

Project Completion Report

Project Title: Herbarium and Database Organization

Park: GLAC

Funding Source: Rocky Mountains CESU Technical Assistance Funding; Glacier Fund

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Project Description:

The Glacier National Park Herbarium houses specimens of both vascular and non-vascular plants. The purpose is to archive up to six samples (three from either side of the divide) of each species known to occur in the park to show the range of variability the species can demonstrate. Samples are pressed, dried, and mounted on archival quality paper and stored in the park museum. All specimens are cataloged and detailed information is stored in a standard NPS database (ANCS+). Specimens are considered vouchers of our plant inventory and are used for research and aid in plant identification.

In doing research for the recently published, *Flora of Glacier National Park*, nearly one thousand new specimens were collected for the park herbarium which were mounted by volunteers from the Montana Native Plant Society, and many annotations were made to existing specimens to reflect recent taxonomy changes. Data entry was completed for only about half of the new specimens at the time they were mounted. The remaining specimens had been stored in the museum in stacks on shelves and in boxes for the past several years awaiting data entry before they could be filed and properly archived in the herbarium specimen storage cabinets. It was difficult or impossible to use this material for reference in its state of disarray. Among the specimens were several sensitive species and some that for many years were considered historic records. It had been difficult to keep the Montana Natural Heritage Program abreast of these new records without the information being included in our database.

Biological technicians had chipped away at the backlog on rainy days, and in doing so brought to light many errors in the database, including glitches resulting from bringing the database from an older version of ANCS into the current version (ANCS+). It became clear that it would take several more years to get the specimens appropriately filed and the database cleaned and updated at the prior rate of progress. It was also challenging to ensure that data was entered consistently when it was being entered in a piecemeal fashion by several different people.

The objective of this project was to complete accurate data entry for all of the backlog specimens, to create archival labels for the specimens, to proofread the labels for errors, affix them on the specimens, and to file the specimens appropriately in the park museum.

An excellent botany student from the Salish-Kootenai College was hired to complete the data entry. Due to family obligations, she required a flexible schedule and worked a part-time schedule which this project was able to allow. Total time spent on the project between July-November 2003 was eight weeks of full time work. The intern was provided with training in use of the ANCS+ database. We selected an intern with familiarity with plant taxonomy, classification and scientific nomenclature. Her attention to detail and accuracy were quite valuable in this project.

The intern logged each specimen in the museum log book and completed data entry into the NPS ANCS+ database. For each specimen, data was entered regarding identification, when and where the specimen was collected, elevation, habitat, associated species, who collected it and identified it, a description of the specimen, and any other available, pertinent data. Once the data was entered, museum labels which were automatically generated from the database program were printed on archival quality paper. The labels were proofread for errors by the park ecologist and biological technicians with botanical expertise. Only a very few, minor errors were found in the proofreading, and these were corrected and reprinted. The approved labels were then affixed to the herbarium specimens with archival safe glue. Finally, the specimens were filed in their appropriate locations in the herbarium museum cabinets. New specimen folders were created when needed during filing.

Project Results:

Data entry was completed for nearly 500 herbarium specimens, which includes all of the backlog specimens that were awaiting data entry before they could be filed. For each specimen, the database includes information on taxonomy, where and when the plant was collected, the habitat in which it was growing, who collected and identified it, as well as a description of the specimen itself. Labels were printed for each specimen, and proofread by appropriate park staff before they were affixed to the herbarium mounts and filed in the park museum cabinets. The products produced by this project are the new herbarium labels now affixed to the herbarium mounts and filed in the park herbarium. An updated version of our ANCS+ database (plant records only) was also produced. This voucher specimen data will also be linked to the on-line NPSpecies database.

The intern from the Salish-Kootenai College did a very accurate job on the data entry, and has had a successful internship, gaining experience both in museum cataloging, as well as separately funded work in Glacier's native plant nursery. The intern's stronger interest was in the herbarium project, and due to her part time schedule, the park nursery did not receive all the assistance from the position that they had hoped for. She completed all of the hours of work that were funded for the herbarium project, and she continues to work on a part time basis to complete her commitment to the native plant nursery project. There was not time during the project to make much progress on checking existing data for errors.

With all of the data properly entered into the database, we are better be able to respond to public information requests about plants in the park. It is possible to retrieve data on what species were collected, when the specimen was collected, whether it was blooming

or in fruit, the location, elevation, habitat, and associated species, and who collected and identified it. We can provide the data on rare plant collections to the Montana Natural Heritage Program. A good working database saves wear and tear on the herbarium which includes specimens collected in the late 1800s and early 1900s. The project has also relieved pressure on the park's understaffed curatorial program.

The park herbarium is used regularly by natural resource staff, particularly vegetation monitoring staff and fire effects monitoring staff, as well as by outside researchers.

Budget:

Seed money for the herbarium and database organization project was provided by the Glacier Fund with \$1,100, and with support for seasonal housing and permanent staff assistance from Glacier National Park worth \$2,112. The estimated funding was matched by the Rocky Mountains Cooperative Ecosystem Studies Unit with an additional contribution of \$2,153. The budget itemized below does not include funding for the Native Plant Nursery Intern project, which has been submitted to CESU in a separate report.

Budget Items	GNP	Glacier Fund	CESU Funds	Totals
Student Intern (GS4 skilled):				
8 weeks salary		\$1,100	\$1,460	\$2,560
fringe benefits			\$ 269	\$ 269
SKC overhead			\$ 424	\$ 424
Housing	\$ 612			\$ 612
GNP staff time:				
training/museum prep	\$1,000			\$1,000
supervision/review	\$ 500			\$ 500
TOTALS	\$2,112	\$1,100	\$2,153	\$5,365