

**Digital Geologic Maps of Fossil Basin, Wyoming  
CESU Final Report 2007  
2004-USU-017**

|                                   |                           |
|-----------------------------------|---------------------------|
| <b>Cooperative Agreement #:</b>   | <b>H1200040002</b>        |
| <b>PMIS#:</b>                     | <b>69989</b>              |
| <b>Funding Status:</b>            | <b>Funded: \$19,612</b>   |
| <b>Comprehensive Call Source:</b> | <b>NRPP – Servicewide</b> |

|                                 |  |
|---------------------------------|--|
| <b>Principal Investigators:</b> | <b>Doug Ramsey<br/>John Lowry<br/>GIS Laboratories<br/>5275 Old Main Hill<br/>Utah State University<br/>Logan, UT 84322-5275</b> |
|---------------------------------|--|

|                     |  |
|---------------------|--|
| <b>NPS Contact:</b> | <b>Arvid Aase<br/>Fossil Butte National Monument<br/>307-877-4455<br/>arvid_aase@nps.gov</b> |
|---------------------|--|

**Introduction**

Geologic mapping in the field was completed for Fossil Basin in 2002–2004. Initial map data from 2002 season was entered into Illustrator, the subsequent years remained as inked lines on stereo aerial photographs. The CESU cooperative agreement was used to digitize the map data by Utah State University GIS Laboratories. The data in Illustrator needed migrated to ArcMap. Map data on stereo aerial photos from 2003 and 2004 seasons needed heads-up digitization into ArcMap overlaying DOQQs. Selected portions of existing 1:62500 geologic maps needed digitized and scaled to match the published map size of 1:24000. The final digital maps are in layers that group similar features (e.g. formation contacts, faults, strike and dip readings, etc.) in accordance with the standards of the United States Geological Survey. The 1:24,000–scale digital maps were reviewed by the Arvid Aase and Paul Buchheim and returned to the partner institution for corrections. Once in final draft form the maps were forwarded to the Tim Connors at NPS Geologic Resources Division to finalize formatting to meet NPS standards. The maps are now being formatted for publication by the Wyoming State Geological Survey.

**Project Completion Report**

Doug Ramsey at Utah State University assigned John Lowry, GIS assistant director of projects, to oversee the project. The first academic year three students were hired to digitize data. One student was assigned the heads-up digitizing and a few months into the project another was hired to assist. A third student was tasked with converting the Illustrator data into GIS format.

During the first round of reviews by Paul Buchheim he noted segmented lines rather than smooth curves on the heads-up digitized maps. This was discussed with John Lowry and the student. The maps were revisited and additional points inserted to smooth the curves. Paul was pleased with the data converted from Illustrator into GIS.

At the completion of the first academic year the digitizing was not yet completed and the first round of reviews not finalized and entered. The delay was a combination of slow turn around on reviews and longer time digitizing than expected.

As is the nature of student labor, the three students working on the project one-by-one moved on so a new student needed training on what was completed and what remained. The student hired during the 2005-2006 was not as skilled as the previous students resulting in slower production. A new student was hired in spring of 2006, but only lasted 2 months before moving to something else. Finally, in the summer of 2006 a student was hired who was experienced and carried the project to completion in the spring of 2007. Paul Buchheim spoke very highly of the final student's understanding of GIS and responsiveness to requests and questions.

The maps were turned over to Paul Buchheim in May of 2007. Paul reviewed them and submitted them to the NPS GRD Geologic Mapping Division who formatted and posted the maps to the NPS datastore. When asked about the quality of work done by Utah State University the GRD staff praised the accuracy and quality of work.

The maps can be downloaded from the following site:  
<http://science.nature.nps.gov/nrdata/datastore.cfm?ID=44844>