**Award Number (for administrative use only):**

**PR/J Number: R8219101239**

**PROJECT ABSTRACT**

**Colorado Plateau Cooperative Ecosystem Studies Unit**

**(Cooperative Agreement # H1200-09-0005)**

**Park:** *Grand Canyon National Park*

**Project Title:** *Wildlife* *Database Development for the Grand Canyon National Park*

**Funding Amount:** $4,818

**CPCESU Partner Institution:** *Department of Electrical Engineering & Computer Science, Northern Arizona University*

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**NPS Project Manager/Subject Matter Expert:** *Mark Nebel, GIS Specialist, Grand Canyon National Park, 1824 S. Thompson St., Ste. 200, Flagstaff, AZ 86001, 928-638-7451 (ph), 928-638-7492 (fax),* *Mark\_Nebel@nps.gov*

**Start Date:** *August 1, 2010*

**End Date:** *December 31, 2010*

**Abstract:** The objective of this project is to provide Grand Canyon National Park (GRCA) with programming and development assistance to implement a new SQL Server-hosted Wildlife database module. The Wildlife database module will incorporate archival data from a variety of electronic and hard copy sources into an integrated Wildlife database module. The compilation of data and conceptual design of the database are being developed by NAU Intern Avi Henn under a separate task agreement (*NAU-310, Database and Research Interface Intern*). The investigator will collaborate with Avi Henn and with the GRCA GIS Specialist, Mark Nebel, in the development of the Wildlife database applications.

The Wildlife database applications must be integrated within the GRCA Resource Information System (RIS) as currently developed, in particular the existing Vegetation database module, and as envisioned in the GRCA *Database Management System Requirements Analysis* document. Access to the database applications shall be controlled through the GRCA Active Directory system.

NAU faculty member Dr. Dan Li will serve as the principal investigator of the project. During the database conceptual design phase of the project, Dr. Li will provide feedback and guidance, from the programming perspective, regarding database architecture, application capabilities, and options, so that the design elements can be effectively and efficiently implemented during the programming stage. The investigator will then migrate digital data (prepped by GRCA staff +/- Intern assistance) into the SQL server database application beta version for testing. Finally, the investigator will deploy a final production version of the database onto the GRCA RIS database and server. The project as a whole is expected to require approximately a half-year of effort for analysis, design, testing, and refinement of the Wildlife database system. We have divided the Scope of Work into several phases, reflecting the major development milestones expected for the system as a whole.

Phase 1: Database Conceptual Design. The investigator will work with NAU Intern Avi Henn and GRCA staff to articulate the database architecture. This oversight will serve as a framework for the conceptual development of the database system.

Phase 2: Data Uploading. The investigator will migrate digital data (prepped by GRCA staff +/- Intern assistance) into the SQL server database for testing.

Phase 3: Deployment and Refinement. Once a prototype has been developed and tested, the new database system will be deployed as the production system. Dr. Li and the student from NAU will provide technical assistance during this phase, to ensure compatibility and integration of the application components within the GRCA RIS.

**Keywords:**

Protocols / Reference Materials, Tabular Data Sets, Information Management Systems Development, Species-specific Information Databases, Birds, Mammals