KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE: 01/17/97

CUTTING METHOD: CC = Forests / Fire Salvage

OBSERVER: Kenneth Sullivan Young,
Billows, Washington

SKIDDING METHOD: Summer Tractor

DISTRICT: D-1

HAZARD TREATMENT: Spring '97

SALE: Bunker Hill Fire Salvage

SILVICULTURAL TREATMENT: broadcast 5-10 ft jacket

Unit No.: 10

OPERATION PERIOD: Summer '96

Acres: 44

Habitat Type:針叶林

20-40%

COMPACTION (Heavy) Trans.1

Trans.2

Trans.3

COMPACTION (Light) Trans.1

Trans.2

Trans.3

UNDISTURBED Trans.1

Trans.2

Trans.3

DISPLACED

EXCAVATED SKID TRAIL

SMZ

COMMENTS

water table generally vary 30-50 feet depth that run this spring. Trail travel on south end of unit and through unused trail.

Not compacted area = roadbed in the part of trail.

SMZ = include within transect if within harvest unit.

SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACTION (Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACTION (Light) - any other area not included in heavy COMPACTION or UNDISTURBED.

UNDISTURBED - no signs of any machinery or skidding activity.

DISPLACED - any place soil has been mounded by machinery, also include in heavy or light compaction.
## TRANSECT SUMMARY FORM

<table>
<thead>
<tr>
<th></th>
<th>Transect 1</th>
<th>Transect 2</th>
<th>Transect 3</th>
<th>Transect 4</th>
<th>Transect 5</th>
<th>TOTALS</th>
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<tr>
<td></td>
<td>Pts.</td>
<td>%</td>
<td>Pts.</td>
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<tr>
<td>D HEAVY</td>
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<td>7</td>
<td>15</td>
<td>5</td>
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### DISPLACED
- Transect 1: 10
- Transect 2: 5
- Transect 3: 19
- Transect 4: 5
- Transect 5: 5
- TOTALS: 49

### EROSION
- Transect 1: 3
- Transect 2: 5
- Transect 3: 7
- TOTALS: 15

### PUDDLED
- Transect 1: 0
- Transect 2: 0
- Transect 3: 0
- TOTALS: 0

### SMZ
- Transect 1: 23
- Transect 2: 23
- Transect 3: 23
- TOTALS: 23

### ROCK
- Transect 1: 4
- Transect 2: 0
- Transect 3: 0
- Transect 4: 0
- Transect 5: 0
- TOTALS: 4

### BURN PILES
- Transect 1: 0
- Transect 2: 0
- Transect 3: 0
- Transect 4: 0
- Transect 5: 0
- TOTALS: 0
CUTTING METHOD: Hand
SKIDDING METHOD: Cable
HAZARD TREATMENT: none
SILVICULTURAL TREATMENT:
OPERATION PERIOD: Summer '97

COMPACKION (Heavy): 12-03-97

COMPACKION (Light): 40

UNDISTURBED: 280

DISPLACED: 3

EXCAVATED SKID TRAIL

SNZ

COMMENTS: Cable canidore 100' taproot. Several minimal waterbars placed on one canidore side. Slightly gouged on convey slope.

SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACKION (Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACKION (Light) - any other area not included in heavy COMPACKION or UNDISTURBED.

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<tr>
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</tr>
<tr>
<td>PUDDLED</td>
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<td></td>
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<td></td>
<td>0</td>
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<tr>
<td>SMZ</td>
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<td></td>
</tr>
<tr>
<td>ROCK</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>BURN PILES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| D. HEAVY  | 4 Pts.    | 2 Pts.    |            |            | 4 Pts. | 2 Pts. |
| LIGHT     | 40 Pts.   | 16 Pts.   |            |            | 40 Pts.| 16 Pts.|
| UNDISTURB | 200 Pts.  | 82 Pts.   |            |            | 200 Pts.| 82 Pts.|
| TOTALS    | 244 Pts.  | 100 Pts.  |            |            | 244 Pts.| 100 Pts.|

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[Image of map with transect and mapping points labeled 4, 5, 6, 7, and 8 SD and 1 SD X, with various symbols and contour lines indicating topography and features such as burn piles, rock, SMZ, puddled, and displaced areas.]
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE: July 22, 1997

CUTTING METHOD: Clipper

SKIDDING METHOD: Tractor/Forwarder

HAZARD TREATMENT: BB?

SILVICULTURAL TREATMENT: Group Shelterwood

EXCAVATED SKID TRAIL: COMPACTION (Heavy)

- any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACTION (Light) - any other area not included in heavy COMPACTION or UNDISTURBED.

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<th>Transect 5</th>
<th>TOTALS</th>
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<tr>
<td></td>
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<td>%</td>
<td>Pts.</td>
<td>%</td>
<td>Pts.</td>
<td>%</td>
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<tr>
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<tr>
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<td>252</td>
<td>46</td>
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<td>508</td>
<td>100</td>
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</tbody>
</table>

| DISPLACED | 6    | 2      | 3    | 1      |      |        | 9    | 1      |
| EROSION   | 4    | 1      | 20   |        |      |        | 24   | 1      |
| Puddled   |      |        |      |        |      |        | 0    | 0      |
| Overland Flow | 28 | 7 | 1 | 0 |
| ROCK      |      |        |      |        |      |        | 29   | 3      |
| BURN PILES|      |        |      |        |      |        | 0    | 0      |

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[Map Diagram with markers and coordinates]
COMPACTING METHOD

SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACTION(Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

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<table>
<thead>
<tr>
<th></th>
<th>ROCK</th>
<th>SMZ</th>
<th>PUDDLED</th>
<th>EROSION</th>
<th>DISPLACED</th>
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</thead>
<tbody>
<tr>
<td>TOTALS</td>
<td>220</td>
<td>100</td>
<td>181</td>
<td>100</td>
<td>264</td>
</tr>
</tbody>
</table>

Legend:
- **TOTALS**: Total counts of different categories
- **ROCK**: Rock segments
- **SMZ**: Soil Management Zones
- **PUDDLED**: Puddled areas
- **EROSION**: Erosion areas
- **DISPLACED**: Displaced areas

Notes:
- **Current**: Latest data
- **Previous**: Previous data
- **Legend**: Symbols and codes for each category

Diagram: A map indicating various areas and their codes with corresponding counts.
CUTTING METHOD: chippers

SKIDDING METHOD: RT5 cat dispersed

HAZARD TREATMENT: none

SILVICULTURAL TREATMENT: SD

OPERATION PERIOD: Winter '91-'92

slope 5 - 35%

COMPACTION (Heavy): XX

COMPACTION (Light): XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

UNDISTURBED: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

DISPLACED: any place soil has been mounded by machinery, also include in heavy or light compaction.

SMZ: include within transect if within harvest unit.

COMPACTION (Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACTION (Light) - any other area not included in heavy compaction or undisturbed.

UNDISTURBED - no signs of any machinery or skidding activity.

DISPLACED - any place soil has been mounded by machinery, also include in heavy or light compaction.

SMZ - include within transect if within harvest unit.

5/93
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Transsect 1</strong></td>
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<tr>
<td><strong>Pts.</strong></td>
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<tr>
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<td><strong>DISPLACED</strong></td>
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<td><strong>ROCK</strong></td>
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<tr>
<td><strong>BURN PILES</strong></td>
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</tbody>
</table>
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 8/5/97

CUTTING METHOD  chippers

SKIDDING METHOD  forwarder

HAZARD TREATMENT  

SILVICULTURAL TREATMENT  SD

OPERATION PERIOD Summer '97

H.T. WRC/Clen

Unit No. 28B

20-35% 20-35%

Summer operation tractor Summer operation tractor

SE Corner  5-40% 17
northwest

13 15

COMPACTION (Heavy)  SE Corner

COMPACTION (Light)  100

UNDISTURBED  130

DISPLACED  

EXCAVATED SKID TRAIL

SMZ

COMMENTS: Temporary skid trail and landings for the steeper part on south edge.

Need to recontour at wet spot.

SHAPE OF UNIT AND PATTERN OF TRANSECT

See 28a

COMPACTION (Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

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<th>TOTALS</th>
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<td></td>
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<td>Pts.</td>
<td>%</td>
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</table>
SOIL DISTURBANCE DATA FORM

DATE Aug. 15, 1997

OBSERVER H. Kuenen

DISTRICT F brittle

SALE Mid Advent 545-D4-0-054

Unit No. 1 Acres 33

H.T. - SAT Libo

CUTTING METHOD Hand 1/4 chipped 3/4

SKIDDING METHOD

HAZARD TREATMENT BB - spring '97

SILVICULTURAL TREATMENT LTM-WL+DF seedtrees

OPERATION PERIOD winter '96

Slope: 5-30%

DISTRICT HAZARD TREATMENT

TREATMENT

COMPACTION (Heavy) X X X X X

L

COMPACTION (Light) X X X X X

UNDISTURBED X X X X X X X X X

X X X X X X X X X X X X X

DISPLACED

EXCAVATED SKID TRAIL

- Rock X X X

- Bedrock below foot flat lying to W 50°

- Rock debris scattered throughout unit. Some debris up to 30'-high.

- Soil & rock debris generally scattered on NPN/landfill. 5 to 6-8' deep.

- Lots of smaller rocks in till generally appears to be mostly local of Pierre. Partly covered of shallow soils due to filling up of bedrock.

- Burn looks very good. Lot of 3" CWD left and a lot of humus still intact.

- From the soil & water stand point the unit looks very good.

- Ground torn & broken

- Elk: 14620 - 4620

SHAPE OF UNIT AND PATTERN OF TRANSECTION

- Vegetative growth will be significantly impacted, i.e., some areas (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

- COMPACTION (Light) - any other area not included in heavy COMPACTION or UNDISTURBED.

- UNDISTURBED - no signs of any machinery or skidding activity.

- DISPLACED - any place soil has been mounded by machinery, also include in heavy or light compaction.

- SMZ - include within transect if within harvest unit.

5/93
<table>
<thead>
<tr>
<th>Transect</th>
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KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 8.15.1997
CUTTING METHOD Clippered

OBSERVER Kuennen
SKIDDING METHOD RTS

DISTRICT Fortine 345-02-054
HAZARD TREATMENT BB - Cool Spring '97

SALE Mid Advent
SILVICULTURAL TREATMENT LTM - WL + DF seed trees

H.T. SAF/Lib. SAF/Xete
OPERATION PERIOD Spring '96

COMPACTION (Heavy)

COMPACTION (Light)

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACTION (Heavy) - any place where heavy compaction is impacted, i.e., skid trails (both compaction related to soil moist. COMPACTION (Light) - any other area
UNDISTURBED - no signs of any man made activity.
DISPLACED - any place soil has been displaced and light compaction.
SMZ - include within transect if within harvest unit.

08/15/1997
Fortine - Mid Advent
Unit 3
34502054

5/93
<table>
<thead>
<tr>
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<th>Transect 2</th>
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<tr>
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<td>Pts.</td>
<td>Pts.</td>
<td>%</td>
<td>Pts.</td>
<td>%</td>
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<td>5</td>
<td>1</td>
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<tr>
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<td>180</td>
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<td>190</td>
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<td>370</td>
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<tr>
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<td>71</td>
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<td>67</td>
<td>869</td>
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<td>BURN PILES</td>
<td>8</td>
<td>1</td>
<td>33</td>
<td>6</td>
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<td>651</td>
<td>100</td>
<td>600</td>
<td>100</td>
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DISPLACED: 0
EROSION: 0
FUELED: 0
ROCK: 41.3

BURN PILES:
SOIL DISTURBANCE DATA FORM

DATE 6-13-97

CUTTING METHOD Hand Fell

SKIDDING METHOD Rubber tire (RTS)

HAZARD TREATMENT None

SILVICULTURAL TREATMENT Sanitation Salvage

OPERATION PERIOD Nov/Dec 1996

DIRECTIONS

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ

COMMENTS

The heavy compaction was found only on go back trails and an existing old cat trail. The unit looks good. Trail layout was excellent. The winter harvest maintained the dust layer on the majority of the skid trails. Some of the H2O bars are reflective, but the majority are so adequate, seeding is good. Removed WWP form stand, main trail on bench at lower end of unit.

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<th>Transect 3</th>
<th>Transect 4</th>
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Diagram: Site with transects marked and data points indicated.
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 8-13-97

SKIDDING METHOD RT5 + High Trench
HAZARD TREATMENT None

SILVICULTURAL TREATMENT LTM (seed tree)
OPERATION PERIOD Winter 96-97
Slope -20-30%, uniform

COMPACTION (Heavy) 14/20

COMPACTION (Light) 73/80

UNDISTURBED 230/175

DISPLACED 17/19

EXCAVATED SKID TRAIL

SMZ

COMMENTS

Comments: Transcribed from a field measurements form. The field notes mention several areas of impacted soil, including skid trails, landings, and other disturbed areas. The soil compaction levels are noted as heavy, light, or undisturbed. The SMZ includes areas within the harvest unit transects.

SHAPE OF UNIT AND PATTERN OF TRANSECT

Transsect

COMPACTION (Heavy) indicates areas of significant soil compaction, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACTION (Light) indicates areas of moderate soil compaction, not included in heavy or undisturbed categories.

UNDISTURBED indicates areas not included in heavy or light compaction.

DISPLACED indicates areas where soil has been mounded by machinery, also included in heavy or light compaction.

SMZ indicates areas within the transect if within the harvest unit.

5/93
## Transect Summary Form

<table>
<thead>
<tr>
<th>Transect</th>
<th>Lower</th>
<th>Upper</th>
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<td>Transect 1</td>
<td>Transect 2</td>
<td>Transect 3</td>
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<tr>
<td><strong>Pts.</strong></td>
<td><strong>Pts.</strong></td>
<td><strong>Pts.</strong></td>
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<tr>
<td><strong>D HEAVY</strong></td>
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</table>

| **DISPLACED** | 17 | 5 | 19 | 7 | 36 | 6 |

**Erosion**: 0

**Puddled**: 0

**SMZ**: 

**Rock**: 

**Burn Piles**: 

---

*Figure: Map of transect area with symbols for different land features.*
**KOOTENAI NATIONAL FOREST**  
**SOIL DISTURBANCE DATA FORM**

<table>
<thead>
<tr>
<th>DATE</th>
<th>8/13/97</th>
</tr>
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<tbody>
<tr>
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<td>Freeman/Reader</td>
</tr>
<tr>
<td>DISTRICT</td>
<td>Three Rivers</td>
</tr>
<tr>
<td>SALE</td>
<td>Mud Little, Shira</td>
</tr>
<tr>
<td>Unit No.</td>
<td>42201147</td>
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<tr>
<td>4/22-01-147</td>
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<tr>
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<tr>
<td>SHAPE OF UNIT AND PATTERN OF TRANSECT</td>
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<tr>
<td>OPERATION PERIOD</td>
<td>Aug-Oct, 1996</td>
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</tr>
<tr>
<td>COMPACTION (Light)</td>
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<td>UNDISTURBED</td>
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<td>DISPLACED</td>
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</tr>
<tr>
<td>EXCAVATED SKID TRAIL</td>
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</tr>
</tbody>
</table>

**COMMENTS**

1. Soil - deep glacial till except near rail in SE portion. Landslide very broken. Slope range from 5-45%

**SHAPE OF UNIT AND PATTERN OF TRANSECT**

**COMPACTION (Heavy)** - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

**COMPACTION (Light)** - any other area not included in heavy COMPACTION or UNDISTURBED.

**UNDISTURBED** - no signs of any machinery or skidding activity.

**DISPLACED** - any place soil has been mounded by machinery, also include in heavy or light compaction.

**SMZ** - include within transect if within harvest unit.

08/13/97  
Three Rivers - Mud Little  
Unit 7  
42201147
## Transect Summary Form

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<tr>
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<th>Transect 4</th>
<th>Transect 5</th>
<th>TOTALS</th>
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<td>Pts.</td>
<td>%</td>
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</table>

<p>| DISPLACED | 8   | 5 | 3   | 1 |       |    |       |    | 11   | 3 |
| EROSION   | 0   |   |     |   |       |    |       |    | 0    |   |
| PUDDLED   | 0   |   |     |   |       |    |       |    | 0    |   |
| SMZ       | 16  | 9 | 0   | 0 |       |    |       |    | 16   | 4 |
| ROCK      |     |   |     |   |       |    |       |    |      |   |
| BURN PILES|     |   |     |   |       |    |       |    |      |   |</p>
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<tr>
<td>EXCAVATED SKID TRAIL</td>
<td></td>
</tr>
<tr>
<td>SMZ/ROCK</td>
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</tbody>
</table>

**COMMENTS**

Skidding considerations not nearly as pronounced as in Unit 14. None of these will need witnesses. Doing through dips need to be at an angle.

**SHAPE OF UNIT AND PATTERN OF TRANSECT**

- **COMPACTION (Heavy)** - Any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.
- **COMPACTION (Light)** - Any other area not included in heavy COMPACTION or UNDISTURBED.
- **UNDISTURBED** - No signs of any machinery or skidding activity.
- **DISPLACED** - Any place soil has been mounded by machinery, also include in heavy or light compaction.
- **SMZ** - Include within transect if within harvest unit.
<table>
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</table>
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE MONITORING FORM

DATE: Sept 26, 1997

CUTTING METHOD: Clipper

SKIDDING METHOD: Dispersed

If tractor: Dedicated

DISTRICT: Three Rivers

SALE/S.A.: Pulpit Fire Salvage

Unit #: 13

Acres: 48

SILVICULTURAL TREATMENT: CC

HAZARD TREATMENT: IF

OPERATION PERIOD: Winter Nov 96

Dedicated

10 - 35

CONTACT (Heavy) 10

454-04-128

COMPACTION (Light): 345

UNDISTURBED: 353

DISPLACED: 35

EXCAVATED SKID TRAIL: 1

SMZ/ROCK:

COMMENTS: Said next dark color. Some gopher evidence lots of fireweed & grasses. Also have corte, elk sedge, Blackweed (native), small

elk sedge & willow saplings. Occasional pinyon pinyon. No

Duff Tangle between absent add some presence. Big elk long dig.

Generally

excavated trail above nd should be pulled back.

SHAPE OF UNIT AND PATTERN OF TRANSECT

MPACTION (Heavy) - Any place where future vegetative growth will be significantly impacted, i.e., skid trails (both

heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACTION (Light) - Any other area not included in heavy COMPACTION or UNDISTURBED.

UNDISTURBED - No signs of any machinery or skidding activity.

DISPLACED - Any place soil has been mounded by machinery, also include in heavy or light compaction.

SMZ - Include within transect if within harvest unit.

7/97

09/26/1997

Three Rivers - Pulpit Fire Salvage

Unit 12

45404128
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KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE MONITORING FORM

DATE: Sept. 26, 1997

CUTTING METHOD: Hand

SKIDDING METHOD: Cable

DISTRICT: Three Rivers

SALE/S.A.: Three Rivers Salvage

Unit #: 14

Acres: 46

SILVICULTURAL TREATMENT: CC

HAZARD TREATMENT:

OPERATION PERIOD: Aug - Oct '97

PERIOD:

PERIOD:

COMPACTION (Heavy): 10

454-04-231

COMPACTION (Light): 45

UNDISTURBED: 530

DISPLACED: 50

EXCAVATED SKID TRAIL:

SMZ/ROCK:

COMMENTS:

General notes:

Deep, shallow tilling of moist surface soil (not typical; typically, deep maturing), which will add nitrogen to the system. Leave all slashable debris. Seven skid trails were impacted. Some will be in a ridgeline area. Some will be in a revetment area. Some will be in an impacted area. Some will be in a disturbed area. Some will be in a heavy-compaction area. Some will be in a light-compaction area. Some will be in an undisturbed area. Some will be in a displaced area.

Shallow erosion:

Excavate and fill in all areas where future vegetation growth will be significantly impacted, i.e., skid trails (both shallowly and lightly), landings, and other impacted areas. Shallow erosion is typically, a year "compaction"

Heavy compaction:

Any place where future vegetation growth will be significantly impacted, i.e., skid trails (both heavily and lightly), landings, and other impacted areas. Heavy compaction is typically, a year "compaction"

Light compaction:

Any other area not included in heavy compaction or undisturbed.

Undisturbed:

No signs of any machinery or skidding activity.

Displaced:

Any place where soil has been mounded by machinery, also include in heavy or light compaction.

SMZ:

Include within transect if within harvest unit.

SHAPE OF UNIT AND PATTERN OF TRANSEC

- Unit 13

- Unit 14

- Transect
## TRANSECT SUMMARY FORM

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</tr>
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</table>

Transect was run at slope, which were most of displacement has occurred. Percent is not representative of total unit. Less than 1/2 of 8%.
<table>
<thead>
<tr>
<th>Date</th>
<th>7/15/97</th>
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<tbody>
<tr>
<td>Observer</td>
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<td>SAF/Yasg</td>
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<tr>
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<td>Summer '96</td>
</tr>
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<tr>
<td>Excavated Skid Trail</td>
<td>Erased</td>
</tr>
<tr>
<td>SMZ</td>
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</tr>
<tr>
<td>Comments</td>
<td>Regent dead &amp; down LPP Operate into fall wet period Heavily used trails need to be waterballed. Pull debris into trail. Landing ripped. Pull debris into SMZ crossing &amp; mash down. Debris left in ditch line</td>
</tr>
</tbody>
</table>

**SHAPE OF UNIT AND PATTERN OF TRANSECT**

There future vegetative growth will be significantly impacted. i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

Compaction (Light) - any other area not included in heavy Compaction or Undisturbed.

Undisturbed - no signs of any machinery or skidding activity.

Displaced - any place soil has been mounded by machinery, also include in heavy or light compaction.

SMZ - include within transect if within harvest unit.
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### Kootenai National Forest Soil Disturbance Data Form

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<tr>
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</tr>
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<td>Habitat Type</td>
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<tr>
<td>Compaq. Trans.</td>
<td>1/3/5/3/35</td>
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<tr>
<td>Cutting Meth.</td>
<td>Hand</td>
</tr>
<tr>
<td>Skidding Meth.</td>
<td>High track cat</td>
</tr>
<tr>
<td>Hazard Treat.</td>
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<td>Silvicult. Treat.</td>
<td>SD-removing dead LPP</td>
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<td>Summer '97</td>
</tr>
<tr>
<td>Slope</td>
<td>20-35</td>
</tr>
</tbody>
</table>

#### COMPACTION
- **Heavy** (Trans. 1):
- **Light** (Trans. 2, 3):
- **UNDISTURBED** (Trans. 2, 3):
- **DISPLACED** (Trans. 2):
- **EXCAVATED SKID TRAIL**

#### SMZ
- Several scattered WH + WR
- Soil: 8-10" of ash over till/parent soil. Lots of angular rock in matrix.
- Most were towards drainage, lots of fallen shrub.

#### Comments
- Vegetative growth will be significantly lightened depending on amount of compaction, and other impacted areas.
- Any other area not included in heavy COMPACTION or UNDISTURBED.
- No signs of any machinery or skidding activity.
- Any place soil has been mounded by machinery, also include in heavy or light compaction.
- Include within transect if within harvest unit.

### Shape of Unit and Pattern of Transect

![Diagram of transect pattern]

5/93
<table>
<thead>
<tr>
<th>Transect</th>
<th>HEAVY</th>
<th>LIGHT</th>
<th>UNDISTURBED</th>
<th>TOTALS</th>
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</tr>
</tbody>
</table>
SOIL DISTURBANCE DATA FORM

KOOTENAI NATIONAL FOREST

DATE 8.19.97

CUTTING METHOD hand

SKIDDING METHOD high Trac

HAZARD TREATMENT

SILVICULTURAL TREATMENT 5D-removed dead LP

OPERATION PERIOD Summer '97

SLOPE: 10-30%

ACRES 551-63-068

UNIT No. 17

FACTOR:

COMPACITION (Heavy) Trans.1:
Trans.2
Trans.3

COMPACITION (Light) Trans.1
Trans.2
Trans.3

UNDISTURBED Trans.1
Trans.2
Trans.3

DISPLACED

EXCAVATED SKID TRAIL

SMZ

COMMENTS: The big question becomes what to do with the skid trail. Should it be included as part of Unit 17 or only within some of Unit 17's projected treatment area? I'm not sure that the helicopter/air support worth the skid trail! Even though the water bars are very large, some of them are inadequate since the cut/slope is diverting soil onto the trail. The exit of the bar was not cleared for sufficient travel, that becomes more fine on the lower end of the trail.

Soil: Ash over till: president, mostly angular rock in matrix.

SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACITION (Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACITION (Light) - any other area not included in heavy COMPACITION or UNDISTURBED.

UNDISTURBED - no signs of any machinery or skidding activity.

DISPLACED - any place soil has been mounded by machinery, also include in heavy or light compaction.

SMZ - include within transect if within harvest unit.

5/93
<table>
<thead>
<tr>
<th>Transect 1</th>
<th>Transect 2</th>
<th>Transect 3</th>
<th>Transect 4</th>
<th>Transect 5</th>
<th>TOTALS</th>
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<td>%</td>
<td>Pts.</td>
<td>%</td>
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</tr>
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<th>TOTALS</th>
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</table>
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE  7.29.97
OBSERVER  Ken
DISTRICT  Cabinet
SALE  Beaver Peak Resell
Unit No.  2B west

CUTTING METHOD  Head
SKIDDING METHOD  Tractor dispersed
HAZARD TREATMENT
SILVICULTURAL TREATMENT

OPERATION PERIOD  Winter  95-97
16 Acres  Slope 5-20

COMPACTION(Heavy)  4
COMPACTION(Light)  80
UNDISTURBED  110
DISPLACED  80

EXCAVATED SKID TRAIL

Comments: Old logging; see some 5 y. old scolding sap, beech, Regen- Picea siberica, Abies, Thu. Some Unit generally less than 20% slope, mostly <10.

SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACTION(Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.
COMPACTION(Light) - any other area not included in heavy COMPACTION or UNDISTURBED.
UNDISTURBED - no signs of any machinery or skidding activity.
DISPLACED - any place soil has been mounded by machinery, also include in heavy or light compaction.
SMZ - include within transect if within harvest unit.

5/93
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE  7.29.97

OBSERVER  Kimer

DISTRICT  Cabinet

SALE  Beaver Pit Reisel

Unit No.  2b west

16 Acres

Slope 5-20

CUTTING METHOD  Hand

SKIDDING METHOD  Tractor dispersed

HAZARD TREATMENT

SILVICULTURAL TREATMENT  Seed tree

OPERATION PERIOD  Winter 95-97

COMPACTION(Heavy)  

COMPACTION(Light)  

UNDISTURBED  

DISPLACED  

EXCAVATED SKID TRAIL

SMZ

COMMENTS

Older logging; see some 1-4 yr old seedlings, saplings, small regen; Picea, Pinus, Populus, Acer, Frax, Fag, Tilia, Rhamnus

Unit generally less than 50% slope, mostly <10.

SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACTION(Heavy) - any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACTION(Light) - any other area not included in heavy COMPACTION or UNDISTURBED.

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SMZ - include within transect if within harvest unit.

5/93
<table>
<thead>
<tr>
<th>Transect 1</th>
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- DISPLACED
- EROSION
- PUDDLED
- SMZ
- ROCK
- BURN PILES
DATE 7/29/97

OBSERVER K. Kenneth

DISTRICT Cabinet #715-06-034

SALE BeaverPk Resell #3 17 Acres

H.T. - WH/Clun slope - 50-45%

COMPACTION HEAVY X

COMPACTION LIGHT X X X X X X X X X X X X X X X X X X X X

UNDISTURBED X X X X X X X X X X X X X X X X X X X X

DISPLACED/Skidded

EXCAVATED SKID TRAIL

SMZ/Sly. loop

COMMENTS Crossed two surface lines w/j 150', x.

Replace excavated trail heads stream flow to

Western portion of unit 50-45% slope. Montly residual soil.

SHAPE OF UNIT AND PATTERN OF WALK THROUGH.
<table>
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<th>Transect 2</th>
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</table>
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 8-5-97

CUTTING METHOD clipper

SKIDDING METHOD RT5

HAZARD ABATEMENT Jackpot burn '98

SILVICULTURAL SW seed reserve

OPERATION PERIOD Dec '96/Jan '97

COMPACTION (Heavy)

Walk-Through

COMPACTION (Light)

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ/ROCK

COMMENTS Winter operation - looks very good

Shape of Unit and Pattern of Transect
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 8-5-97

CUTTING METHOD hand/clogger

SKIDDING METHOD cable

HAZARD ABATEMENT Jackpot burn '98

SILVICULTURAL SW seed/reserve

OPERATION PERIOD Dec '96/Jan '97

SHAPE OF UNIT AND PATTERN OF TRANSECT

UNDISTURBED

COMPACTION (Heavy)

Walk-through

COMPACTION (Light)

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ/ROCK

COMMENTS winter operations

Shape of Unit and Pattern of Transect
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<td>Undisturbed</td>
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<td>Displaced</td>
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<td>Excavated Skid Trail</td>
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</tr>
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<td>SMZ/Rock</td>
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<tr>
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<td>Chipper/hand</td>
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<td>Skidding Method</td>
<td>RTS/Cable</td>
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<td>Hazard Abatement</td>
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<tr>
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<td>3700</td>
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<tr>
<td>Aspect</td>
<td>E</td>
</tr>
<tr>
<td>Comments</td>
<td>Winter Operation. Late X snow - snow - rock. Very minimal soil impacts. Operation looks very good. Good SMZ left</td>
</tr>
</tbody>
</table>

Shape of Unit and Pattern of Transect

Walk - Through
Reply To: 2430 2550

Subject: West Yaak Proposal

To: District Ranger, D4
   Attn: Leslie Ferguson

Leslie Ferguson, Hilaire Bojonell, and Louis Kuennen made on-site visits to Units 53A, 53B, 19, & 24 on May 30, 1997 and Units 5, 8, 10, & 11 on June 12, 1997, of the West Yaak proposal. One of the concerns is related to the impact of past activities. All of the units contain varying degrees of past activity. In put information together for the West Yaak EA one of the resources to be discussed is the soil, specifically soil compaction. The method used in dealing with impact to the soil in previously logged tractor units is to apply a percentage factor for the skidding and the hazard abatement. Usually these activities were done with tracked vehicles. The percentage of ground impacted was at least 15. Fifteen percent is the Kootenai National Forest's limit for significant soil impact. Naturally very little amelioration occurs. This means that future operations will increase the soil impacts beyond the accepted limits.

An on-the-ground review was done to determine just exactly what the total past activity impact was. Units 53A and 53B are adjacent to each other. The past activity in both consisted of constructing excavated skid trails and removing scattered trees. It appears that no operations occurred off the trails. It is estimated that less than 5 percent of the area was previously impacted, mainly because only scattered trees were removed. This means that the current proposal could add ten percent of significant soil impact and stay within the Forest guidelines.

For the above two units the habitat type is Douglas-fir/dwarf huckleberry. The landtype is 355. Landtype 355 is described as moderately deep soil with a higher rock content than the "normal" glacial till on the Forest. The soil within the two units contains 50 to 75 percent rock. Some of the rock (the source is both metasedimentary and igneous) is subrounded and subangular and some is angular. The angular rock is located at or near the surface. Activity impact to the soil will be less than normal in these two units because of the large amount of rock. The high rock content creates a droughtier soil and may have a limiting effect on the size and productivity of shrubs.

The amount of excavated trails in Unit 19 is greater than in Units 53A and 53B, so the significant soil impact is greater. Current activity will need to remain on the existing trails. Unit 24, unlike the other units, generally has a uniform slope which is less than 30 percent. This unit has several old skid trails that were used to salvage in the past. The volcanic ash surface is fairly deep (12 - 18 inches) and contains few rock. This soil is very compactible. Also, the site is such that it will remain wetter than the accepted 18 percent soil moisture used for machinery activity. It is agreed that cabling is the proper method of log removal from this unit.

Unit 8 is very similar to Unit 24--deep volcanic ash, uniform slope, but better drained. This unit has existing trails. Unit 5 (includes what was referred to as Unit 4 of the Pete Creek Proposal memo of June 21, 1991) has deep volcanic ash and broken slopes. Several streams also flow through the unit--some are a
result of piped flows from Rd. 5919C. The north end of the unit contains populations of sensitive Botrychium species. This unit has devil's club scattered throughout.

A natural opening divides Unit 11 and extends from the upper road almost to the lower road. I can't completely explain the opening, but it has been there a long time as indicated by the depth of the dark surface soil. The lower end of Unit 11 is very wet, especially west of the opening, as indicated by an almost continuous covering of devil's club. Also very few western white pine were seen in the area. A population of sensitive Botrychium is present just below the upper road east of the opening. Unit 10 contains many more stems of western white pine and generally is drier than Unit 11.

A lot of surface flow is coming from the all the roads within the area of the proposal. As a result fines are being washed from the gravel lift, sometimes going directly to a stream. As a resource the surface of the roads need to be protected from erosion.

RECOMMENDATIONS:
1. Units 53A and 53B can be logged during the summer.
2. Any temporary road coming off the Yaak Highway (Units 53A and 53B access) should be recontoured. The power lines that parallel the Highway are not that high above the ground and may provide a hazard to tall equipment.
3. Unit 19 can be summer logged but the previous trails should be used.
4. Unit 24 should be cable logged or winter logged. Jackpot piling with an excavator can be done within the same season of log removal. This doesn't mean the entire unit.
5. Unit 5 should be cabled, with the north end of the unit dropped to recognize the Botrychium population.
6. Unit 8--log in the drier part of the summer and stay on the existing trails.
7. Unit 11--drop the area west of the natural opening and exclude the Botrychium area.
8. Include Unit 10 and winter log it.
9. Drive-through dips should be placed in the access roads for the West Yaak proposal.

If there any questions, please call.

/s/ Louis J. Kuennen

LOUIS KUENNEN
SOIL SCIENTIST
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE: 6/12/1997

CUTTING METHOD: clipper

SKIDDING METHOD: RTS

HAZARD ABATEMENT: burned, grapple pile 2002

SILVICULTURAL: ST cut (mortality cut)

OPERATION PERIOD: summer 2000

Walk Throughs

COMPACTION (Heavy)

COMPACTION (Light)

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ/ROCK

COMMENTS: Past excavated skid trails present
5- H.T. 570, El. 4600, As-E, slope -15-30°; mortality cut, cable unit and drop Botany/Man and a
8- H.T. 520, El. 4300, As - E, slope -10-25%; mortality cut, use existing trail
10- H.T. 530, El. 4200, As - E, slope -15-30°; mortality cut, grapple pile
11- H.T. 510, El. 4300, As - SE, slope -10-25%; mortality cut, grapple pile, drop wet area west of natural opening

Estimate past detrimental at <5%.

Shape of Unit and Pattern of Transect

5 - 40902125, 40902131: 20A
8 - 40902132: 26A
10 - 40901164, 40901165: 23A
1 - 40901163: 11A
05/30/1997
Three Rivers - West Yaak (North Pole Salvage)
Unit 24
40705101/40705129

KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 5/30/1997

CUTTING METHOD clipper

SKIDDING METHOD RTS

DISTRICT Three Rivers

HAZARD ABATEMENT Burn landing 2002

SALE North Pole

SILVICULTURAL mortality cut

Unit No. 24 25A

OPERATION PERIOD Summer 2000

Walk-through

COMPACTION (Heavy)

COMPACTION (Light)

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ/ROCK

COMMENTS Past excavated skid trails present very scattered. Trails were created to remove scattered, large trees. Due to scattered nature of the trees removed, no activity seems to have occurred on the excavated trails. Less than 5% of area affected.

Mortality cut.

Shape of Unit and Pattern of Transect
## Kootenai National Forest
### Soil Disturbance Monitoring Form

**4/10/05\_07 - 20A**

**DATE:** 5/30/1997

**OBSERVER:** [Redacted]

**DISTRICT:** [Redacted]

**SALE/S.A:** Three Rivers - West Yaak (Flaming Whitetail SSAS)

**Unit #:** 53

**Acre:** 20

**H.T.:** 250

**Slope:** 25-40%

**Location:** lower slope

**COMPACATION (Heavy):**

- PAST ACTIVITY
- COMPACTION (Light)
- UNDISTURBED
- DISPLACED
- EXCAVATED SKID TRAIL
- SMZ/ROCK

**COMMENTS:** (Include soil, geology, organic debris-large & small, erosion, road drainage, other pertinent info)

- Excavated trails present from past scattered tree removal. Definitely less than 5% past detrimental disturbance.

**SHAPE OF UNIT AND PATTERN OF TRANSECT**

**CUTTING METHOD:** [Redacted]

**SKIDDING METHOD:** [Redacted]

**HAZARD TREATMENT:** [Redacted]

**SILVICULTURAL TRMT:** [Redacted]

**OPERATION PERIOD:** [Redacted]

**CLIPPER:** Tactor

**dispersed dedicated -**

**undisturbed, burned 2000**

**Summer 1999**

**UNDISTURBED**

**DISPLACED**

**EXCAVATED SKID TRAIL**

**SMZ/ROCK**

**COMPACATION (Heavy):**

- Any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

**COMPACATION (Light):** Any other area not included in heavy COMPACATION or UNDISTURBED.

**UNDISTURBED:** No signs of any machinery or skidding activity.

**DISPLACED:** Any place soil has been mounded by machinery, also include in heavy or light compaction.

**SMZ/ROCK/BURN PII F:** Include within transect if within harvest unit

07/02
### TRANSECT SUMMARY FORM

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### Diagram

[Map diagram showing transects and areas of interest]
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<tr>
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<td>Sale</td>
<td>West Yak proposal, Unit No. 19 &amp; 53A</td>
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<td>Compaction</td>
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<td>Cutting Method</td>
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<td>Skidding Method</td>
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<td>Hazard Abatement</td>
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<td>Silvicultural</td>
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<td>Operation Period</td>
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<tr>
<td>Comments</td>
<td>Past excavated trails present - very scattered</td>
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<td>19-20A, H.T. 570, Ele 4100, As - E</td>
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<td></td>
<td>53A-22A, H.T. 570, Ele 3900, As - SSW</td>
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</table>

Shape of Unit and Pattern of Transect:

- Entered into SoilMON as one line of data - couldn't find Unit 19 in Sale History - TSMES - to get associated stand # - See comments. 3/14/03 NK.
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE MONITORING FORM

DATE: Jan. 28, 1997

CUTTING METHOD: Tree-Line
SKIDDING METHOD: If tractor
HAZARD Treatment: CC Seed
SILVICULTURAL TRMT: winter 1998
OPERATION PERIOD: 5200

SLIDE - Wall - Through

COMPACTION (Light)

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ/ROCK

COMMENTS:


SHAPE OF UNIT AND PATTERN OF TRANSECT

COMPACtion (Heavy) - Any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

COMPACtion (Light) - Any other area not included in heavy COMPACtion or UNDISTURBED.

UNDISTURBED - No signs of any machinery or skidding activity.

DISPLACED - Any place soil has been mounded by machinery, also include in heavy or light compaction.

SMZ - Include within transect if within harvest unit.
| Transect | 1 | Transect | 2 | Transect | 3 | Transect | 4 | Transect | 5 | TOTALS |
|----------|---|----------|---|----------|---|----------|---|----------|---|--------|------|
|          | Pts. | % | Pts. | % | Pts. | % | Pts. | % | Pts. | % | Pts. | % |
| HEAVY    |      |   |      |   |      |   |      |   |      |   |      |   |
| LIGHT    |      |   |      |   |      |   |      |   |      |   |      |   |
| UNDISTURB|      |   |      |   |      |   |      |   |      |   |      |   |
| TOTALS   |      |   |      |   |      |   |      |   |      |   |      |   |
| DISPLACED|      |   |      |   |      |   |      |   |      |   |      |   |
| EROSION  |      |   |      |   |      |   |      |   |      |   |      |   |
| PUDDLED  |      |   |      |   |      |   |      |   |      |   |      |   |
| SMZ      |      |   |      |   |      |   |      |   |      |   |      |   |
| ROCK     |      |   |      |   |      |   |      |   |      |   |      |   |
| BURN PILES|      |   |      |   |      |   |      |   |      |   |      |   |
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 10-21-97

CUTTING METHOD hand

OBSERVER Keuten

SKIDDING METHOD skylines

DISTRICT Three Rivers

HAZARD ABATEMENT jackstr + landings

SALE Studebaker Fire Salvage

SILVICULTURAL CC - ST, CCw/pieces

OPERATION PERIOD summer '97

COMPACTION (Heavy)

COMPACTION (Light) Walk Through

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ/ROCK

COMMENTS
All were skylines units, lots of CWD. Very little surface
soil disturbance in skidding. forwarding, reorienting control
necessary. Some cut slope slumping occurring in new
construction.

8 4000-5200 W-S
9 5000-5400 W
10 4000-4800 S-SW
18 5200-5800 SE
13 5000-5100 E-S

Shape of Unit and Pattern of Transect /Walk-Through/

8 - 45303159, 79A, HT-670, As-W, Ele-4400, slope-55%
9 - 45303178, 9A, HT-220, As-W, Ele-5000, slope-51%
10 - 45303145, 40A, HT-570, As-S, Ele-4200, slope-55%
13 - 45303170, 39A, HT-624, As-E, Ele-5200, slope-40%
18 - 45303134, 6A, HT-624, As-SE, Ele-5700, slope-47%

10/21/1997
Three Rivers - Studebaker Fire Salvage
Unit 18, 9C, 10, 18
45303159 45303178
45303145 45303134

Shape of Unit and Pattern of Transect /Walk-Through/
KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE MONITORING FORM

DATE: June 16, 1997

CUTTING METHOD: Hand
SKIDDING METHOD: Dedicated

DISTRICT: Palouse
HAZARD TREATMENT: Silvicultural Trmt

SALE/S.A.: Unit 7, 7A, 8
OPERATION PERIOD: Summer

ACRES: 38

H.T.: W/ Clun

SLOPE: 35-40

LOCATION: Mid - upper

COMPACtion (Heavy): Walk-Through

COMPACtion (Light): 

UNDISTURBED: 

DISPLACED: 

EXCAVATED SKID TRAIL: 

SMZ/ROCK: 

COMMENTS: (include soil, geology, organic debris, other pertinent info)

Preliminary review - Units 7A & 7A very wet

SHAPE OF UNIT AND PATTERN OF TRANSECT:

1. DISPACtion (Heavy) - Any place where future vegetative growth will be significantly impacted, i.e., skid trails (both heavily and lightly used depending on amount of compaction related to soil moisture), landings, and other impacted areas.

2. COMPACTION (Light) - Any other area not included in heavy COMPACtion or UNDISTURBED.

3. UNDISTURBED - No signs of any machinery or skidding activity.

4. DISPLACED - Any place soil has been mounded by machinery, also include in heavy or light compaction.

5. SMZ - Include within transect if within harvest unit.
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KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

CUTTING METHOD
SKIDDING METHOD
HAZARD ABATEMENT
SILVICULTURAL
OPERATION PERIOD

Date 4/28/97
Observer Kuenen/Crawford
District Libby
Sale Bobtail Flats
Unit No. 142

Compaction (Heavy)
Compaction (Light)
Undisturbed
Displaced
Excavated Skid Trail
SMZ/Rock

Comments
Soils still too wet to operate on. Won't be long. Drying quickly.

Shape of Unit and Pattern of Transect

04/28/1997
Three Rivers
Bobtail Flats
Fire Salvage
Unit 1 & 2
51201009
51201013/
51405026
05/27/1997
Libby
- Barron Salvage
Unit 5
55303013

KOOTENAI NATIONAL FOREST
SOIL DISTURBANCE DATA FORM

DATE 5/27/97
OBSERVER: Krennen/Farmer
DISTRICT Libby
SALE Barron Salvage
Unit No. 5

CUTTING METHOD clipper
SKIDDING METHOD RTS
HAZARD ABATEMENT pile/burn 00
SILVICULTURAL seed/preserve
OPERATION PERIOD Jul/Aug 98

COMPACTION(Heavy)

COMPACTION (Light)

UNDISTURBED

DISPLACED

EXCAVATED SKID TRAIL

SMZ/ROCK

COMMENTS

Shape of Unit and Pattern of Transect