

The Front Range Climbing Stewards Plotinus Wall Erosion Mitigation Project Report

July 28, 2016



-OVERVIEW-

In 2016 The Front Range Climbing Stewards, a collaborative project of the Access Fund and The Boulder Climbing Community worked with the Boulder Ranger District of the Roosevelt National Forest to mitigate the erosive impacts of climbers visiting Plotinus Wall. The wall is home to 35 technical climbing routes and located in a grouping of climbing areas within Lower Dream Canyon. Climbing has been documented here for over 30 years. User visitation to the Plotinus Wall has sharply increased due climbing route development since 2002. The proximity to the major metropolitan area of the Front Range and the tremendous growth of climbing as a sport exasperates the impact issues here. This crag particularly enjoys popularity because of it's relative ease of access, abundance of routes of moderate difficulty and warm environment during cold weather. Funding for this project was provided by REI, Colorado.

-PROJECT SYNOPSIS-

The slope at the base of the crag is steep and during storm events becomes an erosive gully. With nearly 15 years of visitation to the area these steep slopes have lost their vegetation along much of the base of the approximately 200 foot long crag and show continued unnatural erosion (**Fig. 1**). FRCS proposed to the Boulder Ranger District a stewardship project of mitigating the erosion along the cliff base and was given the charge of implementing the project.

The project was scheduled for 3 weeks in June 2016 and design and project implementation strategies were vetted by the USFS. An agreement was coordinated with Boulder City Open Space and Mountain Parks to provide access through Boulder Falls for the construction. A strategy was set to construct stone structures along the affected areas that will dampen the flow of water and provide hardened surfaces where climbers access the cliff. This strategy required a considerable quantity of stone material to build the structures. Rock material was quarried above the wall and a highline rigging system (**Fig. 2**) was utilized to deliver this mass to the worksites

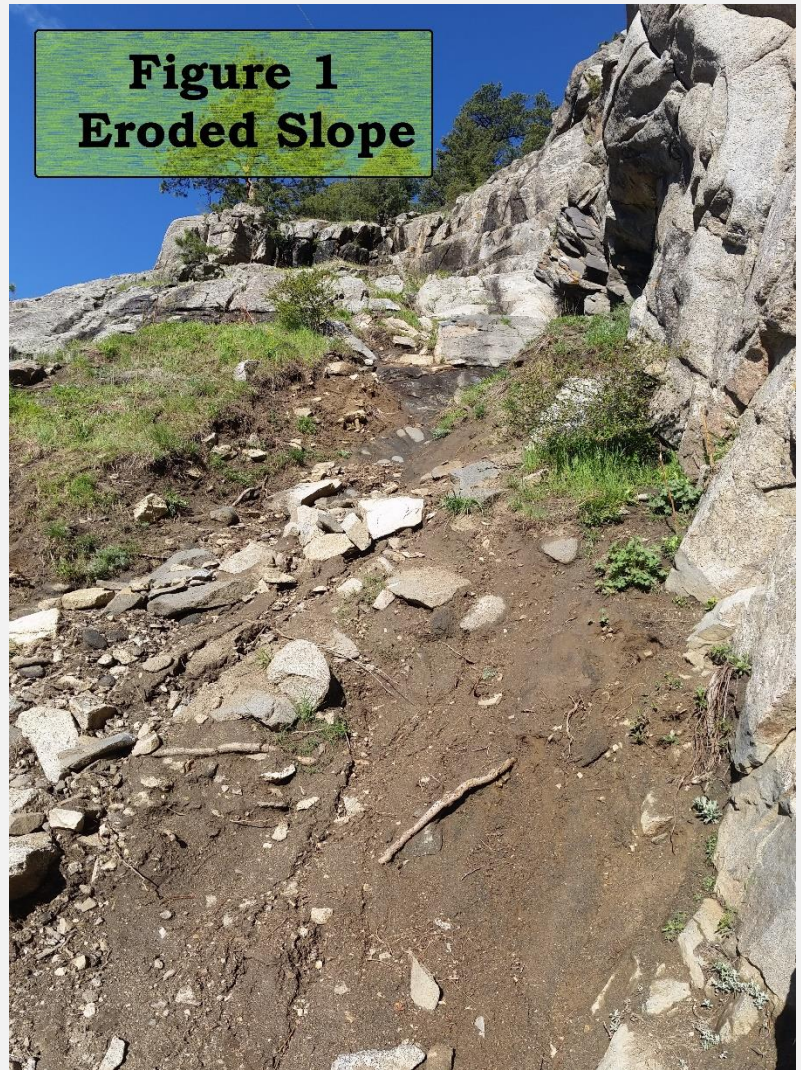


Figure 1
Eroded Slope



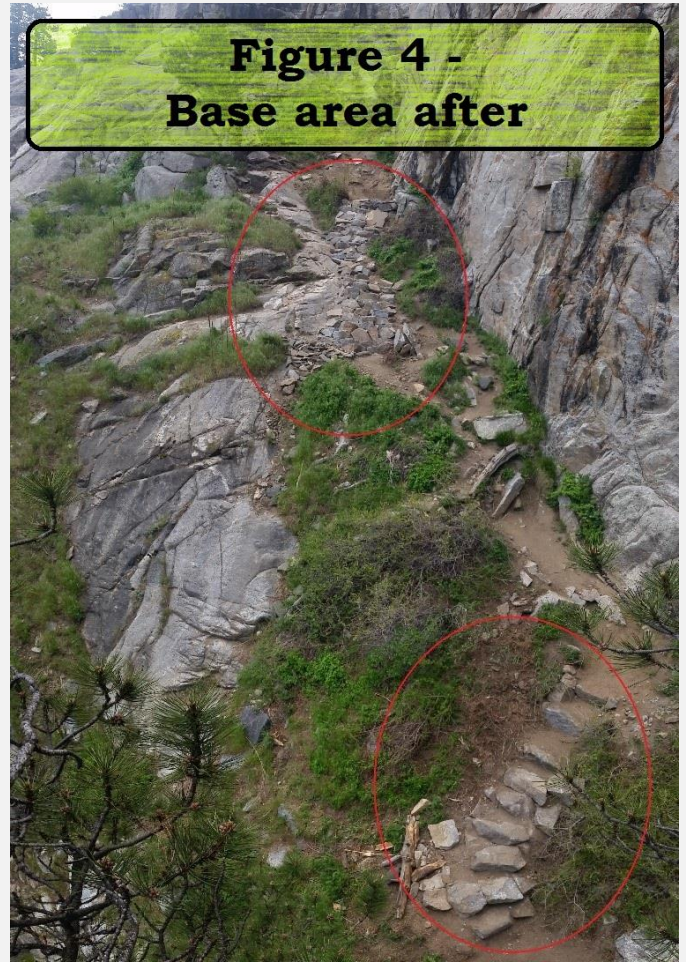
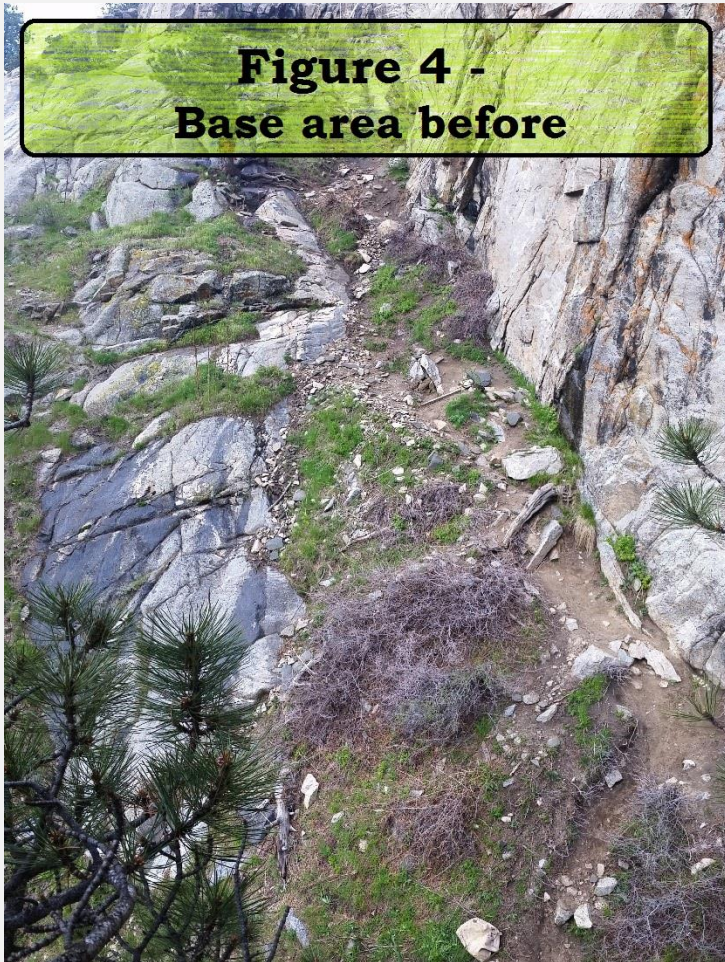
Figure 2 -
Use of highline for material transport



Figure 3 -
Crush fill construction

Once the material was located at the worksites FRCS utilized it to build erosion control structures and hardened surfaces at the base of the cliff (**Fig. 4, before & after**). All labor for the project was provided by the FRCS crew and volunteers trained and supervised by the crew. A total of 482 hours were logged on this project: 419 hours by the paid crew and 63 hours by volunteers. For a complete list of labor hours see **appendix A**. The Boulder

Climbing Community fundraised to support this professional crew as well as the project's design and management. REI Colorado generously provided the funding for this project. Overall the project expenditures totaled \$13,465.80. The FRCS is a joint venture between the AF & BCC, where AF provides Administrative services and BCC raises funds to cover staff expense. Both BCC and AF are 501c3 non-profit entities and represent the climbing community on a local and national level.



-PROJECT OUTCOMES-

Approximately 245 square feet of stone structures were constructed at the base area of the Plotinus Wall. These structures were designed and built to minimize the erosive impact of repeated foot traffic and water run off. Consideration was given to the climbing use patterns of the crag and the way that water flows through it. The structures were constructed in a style that mimics a natural talus field (**Fig. 5**). Great care was taken to pack crush fill behind the entirety of the structures in order to allow water to drain through the site in as slow and controllable manner possible (**Fig. 3**). Please see a detailed breakdown of the outcomes in the **Work Metrics** section below.

There remain roughly 600 square feet of erosive slopes and redundant social trails along the wall. Further attention is strongly suggested by FRCS to mitigate the erosion at the base of the wall. This effort will continue to be the focus of Boulder Climbing Community as a part of the whole Lower Dream Canyon project.

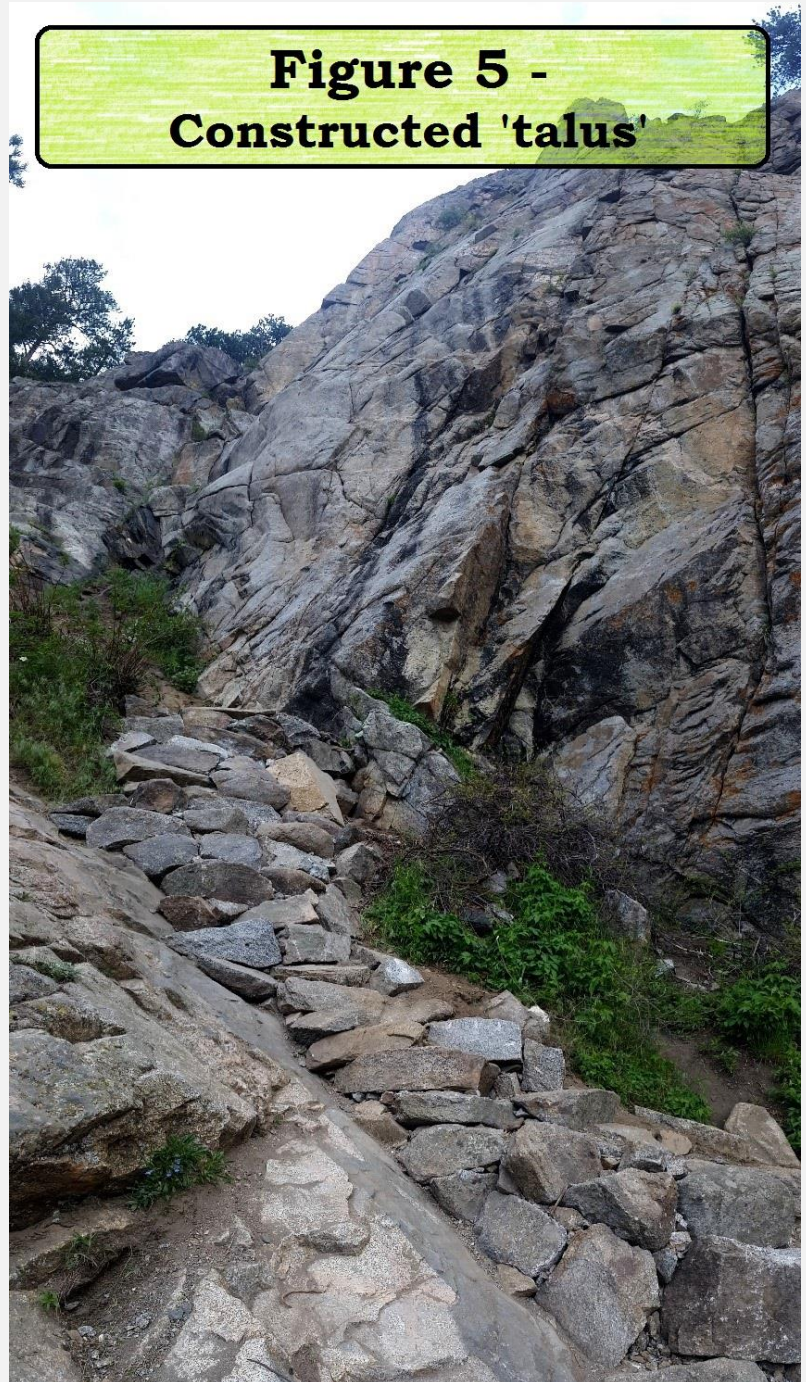
-WORK METRICS-

The metrics of the project are categorized in the following categories with the corresponding amount and unit of measure.

outcome	amount	unit
Check Step	9	#
Retaining Wall/Structure	227	SQ FT
Aggregate Backfill	418	CU FT
Move Rock by Hand	13	#
Move Rock by Highline	118	#

-APPENDIX A- Plotinus Wall 2016 Labor Log

NAME	DATE	HRS.
Justin Burks	5/18/2016	8
Eric Thomson	5/18/2016	8
Nick Wilder	5/23/2016	8
Jacob Dickenson	5/24/2016	7
Levi Dixel	5/25/2016	8
William Vandenberg	5/27/2016	8
Ben Mealey	6/1/2016	8
Rui Ferreria	6/2/2016	8
TOTAL VOL. HOURS		63
FRCS STAFF		
Aaron Mojica	various	120
Ben Raiche	various	120
Lonnie Veraldi	various	59
J.B. Haab	various	120
TOTAL STAFF HOURS		419
TOTAL HOURS OF LABOR		482



-APPENDIX C- Before and After photos of the structures constructed



