

Location ID	Watershed	Date	Lat	Long	Elevation	Photo Nos	Notes
						Roll 1	
WF1	West Fork Blacks Fork	9/8/1999	40 48.719	110 40.634	11044	2,3,8	12 sheep here; shoreline soils groundcover 65% veg, 30% rock, 5% bare; on side slopes where erosive forces greater, approximately 50% bare with remainder rocks and vegetation cover
WF2	West Fork Blacks Fork	9/8/1999	40 49.149	110 39.740		10, 11, 12, 13, 14, 15	West Fork, view downstream showing eroded banks where sheep water, upland portion of meadow with about 50% bare ground, view along small tributary, views downstream of WFBF showing old fence, sluffing banks. All banks show breakdown and hoof shear. No undercut banks or instream habitat for cutthroats. Overhanging grasses lacking.
WF3	West Fork Blacks Fork	9/9/1999	40 47.087	110 39.764		21, 22, 23, 24, 25	Upland with approx 50% bare, 15% rock, 10% litter, 10% sedges/grasses. Views up and down WFBF showing browsed willows, streambank erosion from high flood forces, and upland/wet meadow transition with upland plants consumed, sparse sedges/rushes remaining in patches. Trail damage at stream crossing on main trail.
						Roll 2	
WF4	West Fork Blacks Fork	9/10/1999	40 45.027	110 40.372	10900	14, 15, 16, 17, 18, 22, 23, 24, 25.	In pasture 4A near outlet of lake EJOD. Views of bench from west to north and typical upland ground cover with about 50-60% bare soil, grass 5%, sedge 5-10%, litter 1%, forb 5-10%, rock 5%. Also view across to 4B and Red Knob. Small outlet stream showing sedges along stream margins not heavily grazed, but uplands severely grazed. Views of Lake Ejod showing bare eroding upland slopes, lake being filled with sediment from these slopes and lack of vegetation to buffer watershed erosion during runoff
WF5	West Fork Blacks Fork	9/10/1999	40 44.721	110 40.641		19, 20	Representative ground cover in uplands near Dead Man Lake, estimate 60% bare, 15% rock, 15% grass/sedge, 10% forb. Trace litter.
						Roll 3	
WF6	West Fork Blacks Fork	9/10/1999	40 45.398	110 40.264		1	Mid slope location illustrating bare soil at estimated 50%, soil pedestaling, low productivity and high rock cover.
WF7	West Fork Blacks Fork	9/11/1999	40 45.591	110 39.129		4,5	Unit 4B on way to Red Knob. Photos show upland with estimated 70% bare ground, 15% rock, 15% forbs, trace grasses, litter. Soil erosion and pedestaling evident on slopes.
WF8	West Fork Blacks Fork	9/11/1999	40 45.831	110 38.786		8,9,10	Crossing Unit 4B below Red Knob on way to pass, near rock cairn. View back to Unit 4A and uplands in Unit 4B showing heavy use and bare ground. Small stream trampled and widened with no defined channel. Benches about 75% upland and 25% wet meadow complexes. Photo 16 from near Red Knob pass on trail. Photo 18 across to Lake Ejod and Dead Horse.
	West Fork Blacks Fork	9/11/1999	no gps point			16, 18	Photo 16 from near Red Knob pass on trail. Photo 18 across to Lake Ejod and Dead Horse.
	West Fork Blacks Fork	9/11/1999	no gps point			19, 20, 21	View from ridge looking down into unnamed basin in Unit 4B. Shows barren uplands interspersed with small stream and wet meadow complexes. Little forage here.
WF9	West Fork Blacks Fork	9/11/1999	40 46.202	110 38.072		23, 24	Closer view of unnamed basin with barren uplands, high percent bare ground in uplands and interspersed wet meadows with greater ground cover. Everything except sedges/rushes heavily grazed with little residual.
						Roll 4	

WF10	West Fork Blacks Fork	9/11/1999	40 46.392	110 38.166		1, 2, 4, 5	Closer view of denuded uplands with little residual vegetation. Stream bank heavily trampled and eroding from sheep watering. Herder tie stake for horses in wet meadow.
	West Fork Blacks Fork	9/12/1999	no gps point			15, 16, 17, 18, 19, 20, 21, 22	Photos of trail damage in wilderness from trailing sheep and herder's horses, road damage and denuded lodgepole understory.
WF11	West Fork Blacks Fork	9/12/1999	40 52.840	110 40.033		23, 24, 25	Photos 23 - 25 of small meadow along trail showing lack of cover, soil pedestaling.
						Roll 1	
WF12	West Fork Blacks Fork	9/20/2001	40 52.822	110 40.012		23, 24, 25	Unit 1 ground cover transect. 67.5% bare, 3.63% litter, 3.5% rock, 2.13% grass, 23.25% forbs. Residual vegetation = 176.5 lb/acre. Dandelion, yarrow, dry and pedestaled.
						Roll 2	
WF13	West Fork Blacks Fork	9/21/2001	40 45.45	110 40.41		1, 2, 3, 4, 5	Photos across bench in Unit 4A, heavily grazed and barren. Pockets of good ground cover in low lying, wet areas, not uplands. Views across to Unit 4B and Red Knob.
WF14	West Fork Blacks Fork	9/21/2001	40 45.43	110 40.383	10957	6, 7, 8	Unit 4A #1 ground cover transect. 40.5% bare, 19.13% litter, 2.13% rock, 1.38% crust, 13.13% grass and sedge, 23.75% forb. Residual 266.1 lb/acre. Sedges, antenarria, cinquifol or potentilla?, grasses, rushes,
WF15	West Fork Blacks Fork	9/21/2001	40 45.643	110 40.05		9, 10, 11, 12, 20, 21	Unit 4A #2 ground cover transect, heavily grazed and barren. 63.5% bare, 3.63% litter, 15% rock, 0.88% crust, 3.38% grass and sedge, 13.63% forbs. Residual vegetation 127.9 lb/acre. Photos 20, 21 taken on the 22nd looking back at this slope from a slope on the east side of the WFBF showing extensive area of bare and eroding hillside.
WF16	West Fork Blacks Fork	9/22/2001	40 45.661	110 39.582	10534	17, 18, 19	Unit 4B ground cover transect. 25.74% bare, 20.53% litter, 7.34% rock, 13.57% crust, 14.07% grass and sedge, 18.76 forb. Residual vegetation = 151.0 lb/acre
	West Fork Blacks Fork	9/22/2001				24	Stream bank damage adjacent to Unit 3 ground cover transect location
						Roll 3	
WF17	West Fork Blacks Fork	9/22/2001	40 46.43	110 39.587		1, 2, 3, 4, 5	Unit 3 ground cover transect. 48.05% bare, 9.35% litter, 7.09% rock, 1.39% crust, 8.82% grass and sedge, 25.29 forb. Residual vegetation 133 lb/acre, stubble height of grasses <1", sedges not eaten. Forbs prostrate forms.
WF18	West Fork Blacks Fork	9/23/2001	40 48.836	110 39.79		8, 9, 10	Heavy use in meadow and trampled, eroding stream bank of WFBF.
	West Fork Blacks Fork	9/23/2001				11, 12, 13	Unit 1 ground cover location overview.

BF1	Burnt Fork	9/2/2001	40 50.416	110 07.661		6, 7, 8, 9, 10, 11, 21, 23	Meadow and tributary of Burnt Fork. Forest understory, upland meadow and wet meadow near 100% ground cover after 20+ years with no livestock. Stream banks gradually building as exhibited by sedges and old hoof shear that is healing along margins. Undercut banks developing and stream substrate clean and near sediment free.
						Roll 1	
	Middle Fork Beaver Creek	8/30/2000	no gps point			4	At footbridge lower end of Long Meadow. Healthy stream with undercut banks, noted numerous fish.
MF1	Middle Fork Beaver Creek	8/30/2000	40 52.19	110 13.71		5, 6, 7, 8, 10, 25	Long Meadow ground cover transect. 0% bare, 10.25% litter, 1.13% rock, 8.13% crust, 61.25% grass, 19.25% forbs. Vegetation = 630.1 lb/acre. Photo 10 of adjacent lodgepole understory with complete ground cover and healthy vegetation. Photo 25 taken on 9/4 of ground cover at transect.
	Middle Fork Beaver Creek	8/30/2000	no gps point			11, 12, 13	Photos of Middle Fork downstream of Long Meadow footbridge showing lush understory plant community and lack of scouring on stream banks as in WFBF.
	Middle Fork Beaver Creek	9/1/2000	no gps point			17, 18	Beaver Lake and small inlet stream with lush plant communities after 20+ years rest from livestock.
						20	At outlet of Coffin Lake. Surveyed forest understory and meadows around Beaver Lake and on way to and from Coffin Lake. Ground cover near 100% in all areas except on steepest slopes.
						Roll 2	
MF2	Middle Fork Beaver Creek	9/2/2000	40 50.769	110 13.279		1	Small, unnamed tributary of Mfork. Showing undercut bank with overhanging grasses, streambank stabilized with vegetation and mosses.
	Middle Fork Beaver Creek	9/3/2000	no gps point			2, 3, 4, 5, 6, 7	Photos of upper basin showing good vegetation cover. Photo 2 is telephoto of steep slope with 12 elk grazing. Note that even at this distance, can tell vegetation cover is good, no dominant signs of bare ground as occur on slopes such as these in WFBF.
MF3	Middle Fork Beaver Creek	9/3/2000	40 50.144	110 12.330		8, 9, 10, 11, 12	Upper Basin ground cover transect location 1. Photos are north, west, south, east from plot center. Photo 12 of typical ground cover. 0.13% bare, 17.98% litter, 8.23% rock, 18.53% crust, 35.00% grass, 19.87% forbs. Vegetation = 355.8 lb/acre.
MF4	Middle Fork Beaver Creek	9/3/2000	40 50.335	110 12.479		13, 14, 15, 16, 17, 18	Upper Basin ground cover transect location 2. Photos are north, west, south, east from plot center. Photo 17 of ground cover. Photo 18 of upland forest understory on way back to Beaver Lake from Upper Basin ground cover sites. 0.38% bare, 17.63% litter, 5.75% rock, 14.5% crust, 46.88% grass, 14.88% forbs. Vegetation = 609.3 lb/acre.
	Middle Fork Beaver Creek	9/4/2000	no gps point			21, 22, 23	Main Middle Fork Trail just below Beaver Lake on way to Long Meadow. Compare narrow bare strip of trail and vegetated stream crossing here to those in WFBF that are wide and barren.
MF5	Middle Fork Beaver Creek	9/14/2005	567176 E	4520082 N		151, 152	Show healing of erosion channels after 20 years rest from sheep grazing.
						Roll 1	

EF1	East Fork Blacks Fork	9/9/2002	40 50.238	110 34.939		5, 6, 7, 8, 9, 10, 11	View of east facing slope showing vegetation growing between talus slopes. Photos 8, 9 illustrating potential ground cover near 100% in vegetated patches on lower, more moist portion of slope. Here estimated ground cover is 50% rock, 15% crust, 20% grass/sedge, 5% forb. Photos 10 - 11 of upper slope showing results of sheep use. Estimated ground cover here is 50% rock, 45% bare with remainder vegetation. Plants include yarrow, thistle, sedges.
EF2	East Fork Blacks Fork	9/9/2002	40 50.137	110 35.256		12, 13	North of Tokewana Peak in upland forest opening. Heavily used with estimated ground cover 75% bare, 20% rock and grass/forb 5%. Yarrow is dominant forb. Soil pedestaling evident. View across to unnamed peak showing what appears to be a barren area on top. Nearby moraine has no vegetation.
EF3	East Fork Blacks Fork	9/9/2002	40 50.362	110 35.384		14	Forest understory showing ground cover. Estimated 2% rock, 2% grass/sedge, remainder bare ground at 95%. Soils pedestals and sheet erosion evident.
EF4	East Fork Blacks Fork	9/9/2002	40 50.517	110 35.458		15, 16, 17	Consequences of grazing on steep slopes. Fresh sheep sign and smell lingers. Shows erosion, pedestaling, headcutting and gullies formed down gradient in photo 17.
EF5	East Fork Blacks Fork	9/9/2002	40 50.475	110 35.216		18	Photo 18 shows heavy sediment load in stream from slope and gully erosion. Sheep have trampled the area around this stream and small pond. The small pond is almost filled with silt.
EF6	East Fork Blacks Fork	9/11/2002	40 46.895	110 34.080		21	Severe bank erosion from sheep trampling and grazing for several hundred feet.
EF7	East Fork Blacks Fork	9/11/2002	40 46.787	110 34.041		22, 23	Heavy sediment load in stream, bank scour from flash flooding and high flows. Adjacent uplands estimated at 50% bare ground from grazing.
EF8	East Fork Blacks Fork	9/11/2002	40 46.777	110 34.218		24	Uplands showing effects of sheep grazing. Estimated bare 60%, rock 20%, 5% crust, 15% grass/forb.
EF9	East Fork Blacks Fork	9/11/2002	40 46.669	110 34.204		25	Forest opening showing condition of openings and understory heavily grazed. Estimated 50% bare, 20% rock, 20% moss/lichen, 10% grass/forb.
						Roll 2	
EF10	East Fork Blacks Fork	9/11/2002	40 46.433	110 34.242		1, 2, 3, 4, 5	Stream carrying heavy silt load from yesterday rain. Adjacent sideslope eroded by grazing. Upstream showing active headcutting, bare and eroding slopes feeding directly into stream. Very unstable soils that are easily displaced by walking, yet sheep are grazed across them. Thistle common, little else growing in upland.
EF11	East Fork Blacks Fork	9/11/2002	40 45.941	110 33.508		6, 7, 8	At toe of slope showing heavy grazing. Stubble heights of all vegetation except rushes/sedges <1", even in mesic sites. Upland ground cover estimated at 40% bare, 40% rock, 10% crust, 10% grass/forb. No runoff protection. Broader view across basin reveals consistent "mowed" appearance similar to WFBF.
EF12	East Fork Blacks Fork	9/11/2002	40 46.386	110 33.583		9, 10, 11, 12	Active headcut and gully erosion in mesic portion of meadow stemming from heavy use of slopes leaving stubble <1". Photo 11 provides a view across the basin showing the heavily used and "mown" appearance with uplands .
	East Fork Blacks Fork	9/13/2002	no gps point			17	View across east basin from north ridge showing slopes and meadows below Mt. Lovenia and Wasatch. Can see eroding slopes and intermixed, mesic meadow areas.
EF13	East Fork Blacks Fork	9/13/2002	40 47.364	110 33.961	10954	18, 19	Along north side of east basin in forested area. Heavy sheep use as evidenced by manure and trailing. Sheet erosion, pedestals and gully in early stage of forming. Estimated ground cover 65% bare, 15% rock, 5% sedge/grass, 5% forb, 5% litter, 10% moss/lichen.

EF14	East Fork Blacks Fork	9/14/2002	40 46.357	110 34.112	11073	20, 21, 22, 23, 24, 25	East Fork East Basin ground cover plot GC1. Photos at 0, 144, 288 degrees (p20, 21, 22) along transects. Photos 23, 24 of ground cover, soil pedestaling and erosion. Photo 25 overview north. Ground cover 40% bare, 7% litter, 14% rock, 17.1% crust, 8.9% grass, 13% forbs. Vegetation = 90.8 lb/acre.
						Roll 3	
EF15	East Fork Blacks Fork	9/14/2002	40 46.152	110 33.478	11127	1, 2, 3, 4	East Fork East Basin ground cover plot GC2. Photos at 0, 144, 288 degrees (p 1, 2, 3) along transects. Photo 4 of ground cover. Ground cover 27.8% bare, 17.5% litter, 16.9% rock, 1.8% crust, 17.9% grass, 18.1% forbs. Overland flow and small erosion channels evident. Stubble height <1" Vegetation = 309.9 lb/acre.
EF16	East Fork Blacks Fork	9/14/2002	40 47.337	110 34.563	10543	5, 6, 7, 8, 9	East Fork showing severe bank erosion from sheep trampling and high flows. This is above any place where historic tie-hacking could occur and is due to loss of bank cover combined with high flood forces from the upper basin where residual vegetation is grazed to the ground on slopes and uplands.
EF17	East Fork Blacks Fork	9/15/2002	40 46.630	110 36.379	11380	23, 24, 25	View across EFBF upper basin below Mt. Lovenia and Red Knob Pass. Shows "mown" uplands from heavy grazing, bare slopes and erosion into stream channel.
						Roll 4	
EF18	East Fork Blacks Fork	9/15/2002	40 46.613	110 36.618	11412	1, 2	EFBF upper basin, closeup of stream banks showing severe erosion and heavy use on uplands, leaving little for runoff and erosion protection during snowmelt and storms.
LF1	Lake Fork Basin	9/16/2002	40 46.170	110 37.482	12235	3, 5, 6, 7	At Red Knob Pass. Photo across upper WFBF to west showing steep erodible slopes not suitable for sheep grazing or trailing. Photo 5 shows consequences of sheep trailing across this high elevation area with sensitive soils and short growing season. Estimated ground cover 70% bare, 20% rock, remainder vegetation and litter. Photos 6 and 7 panorama of upper Lake Fork Basin showing denuded, steep slope in foreground and large expanses of upland with little vegetation. Small, wetland areas lie between these
LF2	Lake Fork Basin	9/16/2002	40 45.131	110 37.961	11288	10, 11, 12, 13, 14	Upper Lake Fork watershed ground cover transect. Photos show belt at 0, 144 and 288 degrees with photo of ground cover. Transect included some wet meadow thus underestimated upland bare ground. Soil pedestals and erosion flow paths evident. Ground cover 42% bare, 27.8% litter, 6.6% rock, 0.8% crust, 14% grass/sedge, 13.9 forb. Vegetation = 91.3 lb/acre. Photo 14 shows steep slope below Red Knob Pass with loose erosive soil having lost vegetative cover from sheep trailing and grazing.
LF3	Lake Fork Basin	9/16/2002	40 45.687	110 38.002	11937	15, 16	View of steep slope below Red Knob Pass showing thistle and lack of herbaceous cover. Soil loose and easily displaced downslope by trampling. View across Lake Fork Basin showing moraines with little vegetation cover and that "mown" appearance from heavy sheep grazing. Estimated ground cover 55% bare, 45% rock, 5% vegetation and litter.
LF4	Lake Fork Basin	9/16/2002	40 46.010	110 37.781	12070	17, 18	Further up slope below Red Knob Pass showing thistle, lack of herbaceous cover and loose, shifting soil. View across Upper Lake Fork showing barren lands and little vegetation remaining after grazing.
EF22	East Fork Blacks Fork	9/17/2002	40 47.953	110 36.970	11192	21	Typical upland slope with bare ground, soil pedestals and evidence of sheet erosion. Active headcut and gully in background.
EF23	East Fork Blacks Fork	9/17/2002	40 48.081	110 36.981	11272	22, 23, 24, 25	EFBF West Basin ground cover location GC1. 29% bare, 25.6% litter, 10.5% rock, 1.6% crust, 18.1% grass/sedge, 15.1% forb. Lots of sheep manure, pedestals, sheet erosion, headcuts in this area, with loose, erodible soil. Yarrow a dominant forb. Vegetation = 193.1 lb/acre

						Roll 5	
EF19	East Fork Blacks Fork	9/16/2002	40 47.999	110 36.856	11170	1, 2, 3	Vicinity of EFBF West Basin ground cover location showing erosion gullies, headcutting, draining the site
EF20	East Fork Blacks Fork	9/16/2002	40 47.790	110 36.749	11025	4, 5	Side slope denuded by sheep, sediment feeding into stream. Solar Salt bag in stream.
EF21	East Fork Blacks Fork	9/16/2002	40 47.606	110 36.649	10929	6, 7	Hoof shear, bank trampling and stream widening
	East Fork Blacks Fork	9/17/2002	no gps point			13, 14, 15	Meadow south of ford on EFBF showing heavy grazing, bare soil.