

CALIENTE RESOURCE AREA
NV-055

EROSION SITES BASELINE DATA
MONITORING SUMMARY REPORT

SEPTEMBER, 1992

PREPARED BY

A handwritten signature in cursive script, appearing to read "Trudy Rhoades". The signature is written in dark ink and is positioned between the text "PREPARED BY" and "TRUDY RHOADES".

TRUDY RHOADES
SOIL SCIENTIST

OBJECTIVE AND GOALS:

The collection of baseline data from 8 erosion sites within the Caliente Resource Area for FY 92. With the baseline information collected at each site coupled with further monitoring information, it is the intent that several objectives and goals may be achieved now and in the future.

- 1.) Determination of the stability of the erosional feature.
- 2.) Progress and/or sediment yield of each site.
- 3.) Potential for corrective action if geomorphic site is appropriate.
- 4.) Determination of what might have initiated the event.
- 5.) Gully type and stage.
- 6.) Development of a soil erosion baseline monitoring form for Caliente Resource Area.
- 7.) Development of a soil erosional site form for ongoing monitoring for Caliente Resource Area.
- 8.) Development of an Off Highway Vehicle (OHV) pre- and post-race monitoring forms for Caliente Resource Area.
- 9.) Determination of short term and long term impacts on soil resources due to OHV events.
- 10.) Development of the Caliente Resource Areas erosion files.

(Note that objectives #6, #7, #8 and #10 are developmental in nature due to the lack of monitoring material available for soils at the resource area.)

INTRODUCTION:

Erosional sites and 2 OHV courses were selected within the Caliente Resource area for monitoring. As monitoring progressed, development of an erosion monitoring form occurred due to a lack of any monitoring forms. As the monitoring form was developed while monitoring progressed, thereby resulting in slightly different data being collected at each site.

Two OHV races; Delamar Hare Scrambles and the AMA National Hare and Hound were selected as monitoring sites. Six gullies were selected as erosion sites and one area was selected for use with an Erosion Bridge.

MONITORING METHODS

OHV SITES:

AMA National Hare and Hound

The cross country portions of the race course were visited both pre and post race. Pre-race evaluation included traversing each of the cross country sections of the race course. Time constraints allowed for the following soil properties to be observed; texture, coarse fragment content, erosion hazard, and slope. Collected data was rated according to the criteria given in the National Soils Handbook (NSH), July 1983, Table 603-37, Off-Road-Motorcycle trails. Based on the limitations addressed, the course was approved or rerouted to a more suitable route.

Delamar Hare Scrambles

Delamar Hare Scrambles monitoring site was visited prior to the race. The cross country portion of the race was traversed and photographs of the undisturbed course were taken. The surface soil was hand textured. Post race monitoring resulted in the site being revisited. Relative compaction was determined by inserting a sharpshooter periodically along the race course. Photos after the race were again taken.

Ocular observations were used due to insufficient time to prepare for the upcoming race, lack of monitoring criteria and equipment. During the post-race visit November 22, 1991, the entire cross country course segment had not yet been

GULLIES:

Gully headcuts were measured by measuring from a reference stake to a marker stake at the headcut (both offset from headcut). The gully depth and width was periodically measured and an average was taken. The gully length was paced off and a length measurement was determined. Several photo-points were designated at each site.

3-F EROSION BRIDGE:

Three random sampling units consisting of two erosion bridges placed end to end on fixed support pins are used to monitor the changes in the soil surface. Changes in the soil surface is measured along 10 fixed points drilled into the erosion bridge, by inserting a narrow metal measuring rod through the erosion bridge points and resting the rod on the soil surface. The top of the measuring rod extending over the top of the erosion bridge will be measured and will serve as baseline information. Changes in the soil surface can then be determined in the future with the given baseline information. Also, refer to *Estimating Soil Erosion Using an Erosion Bridge* (D. Blaney and G. Warrington, 1983, WSDG Report, WSDG-TP-00008, USFS).

MONITORING SCHEDULE:

Monitoring schedules should remain flexible. However, gullies should be measured at least yearly or as deemed appropriate by the monitoring person in order to determine rate of erosion and gully stage and to determine if rehabilitation is feasible. If a major or intense storm event is known to occur in the area it is also advisable to monitor post storm events as well.

The OHV sites should also be monitored yearly until objectives have been met or site has been considered "recovered".

POLICY SUPPORT:

The purpose of the monitoring stations are supported by MFP W-1.0 "Objective: Reduce erosion level of watershed by 1992..." and MFP W-1.1: "Decision: Coordinate the proposed intensive management with the range management activity (RM1.8)..."; MFP W-1.3: "Decision:...Restrict high impact uses... Restrict ORV competitive events to existing roads, trails, and washes whenever feasible when fragile soil areas are involved."; MFP W-2.1 "Decision: Construct small scale water control facilities on tributaries to the following major drainages...Clover Creek...Meadow Valley Wash and White River Drainage".

Monitoring objectives are also supported by the protection and enhancement of water quality (BLM Manual 1603.12E). Also, "it is Bureau policy to protect, maintain, restore and/or enhance the quality of water on public lands so that its utility for other dependent ecosystems, including present and/or desired human environments, will be maintained equal to or above legal water quality criteria...make cause and/effect determination of resource activities on water quality and recommend appropriate actions" (BLM Manual 7240.06). To be included would be "...it is mandatory that the Bureau identify both the condition of its water and the source of existing and potential pollution and take necessary action to initiate water pollution management activities" (BLM Manual 7240.4).

DATA

AMA National Hare and Hound:

Soil field reconnaissance for the AMA National Hare and Hound has been completed for the following:

Mount Diablo Meridian

T.2 S., R.67 E., Sections 2,4, 9, 11 and 12
T.1 S., R.67 E., Sections 22, 23, 26, 33 and 34

DATA ANALYSIS

Field results were analyzed using soil limitation ratings. Soil limitation ratings are defined as the following:

"Ratings for proposed uses are given in terms of limitations and restrictive features...only the most restrictive features are listed. Other features may need to be treated to overcome soil limitations for a specific use... Soils are rated in their "natural" state, that is, no unusual modification of the soil site or material is made other than that which is considered normal practice" (National Soils Handbook (NSH), July 1983, p. 603.56)

The limits are given as follows:

A.) SLIGHT - is the rating given to soils which have favorable properties for the use. The limitation is minor and can be easily overcome.

B.) MODERATE - is the rating given to soils which have moderately favorable properties for the use. The degree of the limitation can be modified or overcome by special planning, design or maintenance.

C.) SEVERE - is the rating given to soils which have one or more unfavorable properties for the use. The degree of the limitation requires major soil reclamation, special design or intensive maintenance.

See 430-VI-NSH, July 1983, pp. 603-56 and 603-67 for further explanation.

RATINGS

Attached are the soil limitation ratings. Four items have been deleted from the standard form. The four items and justification as to why they were deleted are as follows:

Formerly Item #1 - USDA TEXTURE - PERMAFROST - as permafrost is not a concern in this locality, it was deleted from the list.

Formerly Item #3 - DEPTH TO HIGH WATER TABLE - PONDING AND WETNESS - time constraints were prohibitive to an intensive survey and therefore this item was deleted. There were no areas that were suspected to have high water table concerns, however.

Formerly Item #7 - UNIFIED (SURFACE LAYER) - EXCESS HUMUS - As excess humus is not a critical concern for this locality, it was deleted from the list.

Formerly Item #11 - FLOODING - Much of the race course was intentionally located within washes and made this item obsolete for the proposed action.

The lower portion of the soil limitation form consists of soil interpretations based on the ratings, *The Meadow Valley Area, Nevada-Utah* soil survey and general soils knowledge.

Also, as a result of the soil investigations for the cross country portions of this race, a need has been identified for updated criteria for rating soils in terms of off road motorcycle race courses. A short meeting was held March 25, 1992, concerning ORV soil interpretations. Present at the meeting were CRA Area Manager, Curtis Tucker, CRA Soil Scientist, Trudy Rhoades, Soil Conservation Service employees, Doug Merkler and Rick Orr and Assistant State Soil Scientist, Tom McKay (SCS).

Item #12 - Other-Fragile, was discussed by Tom McKay. The concern that the rating is too open and leaves room for personal bias discussed. Also, Tom McKay believes that a useable interpretation form designed for this area could be available by September, 1992. However, this form will be subject to change as applicability dictates. An open line of communication will be needed between the BLM and SCS to "polish-Up" the form and database into a usable interpretation that could be used with or without field reconnaissance.

Concerns brought up by CRA, that we would like to see on the form included desert pavements, vesicular horizons, saline soils and Badlands Landtypes. Some of these may be used under "Other" if the category remains, since field reconnaissance would be required to verify some of these.