

Geodetic survey work along the Colorado River

## CATALOGUING RESEARCH AT GRAND CANYON NATIONAL PARK Science Research Phase I and III

A Partnership Project of the Grand Canyon National Park and  
Northern Arizona University's Landsward Institute  
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## EXECUTIVE SUMMARY

From May 2009 to May 2010, interns with Landsward Institute worked directly with the Research Permitting Coordinator, Ronda Newton, at Grand Canyon National Park. The goal was to organize and catalogue paper and electronic copies of past and current research reports, correspondence and legal documents for research completed at the Park from c. 1950 to present. One of the main objectives for this project was to develop and populate a cataloguing database system to allow the research permitting coordinator to track all past and current research permits and efficiently analyze the research that has been conducted in each content area or discipline. The Research Permitting Coordinator and other NPS staff will be able to access this database to review specific research that has been conducted at Grand Canyon. In addition, the system will assist the Research Permitting Coordinator in determining specific areas of research that are needed in Grand Canyon National Park. The interns wrote abstracts as needed and entered bibliographic data into the Park's research database in preparation for uploading to the National Park Service database "NatureBib," which is currently under construction. This work will continue through June 2011 with the goal of fully digitalizing the Grand Canyon's research files.

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## 1. INTRODUCTION

Grand Canyon National Park in Northern Arizona is a world-renowned location for specialty research in the fields of biology, geology, anthropology, archeology, forestry, geography, air quality and soundscapes. The Colorado River runs through Grand Canyon and hosts numerous ongoing surveys of biological and geological research performed by the U.S. Geological Survey's Grand Canyon Monitoring and Research Center. Researchers from many far-ranging institutions and internal researchers for the National Park Service also perform varied projects throughout the year.

Due to the increasing numbers of permit applications that are sent to the Research Permitting Coordinator (RPC) each year at Grand Canyon National Park, a more efficient and organized system was needed to ensure that the research permits awarded are collecting the most valuable and relevant information as possible. One of the main objectives for this project was the development of a cataloguing database system. This inventory system will allow the RPC to track all past and current research permits and efficiently analyze the amount of research that has been conducted in each content area or discipline. This will assist the RPC in determining specific areas of research that are needed in Grand Canyon National Park. The RPC and other NPS staff will be able to access this database to review specific research that has been conducted at Grand Canyon.

### 1.1 Permitting Process

All studies conducted in Grand Canyon National Park require a research and collection permit. The permitting process enables park officials to evaluate ongoing research projects and incorporate results into the research database, which results in more informed management of valuable resources. Research performed at Grand Canyon National Park requires park-specific conditions to be met and documented as part of the permitting process. Once a proposal for a research project is submitted to the RPC, a 90-day review process begins (Fig. 1) in which the RPC and Research Review Team either accepts or denies the project. The research permit review procedures (Appendix A) are summarized in Figure 1.

Multiple internal reviewers take part in this process and if any red flags with the permit arise, the researcher is expected to provide resolution. If researcher is not willing to resolve issues, the permitting process stops and the permit is not issued. If all issues are settled, a permit is issued and all terms of the permit are determined. The researcher must then perform research within the time allotted. All documents and correspondence associated with this process are collected into a research file, which is kept by the RPC.

Within six months following the expiration date of the permit, a final report must be submitted to the Park, ideally filed with research file. However, the final report is frequently sent directly to the discipline Program Manager, Museum Collections or the Research Library, all located at the South Rim. These are not catalogued directly with the research file, resulting in gaps in permitting documentation.

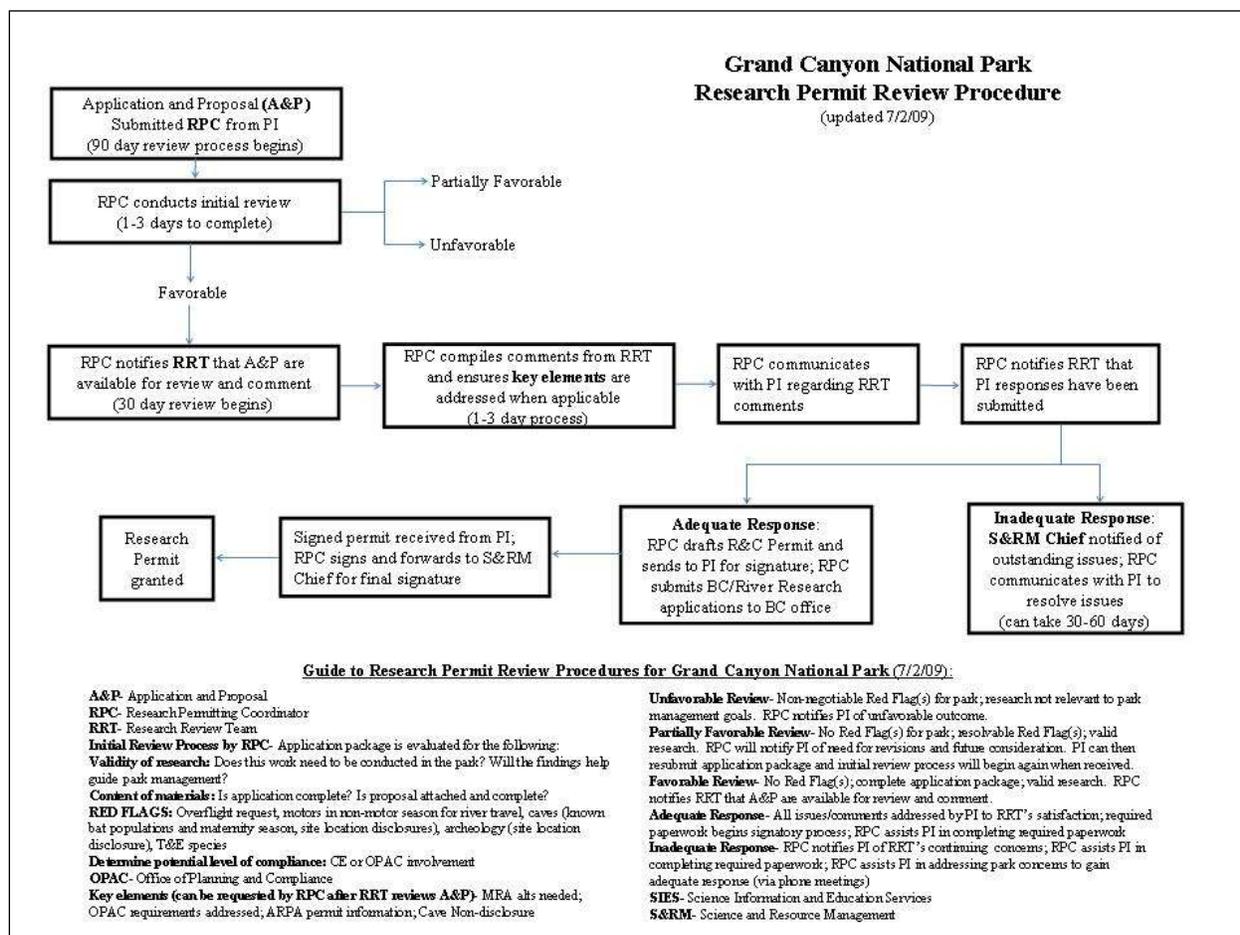


Figure 1: The permitting process at Grand Canyon National Park

## 2. ORGANIZATIONAL SCHEME FOR RESEARCH FILES

### 2.1 Catalogue Design

Following a brief inventory of all research files (<1000) in 2009, the project team determined that each file should include the following documents: 1) application(s) with proposal; 2) permit(s); 3) investigator's annual report(s); 4) minimum requirement analysis/compliance information; and 5) a copy of the final report. This would document all parts of the research process including the final report, which was almost always absent.

The next step was to compile the key points of each research file into one summary document. First, a template was created (Appendix B) and then information was entered for every file. At this point, abstracts were created for each project and a search was conducted to locate the final report in the NPS library database, museum collections database or any other scholarly database online.

Next, an easily-searchable database was created to collect all of these documents into one place. Each entry was designated a discipline with which it identified most (Appendix C). This step of the cataloguing process will allow an easier way to quantify past research in the Park for the RPC. Finally, these entries will eventually be added to the National Park Service database "NatureBib," which is currently under construction. NatureBib is a service-wide natural resource

bibliography that will be available to the public once redesign is completed. It will be the premier way to manage and maintain information pertaining to the National Parks.

### 3. PROJECT STATUS

The cataloguing effort performed in 2009-2010 better organized research files and their associated reports and assisted the RPC to move towards a library of digital files. Because additional permits are authorized every year, this project will be ongoing and will essentially never be completed. The project team completed an inventory of all locatable documents, but the files are all not completely in digital format. One intern, Allison Clark, will continue to catalogue the research files at Grand Canyon National Park through 2011. The goal of the ongoing phase of the project is to fully digitalize the research files, which will be available to upload into the NatureBib database.

## APPENDIX A

### Guide to Research Permit Review Procedures for Grand Canyon National Park (7/2/09):

**A&P-** application and proposal

**RPC-** research permitting coordinator

**RRT-** research review team

**Initial Review Process by RPC-** Application package is evaluated for the following:

1. **Validity of research:** Does this work need to be conducted in the park? Will the findings help guide park management?
2. **Content of materials:** Is application complete? Is proposal attached and complete?
3. **RED FLAGS:** Overflight request, motors in non-motor season for river travel, caves (known bat populations and maternity season, site location disclosures), archeology (site location disclosure), T&E species
4. **Determine potential level of compliance:** CE or OPAC involvement

**Unfavorable Review-** non-negotiable Red Flag(s) for park; research not relevant to park management goals. RPC notifies PI of unfavorable outcome.

**Partially Favorable Review-** no Red Flag(s) for park; resolvable Red Flag(s); valid research. RPC will notify PI of need for revisions and future consideration. PI can then resubmit application package and initial review process will begin again when received.

**Favorable Review-** no Red Flag(s); complete application package; valid research. RPC notifies RRT that A&P are available for review and comment.

**OPAC-** Office of Planning and Compliance

**Key elements (can be requested by RPC after RRT reviews A&P)-** MRA alts needed; OPAC requirements addressed; ARPA permit information; Cave Non-disclosure.

**Adequate Response-** all issues/comments addressed by PI to RRT's satisfaction; required paperwork begins signatory process; RPC assists PI in completing required paperwork

**Inadequate Response-** RPC notifies PI of RRT's continuing concerns; RPC assists PI in completing required paperwork; RPC assists PI in addressing park concerns to gain adequate response (via phone meetings).

**SIES-** Science Information and Education Services

**S&RM-** Science and Resource Management

## APPENDIX B

### Template for research files

Study #: GRCA-

Permit #: GRCA--SCI-

Cooperative Agreement #:

Principal Investigator:

CO-P.I.'s:

Affiliations:

Study Start Date:

Study End Date:

Title:

Purpose:

Abstract:

Restrictions:

Keywords:

Notes:

Final Report Received \_\_\_\_

Report Size:

GRCA Research Library Call #:

GRCA Museum Collections #:

## APPENDIX C

### Subject Areas Listed on Research Permit Applications

<p>           Air Pollution Effects            Air Quality            Animal Communities/Wildlife            Anthropology/Ethnography            Archaeology            Atmosphere/Climate/Weather            Birds/Ornithology            Cave/Karst            Coastal/Marine Systems            Contaminants/Hazardous Materials            Ecology (Aquatic, Marine, Terrestrial)            Exotic/Invasive Animals            Exotic/Invasive Plants            Fire (Behavior, Ecology, Effects)            Fish/Ichthyology            Geo-Sedimentary/Stratigraphy            Geochemistry (inc. Minerals/Petrology)            Geography            Geology/General            Geomorphology/Surface Processes            Geophysics/Seismology            Geostructure/Tectonics            Geothermal/Volcanology            Glaciers            Herpetology (Amphibians/Reptiles)            History- Cultural            History- Natural            Information Systems (Non-Spatial)            Integrated Pest Mgmt.            Inventory Natural Resources?            Invertebrates (Insects, Other)            Land Use- Agriculture         </p>	<p>           Land Use- Mining, oil, gas            Land Use/Forestry            Land Use/Rangeland            Lichens            Mammals            Management (Administration)            Maps/Cartography/GIS            Microbes            Monitor Natural Resources            Mosses/Bryophytes            Night Sky/Light Pollution            Other            Paleontology            Petrology/Minerology            Plant Communities (Vegetation)            Protista (Including Algae, Fungi)            Recreation/Aesthetics            Restoration-Cultural            Restoration- Natural            Social Science            Soils            Soundscapes/Natural Quiet            Threatened/Endangered/Rare Species            Toxicology            Vascular Plants            Veterinary Sciences            Viruses/Prions            Visitor Impacts            Water/Hydrology            Water Quality            Water Resources            Watershed Management/Assessment         </p>
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