



The Front Range Climbing Stewards Plotinus Wall Erosion Mitigation Project Report

May 21st, 2017



OVERVIEW

In 2016 The Front Range Climbing Stewards (FRCS), a collaborative project of the Access Fund and The Boulder Climbing Community began working 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 accelerates 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 and many donors to Boulder Climbing Community.

PROJECT SYNOPSIS, PHASE TWO

The slope at the base of the crag is steep and during storm events becomes an erosive gully (**Fig. 1 & 2**). 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. FRCS completed phase one of the project in June of 2016 and returned in March of 2017 to tackle phase 2.



Figure 1 - Erosive slope before



Figure 2 - Hardened Slope after

Phase two of the project was scheduled for 4 weeks in March/April of 2017 but because another project was postponed, extended to 10 weeks in total. The overall concept for the project was a continuation of the goals and objectives of the work done in 2016. Constructing more stone structure along the affected areas to dampen the flow of water and provide hardened surfaces where climbers access the cliff was set as the strategy for the project. As with phase one, this strategy required a considerable quantity of stone material to build the structures. Sourcing that quantity of material near the cliff base was not possible. Rock material was quarried above the wall and a highline rigging



Figure 2 - Rigging Rock material into position

system was utilized to deliver this mass to the worksites (**Fig. 3 & 4**). Once the material was located at the worksites FRCS utilized the stone to build erosion control structures and hardened surfaces at the base of the cliff (**Fig. 5 & 6**). All labor for the project was provided by the FRCS crew and volunteers trained and supervised by the crew. A total of 1626.2 hours were logged on phase 2 of this project: 1473.2 hours of paid labor and 153 hours of volunteer labor. This makes a cumulative total of 2108.2 hours of labor devoted to this project over the last two years. For a detailed list of labor hours see **appendix A**. In addition to labor, approximately 90 hours of Planning and Development time has been dedicated to this project since inception. 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

PROJECT OUTCOMES, PHASE TWO

Approximately 625 square feet of stone structures were constructed at the base area of the Plotinus Wall during phase 2 of the project. 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 water flows through it. The structures were constructed in a style that mimics a natural talus field (**Fig. 7**). Please see a detailed breakdown of the outcomes in the **Work Metrics** section below and a sampling of before and after photos of various worksites in **Appendix B**. Of particular note is that nearly every rock used in this phase of the project (greater than 620 cu. ft. of stone!) was transported twice via highline rigging systems to reach its place in the structures more than 40 meters away over steep and unmanageable terrain. This required much effort, time and advanced



Figure 4 - Tensioning highline



Figure 5 – Before photo, taken June 20th 2016



Figure 6 – After photo, taken May 11th 2017

project planning and design. Additionally, great care was taken to restore the quarry sites above the crag after this phase was complete. Straight-forward and traditional ‘find and place’ construction would not suffice on this project.

FUTURE OUTLOOK

The access trail to the crag is still in rustic form and crosses a checkerboard of holdings of both public and private land owners: City of Boulder Open Space and Mountain Parks, Boulder County Open Space, US Forest Service and one private land holding. As the most convenient access is currently closed at Boulder Falls the area sees little visitation. However, with Boulder OSMP scheduled to work on issues within their holding and aiming to open it’s access, we project that visitation to this climbing area will increase dramatically. Our recommendation is that all of the land holders convene, agree upon one access route and plan for the eventual project of making that route sustainable. This effort will continue to be the focus of Boulder Climbing Community as a part of the whole Lower Dream Canyon project.

2017 WORK METRICS

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

2017 Project Outcomes	amount	unit
Rock Step	61	#
Retaining Wall/Structure	625	SQ FT
Staging areas constructed	101	SQ F
aggregate Backfill	357	CU FT
Duff Cover (1")	570	SQ FT
Restoration-- Fill, Rock 50%	210	SQ FT
Move Rock by Hand	4	#
Move Rock by Highline	336	#
Rock Quarrying	620	CU FT
Transplants	12	#

2016 & 17 WORK METRICS

2016-17 Project Outcomes	amount	unit
Rock Step	70	#
Retaining Wall/Structure	852	SQ FT
Staging areas constructed	101	SQ F
Aggregate Backfill	775	CU FT
Duff Cover (1")	570	SQ FT
Restoration-- Fill, Rock	210	SQ FT
Move Rock by Hand	17	#
Move Rock by Highline	454	#
Rock Quarrying	798	CU FT
Transplants	12	#

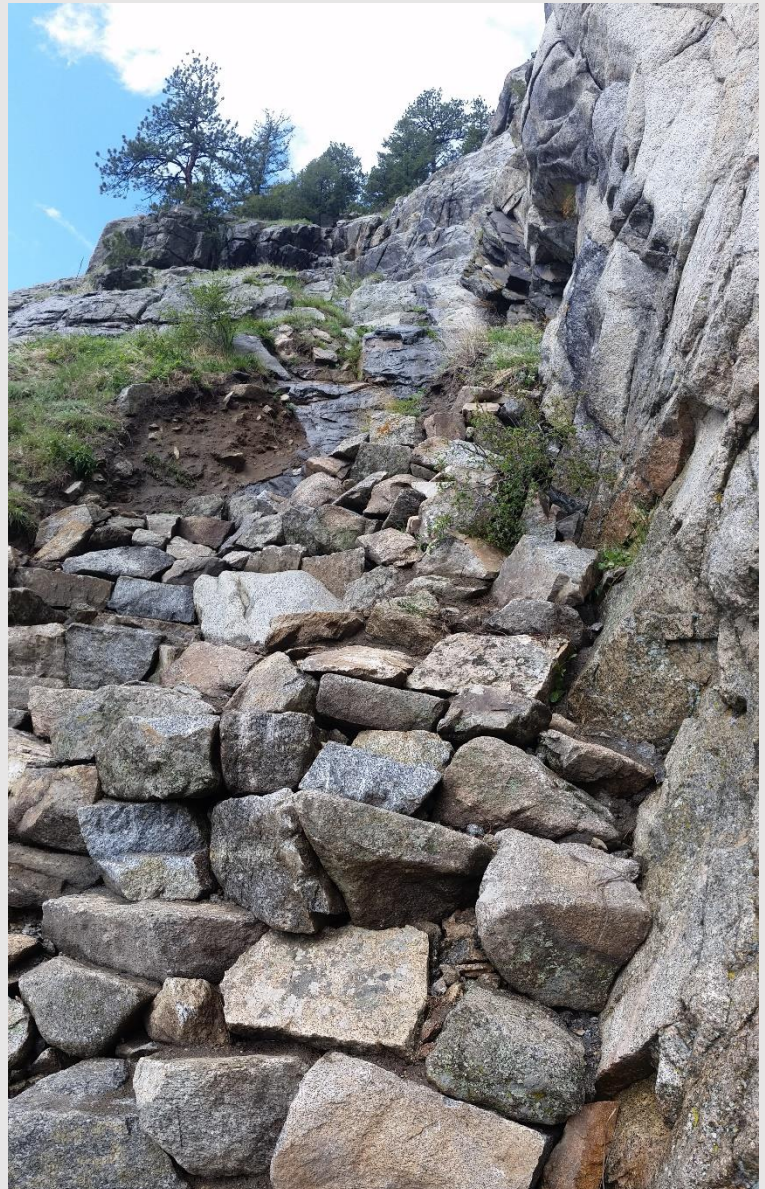


Figure 7 - Arranged talus construction

Appendix A- Plotinus Wall 2017 Labor Log

Volunteer	date	hours
Evan Andrews	3/7/2017	8
Evan Andrews	3/8/2017	8
Evan Andrews	3/9/2017	8
Mitchell Stubbs	3/14/2017	8
William Saint	3/15/2017	8
Fehim Hasecic	3/16/2017	9
Mitchell Stubbs	3/16/2017	8
Kevin Smith	3/21/2017	10
Glenda Lanvnis	3/21/2017	10
Kevin Smith	3/22/2017	10
Mary Wright	3/27/2017	8
Matt Bentley	3/29/2017	8
John D. Mattison	4/6/2017	6
Owen Silver	4/13/2017	8
Kenny Duong	4/17/2017	10
Chris Johnson	4/26/2017	10
Nick Wilder	5/9/2017	8
Aleksander Scully	5/11/2017	8
Total 2017 Vol. Hrs.		153

2017 FRCS paid Staff	hours
Aaron Mojica	287
Ryan Kuehn	324.75
Beth Liska	318.25
Daniel Dunn	257.5
J.B. Haab	285.7
Total 2017 Staff hrs.	1473.2
TOTAL 2017 LABOR HRS.	1626.2
Total 2016 vol hrs.	63
Total 2016 Staff hrs.	419
TOTAL 2016 & 17 LABOR HRS.	2108.2

Appendix B- before/after comparison photos



#1 BEFORE



#1 AFTER



#2 BEFORE



#2 AFTER



#3 BEFORE



#3 AFTER



#5 BEFORE



#5 AFTER