District 14 Range Inventory
Branch of Natural Resources
Fort Defiance Agency

STATEMENT OF WORK

Background

The Fort Defiance Agency Branch of Natural Resource function is to restore the grazing potential to the maximum extent feasible. Range rehabilitation can be accomplished by establishing good range management principles and then ensuring such practice are continued.

The Bureau of Indian Affairs – Ft. Defiance is required by the Navajo Grazing Regulation, 25 CFR 167.6 (a), (b), (c), to determine carrying capacities and stocking rates for each land management district of the Navajo Reservation. In addition, the Fort Defiance Agency Grazing Committee supports the Fort Defiance Branch of Natural Resource requesting range inventory funds through Resolution as Attachment 1.

The Contractor will conduct a vegetation survey on the grazing District 14 of Ft Defiance Agency. The vegetation survey will encompass 553,009 acres (80,209 acres inventoried with Commercial Forest FY05) acres administratively divided into 5 grazing range units which are also considered as divided into chapter boundaries. No Indian Allotted land therefore not included in this contract. There are 5 grazing units:

Unit	Chapter	Acres	Allotments/Private	Commercial Forest
Unit 1	Naschitii Unit 1	182,946	0	6,231
Unit 2	Tohatchi Unit 2	126,296	0	1,504
Unit 3	Coyote Canyon Unit 3	117,328	0	0
Unit 4	Mexican Spring Unit 4	57,340		71,120
Unit 5	Twin Lake Unit 5	69,099		1,354
	TOTAL:	553,009		80,209

Grazing Units are already divided as chapter boundaries. Map showing the location of the District 14 is provided as Attachment 2. The requirement in this contract is for the collection and compilation of vegetation data at 1000 transects.

Scope

The contractor will furnish all necessary manpower, transportation, equipment, specialized personnel, and materials to complete the vegetation survey, data summary, and report. The vegetation survey will consist of sampling vegetation parameters on a stratified random basis to collect data using the sampling technique prescribed under Specifications. Vegetation production for tree species will not be determined.

The government prefers that field data collection start July 2025. The Contractor shall gather and compile forage production data on 1,000 transects. The Government will provide predetermined transects locations. These sample set of locations were randomly distributed throughout District 14 study area. The Contactor should use Universal Transverse Mercator (UTM) coordinates to locate transects using a Global Positioning System (GPS) unit. See Attachment 3 - Sample Location Map. Data collection includes vegetation production by species and ground cover utilizing the double sampling method (estimating and harvesting) as described in National Range and Pasture Handbook and Inventory and Monitoring (Technical Report 1734-7).

The contractor shall provide all services, facilities, materials, transportation, and supplies for the performance and completion of this contract.

The contractor shall be provided parking space for vehicles and trailers at the field location in Fort Defiance equipment yard.

A pre-work coordination meeting between the Contractor and BIA will be held prior to July 14, 2025. The primary focus for this is to discuss the general strategy for the field work and answer any questions concerning this statement of work and procedures, make resolution and clarifications and discuss timelines of the project. The Contractor Officer Technical Representative (COTR) and the Contractor will be responsible for setting this meeting. Examples of some issues that can be discussed are:

- If no data was collected on plots 3 or 7, an 11 plot should be collected?
- At what height will species be collected?
- What is the harvest height on shrubs and larger plants?
- What plot size do we need to use for large shrubs?
- Which methodology will be used for cover data collection?
- Adhere fully to Technical Reference protocols or SOW?

- A map of District 14 with how many sheep units can support each range units.
- Communication with the Fort Defiance Branch of Natural Resource on a weekly basis on progress.

Applicable Documents and References

Referenced Abbreviations and/or Acronyms: Wherever the following acronyms are used in these specifications or on the maps, they are to construe the same as the respective expressions represents. Copies of the referenced specifications/standards referred to in this statement of work may be procured by the Contractor, from the following:

NRCS – Natural Resource Conservation Services (formerly the USDA Soil Conservation Service (SCS))

Literature References
(1) National Range and Pasture Handbook, USDA NRCS, September 1997, Revision 1 December 2003
(2) National Range Handbook Update H-441-1, USDA NRCS, in DRAFT form.
(3) Inventory and Monitoring, Technical Report 1734-7, USDI- BLM, December 2001

WORK REQUIREMENTS

The contractor collects data and compile data on 1,000 transects on District 14. See attached (Attachment 3) sample location map.

1. Locating Transect with GPS

The Bureau of Indian Affairs will provide the contractor with range site and sample location maps in Universal Transverse Mercator (UTM) coordinate latitude/longitude coordinates for each sample location. The contractor is required to use GPS to locate sample points.

2. Vegetation Production Studies

Vegetative production shall be sampled using the Double Sampling Methodology (estimating and harvesting). Vegetative species composition shall be measured by percent weight. Production shall be determined by measuring the annual aboveground growth (grams per plot converted to pounds per acre) of vegetation. Contractor shall collect data from 1,000 transect using a 9.6 square-foot frame at each study location. Weight units shall be estimated or measured and recorded (National Range and Pasture Handbook, 1997, Revision 1 2003) for each species in each plot. Only plants rooted within the 9.6 square foot or shrubs overhanging the plot shall be included in the recorded data for each plot. Plots 3 and 7 along each transect line shall be estimated then clipped and bagged by species to assist in the species weight unit determination and to provide for quality control. Anything

rooted in the plot but overhanging the plot shall be harvested to a stubble height of 1 inch above the ground. Only current year growth shall be included in the harvested sample, not total plant biomass. Shrubs rooted in or overhanging the 9.6 square-foot plot and up to a height of 4 feet above the plot shall be included in the plot estimates and harvesting. The estimated weights for the species in the harvested plot shall be recorded on the field data sheet. The actual weight for the harvested species shall be circled or otherwise designated on the production data sheet. The production data sheet is shown at Attachment 4.

The species production data for each transect shall be totaled by species. The doubling sampling data sheets will show the total pound weight by species.

Harvested plants shall be bagged by species. The bags shall be identified by range management unit number, range site, transect line, and plot number. The harvested vegetation shall be air dried for a minimum of ten days at room temperature or oven dried until a consistent dry weight is achieved. The estimated and actual dry weight of each harvested species shall be recorded in a spread sheet data format (i.e. EXCEL) that shows the Grazing Unit with GPS UTM coordinates (lat/long) transect line and plot. The particular spread sheet software used will be determined jointly by BIA and the Contractor.

Study Plot Layout and Study Methodology

The Contractor shall use GPS UTM lat/long coordinates given by the BIA to locate transect. Contractor will use random method to determine which direction to run transect. Each transect is 200' long. Some variation may occur in the transect layout to keep transects within the same ecological site.

Double Sampling Data

(A) A master copy of the Product Data Sheet will be given to the Contractor. The Contractor will be responsible for making additional copies as needed. Prior to running each transects, the data collector will fill out as a minimum, the following:

a. Sample Number- (number of transects consecutively for range sites within each unit).
b. Unit Number – (Grazing unit number)
c. Date-(the date the transect is run)
d. Quad # - (write in the Range Site name in this space)
e. GPS– (write in the UTM lat/long coordinate)
f. Land Form- (mark an X on the land form line indicating the transect land position)
g. Topography – (circle the word(s) which describe the local topography of the area).

(B) Vegetative production data is collected every 10 paces along each transect line using a 9.6 square-foot frame. A total of 10 production plots are sampled along each transect. At each 10th pace, place a marker at the point of the toe; place the 9.6 square-foot frame at the point of the toe.

(C) For each species within the frame, estimate the weight of the current year production in grams then clip each species and weigh to establish weight unit measure for each species. Unidentified species should be labeled as unknown #1, #2, etc and taken to be keyed out for identification. Shrubs within the plots or above the plot will be included in the weight estimate. The weight of each species present within or above the plot will be recorded on the production data sheet for the study location.

(D) The existing plant at the time of the inventory must be reconstructed to normal air

3. Shrub Production

If the vegetation consists of large shrubs, larger plots must be used. The Contractor must comply with National Range and Pasture Handbook, Chapter 4, Inventorying and Monitoring Grazing Land Resources.

4. Plant Codes and Plant Names

The standard alpha-numeric plant codes and plant names are to be used. These plant codes and names may be found in the National List of Scientific Plant Names or on the World Wide Web at:

http://plants.usda.gov/plants/

5. Codes and Standards

The work shall comply with the standards applicable toe ach type of work and as listed in the individual sections of these specifications and as found in the Technical Reference Vegetation Attributes (1996) for the Double Sampling Methodology. The Contractor shall incorporate materials and applications with the same force and effect as when they were given in full text.

6. Final Deliverable

The Contractor will furnish to the government, either before or on the termination date of the contract, the original transects production data sheet for Double Sampling for each transect from which data was collected. In addition, six copies of the final report (including the map of District 14, carrying capacity of each units in SUYL), and six digital CD copies. Calculation of Carrying Capacity will be in SUYL.

7. Contractor furnished materials and equipment

The Contractor shall furnish vehicles and equipment necessary to collect vegetation data on District 14 grazing land. This includes but is not limited to the following:

-Sampling frame, 9.6 square foot in size
-Clippers
-Paper bags.
-Kilogram and gram spring loaded scales with clip
-Oven for drying vegetation (or air dry for 10 days)
-Rubber bands
-Pin flags
-Compass
-Cellular phone(s) (optional)
-GPS units

8. Government furnished materials, services, and equipment

-Maps of sample location and soil/range site.
-lat/long coordinates
-Access to Ft Defiance Agency – District 14 study files and 1:24,000 topographic maps
-Access to Ft Defiance Field Office to copy/reproduce selected study sites
-Office workspace in Ft Defiance
-Parking space for vehicles and trailers at the field location in Ft Defiance Equipment Yard, Arizona

9. Quality Control

The government, at its option will perform quality control checks during the field data collection phase and spot check transects field data sheets. Incomplete or inaccurate work will be rejected, and the contractor will make corrections if the problems are minor, or run another transect if a major mistake is made. All failures to correctly collect or record field data will be deemed as major mistakes.

10. Supervision of Field Personnel

The Contractor, or his/her designee, will supervise field personnel daily. The field supervisor will make himself/herself available to field personnel for any matters regarding the full performance of this contract. If the Contractor chooses a designee for field supervision, then the designee will have a Bachelor of Science Degree from an accredited University in any of the disciplines listed under Professional Qualifications.

11. Personnel and Professional Qualification

The Contractor is required to have staff and /or sub-contractors available for this project with educational backgrounds and experience in the fields of range science, range ecology,

plant biology, or any of the ecological sciences pertaining to range management. Field personnel should have land navigational skills and be able to accurately perform tedious task in isolated areas. All bidders will submit a statement of professional qualifications, including previous consulting assignments.