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Geologic Resources Inventory Workshop Report
Florissant Fossil Beds National Monument, CO

Tim Connors
NPS Inventory and Monitoring Program

**Florissant Fossil Beds National Monument
Geological Resources Inventory Workshop
October 21, 1998**

Meet at Park Headquarters

- 9:00 AM **Introductions, milling around**
- 9:15 **NPS Geological Resources Inventory**
What we hope to accomplish - Bruce Heise, GRD
- 9:30 **Field Trip of the park**
Geologic Setting, geologic issues confronting the park - Park Staff and
Outside Experts
- 12:00 Lunch - suggest a brown bag
- 12:30 **NPS Geological Resources Inventory - I&M and GRD Program
Overview** - Bruce Heise and other GRD Staff
- 1:15 **Geological Resources Needs and Issues at FLFO**
Herb Meyer, Tom Ulrich, other park staff
- 2:00 **GIS/Geologic Map/Digital Status**
Sarah Beetch, Anne Poole
- 2:30 **Continued Discussion Including:**
- Additional Park Needs
 - Summary of USGS Geological Mapping and Research
 - Other Cooperators and Discussion
 - Authors for Report and/or other papers
 - Deliverables from mapping, cooperators, and NPS inventory
- 4:45 **Meeting wrap-up and feedback**

WORKSHOP COOPERATORS

NAME	AFFILIATION
Bruce Heise	NPS, Geologic Resources Division
Tim Connors	NPS, Geologic Resources Division
Herb Meyer	FLFO
Jean Rodeck	FLFO, Superintendent
Tom Ulrich	FLFO, Chief Ranger
Anne Poole	BLCA/CURE, GIS
Sarah Beetch	BLCA/CURE, GIS
Barb Mieras	Geological Society of America
Emmett Evanoff	University of Colorado Museum
Jim Wood	NPS, Geologic Resources Division

WORKSHOP SUMMARY

An inventory workshop was held at Florissant Fossil Beds National Monument on October 21, 1998 to discuss the park's geologic resources and associated issues and needs. Ten cooperators participated in the daylong workshop, including Jean Rodeck, FLFO Superintendent.

After introductions by the participants, Bruce Heise (filling in for Joe Gregson who could not attend the meeting) presented overviews of:

- the NPS I&M Program,
- the status of both the natural and geologic resources inventories,
- the organization of the Natural Resource Stewardship and Science Washington Office, GRD, and the Colorado pilot project.

Afterward, Sarah Beetch and Anne Poole presented their progress on digital geologic maps.

The main items of discussion for this workshop centered on the following:

- existing geologic maps,
- park natural resource management needs,
- RMP statements, and
- the usefulness of existing published literature to serve as a sufficient geologic report for the monument.

Geologic Maps

Some of the available geologic maps (paper copies) come from the following sources:

- Preston Louis Nieson (1969), New Mexico
- Ralph Root (1981), currently of the USGS-BRD, formerly of the NPS (??); this map has been digitized (Anne Poole held up a copy); However, questions arose about problems with this map (i.e. it was digitized off of copies, and Evanoff disagrees with

the denoted faults). Emmett would like to schedule some time in the field with Ralph Root to examine evidence for faults in the valley. Ralph was with the NPS GIS Division. His map was digitized using Grass software and paper maps that were spliced together. Also, the CURE GIS folks were concerned that the existing maps do not extend beyond the park boundary.

- Emmett Evanoff (1992), University of Colorado at Boulder; this is a *surficial* map
- Emmett Evanoff (1994), University of Colorado at Boulder; this map is published in a 1994 Geological Society of America field guide and was deemed sufficient by the group to serve as the geologic map to use for our report. However, Evan believes we should have a map that shows the breakdown of the Florissant Formation Units as Evan sees them. He says he can get a map together in a month or so.

Needs

Some of the addressed needs for Florissant Fossil Beds NM included:

- A better Quaternary map
- A paleontology intern for working on web pages; Tom Ulrich specifically mentioned Marc Duggan. Tom was trying to help Marc find some work with us. He said Marc is going to help them, but wanted to know if we were interested in picking him up to work on our projects out of Fort Collins.
- Students/Interns. It was further discussed that semester students were preferred over quarter students because of the starting times (available May through August when housing was most likely to be provided by the park; cannot offer housing in September).
- Tom Ulrich mentioned that the park has applied for Canon grant funding to support a winter/spring internship to work on park databases and environmental education programs.
- Fee\$ for excavations ??? _____
- FLFO is looking into redesigning their park brochure through Harpers Ferry Center and may need additional funding. The redesign will remove the "age of mammals" thematic panel and replace it with a park map and park specific information. FLFO and other fossil parks have expressed a desire to develop a servicewide NPS fossils thematic brochure.

RMP statements

- According to Tom, Herb Meyer has done an excellent job in developing and implementing RMP statements since his arrival.
- The Park's proposals for Geologist-in-the-Parks funding from the Geological Society of America are closely tied to existing RMP statements and offer a diverse range of experiences and training.

Report

A geologic report for the monument could be generated from one of the following notable publications:

- Herbert W. Meyer and Laine Weber \$1.00 publication that can be found in the FLFO bookstore entitled "Preservation of an Ancient Ecosystem". He is also currently writing a summary of the paleontological features of the monument; his database is his major source of documentation for this
- Emmett Evanoff's 1994 GSA field guide
- Emmett Evanoff's 1992 ring binder that was compiled for a field course that he taught at Florissant
- Ralph Root's 1981 report that accompanies his maps
- Jim McChristal files on early history of geology of area (*note: I'm not sure of correct spelling or content of this report; ?? ____ this needs researched*)

The topic of "Disturbed Lands" from past agricultural activities and subsequent dams was also discussed and should be mentioned in the report. Alex Birchfield (CSU) and Tom Ulrich are working on developing models to estimate the failure potential for some of these man-made retention structures. Given the potential for failure, it is possible that any breaching of these structures can serve as a major threat to the natural resources of the monument. Any publications on this subject should be incorporated into this final report

It was further noted that both Evanoff's and Meyer's reports have good references.

ACTION ITEMS

1. Evanoff will return to the area in November to complete mapping of the monument to fill in what he feels are gaps in the breakdown of the Florissant Formation members (as he sees them). He feels he can be finished around Thanksgiving. Soon after he felt he could turn over the maps to Sarah and Anne for digitizing.
2. Evanoff mentioned that he has detailed stratigraphic sections that he will provide for the report. He also has designated a few type sections within monument boundaries and will provide write-ups on those as well. Connors needs these as part of a preliminary inventory and will pursue getting this information
3. It was mentioned that several of the older paper maps are out of print and unavailable at this time. Heise will look into the ability of the USGS to update maps and reprint out of stock originals (I-1044 was specifically mentioned).

4. Evanoff mentioned that he would soon be conducting research in **BADL**; he should be added to the list of cooperators for that park due to his help and interest at FLFO.

APPENDIX A: OVERVIEW OF GEOLOGIC RESOURCES INVENTORY

The NPS Geologic Inventory is a collaborative effort of the NPS Geologic Resources Division (GRD) and Inventory and Monitoring Program (I&M) with assistance from the U.S. Geological Survey (USGS), American Association of State Geologists (AASG), and numerous individual volunteers and cooperators at NPS units, colleges, and universities.

From the perspective of the servicewide I&M Program, the primary focus (Level 1) of the geological inventory is

1. to assemble a bibliography of associated geological resources for NPS units with significant natural resources,
2. to compile and evaluate a list of existing geologic maps for each unit,
3. to develop digital geologic map products, and
4. to complete a geological report that synthesizes much of the existing geologic knowledge about each park. The emphasis of the inventory is not to routinely initiate new geologic mapping projects, but to aggregate existing information and identify where serious geologic data needs and issues exist in the National Park System.

The NPS Geologic Resources Division is an active participant in the I&M Program and has provided guidance and funding in the development of inventory goals and activities. GRD administers the Abandoned Mine Lands (AML) and Geologists In Parks (GIP) programs which contribute to the inventory. NPS paleontologists, geologists, and other natural resource professionals also contribute to inventory planning and data. A major goal of the collaborative effort is to provide a broad baseline of geologic data and scientific support to assist park managers with earth resource issues that may arise.

For each NPS unit, a cooperative group of geologists and NPS personnel (the Park Team) will be assembled to advise and assist with the inventory. Park Teams will meet at the each NPS unit to discuss and scope the geologic resources and inventory, which is the subject of this report. If needed, a second meeting will be held at a central office to evaluate available geologic maps for digital production. After the two meetings, digital geologic map products and a geologic report will be produced. The report will summarize the geologic inventory activities and basic geology topics for each park unit. Due to the variety of geologic settings throughout the NPS, each report will vary in subject matter covered, and section topics will be adapted as needed to describe the geologic resources of each unit. Whenever possible the scientific sections of the report will be written by knowledgeable cooperators and peer reviewed for accuracy and validity.