PERFORMANCE WORK STATEMENT
FOR
FORT CARSON, COLORADO
PINON CANYON MANEUVER SITE, COLORADO
NATURAL RESOURCES SUPPORT – BAT SURVEYS
CESU 18-10

Projects for execution under this Cooperative Agreement (CA) by the U.S. Army Corps of Engineers (USACE) do not include any functions to be performed that are inherently governmental. This determination is made with the assessment that places emphasis on the degree to which conditions and facts restrict the discretionary authority, decision-making responsibility, or accountability of Government officials using Non-Federal Entity (NFE) services or work products.

This CA shall not be used for performance of personal services. These tasks provided by the customer for execution under this CA by USACE do not include functions to be performed that are personal services.

Any modifications to Cooperative Agreement activities as outlined by this SOW must be channeled through the Grants Officer's Technical Representative (GOTR) and Grants Officer (GO) prior to NFE implementation.

NFE personnel shall also wear a distinctive NFE furnished security (ID) badge/lanyard readily identifying the individual as a NFE employee. The badge shall be worn in a conspicuous place at all times when performing work under the Cooperative Agreement including attendance at Government meetings and conferences that take place outside of the Government facility.

NFE personnel shall identify themselves as an NFE employee when answering or placing calls on a Government telephone and when leaving outgoing or incoming messages on voice mail. Use of acronyms in this identification is insufficient to meet this requirement.

All NFE email signatures shall identify them as such and will include their employer's name.

1.0 SURVEY/INVENTORY, BAT (CHIROPTERA) BASELINE SURVEYS AND ANALYSIS

Fort Carson (FC) is located on the Front Range in central Colorado and the Pinon Canyon Maneuver Site (PCMS) is located in southeastern Colorado. The FC INRMP states that baseline surveys for bats (Order: Chiroptera) for Fort Carson are a required implementation, but only two years of preliminary acoustical data has been collected. The quality of this preliminary data is unknown due to lack of field notes/data, and lack of analysis of data. Extensive baseline surveys have not been conducted and FC has already acquired the equipment necessary to conduct an extensive baseline survey. The ultimate goal of baseline surveys is to inform management, through a series of inventories on bat presence, diversity, relative abundance, and distribution

throughout the installations. Coupled with data processing and analyses, baseline surveys will help guide FC natural resource management while supporting training.

Two bat species are of particular concern on FC. The tricolored bat (Perimyotis subflavus) is petitioned for listing for threatened status under the Endangered Species Act as of 16 June 2016. The tricolored bat has been identified on FC. The Townsend's big-eared bat (Corynorhinus townsendii pallescens) is a Colorado state listed species of special concern. Townsend's big-eared bat, although rare in Colorado, has known maternity colonies in the mines on FC.

1.1 Scope of Work. Baseline bat surveys shall be conducted by initial evaluation of existing preliminary acoustical data to determine acoustical methodology for the extensive baseline survey. From the preliminary data results acoustical data shall be collected by using Directorate of Public Works' 19 acoustical recording boxes (boxes) on FC. The boxes contain the recording software, microphone, solar power panels, and other associated parts. The boxes shall be placed according to preliminary analysis and known high use areas for bats. High use bat areas shall be determined using a handheld acoustical recording device in the field to find bat concentration areas (e.g., creeks, water bodies, mines). Acoustic boxes can collect bat echolocation calls and bat species or genus level identification can be determined from the recorded calls. Mist nests shall be used at these bat concentration areas to supplement the acoustical data collection as defined by FC DPW biologists. Bats shall be captured in the mist nests to obtain voucher specimens (using photos), collect morphometric data, and determine bat species. Effort will be made to try to find and collect acoustical and mist netting data at different vegetation/landscape types across FC. The boxes shall be set up at the identified areas the first year of surveys and left to collect data for up to three years and then returned to storage building. The boxes will be turned on during time of the year of known bat activity. When boxes are on, data will be downloaded weekly. Mist netting shall be conducted for one to two week periods several times during summer.

FC DPW has 45 Passive Integrated Transponders (PIT) tags that will be used to supplement the data collected with the acoustical boxes and mist netting. PIT tags are small and cylindrical (about the size of a piece of rice) and consist of an integrated circuit chip, capacitor, and antenna coil. PIT tags will be used at FC mines with known Townsend's big-eared bats (Corynorhinus townsendii) maternity colonies. Harp traps and mist nests shall be used to capture Townsend's big-eared bats after initial monitoring to find high exit/entry points along the mine complexes as defined by FC DPW biologists. Captured bats that meet species, age, and weight criteria shall have PIT tags inserted as defined by FC DPW biologists. Three large antennas shall be used to collect PIT tag data as bats pass within detection distance of the antennas. Data will be downloaded from the large antennas weekly. Harp or mist netting, in the two years following PIT tag insertion, shall be done to reassess the maternity colony and assess any recapture using handheld PIT tag readers. Netting shall be done for one to two weeks for each of the two years preceding the initial tagging of the bats. Netting captures will be kept at a small sample size to

reduce disturbance to the maternity colony. However, any non-target species (species other than Townsend's big-eared bat) will be collected and have the same measurements performed (voucher data, morphometric, and species data) as other netting events.

In conjunction with the PIT tagging, Townsend's big-eared bat maternity colonies targeted for PIT tag surveys will also have HOBO data-loggers placed on the mine walls near the maternity colony clusters. Data-loggers collect temperature and humidity data of the mine environment closest to the targeted colonies. Twelve data-loggers shall be affixed to the mine walls as defined by FC DPW biologists to supplement the PIT tag survey.

All work shall be done as specified by SOW. Due to the unpredictable nature of wildlife, methodology may be adjusted to fit the objectives of the study/survey as deemed necessary within confines of the project. Deviations from the SOW must be approved by the GO and modifications will be issued if necessary. All survey field work shall take place from May to September each year.

1.1.1 Location Description. All survey areas included under this project are located on FC. A preliminary work conference call shall be scheduled no later than 3 business days after date of award to prepare for preliminary data gathering and monitoring. Specific acoustic box, netting, and data-logger locations will be provided at a work conference on-site at Fort Carson following initial preliminary data gathering and monitoring conference call.

1.1.2 NFE Representative. The NFE shall provide a representative for the performance of work under this project. The name of this person and an alternate(s), who will act for the NFE when the NFE is absent, shall be designated in writing to the Grants Officer. The NFE representative or alternate shall have full authority to act for the NFE on all project matters relating to daily operation of this project and must be able to read, write, speak, and understand English.

1.1.3 Qualifications. The NFE employees responsible for data collection shall possess a basic knowledge of regional bat species, bat species known to occur on the installations, data collection, and field methods for sampling bats. A PhD or Post-Doctoral Student is preferred for the lead in data collection, analysis, and reporting. Upon request, DPW biologists will be available to provide assistance for bat identification prior to data collection efforts. However, any such assistance provided shall not relieve the NFE or employees of its responsibility for having the required knowledge. The NFE employee that conducts data analyses and report writing should have general knowledge of bat-habitat relationships, analytical expertise in species distribution models and resource selection functions, and a demonstrated writing ability in the form of a track record of first-author peer reviewed publications.

1.1.4 Safety and Permitting. The NFE shall follow all directions in dealing with personal safety and adhering to the Colorado Parks & Wildlife (CPW) Scientific Collection License.

DPW Biologists will be responsible for applying for, attaining, and disseminating copies of the CPW Scientific Collection Permit to the NFE.

1.1.5 Government Furnished Property.

- List of bat species known to occur on FC
- ARCGIS Geodatabases with the proper data format or a list of attributes to be collected and the format (NOT the GPS units themselves).
- GIS shapefiles showing approximate locations of acoustic boxes, netting, and data-logger locations
- Acoustic boxes, mist nettings, PIT tags, and data-loggers
- Survey Schedule

1.1.6 NFE Furnished Items/Services.

- The NFE shall furnish all items required to perform this PWS, other than those specifically listed as to be furnished by the government, which includes, but is not limited to, capture and processing equipment, field vehicles, final data and map(s), other equipment and supplies.
- Within ten days after award and within five days after any changes, the NFE shall submit a list of personnel who will perform work under this project and credentials held for each such person.
- The NFE shall submit weekly reports that entail the status and location of the acoustic boxes, netting, and data-logger locations, number of bats encountered, and number of bats captured/processed.

1.1.7 Project Phases. This project has four phases during the Period of Performance.

- **Phase One:** Evaluation of existing preliminary acoustical data to determine acoustic methodology
- **Phase Two:** Determining appropriate locations for recording boxes
- **Phase Three:** Field work, primarily data collection via recording boxes, mist netting, and PIT tags
- **Phase Four:** Data analysis and a final report completion

In order for the NFE to proceed to the subsequent project phase, a written request for approval must be submitted to the USACE Omaha District Project Manager. The USACE Omaha District Project Manager shall provide their written response no later than five (5) business days after receipt of the NFE's request. A copy of this approval will be forwarded to the GO and retained in the official file.

1.2 Components

1.2.1 Bat Survey Preparation. The NFE shall conduct initial evaluation of existing preliminary acoustical data to determine methodology for baseline surveys.

1.2.2 Field Work

1.2.2.1 Collecting Data: Sites will be determined based on both preliminary analysis and known high use areas for bats on FC. High use areas will be determined using handheld acoustical recording device in the field to find bat concentrations areas (e.g., creeks, water bodies, mines). Deliberate effort must be taken to locate and collect acoustical and mist netting data at different vegetation or landscape types across FC. All field work shall take place from May to September.

All captures (acoustically or in hand) will be collected using GPS capabilities and logged into an ArcGIS geodatabase.

1.2.2.2 Acoustical Recording Boxes: The NFE shall use DPW's 19-acoustical recording boxes (boxes) to collect acoustical data on FC. The boxes shall be set up at the identified areas the first year of surveys and left to collect data for up to three years. The boxes will be turned on during time of the year of known bat activity. When boxes are on, data will be downloaded weekly.

1.2.2.3 Mist Netting: The NFE shall use mist netting at bat concentration areas to supplement acoustical data. Bats captured will be used to obtain voucher specimens (using photos), collect morphometric data, and determine bat species. Mist netting will be conducted for one to two week periods several times a summer for three years. The initial year will entail more mist netting than the last two years of the three year survey. Mist netting will be performed for a shorter time period during the last two year period, but can be adjusted according to need. Any non-target species (species other than Townsend's big-eared bat) will be collected and have the same measurements performed (voucher data, morphometric, and species data) as other netting events.

1.2.2.4 Passive Integrated Transponders (PIT). The NFE shall use 45 FC DPW PIT tags to supplement the data collected with the acoustical boxes and mist netting. PIT tags will be used at FC mines with known Townsend's big-eared bats (Corynorhinus townsendii) maternity colonies. Harp traps and mist nests shall be used to capture Townsend's big-eared bats after initial monitoring to find high exit/entry points along the mine complexes as defined by FC DPW biologists. Captured bats that meet species, age, and weight criteria shall have PIT tags inserted as defined by FC DPW biologists. Three large antennas shall be used to collect PIT tag data as bats pass within detection distance of the antennas. Data will be downloaded from the large antennas weekly. Harp or mist netting, in the two years following PIT tag insertion, shall be done to reassess the maternity colony and assess any recapture using handheld PIT tag readers. The NFE shall perform netting for one to two weeks for each of the two years preceding the initial tagging of the bats. In conjunction with the PIT tagging, the NFE shall place 12 HOBO data-loggers on the mine walls near the maternity colony clusters.

1.2.3 Reporting/Data Analysis

1.2.3.1 Weekly Reporting. The NFE shall submit weekly reports to the USACE PM and Fort Carson POC. Weekly reports will contain the status and location of the acoustic boxes, netting,

and data-logger locations, number of bats encountered, and number of bats captured/processed, percentage of work complete, significant issues, delays, etc.

1.2.3.2 Data Analysis. The NFE shall analyze species distribution, occupancy rates, and detection probabilities and associated variances for each species encountered. The NFE shall provide the type of software used to formulate models and associated programming codes that were used to analyze the data collected.

1.2.3.3 Draft Report. The NFE shall provide a draft report no later than 45 days from the Period of Performance end date that summarizes data collection and data analysis for Government review.

1.2.3.4 Final Report. The NFE shall provide a final report at the end of the project that summarizes data collection and data analysis.

1.3 Deliverables. Upon completion of the project, the NFE shall have provided:

1.3.1 ArcGIS geodatabase containing location of all encountered bats. Attribute fields must include date/time of each capture (i.e., acoustically or in hand), UTMs of each capture, species of each capture, type of methodology being employed for each capture.

1.3.2 ArcGIS geodatabase containing summary data for each capture (acoustically or in hand) survey. Attribute fields must include location surveyed, date of survey, duration of survey (minutes), number of bats encountered, number of different species encountered.

1.3.3 ArcGIS geodatabase containing summary data for each capture survey. Attribute fields must include acoustic, net, or receiver surveyed, date of survey, duration of survey (minutes), number of bats encountered, number of bat species encountered.

1.3.4 ArcGIS geodatabase containing summary data for each bat capture. Attribute fields must include date/time of capture, amount of time from initial encounter to capture, UTMs of capture, species, sex (if applicable), morphometric measurements, photo IDs for photos taken.

1.3.5 Jpeg files for all capture photos taken. Jpegs must be associated with a unique ID that will readily allow for association between photos and capture data.

1.3.6 Species distribution models for FC for all encountered species. Type of software used to formulate models and associated programming code must be provided.

1.3.7 Occupancy rates, detection probabilities, and associated variances for each encountered species. Type of software used to formulate models and associated programming code must be provided.

1.3.8 Weekly reports that entail the status and location of the acoustic boxes, netting, and data-logger locations, number of bats encountered, and number of bats captured/processed, percentage of work complete, significant issues, delays, etc.

1.3.9 A draft report summarizing data collection and data analyses. Draft report should be provided to the designated Fort Carson POC no later than 45 days from Period of Performance end date for Government review.

1.3.10 A final report summarizing data collection and data analyses. Report should follow the format of a peer-reviewed scientific manuscript (Introduction, Methods, Results, Discussion)

Deliverable	**Reference**	**Delivery Method**	**Due Date**	**Deliver To**
Designation of Alternate POC(s)	1.1.2	Email	Within 5 days of task order award	Grants Officer
Personnel supporting this project and their credentials	1.1.6	Email with attached pdf or Word document	Within ten days after award and within five days after any changes	USACE PM, GO and Fort Carson POC
Weekly Reports	1.2.3.1 and 1.3.8	Email with attached pdf or Word document	By Tuesday of the subsequent week	USACE PM, GO and Fort Carson POC
Data Analysis	1.2.3.2	Final Report	End of POP	USACE PM, GO and Fort Carson POC
ArcGIS geodatabase	1.3.1 through 1.3.4	With Final Report	End of POP	Fort Carson POC
Jpeg files for all capture photos taken	1.3.5	With Final Report	End of POP	Fort Carson POC
Species distribution models for FC for all encountered species	1.3.6	Final Report	End of POP	Fort Carson POC

Occupancy rates, detection probabilities, and associated variances for each encountered species	1.3.7	Final Report	End of POP	Fort Carson POC
Draft Report	1.2.3.3	Email with attached Word document(s)	45 days prior to End of POP	Fort Carson POC
Final Report	1.2.3.4	PDF on CD	End of POP	USACE PM, GO and Fort Carson POC

2.0 PERIOD OF PERFORMANCE

The Period of Performance (POP) will be 12 months from date of award.

3.0 Accessibility/Security Requirements

Vicinity maps identifying the general area will be provided at a pre-work conference. Specific site maps identifying units and road access will be available upon request. Access to work sites will be coordinated a minimum of three (3) weeks prior through the GOR. However, Fort Carson Range Control will always be able to deny work site access, with little or no prior notice, to accommodate training requirements. Delays needs to be reported to the GOR and GO immediately. It is recommended that the NFE call the GOTR the day before planned work to confirm that access is still available.

NFE personnel performing work under this project shall have a current and valid vehicle registration, insurance, and driver's license. The NFE shall maintain file copies of vehicle registration, insurance, and driver certifications, which are subject to inspection at any time for the duration of the project.

Access and general protection/security policy and procedures. This standard language is for NFE employees with an area of performance within Army controlled installation, facility, or area. NFE and all associated sub-NFEs employees shall provide all information required for background checks to meet installation access requirements to be accomplished by installation Provost Marshal Office, Director of Emergency Services or Security Office. NFE workforce must comply with all personal identity verification requirements (FAR clause 52.204-9, Personal Identity Verification of NFE Personnel) as directed by DOD, HQDA and/or local policy. In addition to the changes otherwise authorized by the changes clause of this project, should the Force Protection Condition (FPCON) at any individual facility or installation change, the Government may require changes in NFE security matters or processes.

The NFE employees, to include sub-NFE employees, requiring access Army installations, facilities and controlled access areas shall complete AT Level I awareness training within 60 calendar days after the project start date or effective date of incorporation of this requirement into the project, whichever is applicable. The NFE shall submit certificates of completion for each affected NFE employee and sub-NFE employee, to the GOTR or to the GO, if a GOTR is not assigned, within 30 calendar days after completion of training by all employees and sub-NFE personnel. The NFE shall submit certificates of completion for each affected NFE employee and sub-NFE employee, to the GOTR or to the grants officer, if a GOTR is not assigned, within 05 calendar days after completion of training by all employees and sub-NFE personnel. AT level I awareness training is available at the following website: http://jko.jten.mil

The NFE and all associated sub-NFEs shall brief all employees on the local iWATCH program (training standards provided by the requiring activity ATO). This local developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the GOTR. This training shall be completed within 30 calendar days of project award and within 05 calendar days of new employees commencing performance.
For NFEs that do not require CAC, but require access to a DoD facility or installation. NFE and all associated sub-NFEs employees shall comply with adjudication standards and procedures using the National Crime Information Center Interstate Identification Index (NCIC-III) and Terrorist Screening Database (TSDB) (Army Directive 2014-05/AR 190-13), applicable installation, facility and area commander installation/facility access and local security policies and procedures (provided by government representative), or, at OCONUS locations, in accordance with status of forces agreements and other theater regulations.

For NFEs requiring Common Access Card (CAC): Before CAC issuance, the NFE employee requires, at a minimum, a favorably adjudicated National Agency Check with Inquiries (NACI) or an equivalent or higher investigation in accordance with Army Directive 2014-05. The NFE employee will be issued a CAC only if duties involve one of the following: (1) Both physical access to a DoD facility and access, via logon, to DoD networks on-site or remotely; (2) Remote access, via logon, to a DoD network using DoD-approved remote access procedures; or (3) Physical access to multiple DoD facilities or multiple non-DoD federally controlled facilities on behalf of the DoD on a recurring basis for a period of 6 months or more. At the discretion of the sponsoring activity, an initial CAC may be issued based on a favorable review of the FBI fingerprint check and a successfully scheduled NACI at the Office of Personnel Management.

Army Training Certification Tracking System (ATCTS) registration for NFE employees who require access to government information systems. All NFE employees with access to a government info system must be registered in the ATCTS (Army Training Certification Tracking System) at commencement of services, and must successfully complete the DOD Information Assurance Awareness prior to access to the IS and then annually thereafter. For all NFEs with security clearances. Per AR 381-12 Threat Awareness and Reporting Program (TARP), NFE employees must receive annual TARP training by a CI agent or other trainer as specified in 2-4b. OPSEC Training. Per AR 530-1, Operations Security, new NFE employees must complete Level I OPSEC training within 30 calendar days of their reporting for duty. All NFE employees must complete annual OPSEC awareness training.

4.0 POINTS OF CONTACT FOR TASKS

The POCs for USACE are Mr. Brian Hesford at (402) 995-2759 and Ms. Kali Evans at (402) 995-2295. Routine and overnight (express) correspondence should be addressed as follows:

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