MESSAGE SCAN FOR CHUCK MITCHELL

To RWM R5.Soils
To J.Rector
CC J.Golden:WO

From: Charles B. Goudey:R05A
Postmark: Jan 14,93 4:14 PM Delivered: Jan 14,93 4:15 PM

Subject: Forwarded: Old Gulch

Comments:
From: Charles B. Goudey:R05A
Date: Jan 14,93 4:14 PM
Attached is an excellent example of burn rehab treatment monitoring. Qualitative observations (including photos) can be as valuable as measured data, especially when done during or following storms.

Previous comments:
From: ROB GRIFFITH:R05F16D54A
Date: Jan 13,93 4:48 PM
REPORT BY CAROLYN MADDED ON THE OLD GULCH BURN AND HOW IT IS HOLDING UP. -- ROB

Previous comments:
From: SOIL SCIENTIST:R05F16D52A
Date: Jan 13,93 4:39 PM
Just a quickie monitoring, not very quantative but I wanted to capture some of my observations before I forgot. Overall, I think it looks pretty good out on the Old Gulch, but it isn't over yet! Let me know if you have any questions. Carolyn

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UNITED STATES DEPARTMENT OF AGRICULTURE | FOREST SERVICE | STANISLAUS NF CALAVERAS RD

Reply To: 2523 Burn Rehab Date: 13 January 1993

Subject: Old Gulch Burn Monitoring

To: David Freeland, Calaveras District Ranger

In an effort to assess the condition of the Old Gulch Burn the following observations were made after field review in between storms.

A rough estimate of total rainfall on the Old Gulch burn is over 16 inches of rain plus two rain on snow events. The rain on snow events occured within 10 days of each other and when there was about 8 inches of snow on the ground.

During the field monitoring the four silt fences which were constructed to hold back sediment from entering ephemeral and intermittent streams were measured. The first silt fence on a slope of 20% had accumulated 4 inches of sediment since the end of November. The second silt fence located within an ephemeral had filled completely with over 14 inches of sediment. Exact soil loss on a tons per acre basis will be calculated in another report.

In these two areas the following observations were made:

1.) Hydrophobic soils persisted and could be easily identified in areas with manzanita and Mariposa soils. Hydrophobic soils were not identified in areas of highly productive timber soils.

2.) Needle cast from pine trees and leaves from oaks provided an excellent protective layer to the soil.

3.) Barley grass was anywhere from 3-5 inches in length and also helped catch other material and to impede the flow of runoff.

4.) Bear clover staubs caught pine needles and branches and helped to create a more tortuous path for runoff.

5.) High winds and saturated soils had brought down a lot of trees, branches and bark which helped provide good soil protection.

6.) Rill patterns had developed on many steep slopes and accelerated erosion was apparent.

7.) There was a definite movement of soil and many of the logs and branches have served to trap soil behind them.

Areas that were logged under the Ixion sale looked good. There was evidence of accelerated erosion on skid trails that did not have slash on them. It is difficult at this time to determine if more erosion resulted as a result of the harvest activities. The slash created helped to protect the soil, but it is difficult to predict what may have happened had the area not been harvested. It is important to maintain adequate slash and soil cover after logging in these cases.

Road treatments which were performed on 4N41 are holding up very well under the conditions. The road closure and outsloping of the entire road to the first landing has greatly reduced the gully erosion generated from the road. The following observations were made:

1.) Placing straw on the road surface appeared to work very well and reduced the chance of water concentrating.
2.) The soil above the cut slope tended to erode and could well benefit by placing straw above the road cut. This was done on the Ruby and may have many benefits.
3.) Tilling of the road below the landing area had enabled better infiltration and with the rain and snow many of the clods had melted down.
4.) The tilled portion is at field capacity and totally saturated.
5.) When tilling we have to incorporate cross tilling to avoid concentration of water within the furrows. It doesn't take much distance or slope to get water moving.
6.) Natural mulch of oak leaves and pine needles helped protect the road surface.
7.) The four culverts that were removed was a good decision given the volumne runoff. It appears that the water has stayed within the channel for the most part.

San Domingo Creek was anticipated to carry high levels of runoff and there is some scouring of the banks. Large woody material that has fallen into the channel does not appear to be creating any severe deleterious effects. Bridge crossing by the Stevenot Winery look good.

In review of what was done and what might be done differently in the future, it appears that most of the decisions made were appropriate. There is erosion throughout the burn and this was anticipated. It has not been determined as to the exact tons per acre lost but most likely we exceed the 5 tons per acre but fall short of the 80 tons per acre estimated had the no action alternative been selected.

Areas that are eroding tend to be low to moderately productive, south facing, Mariposa soils. Due to the steepness of these slopes it is unfeasible to mechanically scarify these soils or successfully seed them. These soils have developed with a fire regime and will never be highly productive.

Overall, the burn area looks good given the amount of precipitation we have received. Slump areas within the burn show some soil movement but fortunately no large scale failures. Monitoring of the conditon will continue.

Prepared by:
Carolyn O. Madden
1/13/93

Survey of Check Dams in Cleveland Fire Area
February 5, 1993
prepared by Russell Fites-Kaufman

SUMMARY

The overall rate of failure for the check dams was 15%, with the majority of failed structures being straw. These occurred most often when straw structures were the primary type and in succession, such as in drainages D'Amico (13), White-Fry (4), Whitehall (8&6). The side slopes show very little signs of major erosion, such as rilling or slumping, at this time.

SURVEY/ASSESSMENT METHODS

The assessment was made between January 30 and February 4, 1993. Only drainages on the north side of the American River were examined. Each drainage on the check dam map was hiked and all structures were looked at closely. Information was recorded for each check dam including type and condition.

The rain totals for the months of January and February as recorded by Sacramento Municipal Utility District (SMUD) in the burn area are indicated below.

Area	Rainfall Totals (inches) December	January
Fresh Pond	16.83	18.79
Peavine Ridge	13.68	14.35
Jaybird Ridge	14.32	17.26
Onion Valley	15.67	22.81
Pennsylvania Ridge	15.91	18.27

Check dam failure (%) may be overestimated in some cases, because the estimate includes both currently failed and those that may fail. The latter show signs of partial breakdown in structure. This discrepancy could make a 5-10% difference in the actual failure rate. This pertains primarily to the straw bale structures. The log and sandbag structures were clearly good or bad, not showing stress as with the straw bale structures.

RESULTS

The percentage of good and failed check dams by type (log, sandbag, straw bale) and for all types is summarized in table 1 by drainage.

Table 1. Percentage of good and failed check dams by type.

Drainage	All Structures			Log		Straw		Sandbag	
	total	good	failed	good	failed	good	failed	good	failed
	no.	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1	72	63	9	39	1	23	7	1	1
2	17	12	5	6	0	6	5	1	0
3	23	19	4	7	0	10	4	2	0
4	54	43	11	21	1	22	10		
5	39	37	2	22	0	15	1	1	0
6	84	72	12	54	1	17	11	1	0
7	21	19	2	10	0	9	2		
8	40	31	9	25	2	6	7		
9	23	23	0	15	0	7	0	1	0
10	94	87	7	29	0	31	7	27	0
11	11	9	2	2	0	7	2		
12	20	14	6	6	0	8	6		
13	10	5	5	1	1	3	5		
14	5	2	3	1	0	1	3		
15	9	6	3	5	1	1	2		
16	11	11	0	5	0	5	0	1	0
Total No. Dams	534	453	80	248	7	171	72	35	1

REASONS FOR FAILURE

Log Structures: These failed mostly due to washing under the structures. Only one structure was lost due to blow out. This was caused due to not being keyed into the banks deep enough. The standard set for keying in logs was two feet on both sides for each log in the structure.

Sandbag Structures: The only sandbag structure that failed was due to tearing of the bags in the spillway. These structures appear to work very well and were the only type not to show any washing underneath.

Straw Bale Structures: Straw bale structures failed both from under-cutting and blow outs. Narrow steep drainages with structures having only two bales appeared very weak, tending to separate in the middle. Structures having three or more bales tended to have blow outs in the middle due to stress (sediment overload). In some cases the rebar came out along with the bale, where in others the bales broke loose leaving the rebar secure in the stream bed. Support on the downstream side, such as a log or a lot of large rock built up, seemed to alleviate this problem. Straw structures with more concave shape rather than straighter structures appeared to hold up better.

ADDITIONAL NOTES

Some structures were built on old logging skid trails which showed no signs of movement and don't appear that they will do so. These structures were not tallied into the figures.