Executive Summary

The Merriam-Powell Center for Environmental Research conducted two public metadata workshops and two public web mapping workshops. We also conducted campus-community only web mapping and metadata workshops for small numbers of students during the summer of 2012. We are not reporting details of these workshops as no FGDC funds were used to conduct them. The public metadata workshops were held on April 19 & 20, 2012 and October 18 & 19, 2012. Web mapping workshops were held on May 25, 2012 and August 17, 2012 at NAU. All workshops were held at Northern Arizona University. Due to the loss of one of our metadata trainers and a position change for our lead trainer we had considerable difficulty scheduling workshops.

Project Narrative

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Due to the loss of one of our metadata trainers and a position change for our lead

trainer we had considerable difficulty scheduling workshops. Because of this we found it necessary to apply for a no-cost extension and were able to hold four workshops during 2012. We had originally proposed to conduct 6 workshops (3 metadata and 3 web mapping) but this proved to be overly optimistic in both time and cost.

Our clearing house has been online since March 2005 and continues to be harvested by NSDI. See http://mprlsrvr1.bio.nau.edu/metadataexplorer/. We have been planning to port our metadata clearinghouse to a new portal based on ArcGIS 10 Server and the Data Portal Extension for a while and will likely do so during summer 2013. At that time, the URL for our clearing house will likely change. Our metadata and data resources will continue to be discoverable through the website at: http://www.grail.nau.edu/ and our metadata will continue to be harvested by NSDI. Metadata for approximately 100 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. For organizations that lack computer resources and do not wish to store metadata with MPCER, we recommend that the use the "web accessible folder" method to provide metadata to the NSDI portal.

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 continue to build our 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 Summer NAU-only student workshops. No FGDC funds were used for the NAU-only workshops.   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.

Training and outreach assistance:
Indicate the number, duration, and venue (indicate if Internet/Web supported, i.e. Webinar) of workshops conducted, as appropriate.

Metadata Workshops:

April 19 & 20, 2012 1.5-day workshop held at NAU
October 18 & 19 2012 1.5-day workshop held at NAU

Web Mapping Workshops:

May 25, 2012 1-day workshop held at NAU
August 17, 2012 1-day workshop held at NAU

List organizations and organizational type (Federal, State, local, Tribal, academic, NGO, etc.) for workshop participants.

Federal - 2
State - 3
Local - 10
Tribal - 65
private – 4

   Some entities represented in the above counts can be categorized under multiple groups. In general, I included Native American county, local, chapter and tribal people under the category "tribal". You can see the mix of tribal agency folks in the listing below.

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List number of individuals and the agency/organization they represent receiving metadata training, and outreach assistance.

AECOM – 1
Ak-Chin Indian Community – 2
Arizona Division of Emergency Management – 1
ASU MAS-GIS Student (Former Northwest Indian Fisheries Commission GIS) -1
Campo Band of Mission Indians - Campo EPA – 1
City of Tempe – 2
Cocopah Indian Tribe – 1
Crystal Chapter Community Land Use Planning Committee _CLUPC – 1
Dine College Shiprock Campus DEI Pathway – 1
Dine College – 1
Division of Natural Resources - Navajo Land Dept. - GIS Section – 2
DNA People's Legal Services – 1
DOI/BIA/Navajo Region – 1
Fort McDowell Yavapai Nation – CEDD – 1
Fort Mojave Indian Tribe – 2
Geographic Intelligence Analysis – 1
Gila River Indian Community – 2
GITAz Board Member – 1
Grand Canyon Trust – 1

Navajo Nation Hardrock Chapter – 2
Hopi Tribe-Land Info Systems – 2
Hualapai Department of Natural Resources – 2
Hualapai Natural Resources – 2
Hualapai Tribe Cultural Resources – 1
Institute for Tribal Environmental Professionals at NAU – 1
Inter Tribal Council of Arizona, Inc. – 1
Jicarilla Apache Nation – 1
Mesa Community College – 2
Municipal Government City of Tempe – 1
Navajo Nation Community Housing and Infrastructure Department – 1
Navajo Nation Mexican Water Chapter -1
Navajo County Government – 3
Navajo County/Public Works GIS – 1
Navajo Division of Transportation – 3
Navajo Land Department – 1
Navajo Nation - Red Mesa Chapter – 1
Navajo Nation Addressing Authority -3
Navajo Nation Archaeology Department – 4
Navajo Nation Department of Fish and Wildlife – NNHP – 1
Navajo Nation Department of Water Resources – 2
Navajo Nation EPA – 1
Navajo Nation Police Department – 3
Navajo Nation Rural Addressing – 1
Navajo Nation Teesto Chapter – 1
Navajo Nation Telecommunication & Utilities – 1
Navajo Nation Water Code Administration – 4
Navajo Tribal Utility Authority – 2
Red Mountain Energy Partners – 1
Salt River Pima Maricopa Indian Community – 3
San Carlos Apache Tribe – 1
San Manuel Band of Mission Indians – 1
Tohono O'odham Nation Office of Emergency Management – 1
Tsaile/Wheatfields Chapter Farm Board – 1
US Forest Service – 1
White Mountain Apache Tribe – 1
Yavapai Prescott Indian Tribe – 1
Ysleta del Sur Pueblo - 1

. We had a total of 84 attendees for all workshops, some of which attended both the web mapping and full metadata workshops. In general, the web mapping workshop provided good advertising for the full metadata workshop and helped to recruit people for the more intensive workshop. In the above counts, I tried to consolidate the different organizations as much as possible, but did include several Navajo Nation entities to show the breadth of types of organizations represented.

List for each workshop the overall customer satisfaction. Customer satisfaction rating is from the NSDI training evaluation form which also provides means to evaluate trainer proficiency. The evaluation is administered after each workshop and should take as little as 10 minutes if measuring customer satisfaction alone and 20 minutes for if measuring both customer satisfaction and trainer proficiency. The evaluation form is available at http://www.fgdc.gov/training.

We collected the NSDI training and evaluation from for some of the workshops we held. On these form Paul Heinrich and MC Baldwin were evaluated. On average the trainees graded the trainers as an average grade of 4 of 5 for all questions. The only consistent outlier was on question 5 "The amount of information was appropriate to the time allowed." A large proportion of students believed that not enough time was allocated given the volume of information presented.

Letters of recognition for the workshop to the awardee, publication articles regarding the workshop, external endorsement for the workshop.
Describe the means of instruction: lecture only, lecture and exercises, or lecture and computer assisted.

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 and ArcMap 10. Considerable time is spent on how to handle metadata editing in the new ArcGIS 10 environment.   Other metadata tools are provided on the workshop CDs. Paul Heinrich, FGDC registered metadata trainer, 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.

The web mapping workshop is comprised of approximately 6 hours of instruction evenly split between web mapping and an introduction to the FGDC metadata standard and ISO standards. The first 3 hours are a survey of web-based tools (such as ArcGIS online and Google Maps) for map making. The second 3 hours provide a detailed overview of 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 discuss the ISO standard and timeline for ISO adoption. We use this introduction to generate interest in the full 1.5-day metadata course described above.

Provide the method(s) of promoting the workshop (e.g., FGDC Calendar, Listserv, etc.)
List new organizations engaged in this project.

Status of Metadata Service
Our metadata clearinghouse is online and being harvested by the NSDI portal. We have added about 30 metadata records in the past year for datasets created for other projects. FGDC CAP funding was critical in allowing us to develop our ability to create and host metadata for our projects. We continue to add new metadata records to our clearinghouse as datasets are created.   Most trainee organizations have opted to manage their own metadata.

Next Steps:
Will the project's activities continue after the award is closed?

We will continue to host periodic free metadata workshops and web mapping on campus which will be open to anyone. We will advertise these workshops to the campus community and through several listserv groups for tribal and non-tribal environmental / agency folks.

What formal or informal organizational relationships established to sustain activities beyond performance period?

We will continue to work with 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).

Describe the next phase in your project.

    We will continue to conduct metadata and web mapping workshop in the GRAIL facility here at NAU a few times during the summer. These workshops will be open to anyone and will be advertised through our usual mailing lists and contacts. All metadata workshops or other workshops with metadata content will be advertised on the FGDC calendar. We plan to upgrade our metadata clearing house to a ArcGIS Server 10.1 data Portal during 2013.

Are there issues in metadata management and service? No
Do you need FGDC assistance? No
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 other areas need work?

    Retention and training of trainers is a serious problem for our program. Loss of experienced trainers and difficult scheduling of our remaining trainers caused considerable difficulty in presenting the number of workshops we wanted to hold.

What do you anticipate future metadata training, outreach, creation and posting (to clearinghouse or other locations) after the project performance period ends?

    We will continue to teach metadata workshops as funding (either internal or external) allows. We will continue to operate, update and maintain our metadata clearinghouse as it is an integral part of our Geospatial Research and Information Laboratory resources. During the winter and/or spring of 2013 we plan to upgrade our clearinghouse to the ArcGIS 10.1 Geodata Portal standard in order to integrate metadata hosting and data delivery.

Feedback on Cooperative Agreements Program *(to be completed for the final report)*
What are the CAP Program strengths and weaknesses?
Where did it make a difference?

The CAP program allows us to conduct metadata training for groups that otherwise would not be served. The Native American GIS community in the southwest is chronically short of training opportunities.   While software and computer hardware is available through the Bureau of Indian Affairs, training is less accessible.

Was the assistance you received sufficient or effective?

 Yes. The funding available for metadata training through FGDC is sufficient.

What would you recommend that the FGDC do differently?

 We believe that more spending on the CAP 1 training category might be useful. Relatively few CAP 1 grants are funded, while the need for training seems to be inexhaustible.

Are there factors that are missing or are there additional needs that should be considered?

 No

Are there program management concerns that need to be addressed, such as the time frame?

 No

If you were to do the project again, what would you do differently?

 I would be sure to have more trainers lined up for classes and have some alternative trainers lined up in case of trainer attrition. Potentially, it may be useful to bring in graduate students form NAU's geography department, however quality control for workshops will be important. Additionally, the timing of classes is very important in the southwest. We have discovered that winter and summer are both problematic. In winter, travel is often difficult due to snow (much of our region is mountainous) while in summer many environmental and GIS professionals are busy with field work. This includes both clients and our prospective trainers. In the future we would plan to concentrate our workshops in the Spring and Fall.