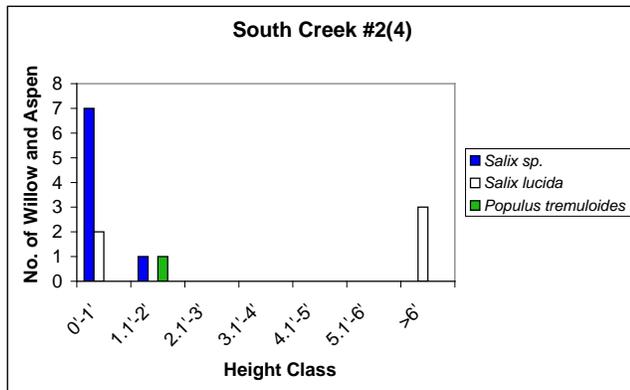
September 10, 2008



October 20, 2009



October 17, 2010



September 8, 2011

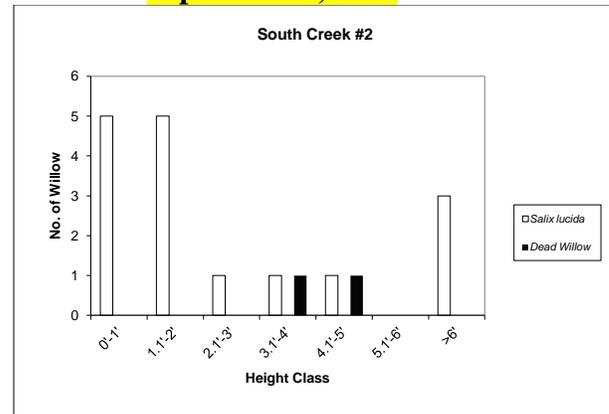


Fig. 1. (6/1/08) General appearance of the most open part of the transect. Sagebrush grows between the willows and the stream. (UTM 12 S 368096 4226373)



Fig. 2. (6/1/08) View of transect from upstream end (staked).
(UTM 12 S 368105E 4226386N)



Fig. 3. (6/1/08) Cross transect D of the 100' transect. Most of the willows are >10' tall. Note the lack of greenery on the lower half of the willows
(UTM 12 S 368105E 4226386N)

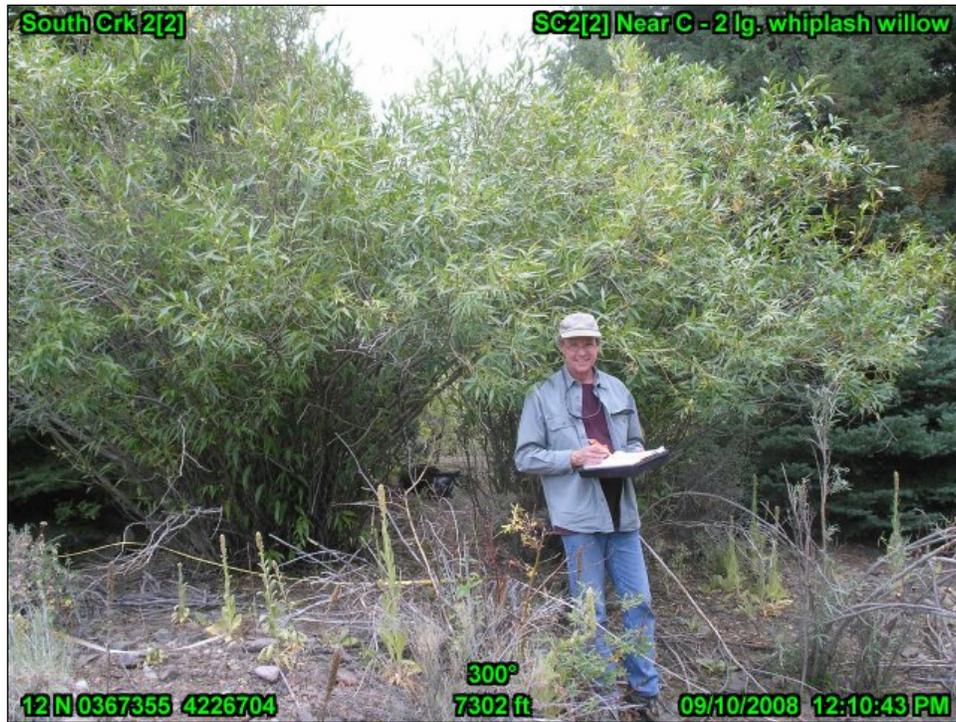


Fig. 4 (9/10/08) Two large whiplash willow.



Fig. 5 (9/10/08) Booth's willow growing among upland lupine and exotic woolly mullein.



Fig. 6 (10/20/09) Denuded riparian bank



Fig. 7 (10/20/09) Heavily-browsed whiplash willow.



Fig. 8 (10/20/09) Sedges on bank are not 4" tall.



Fig 9 (10/17/10) Small, but not young willows on the bank of South Creek signifying repeated browsing



Fig 10 (10/17/2010) Overview of South Creek #2 area – upland species interspersed with riparian species.



Fig 11 (9/8/2011) New drift fence along South Creek



Fig 12 (9/8/2011) ORV route close to South Creek is a source for sediment in the creek



Fig 13 (9/8/2011) Proximity of ORV route to South Creek as source of sediment



Fig 14 (9/8/2011) Newly routed ORV route across a bridge appears to be little used compared to the route through the creek. Signs/rocks are needed



Fig 15 (9/8/2011) South Creek #2



Fig 16 (9/8/2011) Excessive bare ground along South Creek #2



Fig 17 (9/8/2011) Bare ground in South Creek #2 area

Reference

Shell Valley Consulting. 2003. Big Twist Creek Area Level II Riparian Inventory. Shell Valley Consulting: Shell, WY.