



Department of Administrative Services

Purchasing and Contracts

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CLARK COUNTY, NEVADA RFP 603453-14 DESERT TORTORISE OCCUPANCY SAMPLING

October 1, 2014

ADDENDUM NO. 1

REQUEST FOR PROPOSAL

1. The RFP opening date of October 24, 2014 at 3:00:00 p.m. **remains unchanged.**

EXHIBIT A SCOPE OF WORK DESERT TORTOISE OCCUPANCY SAMPLING

2. Exhibit A, Attachment 3, Data Management Plan, pages A-13 through A-17

Remove Exhibit A, Attachment 3, Data Management Plan, pages A-13 through A-17

Replace with Revised Exhibit A, Attachment 3, Data Management Plan, pages A-13 through A-17

QUESTIONS AND ANSWERS

3. Q1: On page A-6 of the Scope of Work, there is to be a designated data manager, but on Exhibit A, Attachment 3, pages A-13 and A-14 the data manager is not mentioned and it reads as though the field crews are responsible for all data entry and management. Could it be clarified what the role of the data manager is for data management versus what the field crews will be responsible for in terms of data management?

A1: The Data Management plan Exhibit A, Attachment 3 Data Management Plan has been updated by this amendment to clarify the role of the data manager.

Q2: On page A-2 Scope of Work, it is indicated the County will provide a data sheet and data dictionary, but on page A-6, bullet point 2 mentions the data manager being responsible for the design of for the data sheets and data dictionary. Will the County provide the data sheets and data dictionary?

A2: A data dictionary was created to work with the Trimble©XT model GPS receiver and will be made available upon award. If you are planning on using a different unit, upon approval by the county, it will be the proposer's responsibility to make sure the data dictionary either works with the unit or to complete any necessary conversions. This has also been clarified in the data management plan. Templates are available for all datasheets but the proposer will be responsible for printing those sheets.

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Q3: Would it be possible to use handheld Garmin GPS units for navigation of the plots, but always use the Trimble for recordation of data?

A3: Yes, this is acceptable.

Should you have any questions, please e-mail Sherry A. Wimmer, Purchasing Analyst, Purchasing and Contracts at sherry.wimmer@ClarkCountyNV.gov.

ISSUED BY:

A handwritten signature in black ink that reads "Sherry A. Wimmer". The signature is written in a cursive style with a large initial 'S'.

SHERRY A. WIMMER
Purchasing Analyst

Attachment(s): Exhibit A, Attachment 3, Data Management Plan, pages A-13 through A-17

Cc: Scott Cambrin, Desert Conservation Program
Heather Green, Desert Conservation Program

**EXHIBIT A
ATTACHMENT 3**

DATA MANAGEMENT PLAN

I. Roles and Responsibilities

There will be two distinct groups of individuals involved in data collection and data management for the project: the Project Management Team and the Field Data Collection Team. It will be important that each member of both teams understand their roles and specific responsibilities in ensuring data quality.

A. Project Management Team

The Project Management Team is within the DCP and includes those individuals involved in designing, directing, and reporting on the project. This team will:

- Communicate the importance of quality data to the field survey/data collection crews.
- Work with science advisor to refine the monitoring protocol.
- Work with field survey crews to identify sources of errors.
- Lead efforts to reduce sources of errors.
- Ensure proper transfer of interim data and archival of final data.

B. Field Data Collection Team

The Field Data Collection Team includes the contracted individuals (data manager, authorized biologists, and occupancy assistants) who will be collecting and verifying the data and providing it to the Project Management Team. This team will:

- Participate in the initial and ongoing training for the project.
- Ensure compliance of field survey crews with monitoring protocols and data verification.
- Follow the established protocols for data collection, entry and verification.
- Download and verify the data collected each day.
- Perform data validation.
- Provide quality data for analysis.
- Provide weekly data to the Project Management Team.
- Work with the Project Management Team members to identify sources of errors and assist in developing solutions to reduce sources of error.

II. Data Collection

A. Data Dictionary and Field Data Sheets

Data templates for electronic data collection and field data sheets have been developed to record information on the survey plots, live tortoises, tortoise carcasses, and active burrows. The observation and location information on each data sheet is presented in the same format. The order of data entry parallels the logical approach to collecting data in the field, from observation at a distance to data collected up close for a tortoise or a burrow. Definitions of all terms are provided in a metrics table for each data sheet. This information will be provided in the field survey crew training materials. A data dictionary that defines the database fields and domains used for field data collection and storage has also been developed for the Trimble© XT model GPS receiver. The data dictionary will be loaded onto the global positioning system (GPS) units and used for data collection. If another pre-approved GPS unit is used, it is the data manager's responsibility to convert the data dictionary when necessary.

The field data sheets that will be used for the study include:

- Start of plot description data sheet
- End of plot description data sheet
- Live tortoise data sheet

- Burrow observation data sheet
- Carcass data sheet
- End of day data sheet
- Reptile Observations

B. Spatial Data

Spatial data and attribute data will be recorded both on paper field data sheets and on a Trimble® XT model GPS receiver with data logging capabilities. This GPS receiver has an accuracy of plus or minus 1 meter in the field and plus or minus 50 centimeters post processing (differential correction in the lab). Data will be recorded in Universal Transverse Mercator (UTM) Zone 11, NAD83 projection and datum. The spatial coordinates recorded in the field will be entered on each paper field data sheet at the time of data collection. Digitally stored spatial coordinates will be differentially corrected by field survey crews at the end of each field day.

C. Photographic Data

Photographs will be taken of each active burrow and carcass encountered within plots or as incidental data while moving between plots. The purpose of the photographs is to provide documentation of the characteristics used to classify a burrow as active. Carcass photographs will be used to supplement a separate, ongoing study on predation in the BCCE.

Photographs will be taken using a digital camera that has a minimum of five megapixel capacity. Each field survey crew's camera clock will be synchronized each morning with the date and time of the crew's GPS receiver.

Photographs will be taken to (1) maximize the assessment of burrow characteristics (width and height of burrow and burrow opening and apron), (2) assess the location of the burrow in relationship with soils, topography, and vegetation, and (3) to assess the condition of carcasses and examine for signs of predation.

Optional photographs may be taken of tortoises or plots.

D. Training on Data Collection and Data Quality

Training individuals involved in data collection and data assessment is also essential for data quality. The training will provide:

- Background on occupancy sampling.
- Outline the monitoring objectives.
- Describe roles and responsibilities of the field survey crew members.
- Introduce the survey crews to the study areas.
- Describe safety and access issues for the study areas.
- Describe the sampling design.
- Describe and demonstrate the standardized procedures and instrumentation that will be used to collect the data.
- Describe data verification and validation and the field survey crew roles in each.
- Provide a field test of the survey crew members completing a survey plot, data verification, and data upload steps.
- Provide feedback and suggestions for the field collection and data verification or upload protocols.

Training will be completed up to the week before the initiation of data collection and will take two days to complete (refer to Section C, Required Training, of Exhibit A, Scope of Work). Field data collection crews will receive a training manual and a copy of the monitoring protocol and attachments. Prior to releasing the field data collection crew to conduct the monitoring, all field crews must successfully complete a test sample plot while adhering to the monitoring protocol and this data management guide, including successful download, verification, and delivery of the

plot data. The DCP Project Management Team members will also complete the data validation methods described in this document.

III. **Data Completeness and Quality**

The overall system of management activities designed to assure the quality of the data generated by a project or program is commonly known quality assessment and quality control (QA/QC). For the purpose of this data management plan, QA/QC is being described by its two major components, data verification and data validation.

A. Data Verification

Data verification assesses the entry of data into each field in the database, making sure that all required data have been collected and recorded. This will be accomplished by reviewing a spreadsheet of the data looking for blank fields. This verification process will occur within a time frame after data collection that allows for accessing the recollection of the data collectors (i.e., Field Data Collection Team) and, if needed, the potential recollection of data.

The data dictionary and GPS receivers will automate some data verification steps by forcing users to complete an entry in certain fields before allowing the user to enter other information. In addition, certain fields in the data dictionary will have maximum or minimum values to limit data entry errors.

The Field Data Collection Team will review the data to insure that all data has been collected. This will occur at the completion of each survey plot, after collection of all incidental observations walking among the plots, and at the end of each field day. At the end of each field day the team will compare paper field data sheets with the data on the GPS receiver, checking plot numbers, observation numbers, and other data while field collection team memories are fresh. This includes making notations on paper field data sheets of any corrections made. Any error corrections will be noted on the applicable paper field data sheet.

The Project Management Team will conduct separate data verification after receipt of each week's data from the Field Data Collection Team.

B. Data Validation

Data validation assesses the quality of each data entry, checking its numeric range and the logic of the entry. For this project, this includes the range of reasonable values for air temperature, presence of consecutive tag numbers, or comparison between the expected and entered GPS coordinates. Data validation requires a reviewer that understands each of the metrics and their range of values. The validation method to be used for each data field is listed in the table of metrics for each field data sheet. The data manager will complete the data validation process.

The data dictionary and GPS receivers will automate some data validation steps. Three automated processes will be used to check data on spreadsheets.

- Range checking highlights values that are outside of the expected range of the value. Examples include air temperatures too low (less than 65°F [18°C]) or too high (over 95°F [35°C]). The use of this validation method requires that the appropriate ranges are known in advance. The range for any value is iterative as data is reviewed and can be adjusted by the Project Management Team.
- Sorting entries by date or observation and checking for the logic of the entries.
- Comparing new data with already validated data to identify values that are new or beyond the current range of the data.

Aspatial data will also be graphed and assessed for patterns and outliers. Data will be compared across multiple entries by graphing plot or observation number against the measurement value.

Spatial data will also be validated. The data manager will review all spatial data on the base map of the study areas and survey plots and all data points will be matched with plots and areas surveyed. Errors in more than 2 percent of

the entries in any data field will trigger a review of the data collection and verification protocols and may require additional field survey crew training.

IV. **Data Management**

Data management covers the topics of logistics of entering and/or downloading the data, developing and maintaining data files, and archiving data.

A. Entering and Downloading Data

Field survey crew members will enter data on paper field data sheets and in the GPS receiver data loggers simultaneously. One member will be assigned as the GPS data recorder and the other will be the data sheet recorder and they will maintain those responsibilities for a complete plot.

After each field survey day, the GPS receiver data sets and digital images will be downloaded to a local computer by the Field Data Collection Team. All images will be downloaded for that day's data collection and stored in jpeg format with file names updated as described in the file naming convention below. All paper field data sheets will be scanned at 300 dpi (dots per inch) resolution and saved in Adobe Acrobat (.pdf) format according to the file naming convention below.

B. Preparing Data for Upload

Data for each plot or incidental observation will include GPS data and paper data sheets. If a burrow is present, digital images will be provided. Each is discussed below.

GPS data will be differentially corrected using Trimble® Pathfinder Office by the CONSULTANT on each day for all the Field Data Collection Teams. Data from each GPS receiver will be downloaded first into a temporary Microsoft Excel spreadsheet file for differential correction. After this step is completed for each GPS receiver data set, the day's datasets will be merged into one verified file, in ESRI compatible format such as Microsoft Excel (.xlsx). All differentially corrected files will then be converted to .shp or geodatabase files and uploaded to a CONSULTANT-provided FTP website.

The day's GPS data set will be named according to the following naming convention, where "verified" represents the version control level described in the section below and the sample day is April 17, 2012:

BCCE Desert Tortoise_verified_20120417.xls , and

BCCE Desert Tortoise_verified_20120417 ESRI file extensions

The scanned field data sheets will be compiled into one file and will be named as follows, where "PN" is the plot number, "ON" is the observation number and the sample day is April 17, 2012:

BCCE Desert Tortoise_sheets_PN-ON-20120417.pdf

All digital images taken during a sample day will be named as follows, where "#" is a sequential number for each image, "PN" is the plot number, "ON" is the observation number and the sample day is April 17, 2012:

BCCE Desert Tortoise_image_#_PN-ON_20120417.tif

C. Uploading Data

The digital data files for a complete field day from all Field Data Collection Teams will be compressed into a single compressed (.zip) file and uploaded to an FTP site maintained by the Field Data Collection Team. Alternately, the .zip file may be generated and stored to a network drive in the DCP offices if all post-field processing takes place in the DCP offices.

Paper field data sheets will be delivered to the DCP Project Management Team on a weekly basis or as agreed upon in the contract.

D. Version Control

Version control is the process of managing copies of changing files over the course of a project. Any alteration or update to a file is considered a change and is reflected in the complete file name. Version control includes developing file-naming guidelines that include the file name, the QA/QC status, and the date of the file. For example:

BCCE Desert Tortoise_verified_20120417.zip

Is the file of the spatial and aspatial data table for the sample day of April 4, 2012 and the data have been through the data verification process. The categories of QA/QC versions are _verified_ for data that have been verified, _valid_ for data that have been validated, and _master_ for the master compilation of data that have completed all the QA/QC steps.

E. Data Storage

Data will be retrieved from the FTP site each workday morning and stored by the DCP on network servers that are backed up nightly with a series of backup tapes stored in a secure off-site location. Paper field data sheets will be stored by any contracted field survey crews for up to one week prior to delivery to the Project Management Team. The Field Data Collection Team will also maintain a complete copy of data, scanned data sheet files, and image files for the term of each annual sampling period.

F. Data Compilation

The DCP Project Management Team will compile all data from a field season for the analyses. This compilation will be a new file or set of files and no prior files will be overwritten. The Project Management Team will also complete metadata records for the spatial data and attributes tables following ISO 19115, NAP or another appropriate standard.

G. Data Archiving

Data archiving is the long-term (multi-year/multi-decade) management of the data once it is received by the DCP. It acts as a backup to the active datasets managed by the project team during the life of the project, as well as the location of the datasets after the project is complete. The project will adhere to Clark County records management policy and record retention schedule for archiving data. Academic archives, such as University of Nevada, Las Vegas, will also be assessed to permanently house copies of the data, protocol, and training materials.

V. **Data Quality Review**

The process of data verification and validation often highlights ways to improve the data collection through changes in the data sheets, types of menus used, or by providing additional training. The Project Management Team will meet periodically and as needed to review the outcomes of the data verification and validation process and review all aspects of data collection for the project.

VI. **References**

Clark County. 2009. MSHCP data management plan development guidelines. Version 2009.002. April 13, 2009.

Grainger W. 2007. Data management plan for the gulf coast network. Version 1.1. USDI National Park Service. Washington D.C. 141 pp. http://science.nature.nps.gov/im/datamgmt/docs/dmplans/guln_dmplan_07.pdf

Palmer, C. and M. Sappington. Unknown date. Information management and quality assurance for resource management data collection efforts. <http://www.georgewright.org/0394palmer.pdf>

Press, D.T. 2005. Data management plan for the San Francisco area network inventory and monitoring program. USDI National Park Service. San Francisco, CA. 113 pp.