REQUEST FOR STATEMENTS OF INTEREST

NUMBER W9126G-19-2-SOI-8860

PROJECT TO BE INITIATED IN 2019

Project Title: BMGR East Management Support for BMGR

Responses to this Request for Statements of Interest will be used to identify potential investigators for a project to be funded by the US Air Force, which provides professional and technical support for its Integrated Natural Resources Management Plan (INRMP) in order to facilitate successful implementation of the 16 USC 670c-1 Sikes Act. Approximately $77,500.00 is expected to be available to support this project for the base year.

Background:

Provide natural resource environmental expertise on BMGR/LAFB, to include, but not limited to; planning, monitoring, plotting, surveying, evaluating species, and providing optimal management of the installations natural resources.

Type of Award:

In accordance with the Sikes Act (Sec. 103A [16 USC 670c-1]) “the Secretary of a military department may enter into cooperative agreements with States, local governments, Indian Tribes, non-governmental organizations, and individuals” This project is in support of the Integrated Natural Resources Management Plan, as directed in the Sikes Act, and as a result, it is anticipated that a cooperative agreement through the CESU program will be awarded. Such awards may be administered through a CESU only upon mutual agreement and official authorization by both parties of the acceptance of the application of the CESU Network IDC rate (17.5%).

Note: Must be a non-federal partner in the CESU Unit to be qualified to be considered.

Brief Description of Anticipated Work:

This project focuses on the following general tasks:
TASK 1 – TASK 1 – MGT, HABITAT, WATER QUALITY AT WILDLIFE WATERS (NURDOS1719)

The purpose of this task is to conduct surveys of the various water sites on various areas of BMGR, including natural catchments/seeps/springs/manmade catchments in support of other projects such as NURDOS3719: MGT, HABITAT, ASSESS WILDLIFE WATERS-AMPHIBIANS. Areas of BMGR to be studied will be prioritized based on the largest risks posed by outside pressures to natural resources. The Cooperator will have adequate experience in working on natural catchments/seeps/springs/manmade catchments and determining water quality, habitat quality, and disease risk as related to wildlife.

Our goal is to provide best management practices to sustain military air training operations and readiness. These best management practices to support the ecosystem integrity of BMGR’s isolated waters will provide critical information for avoiding mission delays. Cooperator will supply Geographic Information Systems (GIS) data including species detections and water quality.

Task Objectives
Suppose special studies to address specific management issues, including evaluating benefits and adverse effects of wildlife waters

- **Objective 1.** Assess water quality, disease presence, and the effects of site structure and condition on wildlife health for target and non-target species such as amphibians.
- **Objective 2.** Continued monitoring, testing and expanding the implementation of aerators as mitigation measures for water quality.

The Cooperator will collect data on water quality, site characteristics and disease presence at select isolated ephemeral waters on BMGR East. Water quality data will include ammonia, nitrate+nitrite, pH, temperature and conductivity. Handheld probes and colorimeter will be supplied by the Cooperator. Additionally, the Cooperator will apply environmental DNA (eDNA) methods, sampling the water sites to detect the presence of *Batrachochytrium dendrobatidis (Bd)*, in select isolated desert waters on BMGR. Water samples will be collected from both the accessible through and the storage reservoir in constructed catchments. Negative controls will be used to ensure sample integrity. Water samples will be stored on ice (as available) or at ambient, air-conditioned temperatures until further processing. To prevent cross-contamination, a rigorous schedule of decontamination with bleach and/or ultraviolet radiation will be used in the field.

Total genomic DNA will be extracted from the water samples and preserved. Quantitative polymerase chain reaction (qPCR) will be applied back at the laboratory to determine the presence of *Bd* eDNA. Assay specificity will be confirmed on a subset of positive detections via Sanger sequencing. During analysis, integrity of qPCR data will be ensured by generous incorporation of negative controls at multiple stages of the eDNA collection and analysis. A rigorous schedule of lab decontamination will be applied, and laboratory procedures will be partitioned across two separate laboratories to isolate pre- and post-qPCR processing.
Pilot project: catchment aeration:
Cooperator will install, troubleshoot, and monitor solar aeration systems to reduce ammonia accumulation in constructed catchments. Ammonia concentrations will be measured pre- and post-installation to quantify change.

TASK 2 – MGT, HABITAT, ASSESS WILDLIFE WATERS-AMPHIBIANS (NURDOS3719)

The purpose of this project is to evaluate the ability of constructed water sites to support wildlife: specifically, to inventory amphibian species at the BMGR wildlife waters (tinajas, springs, and catchments), assess the ability of the waters to support amphibian reproduction in relation to water quality, and evaluate risk of disease exposure to amphibians at breeding sites. Data collected under this Scope of Work will be integrated with that from NURDOS1718: MGT, HABITAT, and WATER QUALITY AT WILDLIFE WATERS. The Cooperator will have adequate experience in the techniques described in this Scope of Work.

Our goal is to inform best management practices to sustain military air training operations and readiness. These best management practices to support the ecosystem integrity of BMGR’s isolated waters will provide critical information for avoiding mission delays. The Cooperator will supply Geographic Information Systems (GIS) data including species detections, reproductive activity and output, and Bd infection.

Task Objectives

- **Objective 1.** Inventory presence and reproductive effort of amphibians at BMGR isolated desert wildlife waters as related to site and water quality
- **Objective 2.** Evaluate ability of waters to support embryo and tadpole survival in selected BMGR isolated waters as a function of water quality and site structure.
- **Objective 3.** Inventory extent of amphibian infection and disease load on individuals in selected areas of BMGR.

**Obj 1: Amphibian presence and reproduction**
We will inventory water sites for calling amphibians and assess breeding habitat use in relation to environmental characteristics. Passive acoustic surveys will be based on male amphibian calling activity measured using portable acoustic data loggers (Wildlife Acoustics). Cooperator will supply the data loggers at no cost to the military. The units will be placed at isolated waters selected by Cooperator personnel and shall be operated at each site for approximately two months or as otherwise agreed to by 56 RMO and Cooperator biologists. Acoustic data analysis will allow for a comparison of amphibian diversity and use across water sites and years by measuring relative breeding activity. Audio files will be processed using appropriate software. Male calling activity will be assessed in relation to site type, water quality characteristics such as ammonia and the presence of Bd, and other parameters using appropriate statistics.

**Obj 2: Tadpole and embryonic survival**
The Cooperator will evaluate water site quality on amphibian embryo and tadpole development and survival including aspects of fecundity and survival. At a subset of sites, paired (amplexisting) adults will be isolated during evening breeding choruses in field enclosures. In the morning, adults will be released on
site, embryos will be collected, and aquatic embryonic field enclosures will be established. Enclosures will be used to evaluate hatching success and early tadpole survival. These data will be assessed in relation to water quality, site structure and other environmental parameters from the project: NURDOS1718 MGT, HABITAT, WATER QUALITY AT WILDLIFE WATERS.

Obj 3: Disease inventory
Cooperators will inventory Bd presence and load on amphibians using standardized swabbing techniques during field surveys. During surveys, precautions will be taken to prevent cross-contamination, including using new gloves and new (or disinfected) nets to handle each animal and securing frogs in individual plastic bags (ensuring ventilation). Cooperators will swab each individual with a sterile cotton swab, rolling the swabs over adult body surfaces (dorsal and ventral, sides, between thighs, feet and between toes) and tadpole mouthparts and oral disks as appropriate. After swabbing an animal, we will break the head of the swab into a sterile microcentrifuge tube with a fixative agent and place the tubes on ice to prevent DNA degradation. Amphibians will be released directly at the capture site. Field blanks will be used to monitor for contamination and ensure detection validity. Cooperators will follow a rigorous schedule of field decontamination using well established protocols on all equipment with bleach, Quaternary ammonium compound 128, and/or UV radiation.

Genetic analysis will occur after the field season using quantitative polymerase chain reaction (qPCR). Total genomic DNA will be stored in low-TE buffer at 4°C (to minimize excessive freeze-thaw cycles) until target DNA can be analyzed. Cooperators will quantify Bd using appropriate techniques such as the Taqman qPCR assay, running reactions in triplicate, and quantifying Bd concentration in each sample using a standard curve based on 100, 10, 1 and 0.1 Bd genome equivalent positive control samples. A subset of positive detections will be further assessed to ensure accuracy via Sanger sequencing.

Special precautions will be taken to prevent contamination and ensure qPCR data integrity, including using negative controls at multiple stages of data analysis. Cooperators will follow a rigorous schedule of decontamination in the laboratory, and laboratory procedures will be partitioned across two separate laboratories to isolate pre- and post-qPCR processing.

NOTE: At this time we are only requesting that you demonstrate available qualifications and skills for performing similar or same type of work. You will be evaluated for request for a proposal based on skills, qualifications and certifications demonstrated in your SOI.

Period of Performance. The period of performance is 12 months from Award.

Materials Requested for Statement of Interest/Qualifications:

Please provide the following via e-mail attachment to: Alisa.Marshall@usace.army.mil and Kali.L.Evans@usace.army.mil (Maximum length: 2 pages, single-spaced 12 pt. font).

1. Name, Organization, Cage Code, Duns number, and Contact Information
2. Brief Statement of Qualifications (including):
   a. Biographical Sketch,
   b. Relevant past projects and clients with brief descriptions of these projects,
   c. Staff, faculty or students available to work on this project and their areas of expertise,
d. Any brief description of capabilities to successfully complete the project you may wish to add (e.g. equipment, laboratory facilities, greenhouse facilities, field facilities, etc.).

**Note:** A full study proposal and proposed budget are NOT requested at this time.

Additional Specific Requirements are as follows:

Qualifications include:

The NFE should provide personnel with the necessary experience and background in order to perform the tasks at and around the BMGR and LAFB:

- Experience with Arizona State, Federal, and applicable environmental Laws and Regs,
- Experience on the Barry M. Goldwater Range and natural resources experience in the State of Arizona are highly desirable,
- The NFE requires a security clearance for unescorted entry into restricted or controlled areas prior to reporting for duty in support of the Task Order. It shall be the responsibility of the NFE to provide all documentation required for security certification. No foreign nationals shall be employed for any task order issued under this contract without prior approval of the Government.
- Personnel must be able to pass drug screening test, obtain and hold a Common Access Card, and pass and hold a National Agency Check with Inquiry (NACI). Personnel entering data into the ESOH EIS Data Base will need to complete a DD Form 2875 System Access Request Form.

**Review of Statements Received:** All statements of interest received will be evaluated by a board comprised of one or more people at the receiving installation or activity, who will determine which statement(s) best meet the program objectives. Based on a review of the Statements of Interest received, an investigator or investigators will be invited to prepare a full study proposal. Statements will be evaluated based on the investigator’s specific experience and capabilities in areas related to the study requirements.

**Please send responses or direct questions to:**

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**Timeline for Review of Statements of Interest:** The RSOI are required to be out for a
minimum of 10 working days. Review of Statements of Interest will begin **August 5, 2019**.

[End of RSOI]