

NSDI Cooperative Agreements Program Metadata Training & Outreach Project

Final Report

Agreement Number: 08HQAG0016

Final Report

Organization: Merriam-Powell Center for Environmental Research
Northern Arizona University
PO Box 6077
Peterson Hall, Building 22, Room 330
Flagstaff, AZ 86011-5765,
<http://www.mpcer.nau.edu/>
<http://www.grail.nau.edu>

Project Leader: Paul Heinrich
paul.heinrich@nau.edu
Phone:(w) 928-523-1939
(cell) 928-310-8191

Executive Summary

We conducted two public metadata workshops and two public web mapping workshops. We also conducted a special private metadata workshop for the Ecological Restoration Institute here at NAU on May 7 & 8, 2009, no FGDC funds were used for the ERI workshop. The public metadata workshops were held on November 6 & 7, 2008 and July 8 & 9, 2009. Web mapping workshops were held on February 11, 2009 and August 28, 2009 at NAU. All workshops were held at Northern Arizona University. During the winter of 2008-2009 several of our attempts at conducting workshops were disrupted by winter storms. In previous years this had not been a problem and a winter schedule was believed to be more convenient for our clientele who tend to have busy summer field seasons. In the future, we will likely only schedule workshops in the spring through fall to avoid problems with weather. Our first workshop was intended to be held during the annual Indigenous Mapping Network (IMN) meeting August 6 & 7, 2008 in Green Bay, Wisconsin. We had to cancel this workshop due to the cancelation of the IMN meeting.

Project Narrative

The Merriam-Powell Center for Environmental Research (MPCER) conducted three metadata training workshops on November 6 & 7, 2008, May 7 & 8, 2009 and July 8 & 9, 2009. We also conducted web mapping workshops on February 11th, 2009 and August 28th, 2009. The web mapping workshops were 1-day long. These workshops included modules on several web mapping technologies and using the metadata standard to publish web map through the Geodata

One Stop. Students were strongly encouraged to publish their web mapping projects at geodata.gov. The web mapping workshops proved very popular and helped attract many individuals from groups we had not worked with before. This allowed us to get people into the classroom and then “evangelize” to them about the metadata standard. We believe that this sort of “value-added” workshop may be a good method to interest students and organizations in data documentation.

During the winter of 2008-2009 several attempts at scheduling workshops failed due to winter storms falling on the workshop dates. Much of our clientele are from remote parts of the Colorado Plateau and winter travel can be extremely dangerous during storms. We were forced to cancel and reschedule workshops several times. In past years, this had not been a problem, but with more normal precipitation it became very disruptive. In the future we will likely only schedule workshops during the spring through fall when weather is more predictable. Most workshops will be scheduled for the spring or fall when our clientele is less likely to have field work scheduled.

Our clearing house is up as of March 2005 and is being harvested by NSDI. See <http://mprlrsrvr1.bio.nau.edu/metadataexplorer/>. We will be porting our metadata clearinghouse to a new portal based on ArcGIS Server and the Data Portal Extension in the 1st quarter of 2010 and the URL for our clearing house will likely change at that time. Our metadata and data resources will be discoverable through the website at: <http://www.grail.nau.edu/> and our metadata will continue to be harvested by both NBII and NSDI. Metadata for 30 MPCER datasets are currently stored on our clearinghouse. We had hoped participants in our workshop would publish records to the clearinghouse since we offer metadata hosting to all workshop participants. However, most tribes and agencies prefer to store their metadata in-house and go directly to the NSDI portal. We expect to add more of our own metadata as we develop our new geodatabases.

Our registration webpage, <http://perceval.bio.nau.edu/metadata/> is currently up and ready for participants to register. We are now taking registrations for non-specific “future workshops” in order to build a mailing list. People who register through this facility will be contacted first when we schedule our next workshops and will receive priority for those workshops. IN general, our workshops are open to anyone although we target tribal organizations in our advertising. See the online announcement at: <http://www.mpcer.nau.edu/grail/training.html>. We advertise through several organizations including NBII, ITEP (Institute for Tribal Environmental Professionals), FGDC, Tribal GIS Coordinators in the Southwest, AGIC (Arizona Geographic Information Council, GITAz (Geospatial Information & Technology Association of Arizona) and USGS personnel. Our workshops were advertised through the FGDC calendar except for the November 6 & 7, 2008 workshop which was open to only NAU Ecological Restoration Institute (ERI) personnel. No FGDC funds were used for the ERI workshop. The GRAIL laboratory is committed to conduction at least one metadata workshop and one web mapping workshop each summer. We are considering charging a nominal fee to defray costs for these workshops. Another alternative we are exploring is a non-FGDC funding source to support these workshops.

In August 2008 we had planned to attend the annual meeting of the Indigenous Mapping Network in Green Bay, WI. We were scheduled to conduct a two-day workshop during the meeting. Unfortunately, the IMN meeting was canceled at the last moment, due to low registrations. We were very disappointed as the previous year’s meeting provided an excellent opportunity to promote the goals of the CAP I program to a large and diverse group of Indigenous people.

Training and outreach assistance

- **Indicate the number, duration, and venue of workshops conducted, as appropriate**

Metadata Workshops:

November 6&7, 2008 1.5-day workshop held at NAU

May 7&8, 2009 1.5-day workshop held at NAU

July 8&9, 2009 1.5-day workshop held at NAU

Web Mapping Workshops:

February 11, 2009 1-day workshop held at NAU

August 28, 2009 1-day workshop held at NAU

- **List organizations and organizational type for workshop participants**

People registered for our November workshop currently include tribal GIS professionals from the Navajo Nation Archeology Department, Telecommunications Department, Department of Transportation, Environmental Protection Agency, Rural Addressing, Utility Authority, and E911 programs, the Cocopah Indian Tribe, Navajo Nation, Mexican Water Chapter – Navajo Nation, Navajo Community College, Dine College, Jicarilla Apache Nation, the Campo Band of Mission Indians, Cocopah Indian Tribe, Tsaiile/Wheatfields Chapter – Navajo Nation, Ak-Chin Indian Community, Salt River Pima Indian Community, Hopi Tribe Land Information Systems, Hualapai Department of Natural Resources, Ysleta del Sur Pueblo, Gila River Indian Community, Red Mountain Energy Partners, Fort McDowell Yavapai Nation, Inter-Tribal Council of Arizona, Geospatial Information & Technology Association of Arizona, Bureau of Indian Affairs (federal government), Ecological Restoration Institute and Institute for Tribal Environmental Professionals at Northern Arizona University and Tempe City, AZ. (see Appendix 1 for a complete list of attendees and their affiliations).

- **At what level of proficiency are the trainees or training**

For the workshops listed above we will provide 1.5 day curriculums covering the Federal Geographic Data Committee's (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM) version 2 (FGDC STD-001-1998) and the Biological Data Profile (FGDC STD-001.1-1999). We also briefly touch upon all of the approved standards and standards in development listed on the FGDC website at <http://www.fgdc.gov/standards/projects/FGDC-standards-projects/fgdc-endorsed-standards>. The ISO Metadata Standard 19115 and the status of its development is also briefly touched upon. Participants are taught how to use the graphical representation along with essential metadata elements and how to make robust metadata by providing

information for mandatory if applicable and optional elements. All the workshops provide hands on exercises using ArcCatalog, TKME and the NPS Metadata Editor. Other metadata tools are provided on the workshop CDs. Kirsten Ironside and/or Paul Heinrich, FGDC registered metadata trainers, perform the workshops. M.C. Baldwin teaches some materials relating to a Tribal Place Names project developed by Frank Roberts as well as helping with the hands-on sections and data security modules. Finally, when we conduct workshops for tribal professionals we present a module on “using metadata to secure tribal data”. During this module we go over the sections of the FGDC standard that pertain to data access and data security as well as presenting an example data classification schema developed by Frank Roberts of the Coeur d’Alene Tribe. At the end of each workshop we spend a few hours answering individual questions about data documentation, GIS problems and continuing hands-on practice with metadata creation. We now ask students to bring some data sets that they are working on at their jobs, so we can help them create metadata for their own projects.

- **Describe the means of instruction: lecture only, lecture and exercises, or lecture and computer assisted.**

Generally we used the 1.5-day curriculum with hands-on computer exercises. In some situations we have had to fall back to lecture and exercises due to computer difficulties. By utilizing the Geospatial Research and Information Laboratory training room here at NAU we have greatly reduced problems with computer compatibility and set-up. Having a fixed training facility that we control allows us to concentrate on teaching rather than solving computer problems. Our web mapping workshop is about 50/50 lecture and hands-on instruction split between learning about the various alternative web mapping technologies, FGDC metadata with a concentration on how to publish online maps through the Geospatial One-stop, and theory.

- **List new organizations engaged in this project.**

During this project we engaged several new partners, including the Gila River Indian Community, the Campo Band of Mission Indians, Jacarilla Apache Nation, San Manuel Mission Indians, Salt River Pima Community, Ak-Chin Indian Community and the Geospatial Information & Technology Association of Arizona. We also expanded our contacts with Navajo agencies, such as their E911, Archeology Department, Telecommunications Department, Rural Addressing and Tribal Police agencies. We continued to work closely with the Institute of Tribal Environmental Professionals at NAU, the Indigenous Mapping Network and the Arizona Geographic Information Council.

Status of Metadata Service

- **Site names where metadata is served; clearinghouse node or Geospatial One-Stop harvestable web folder.**

Our clearing house is up as of March 2005 and is being harvested by NSDI.

<http://mprlsrvr1.bio.nau.edu/metadataexplorer/>

We will be porting our metadata clearinghouse to a new portal based on ArcGIS Server and the Data Portal Extension in the 1st quarter of 2010.

- **Approximately how many metadata entries have resulted from this project?**

Metadata for 30 MPCER datasets are currently stored on our Clearinghouse. We had hoped participants in our workshop would publish records to the clearinghouse since we offer metadata hosting to all workshop participants. However, most tribes and agencies prefer to store their metadata in-house and go directly to the NSDI portal. We expect to add more of our own metadata as we develop our new geodatabases.

Next Steps

- **Will this project's activities continue after this?**

Yes, we will continue to hold several training workshops per year, assuming we can find funding for materials. The Geospatial Research and Information Laboratory is committed to holding at least one 1.5-day workshop each summer for tribal entities. We are exploring ways to minimize costs to the Laboratory and to participants in order to continue this project. One possibility would be to conduct the workshops online through the university's online course system. We are also planning to advertise workshops at a nominal fee in order to cover costs. We are hoping that there is enough interest that we would be able to offer 1.5-day workshops at the GRAIL facility at NAU at least once per year and preferably multiple times per year.

- **What formal or informal organizational relationships were established to sustain activities beyond the performance period?**

Through our CAP participation we have forged relationships with several southwest tribes including the Navajo Nation, Hopi Tribe, San Carlos Apache Tribe and Mountain Ute Tribe. We have also worked closely with The Indigenous Mapping Network, an association of native GIS/geography professionals. Our associations with the Arizona Geographic Information Council and the Institute for Tribal Environmental Professionals have proven very useful in recruiting participants for workshops.

- **Describe the next phase in your project**

We plan to expand the CP Metadata Clearinghouse into a full data node where we provide access to data through the Clearinghouse. Since occupying our new facilities at the Geospatial Research and Information Laboratory (<http://www.mpcer.nau.edu/grail/>) we are building several geodatabases to cover the four-corners region (AZ, CO, UT, NM) which will be discoverable through the clearing house. We will promote this data node

as a repository for Colorado Plateau related environmental data and index the node through NBII and geodata.gov.

- **Are there issues in metadata management and service**

Only that it is difficult to develop a workflow to bring non-ArcCatalog created metadata into an ESRI-based Clearinghouse.

- **Requirements (more technical assistance, software, other?)**

Our major requirements are covering the costs of training materials, travel and trainer's time. We are attempting to reduce travel costs by having more workshops at NAU, but the workshops at client sites are very popular as is the annual IMN meeting. Rapidly increasing travel costs have made "remote workshops" very expensive. As the ISO standard comes online it may be useful for FGDC to hold a "Update the Trainers" workshop or workshops. The purpose of this workshop would be to bring trainers up to date on the new standard, training materials and other resources. This workshop could be held as a webinar in order to eliminate / reduce travel costs.

- **What areas need work?**

The area where our project needed the most work is in development of better materials and hands-on examples. During the course of this project we were able to address many of these problems. In particular, by using our own training facility we were able to provide the students with high-quality computer based instruction in metadata creation. Most students find that documenting their own datasets with instructor help to be the best way to learn the standard. Additionally, we experienced significant logistic constraints in teaching workshops at some remote venues because we had great difficulty with software, hardware or networking problems. By teaching the workshops in a facility that we control, we expect to eliminate these problems.

Feedback on Cooperative Agreements Program

- **What are the program strengths and weaknesses?**
- **Where does the program make a difference?**

We have great difficulty providing training workshops without the support of the CAP program and contacts made through FGDC. We have a training laboratory as part of the Geospatial Research and Information Laboratory (GRAIL). This helps with the cost of running classes but we still require extramural funding in order to provide the class at no cost to participants. Most tribal agencies are very short of funding. By providing workshops at no cost the participants, we can greatly enhance participation. With the long distances involved anything that can help reduce the cost to the tribal participants will help increase participation.

- **Was the assistance you received sufficient or effective?**

The assistance we receive through the CAP program is extremely helpful.

- **What would you recommend doing differently?**

Having the grant cycle begin and end later in the year would work better for our program due to seasonal availability of participants. This may not be true for other projects. In the future we will avoid scheduling workshops during the winter months to avoid weather-related cancelations.

- **Are there factors that are missing or need to consider that were missed?**

No

- **Are there program management concerns that need to be addressed? Time frame?**

A June to June schedule would work well for us (see above).

If you were to do this again, what would you do differently?

One change I would make would be to attempt to schedule more workshops during the summer and fall. In the past we have concentrated on the fall and winter and spring, since environmental scientists and agency technical staff tend to have more time for training during the winter months. However, the cancelation of the IMN meeting greatly set-back our schedule. In the future we would not plan workshops for sites requiring air travel. Also, during the winter of 2008-2009 several scheduled metadata and mapping workshops had to be canceled at the last minute due to snow storms. I believe that these cancelations had a strong negative effect on enrollment in later workshops. I would like to avoid this sort of problem in the future.

Appendix 1:

The following people participated in one or more workshops. Several people attended both a web mapping workshop and a metadata workshop.

Patrick	Antonio	Navajo Nation EPA
Doug	Ardt	Mesa Community College
M. C.	Baldwin	Navajo Nation
Shauna-Rae	Brown	Ak-Chin Indian Community
Mark	Curley	Tsaile/Wheatfields Chapter Farm Board
Jonathan	Curley	Navajo Tribal Utility Authority
Dorothy	Denetclaw	Navajo Nation Rural Addressing
Andrea	Everett	Ysleta del Sur Pueblo
Keith	Franklin	Gila River Indian Community
Michael	Gatewood	City of Tempe
Leonard	Gilmore	Cameron and Pinon Chapter, Navajo Nation

Lisa	Gover	Campo Band of Mission Indians - Campo EPA
Mandra	Gutierrez	Gila River Indian Community
Ryan	James	Division of Natural Resources - Navajo Land Dept. - GIS Section
John	Janzen	Ak-Chin Indian Community
Darlene	Jenkins	Navajo Nation Telecommunication & Utilities
Ordell	Joe	Navajo Nation Teesto Chapter
Renae	Keith	Navajo Nation - Red Mesa Chapter
Matthew	Kenny	ASU MAS-GIS Student (Former Northwest Indian Fisheries Commission GIS)
Maureen	King	Inter Tribal Council of Arizona, Inc.
Antoinette	Kurley-Begay	Navajo Nation Archaeology Department
Alviera	Lee	Navajo Nation Archaeology Department
John	Lewis	Red Mountain Energy Partners
Vernon	Long	Division of Natural Resources - Navajo Land Dept. - GIS Section
Gnaneshwar	Marupakula	Salt River Pima Maricopa Indian Community
Rex	Mauldin	Cocopah Indian Tribe
Loren	Maxwell	City of Tempe
Jocelyn	Moristo	Gila River Indian Community
Aleda	Myerson	Navajo Nation- Archaeology
judy	needham	Navajo County/Public Works GIS
Jason	Nez	Navajo Nation Archaeology Dept at NAU
Paul	Notah	DOI/BIA/Navajo Region
Justin	Perry	Fort McDowell Yavapai Nation - CEDD
Matthew	Pettigrew	Navajo Nation Archaeology Department
Betty	Poley	Hopi Tribe-Land Info Systems
Dexter	Prall	Navajo Nation Department of Fish and Wildlife - NNHP
DeShane	Quasula	Hualapai Department of Natural Resources
Ron	Quasula Jr.	Hualapai Department of Natural Resources
Anita	Richardson	AECOM
Jasper	Rodgers	Navajo
Monteo	Ruiz	Navajo Tribal Utility Authority
Harriett	Sandoval	Navajo Nation
Carl	Seweyestewa	Hopi Tribe
Dawn	Sinoqui	Salt River Pima Maricopa Indian Community - Public Works Department
Gabriel	Talayumptewa	Hopi Tribe
Scott	Thigpen	Salt River Pima-Maricopa Indian Community
Karen	Thomas	GITAz Board Member
Roberta	Tohannie	Institute for Tribal Environmental Professionals at NAU
Nelson	Tom	Navajo Tribal Utility Authority
Lenora	Tsosie	Navajo Nation- Archaeology
Neomie	Tsosie	Navajo Nation Archaeology Department-NAU Branch Office
Darin	White	Gila River Indian Community
Sharon	Wilder	Hualapai Tribe Cultural Resources
Michelle	Zephier	Hualapai Tribe