

14.01
#6

INFORMATION SUMMARY

Salmon-Moose Fuels Reduction Project
Soil Assessments conducted in 2003 and 2004
Karen Gallogly and David Deschaine

Soil Condition Evaluation and Qualitative Soil Management Monitoring of 11 previously harvested units within the project area.

475 acres within the proposed activity areas have been previously harvested or thinned. Examinations conducted on approximately 265 acres.

Assessment methods include: 1.) observed – estimates on soil health were made from visual observations, 2.) traversed – on-site walk through, direct soil contact, grab samples, quick pits, some core samples collected for bulk density measurements.

9 of the 11 sites were in satisfactory condition and showed no obvious signs of detrimental soil disturbances, 1 site was in unsatisfactory condition caused by excessive livestock trampling (bulk density samples collected), and 1 site was impaired due to detrimental soil displacement from past timber harvest because the unit had been scarified.

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name Salmon - Moose Plot ID _____ Date 10/12/04 By Whom Deschaine G. Collegly Forest S-C District Salmon - Cabinet
 County Lewis State Id Location: Sec. _____ T. _____ R. _____ Meridian _____ Latitude _____ Longitude _____
 UTM N45°13.778 W 113°57.601 GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation 6262 ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID 9184N
 Bedrock granite Landform/Topography Deep timbered canyon land verified at proj.
 Parent Material Colluvium Soil Classification (family) _____ Habitat/Community Type Deep
 Acreage 20 Watershed ID name or HUC _____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects) Area has been harvested and then put and is also part of a grazing allotment.

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
 Observed: Estimates on soil health were made from visual observations only
Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)			
Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)			
Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
<u>Severely Burned Soils</u> <u>N/A</u>	Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)			
Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot):

by ocular estimate, CWD is adequate for site

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____ Field Classification: _____

Brief Pedon Description

Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Efferv.	Boundary	Comments
0-2	A	GRSIL	20	10YR 3/2	1FPL/2FSDk			
2-29	B _w	GRCSL	15	10YR 4/2	3MABk	-		Clay bridging
29-41	C	GRVCSL	35	10YR 4/3	M	=		

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____)

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or

Remarks: *Soil pit taken in hill slope cut in an area that has an intrusion of phyllite, however most of the surrounding area is granite*

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name Salmon-Moose Plot ID _____ Date 10/12/04 By Whom Deschamps/Gallois Forest S-C District Salmon-Cobalt
 County Lehigh State ID Location: Sec. 11 T. 22N R. 31E Meridian _____ Latitude _____ Longitude _____
 UTM N45.0121013 54115 GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation 6400 ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID G120-C5-1
 Bedrock Granite Landform/Topography G120-C5-1/Strongly dissected Mtn. Slope
 Parent Material Colluvium Soil Classification (family) _____ Habitat/Community Type _____
 Acreage 50 Watershed ID name or HUC moose Creek

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects) Land type verified at project level
Area has been harvested in the past and is presenting signs of
succession (see attached treatment plan 5.35)

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
 Observed: Estimates on soil health were made from visual observations only
 Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transsected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transsected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information
* Soil is very dry and is exhibiting hydrophobicity

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	N/A Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	N/A Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____

Field Classification: _____

Brief Pedon Description								
Depth (cm)	Horizon	Texture/ Clay %	% Rock Fragments	Color	Structure	pH/Efferv.	Boundary\	Comments
0-22	A	L	<2	10YR2/2	1FGR	-		
22-40	BW	CSL	5	10YR4/3	2MSBK	-		
40-51	B	GRCSICL	13	10YR4/4	1FSBK	-		
51-→	C	GRVSICL	50	10YR4/4	M	-		
Pit 61								

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____)

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species
RSME/shrub			

Comments or

Remarks: Profile taken on slope cut

Area has been harvested in the past but no obvious signs of compaction or displacement are observed.

Validated that the area is correctly mapped as g120es-1

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Project/Site Name Salmon-Moose Plot ID _____ Date 10/12/04 By Whom DP Schmitt Forest S.C District Salmon-Cobalt
 County Lemhi State Id Location: Sec. _____ T. _____ R. _____ Meridian _____ Latitude _____ Longitude _____
 UTM N45° 17.032 W113° 58.278 GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID Q120A
 Bedrock _____ Landform/Topography Q120A Wetly Dissected Mt. Slope land
 Parent Material quartz Soil Classification (family) _____ Habitat/Community Type _____
 Acreage 10 Watershed ID name or HUC _____ in Quartzite

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) **Project Level Monitoring**

Assessment Method (Circle most intensive method used)

Observed: Estimates on soil health were made from visual observations only

Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion

Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions

Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
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Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____

Field Classification: _____

Brief Pedon Description								
Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Efferv.	Boundary	Comments
0-5	A	GL	20	10YR 3/2	1FPL/2FSBK	-		
5-29	B1	CBVL	30	10YR 5/3	1FSBK	-		
29-59	B2	VGL	20	10YR 5/3	2MSBK	-		

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____)

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or

Remarks: _____

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics *Unit 52S - Derian Creek Riparian Forest*

Project/Site Name *Salmon - Moose* Plot ID _____ Date *10/1/05* By Whom *K. B. Colby* Forest *S-C* District *Salmon Cohort*
 County *Lemhi* State *ID* Location: Sec. *17* T. *21N* R. *21E* Meridian _____ Latitude _____ Longitude _____
 JTM _____ GPS Filename _____
 Slope% *5* Aspect deg. _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID *G12005-1*
 Bedrock _____ Landform/Topography _____
 Parent Material *alluvium* Soil Classification (family) _____ Habitat/Community Type _____
 Acreage *33* Watershed ID name or HUC _____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
Excessive livestock grazing along Derian Cr. The riparian area has been severely impacted. Deep hummocking and trailing - soil seems compacted. Bulk density sample collected.

Soil Condition Assessment

*see notes on back * Bulk density = 1.16*

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
 Observed: Estimates on soil health were made from visual observations only
 Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Level of detrimental puddling from livestock grazing is 50% of unit

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____ **Field Classification:** _____

Brief Pedon Description								
Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____
(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks

Although the measured bulk density for this sample did not exceed the threshold root restricting bulk density in FSH 2509.18 - 2.2 Exhibit 2, the soil is detrimentally impacted from livestock grazing, it is hummocked and puddled. This appeared to be the most damaged soil, however it did not exceed the threshold.

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics *Existing Clearcut #1*

Project/Site Name *Salmon Moose* Plot ID _____ Date _____ By Whom *R. Gallegos* Forest *S-C* District *Salmon-Cobalt*
 County _____ State *ID* Location: Sec. *9* T. *22N* R. *21E* Meridian _____ Latitude _____ Longitude _____
 JTM _____ GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID *Q1206*
 Bedrock *Quartzite* Landform/Topography *Moderately dissected Mts Slope land*
 Parent Material _____ Soil Classification (family) _____ Habitat/Community Type _____
 Acreage *20* Watershed ID name or HUC _____

Unit 185

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
Previously harvested area. Walk through exam showed no signs of detrimental compaction or displacement

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring **3) Project Level Monitoring**

Assessment Method (Circle most intensive method used)
Observed: Estimates on soil health were made from visual observations only
Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
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Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
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Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
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Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	<i>N/A</i> Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____

Field Classification: _____

Brief Pedon Description								
Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____)

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks

Visual observation of an existing clearcut show no signs of compacted soil from stumped tree growth. No horizontal or any old stumps observed. No soil degradation.

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Existing Clearcut # 3 (plantation is fenced & planted in 1989)

Project/Site Name Salmon Ridge Date 10/30 By Whom K. Gallogly Forest S-C District Salmon
 County YO State YO Location: Sec. Moose Cr. T. R. Meridian Latitude Longitude District Cobalt
 JTM GPS Filename
 Slope% Aspect deg. Elevation ft m Subsection ID LTA ID Landtype/soil/EUI unit ID
 Bedrock Landform/Topography
 Parent Material granitics Soil Classification (family) Habitat/Community Type
 Acreage 20 Watershed ID name or HUC

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
livestock grazing & timber harvesting
Walk through area showed no signs of detrimental compaction or displacement.

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
Observed: Estimates on soil health were made from visual observations only
Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	N/A	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	All recent depositional material is non-vegetated
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	N/A	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations
			Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	N/A	Litter remains on the soil surface	All litter has been consumed but ash and dead needle fall provides some erosion protection
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

<i>Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)</i>						
	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____

Field Classification: _____

<i>Brief Pedon Description</i>								
Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____)

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Sample Site 4

Project/Site Name Salmon Plot ID _____ Date 10/30/03 By Whom K. Colledge Forest S-C District Salmon
 County Idaho State ID Location: Sec. _____ T. _____ R. _____ Meridian _____ Latitude _____ Longitude Cobalt
 JTM _____ GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID _____
 Bedrock _____ Landform/Topography _____
 Parent Material _____ Soil Classification (family) _____ Habitat/Community Type _____
 Acreage 15 Watershed ID name or HUC _____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
Timber Harvest

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
 Observed: Estimates on soil health were made from visual observations only
 Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth <u>Skid tracks</u>	Compaction limits root growth and occurs throughout the activity area
hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	N/A None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	N/A Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	Overall probably OK
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	but sparse in some areas
Severely Burned Soils	N/A Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____

Field Classification: _____

Brief Pedon Description								
Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

Soil Assessment #5

Project/Site Name Salmon-Moose ID _____ Date 06/20/03 By Whom K. Gallagher Forest S-C District Salmon-Cobalt
 County Benewah State ID Location: Sec. 10 T. 22 R. 1E Meridian _____ Latitude _____ Longitude _____
 JTM _____ GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID Q130A
 Bedrock _____ Landform/Topography _____
 Parent Material Quartzite Soil Classification (family) _____ Habitat/Community Type _____
 Acreage 50 Watershed ID name or HUC _____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
Small clearcut between units 15 and 16

Thumbnail sketch: biggest problem in old harvest units is lack of CWD, soil impacts mostly from livestock in riparian area

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring area

Assessment Method (Circle most intensive method used)
 Observed: Estimates on soil health were made from visual observations only
 Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	N/A	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	N/A	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____ **Field Classification:** _____

Brief Pedon Description

Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____)
(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics *Site # 6*

Project/Site Name *Salmon-11200* Plot ID _____ Date _____ By Whom *A. Gallegos* Forest *S-C* District *Salmon-Cobalt*
 County _____ State _____ Location: Sec. _____ T. _____ R. _____ Meridian _____ Latitude _____ Longitude _____
 JTM _____ GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID *Q120a*
 Bedrock _____ Landform/Topography _____
 Parent Material *quartzite* Soil Classification (family) _____ Habitat/Community Type _____
 Acreage *10* Watershed ID name or HUC _____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
Old clear cut - w/ project area but not within proposed treatment line

(an old ditch goes thru unit)

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
 Observed: Estimates on soil health were made from visual observations only
 Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	
Grassland and Shrubland Debris	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____

Field Classification: _____

Brief Pedon Description								
Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____)

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics # 7 (near unit 28)

Project/Site Name Salmon-Moose Plot ID _____ Date 10/30/23 By Whom R. Gallaghy Forest S-C District Salmon-Clear
 County Wade State ID Location: Sec 21 T 23N R 21E Meridian _____ Latitude _____ Longitude _____
 UTM _____ GPS Filename _____
 Slope% _____ Aspect deg. _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID G120d
 Bedrock _____ Landform/Topography Rollslopes
 Parent Material Granite Soil Classification (family) _____ Habitat/Community Type _____
 Acreage 16 Watershed ID name or HUC _____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
hodgepodge pine clearcut - previously harvested site

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
 Observed Estimates on soil health were made from visual observations only
 Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	Sub-angular blocky or weak granular	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	None or Slight, Bead of water infiltrates in less than 10 seconds	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	None, recent depositional material is vegetated	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	Sufficient ground cover exists to limit soil erosion to natural erosion rates	More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement <i>one small skid trail - some</i>	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	Soil displacement is common, hummocks evident, soil material moved, puddles
Soil Deposition <i>N/A</i>	Not unusual or excessive	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	Meets or exceeds FP Minimums for the Ecological Type	Does not meet FP minimums for the Ecological Type	<i>precip by wood are small + short</i>
Grassland and Shrubland Debris <i>N/A</i>	Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	<i>there is a log</i>
Severely Burned Soils <i>N/A</i>	Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

stable

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot):

ground cover sufficient to limit soil erosion to natural pedon

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID

Field Classification:

Brief Pedon Description

Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other
<i>meets or exceeds recommendations</i>					

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: *Lodgepole pine*)

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks

Soil Condition Evaluation and Qualitative Soil Management Monitoring Form

Site Characteristics

#8 near Road 129D (near Unit 26)

Project/Site Name Salmon-Moose Plot ID _____ Date 10/30/12 By Whom B. Gallaghy Forest S-C District Salmon-Cobalt
 County _____ State _____ Location: Sec 27 T 33N R 9E Meridian _____ Latitude _____ Longitude _____
 M _____ GPS Filename _____
 Slope% _____ Aspect deg _____ Elevation _____ ft m Subsection ID _____ LTA ID _____ Landtype/soil/EUI unit ID G120a
 Bedrock granite Landform/Topography hill slope
 Parent Material _____ Soil Classification (family) _____ Habitat/Community Type _____
 Acreage 20 Watershed ID name or HUC _____

Land Use or Area History (describe disturbance history, conditions during and after use, cumulative effects)
Past selective harvest - mixed conifer

'stumps & bumps Unit'

Soil Condition Assessment

Purpose(s) of Assessment (circle one or more): 1) General Assessment for Planning 2) Forest Plan Level Monitoring 3) Project Level Monitoring

Assessment Method (Circle most intensive method used)
 Observed Estimates on soil health were made from visual observations only
 Traversed: One-site walk through, direct soil contact, grab samples, quick pits, ocular estimates of cover, rills, erosion
 Transected, low intensity: On-site investigations may include systematic or random sampling, core samples collected, tape measured surface cover, soil pit descriptions
 Transected, high intensity: Use of designed sampling methods such as Howes, Hazard and Geist or project specific monitoring plan for collection of quantifiable information

Hydrologic and Physical Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Soil Structure	Moderate/strong granular or single grained	<u>Sub-angular blocky or weak granular</u>	Massive or platy
Compaction Estimate	No compaction is evident in the activity area	Compaction is evident but limited in extent and does not significantly effect root growth <u>skid tracks</u>	Compaction limits root growth and occurs throughout the activity area
Hydrophobicity (natural or post fire)	<u>None or Slight, Bead of water infiltrates in less than 10 seconds</u>	Moderate, bead of water infiltrates on mineral soil 10-40 seconds	High, bead of water does not infiltrate on mineral soil within 40 seconds
Surface Erosion Sheet	<u>N/A</u> No pedestaling of plants or rocks	Pedestals present but on mature plants only, no roots exposed	Most plants and rocks pedestaled, roots exposed, lichen line evident on rocks
Surface Erosion Rills and Gullies	<u>N/A</u> Absent or with blunted features	Small, embryonic and not connected to dendritic pattern	Well defined, actively expanding, dendritic pattern established
Active erosion	<u>None, recent depositional material is vegetated</u>	Some recent depositional material is non-vegetated	All recent depositional material is non-vegetated
Effective Ground Cover	<u>Sufficient ground cover exists to limit soil erosion to natural erosion rates</u>	<u>More than 1/2 of the natural ground cover and erosion rates are within the range for natural conditions</u>	More than 1/2 of the ground cover has been removed and erosion rate are above natural rates
Soil Displacement <u>Unit was scarified & there is detrimental displacement</u>	Minimal or no soil displacement, no hummocks or displacement evident	Soil has displacement effects, small hummocks present, puddles	<u>Soil displacement is common, hummocks evident, soil material moved, puddles</u>
Soil Deposition	<u>Not unusual or excessive</u>	Soil and/or litter deposition is present. Fine litter may be patterned as small debris accumulations	Soil and/or litter is deposited on the uphill side of logs, brush piles, etc. Soil may be moving offsite

Biological Soil Condition Rating (circle one for each appropriate indicator)

Soil Health Indicator	Satisfactory	Impaired	Unsatisfactory
Coarse Woody Debris Forested Ecosystems	<u>Meets or exceeds FP Minimums for the Ecological Type</u>	<u>Does not meet FP minimums for the Ecological Type</u>	<u>- Borderline for meeting minimums</u>
Grassland and Shrubland Debris	<u>N/A</u> Organic matter is distributed evenly across the soil surface and meets FP minimums for the Ecological Type	Organic matter is absent or does not meet minimum FP direction for the Ecological Type	
Severely Burned Soils	<u>N/A</u> Litter remains on the soil surface	All litter is consumed but ash and dead needle fall provides some erosion protection	All litter has been consumed, no inputs from falling needles, high soil temperatures have occurred
Vegetative Community Composition	<u>Distribution of desirable, perennial plant reflects species by vegetative layer (i.e. trees, shrubs, forbs and graminoids) as identified in the potential plant community</u>	Changes in vegetation composition indicate a shift towards a drier, less productive plant community. There may also be an increase in annual plants, shallow rooted grasses, or invasive plants	The perennial forb and/or graminoid vegetative layers are absent or sparse

Summation (circle one for each)

Your soil health rating for this activity area	Satisfactory	Impaired	Unsatisfactory
What is the soil health trend?	Aggrading	No change	Degrading

Data Collection

Effective Ground Cover Describe Technique used (100 ft transect every 1 foot, nested frequency, fixed circular plot): _____

Calculation of Effective Ground Cover (use appropriate technique; nested frequency, 100 foot transects, 10 points on each, etc...)						
	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Average %
Gravel/rock >3/4 inch						
Litter/wood debris						
Plant living						
Bare Soil/rock <3/4 inch						
Total Effective Ground Cover						

Soil Description

Pedon ID _____

Field Classification: _____

Brief Pedon Description								
Depth (cm)	Horizon	Texture/Clay %	% Rock Fragments	Color	Structure	pH/Effer v.	Boundary	Comments

Other Observations

Coarse Woody Debris Diameter: Number:	Bulk Density g/cc:	Penetration Resistance Depth cm:	Infiltration Rate cm/hr:	Modeled Soil Loss Potential t/h/yr: Current t/h/yr: Natural t/h/yr:	Other

Photos

Picture Number	Photo Point Number	Subject	Comments	Filename

General Vegetation Data (Habitat Type or Cover Type: _____

(record presence below by life form)

Tree Species	Shrub Species	Grass Species	Forb Species

Comments or Remarks
