**Project Completion Report:**

**Colorado Plateau Cooperative Ecosystem Studies Unit (CP-CESU)**

**Project Title:** Collecting the Intermountain Region’s Greenhouse Gas Emissions

**Project Code (such as UMT-72 and/or the “J” number):** PR/J Number: R1247100008

**Type of Project (Research, Technical Assistance or Education):** Research and Educational (research interns)

**Funding Agency:** National Park Service

**Partner Institution:** Fort Lewis College

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**Start Date of Project:** May 17, 2010

**End Date of Project:** December 31, 2010

**Funding Amount:** $26,566

**Project Summary**

**Overview**

In the summer of 2010, two interns from Fort Lewis College participated in the National Park Service Colorado Plateau Cooperative Ecosystem Studies Unit summer internship program designed to study and improve the sustainability of national parks in the Four Corners region of the Southwest United States. This internship program was offered by the CESU in collaboration with the Environmental Studies Program at Fort Lewis College coordinated by Tina Evans, who also served as the Primary Investigator. Two upper division Environmental Studies majors from Fort Lewis College, Lisa Mullins and Aretta Begay, were the selected as project interns through a competitive application process administered by Brad Traver and Tina Evans.

A central goal of the project was to offer field experiences and career enriching opportunities in the field of sustainability to interns from diverse backgrounds. The FLC Environmental Studies Program selected two excellent female interns, including one member of the Navajo Tribe who is a fluent speaker of the Navajo language. Therefore, the project was able to successfully engage interns from underrepresented groups in National Park Service training and work.

The interns assisted the NPS with conducting inventories of the greenhouse gas emissions and water consumption for parks to which they were assigned. The interns conducted research at a total of eleven National Park administered sites.[[1]](#footnote-1) They also traveled to the Intermountain Region Office in Denver for training and to present their work at a project wrap up session attended by NPS staff.

**Training**

Prior to beginning their work at specific park locations, the interns received training and guidance from NPS staff, led by Margaret McRoberts, Sustainability Coordinator for the Intermountain Region of the NPS. At the training session in Denver, a mentoring agreement between NPS contacts and the FLC interns was established to ensure that the special interests and skills of each intern would be developed during the project. Throughout their internship work, the students continued to receive training and mentoring from staff at individual parks to which they were assigned as well as from McRoberts and Evans.

Interns received three days of training in the following areas at their initial meeting with NPS staff in Denver:

* Systems thinking and sustainability,
* Executive orders and legislation relevant to the project,
* Greenhouse gas emissions and the Clean Air Act (sessions presented by EPA staff),
* Thermography and building energy use calculation,
* Climate Leadership in Parks (CLIP) tool use for data gathering (sessions presented by ICF International),
* Cross-cultural communication and the NPS culture,
* NPS structure, and
* Project schedule and logistics.

**Project Tasks**

*Greenhouse Gas Emissions Analysis*

Interns were responsible for collecting energy use data and entering it into the CLIP tool for each National Park Service administered site to which they were assigned. In some cases, parks had assembled a majority of these data, ranging from energy bills to park visitation records, prior to the arrival of the interns on site, but in some cases, interns assisted with assembling the required data. Ideally, data included historical information from 2003 through 2009. The CLIP tool was used to automatically calculate greenhouse gas emissions once the appropriate data had been entered.

*Water and Energy Use Data Analysis*

Interns collected and analyzed energy and water data for individual buildings within parks. Their analysis included collecting energy data for individual buildings in order to help the park better determine appropriate energy conservation and efficiency measures. In circumstances where no data existed or the data were inaccurate, interns collected alternate data or energy measurements to create baseline information. Interns collected, managed, and maintained backups to a databases used to enter and analyze building-level energy and water information such as fuel types, energy consumption, and water consumption. Interns also gathered information on building usage (current and historic) and the year each building was constructed. This information contributed to total park energy and water consumption data input into the CLIP tool.

*Staff and Visitor Education*

The FLC interns also presented their work on at least one occasion to school children visiting a park site, and as an integral part of the project, they discussed their work with park staff. The interns very much enjoyed discussing their work with the school children and encouraging them to learn about sustainability and be more responsible for the health of the environment. They also learned a great deal about how diverse park staff working in a variety of locations see their work and its relationship to sustainability. Discussions and collaboration between the interns and park staff created valuable learning exchanges in both directions.

**Deliverables**

The interns provided parks and Margaret McRoberts with reports and information throughout the internship, including the CLIP tool and building data outlined above. Additionally, the interns participated with other interns, who had worked on similar assignments at other national parks, in a formal presentation of their work to park staff at the Intermountain Region Office in Denver in August of 2010.

**Time Period**

This project began on May 17th, 2010 and concluded on December 31, 2010.

**Project Success**

In terms of student learning, this project was an incredibly valuable experience for both Mullins and Begay. They were able to apply their generalized knowledge in the areas of climate change, environmental protection, culture, and sustainability to a project with important and far reaching goals and implications. Their experience will no doubt prove beneficial as they complete their studies and seek professional employment. Both students learned a great deal about conducting complicated research in situations where gaps exist in what would be ideal data sets. They learned to work collaboratively with others to overcome obstacles and find information necessary to complete their assigned tasks. Their work with NPS staff and the excellent opportunity they had to present their work at the closing session has greatly and positively influenced their development as young environmental professionals. The students and the PI are very grateful for having had the opportunity to participate in this project.

In terms of NPS sustainability goals, the information the students gathered will prove beneficial for planning and implementation of greenhouse gas emission reductions and water conservation for many years to come. The interns and the PI are very pleased to have been part of this important and groundbreaking effort.

1. The specific sites were: Capitol Reef National Park, Bandelier National Monument, the Old Santa Fe Trail Building, Pecos National Historical Park, El Malpais National Monument, El Morro National Monument, Petroglyph National Monument, Fort Union National Monument, Aztec Ruins National Monument, Mesa Verde National Park, and Chaco Culture National Historical Park. [↑](#footnote-ref-1)