



INYO NATIONAL FOREST

DEADMAN'S WATERSHED ROADS

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EXECUTIVE SUMMARY

The strategic goal of this project is to measurably increase student research skills that ensure our national forests and private working lands are conserved, restored, and made more resilient to climate change, while simultaneously enhancing the sustainability of the Nation's water resources.

This project provides funding for 50 paid Water Resources Internships per year for a total of 200 internships to eligible students over four years. The internships provide an experiential approach to learning in the field of water resources and/or watershed management which helps students gain real-world experience in natural resource protection while developing new knowledge, skills, and abilities in problem-solving from a watershed perspective.

PROJECT OBJECTIVES

Many essential projects have been completed in the Deadman Creek watershed, a priority watershed for the Inyo National Forest. Many roads have received maintenance and/or were actively decommissioned in this watershed. The intern will assess current condition of National Forest System roads using the Soil and Water Road-Condition protocol to determine if additional maintenance is needed on roads already treated or if maintenance is needed on roads not initially treated and the status of the restoration. In addition, the intern will conduct **Best Management Practices (BMP)** monitoring using the **National BMP protocol** on campgrounds and other recreation use sites within the watershed.

These objectives correlate with the USDA and my potential career in Environmental Studies with an emphasis on Hydrology. In my career, I hope to work within a city or state level position in the Environmental Management field; directly involved with projects to build and strengthen communities and involve the city, state, and USDA Federal Commissions; incorporating a total scope of environmental sciences. By combining both Water Technology (City-Urban) and Environmental Hydrology (Forest-Rural) we can build communities in which families can thrive and can also exist symbiotically with nature with minimal to no impact. This is our future. This internship offered a glimpse into the how the government operates at a federal level.

PROJECT APPROACH

The approach to the project was to learn the various departments (administration, hydrology, botany, archeology...etc.) and their basic function; and how they relate to each other in the management of the Inyo Forest. Then, with a basic understanding, follow one project (“Road Assessment” through Hydrology department) to its final summary and conclusion.

TASK: ROAD ASSESSMENT

The Interns will assist with Head-cut data collection and water quality data collection on the Kern Plateau in support of a comprehensive environmental analysis and future watershed improvement projects. The inventory data correlates directly with Roads and Trails, Soils, Water Quality, and Aquatic Habitat indicators and associate attributes as outlined in the Watershed Condition Classification Technical Guide. Information collected will be used to determine future maintenance/restoration needs on system roads, unauthorized roads and campgrounds/recreation facilities. Information collected will also inform status of watershed healthy. The intern will collect data (paper and GPS), take photos and process the data in the office.

SPECIFIC TASKS DESCRIPTION

- *The intern collected road condition/maintenance data, and made draft recommendations as to future maintenance needs, utilizing a GPS, and a camera*
- *The intern collected information on previously closed routes, utilizing a GPS and a camera.*
- *The intern collected BMP data on selected sites utilizing a GPS and a camera.*
- *The intern collected soil condition data utilizing a GPS and a camera. As part of the collecting soils data the intern evaluated large woody debris in aquatic zones (Aquatic Habitat indicator)*

PROJECT OUTCOME-FINAL ANALYSIS

During the 2-month duration various level 2 and 3 roads as well as decommissioned unauthorized routes were assessed in the north-east portion of the Deadman watershed. Out of the 136 level 2 and 3 roads, 90 or roughly 66% were assessed for potential erosion issues. Additionally, of the 144 unauthorized roads, 136 or 94% were assessed. Due to the nature of the well-drained, pumice soils, little to no erosion was observed on the majority of the level 2 and 3 roads assessed. Furthermore, most of all the unauthorized routes that received some form of restoration work, which aimed at accelerating recovery, were all holding up and not showing any signs of ingress. *Photos and examples of overall road conditions follow in the appendices section.*

CONCLUSION

This internship was an amazing experience, especially understanding the dynamics of the physical nature of this job's daily operations. The intern must be in good physical shape to be able to cope with having to hike, sometimes for over 3 miles at elevations of upwards of 7000 feet; having hit heights of 10,000 feet where the oxygen availability drops 30%. The views of these landscapes were no less than majestic and simply breathtaking (literally).

The suggestions for future internships of this nature would be for the intern to be instructed to bring their own laptops along with the cell phone from which they can tether the internet from. The lack of WIFI in the barracks made for unproductive downtime.

This experiential learning internship has furthered my career goals, specifically my prospective career with the USDA.

APPENDICES: PHOTOS, EXAMPLES OF ROAD CONDITIONS



Figure 1. Picture showing the condition of most roads in the watershed.



Figure 2. Another road that was showing little signs of erosion.



Figure 3. Unauthorized route that still has plenty of vertical mulch and barrier intact.



Figure 4. Another unauthorized route in good condition.



Figure 5. Jose Santos Cruz (Intern) on Assignment: ROAD ASSESSMENT!!

REFERENCES

The San Dimas Technology and Development Center (SDTDC) of the Forest Service, U.S. Department of Agriculture, developed the **Soil and Water Road-Condition Index (SWRCI)** to provide a road condition assessment tool for watershed- and project-scale analysis.

SWRCI is intended to be a rapid-assessment tool for soil scientists and hydrologists to identify effects of roads on soil quality and function, as well as impacts to water quality and downstream values. The road-condition rating uses key indicators to identify potential soil and water problems on a road or road segment (a portion of a road with similar characteristics, such as surface shape, road gradient, hillslope position, or surface condition).

This field guide incorporates photographs of road conditions that illustrate both functional and at-risk indicators. Interdisciplinary teams can use the road-condition information collected using SWRCI to identify potential opportunities for soil, water, and road solutions. A companion publication, the soil and water road-condition index- desk reference:

- Provides a description of each road attribute.
- Identifies the questions the attribute addresses for a project- or watershed-scale roads analysis.
- Identifies related indicators, and the usefulness of the attributes, in identifying road impacts to soil and water resources with referenced research findings. (SWRCI)

Soil and Water Road-Condition Index: Field Guide. Place of publication not identified: Not Avail, 2012. Print.