Cooperative Ecosystem Studies Units
Scope of Work
Species Surveys at Naval Installations in Maine

References: Sikes Act (P.L. 86-797 § 103, as amended and extended); 16 USC 670c-1.

Background and Project Location:
Naval Support Activity (NSA) Cutler occupies 3,003 acres in the town of Cutler, ME and 3.65 acres in the Town of Machiasport, ME. These towns are in the easternmost region of ME, in Washington County, approximately 30 miles southwest of the Canadian border.

The Center for Security Forces Detachment Kittery Survival, Evasion, Resistance, and Escape Facility (SERE School) is located approximately 110 miles north of Portland, ME and 70 miles northwest of Augusta, Maine. The entire Installation is located within Redington Township, approximately seven miles east of the Town of Rangeley. The SERE School encompasses two parcels totally 12,466 acres that are separated by the Appalachian Trail (AT) corridor, which traverses the southeastern corner of the property. The main parcel is north of the AT corridor and is 11,320 acres. The southern parcel is 1,146 acres.

Great Pond Outdoor Adventure Center (GPOAC) is located in Hancock County, in central ME, approximately 35 miles northeast of Bangor, ME and approximately 30 miles north of Ellsworth, ME. GPOAC encompasses four parcels of land, totaling approximately 397 acres, and is located adjacent to three waterbodies (Great Pond, King Pond, and Alligator Lake) in Hancock County, ME. Two parcels, which total approximately 332 acres, are situated along the eastern and western shoreline of the 647 acre Great Pond. The third parcel is a narrow strip of land that encircles 147 acre King Pond and is approximately 59 acres. The fourth parcel is rectangular in shape, covers approximately six acres, and is located adjacent tot the northwesters shoreline of the 1,067 acre Alligator Lake.

In 2019, and again in 2020, Cooperative Agreements were executed through the Cooperative Ecosystem Studies Unit (CESU) to conduct the roseate tern and red knot surveys at Cutler. Other surveys in this scope have previously been awarded under various Government contracts and previous CESUs.

Purpose:
Naval Facilities Engineering Systems Command (NAVFAC SYSCOM) plans to continue and/or expand upon the previous surveys completed at each of the listed Installations. These efforts are further defined in the Request for Statements of Interest.

Military Mission Benefits:
The SERE School's primary mission is to provide training in a remote natural environment that is conducive to teaching military personnel survival, rescue, evasion, and resistance skills. The SERE School provides year-round training, emphasizing the basic skills necessary for long-term survival; evasion of capture by hostile forces; resistance to interrogation, indoctrination, and exploitations; and escape when captured and held by the enemy.

NSA Cutler's primary mission is to provide secure and reliable strategic and tactical command and control telecommunications services to U.S. and Coalition ships and submarines in the North Atlantic, Arctic Ocean, and the Mediterranean Sea.

GPOAC is a recreational facility with a role of providing morale, welfare, and recreation (MWR) opportunities for DoD personnel and their families. The facility does not provide military training or operations. The MWR opportunities are highly dependent upon the careful management of the natural resources at the site.

Period of Performance:
The period of performance for the base award covered by this Agreement is for eighteen months beginning the date this Agreement is awarded. The period of performance for each option year shall be 12 months from award of each option.

Cooperator Deliverables/Responsibilities:
The Cooperator will conduct natural resources surveys as described in the tasks below for each Installation.

All files referenced below as "to be provided upon award" will be provided to the Cooperator upon project award, unless they are necessary for the Cooperator to develop their proposal.

NSA Cutler Tasks

Task 1: Shorebird (Roseate Tern and Red Knot) Surveys
The Cooperator shall conduct weekly point count surveys for shorebirds and terns following Program for Regional and International Shorebird Monitoring (PRISM) survey guidelines, with the addition of terns as a target group, for the autumn survey period (July 15 through October 25). Over 14 surveys, data collected shall include individual counts by species, survey date, GPS location, census start and end times, weather conditions, and tide at each site for each survey. Data collected will be compiled to show trends in species presence over the duration of the survey period. Survey sites shall represent both foraging and roosting areas, and include the full range of substrates and landforms present at the installation. Data on behaviors including foraging and roosting shall be collected by species by survey point.
The Cooperator shall review past and current monitoring efforts for details on how to conduct the survey. These files will be provided upon award.

Task 1.1: Report and GIS Deliverables
All data collected during the field surveys will be compiled and presented in draft and final summary reports. The draft and final reports will include maps, habitat descriptions, sample locations, and management/conservation recommendations. All spatial data and relevant mapping information shall be provided in a Geographical Information System (GIS) format and displayed on report maps. Coordination with any Federal Agency shall be completed through the installation Natural Resource Manager (NRM) unless designated otherwise.

Task 2: Forest Health Monitoring and Management
This project is for implementation of the forest management plan on NSA Cutler. The forest inventory and management plan completed for Naval Support Activity (NSA) Cutler in 2015 includes a summary of all forest types that occur on the property. In general, NSA Cutler contains approximately 494 ac (200 ha) of forested lands, including mixed hardwood and softwood forests. Mixed hardwood makes up 70% of the forested lands at the installation. The remaining 30 percent consist of softwood. No significant forest pest or disease issues were recorded during the forest inventory and subsequent forest monitoring, indicating a healthy overall forest condition. Since no active forestry occurs at the installation, wildlife habitat is an important component of the forest management plan due to the presence of Federal and State listed bird and mammal species. A healthy and properly managed forest can reduce impacts due to run-off, overland sheet flow, and thermal pollution to habitat potentially occupied by Federal and State listed birds and mammal species. The programmatic objectives that have been established for forestry management at NSA Cutler are as follows:
1. Protect and promote sustainable management of forest resources.

2. Manage forest habitat to promote use by a diverse range of wildlife species, including protection of mature tree stands and snags, and protection of tree species that provide suitable nesting and foraging habitat for wildlife.
3. Manage forest habitats to maintain wildlife travel corridors, streamside protection, and aesthetic buffer zones.
4. Maintain forest habitats to enhance plant community diversity.
5. Maintain forest habitats to ensure consistency with an ecosystem approach to forest management.

Based on the composition of the Installations forests, there are several insects or diseases identified that could potentially damage existing forest resources. Potential forest insects pests include spruce budworm (*Choristoneura fumiferana*), forest tent caterpillar (*Malacosoma disstria*), eastern tent caterpillar (*Malacosoma americanum*), balsam wollly adelgid (*Adelges piceae*), spruce beetle (*Dendroctonus rufipennis*), and larch sawfly (*Pristiphora erichsonnii*). Potential forest diseases include root rot, which can be caused by a variety of fungi; European larch canker (*Lachnellula willkommii*) or beech bark disease (*Nectria coccinea or N. galligena*).

Under this task, the Cooperator will provide forest health monitoring services for the aforementioned insect and/or diseases at NSA Cutler to provide advanced detection early on and to determine practices and or treatment that may be necessary to prevent widespread damage from occurring (i.e. thinning, insecticides, etc.)

The cooperator shall prepare survey a plan that outlines the means and methods of accomplishing the requested survey work.

The Cooperator shall conduct sampling and surveillance for each insect and disease identified as having potential to impact forest health at NSA Cutler. Surveys shall include the 494 acres of forested areas located at the main Installation parcel (VLF Field) and the out parcel (HF Field). All survey work shall occur at the appropriate times for each of the targeted forest health issues. It is anticipated that a minimum of five field days for two people would be required for this task. The government can provide the Cutler Invasive Species Report for map referencing upon the cooperators request.

Coordination with any Federal Agency shall be completed through the installation Natural Resource Manager (NRM) unless designated otherwise.

If insect or disease pests are observed while conducting survey work, the contractor shall notify the installation natural resource manager within 24hrs of the discovery.

Task 2.1: Report and GIS Deliverables
All data collected during the field surveys will be compiled and presented in draft and final summary reports. The draft and final reports will document survey efforts and results and shall include prescriptive mitigation methods for dealing with any identified issue. It shall also cover recommendations for improving stand health and insect and disease prevention. For any identified issues or management recommendations, the contractor shall prepare a general scope of work and cost estimate for what it would take to remediate an issue or implement any recommended forest health actions.. All spatial data and relevant mapping information shall be provided in a Geographical Information System (GIS) format and displayed on report maps.

Task 3: Bird and Bat Conservation
Under this task, the Cooperator shall complete an update and revision to the Bird and Bat Conservation Strategy (BBCS) for NSA Cutler dated September 2018 (to be provided upon award). The Cooperator will incorporate USFWS priority concerns of documenting, minimize, and mitigating incidental

mortality of migratory birds and bats at NSA Cutler. The BBCS adaptive management approach suggests that the radar, telemetry, and mortality data gathered to date should be analyzed to inform a prioritized list of possible minimization and mitigation measures, additional data needs, and continued monitoring protocol that would assist in determining efficacy of mitigation measures.

The cooperator shall review all the existing avian data collected at the installation since 2018. The data shall be analyzed to determine if there are areas and or structures that experience higher mortality rates (i.e. north tower field, south tower field, towers, guy wires, buildings, etc.), provide assumptions as to why, and identify priority/feasible minimization measures. The Cooperator shall provide best available scientific data update on mitigation strategies recommended in the BBCS for the protection of bird and bats including, but not limited to; building and tower lighting, habitat management, compensatory mitigation opportunities, and deterrents. The Cooperator will work with the installation NRM to determine if mitigation recommendations are compatible with military mission and activity at the installation. The NRM will provide all necessary language that may be required to support a particular mitigation strategy where mission compatibility issues will not support the best available scientific data approach.

It is expected that this task will require the cooperator to perform four, two-person, four-day field visits for current habitat conditions, nighttime lighting observations, and overall orientation of installation layout and activity. The Cooperator shall coordinate with the NRM for installation access and scheduling.

Task 3.1 Report and GIS Deliverables
All data collected during the field surveys will be compiled and presented in draft and final summary reports. The draft and final reports will include maps, habitat descriptions, sample locations, and management/conservation recommendations. All spatial data and relevant mapping information shall be provided in a Geographical Information System (GIS) format and displayed on report maps. Coordination with any Federal Agency shall be completed through the installation Natural Resource Manager (NRM) unless designated otherwise.

SERE School Tasks

Task 4: Atlantic Salmon Surveys at SERE School:
During review of the survey plan for efforts launched in 2019, SERE School partners Maine Inland Fisheries and Wildlife (IFW) and United States Fish and Wildlife Service (USFWS) requested that the Navy look further into the barrier identified on Orbeton Stream and other potential barriers within high gradient streams located on the installation suggesting that there is not sufficient data to determine if the previously identified barriers prevent passage of listed Atlantic salmon (*Salmo salar*) into Redington Pond. Furthermore, Maine Department of Marine Resources (DMR) has theorized, based on new evidence that brown trout (*Salmo trutta*) can and do hybridize with Atlantic salmon. If this were true, those hybrid species would be subject to regulatory action based on the status of Atlantic salmon.
The current 2019 survey tagged five brown trout and one brook trout in order to characterize movements of these species within the watershed. Initial results indicate that tagged fished are completing their life cycle on the property. The presence of several age classes of juvenile brown trout sampled via electrofishing in the upstream tributaries of the pond further suggest that brown trout populations found on installation are a separate population than those found below Orbeton Falls (identified in 2015 as a potential barrier to fish migration). However, until further evidence proves this theory, DMR is of the opinion that the brown trout within Redingon Pond are sourced from Orbeton Stream below the falls and that there is no significant reproducing in the pond, while IFW believes the brown trout freely move between Orbeton stream and the pond on a regular basis.

Past surveys at the SERE School have captured brown trout in Redington Pond via gillnets and in the outlet reach of Orbeton Stream via backpack shocking. Both brown trout and Atlantic salmon occur within Orbeton stream below Orbeton falls. Field work scheduled for 2021will expand on the 2019 survey efforts by implementing a similar approach to capturing and tagging brown trout above the falls on Orbeton and tracking their movements over the course field season. They will also include environmental DNA sampling in all potential Atlantic salmon waters that occur on the installation and genetic analysis via fin clipping from brown trout caught above and below the falls (potential barrier) identified in Orbeton Stream.

Based on the above, this task requires the Cooperator, in conjunction with the Navy, to develop a survey plan that builds off the 2019 efforts and the field efforts currently underway by increasing the sample size of the original projects and further defining fish movement on the property within the watershed. The following subtasks are required as part of this task. Field work on the below subtasks shall be planned in a manner that minimizes travel (combining survey events together) to the maximum extent practicable.

Subtask 4.1: One three-day sampling event in early June to collect a minimum of six (6) brown trout and six (6) brook trout in Redington Pond/Orbeton Stream located on SERE property and surgically implant radio transmitters for tracking. Radio tags will have a 1-year battery life. Based on the results of previous surveys, it is assumed that this level of effort will provide us with a large enough sample size to achieve the new project goals. Brook trout are being added as another species with potential to ascend and descend the potential barrier on Orbeton Stream and other high gradient streams above Redington Pond to further assess this geological feature as a barrier.

Subtask 4.2: Three, two-day sampling events (1 spring, 1 mid-summer, and 1 fall) to electro fish Orbeton Stream from the SERE Property Boundary to the outlet of Redington Pond, and the various tributaries to Orbeton Stream below Redington Pond to document the fish assemblage where it has not been done during previous surveys. Fish captured during the spring sampling event can be used in tagging efforts if deemed of appropriate age and size. These waters on the installation occur within the INRMP exempt Critical Habitat for Atlantic salmon.

Subtask 4.3: Following the successful radio tagging of brown and brook trout, the fish will be checked and located two days per month (as allowed by Navy training schedule), for the life of the tags. If mortality occurs, the contractor shall complete up to three 1-day efforts to redeploy any tags recovered from mortalities.

Subtask 4.4: Environmental DNA (eDNA) water samples shall be collected from several sites in the Upper Orbeton Stream and Redington Pond drainages and the Lower sections of Orbeton Stream. For the purpose of this task, the cooperator shall plan to collect a minimum 12 eDNA water samples. Samples shall be analyzed for traces of Atlantic salmon and brown trout DNA.

Subtask 4.5: Non-lethal fin clip samples shall be collected from up to six (6) brown trout captured during sampling events. At least one sample shall be obtained from brown trout from the lower reaches of Orbeton Stream that occur on Navy property. Remaining samples shall be obtained from Redington Pond and the varying sections of streams know to contain brown trout above Redington Pond. Genetic sample results shall be compared to genetic sampling results collected during previous sampling events.

MDIFW sampling permits will be obtained and all approved gill netting and backpack-electroshocking protocols will be followed. All coordination with State and Federal agencies shall be coordinated through the installation Natural Resource Manager (NRM). The Cooperator shall be responsible for obtaining all

required collection permits for the survey work. A draft collection permit shall be submitted to the NRM for review prior to submission to the agencies.

All activities are subject to change based on mission activities and schedule.

Previous study reports and GIS will be provided upon award.

Task 4.1: Report and GIS Deliverables
The Cooperator shall be required to produce the following reports:

1. Monthly progress reports for all months associated with active field work
2. Fish species survey plan for review and approval by Navy and stakeholders prior to field work.
3. Draft and final fish species survey / inventory reports. Reports shall include developed, formal survey routes with points established in freshwater stream and pond habitat types with accompanying GIS route coverage. These reports will include a table of contents, purpose/objectives, study plot description, describe methods, provide the results and any analysis, make recommendations for follow-on work, and list literature cited and provide any references. Field data sheets shall be included as an appendix and a CD/DVD of the report with all photographs taken during surveys (tracks, scat, track routes equipment, etc.) shall be included. GPS location data will be depicted on maps/figures and the Geographic Information System (GIS) shapefile data provided to installation and region staff in accordance with the Region's GIS specifications, which will be provided upon award.
4. Checklist of freshwater fish for GPOAC (within the report) and in pamphlet form.

GPOAC Tasks

Task 5: Nuisance Wildlife Management
Road damage caused by beavers is a costly and time-consuming problem for GPOAC. Specifically at the wetland crossing located east of Cabin 5 along the cabin road. Beaver activity in this area requires daily maintenance from installation staff to prevent clogging of the existing culvert and overtopping of the access road. This is the only access/egress to Cabins 6 through 12 and it imperative that the installation maintains open travel along the road for safety of its customers. Annual trapping and dam destruction have been the means of maintaining levels of beaver impact to an acceptable level; however, these methods are time consuming, temporary, and costly.

For this task, the Cooperator shall design and install a water flow control device at the identified culvert location. The water flow control device shall be a proven and acceptable device designed to prevent problems associated with beaver damming activity. The contractor shall work with the NRM and the Maine Inland Fisheries and Wildlife Regional Biologist to ensure the design is acceptable prior to procuring materials and installation. The Cooperator shall provide the Navy, in writing, with their preliminary proposal for design that documents design decisions, installation details and timing of installation work. The proposal shall identify the need for any road outages, timing and extent of road outages, as well as, environmental permits or approvals that may be required. It is expected that the installation NRM will compile any permits necessary in support of this task.

Task 5.1: Report and GIS Deliverables
The Cooperator shall prepare a final plan that documents the location, type of flow control device installed, and any/all maintenance requirements required to maintain the successful operation of the water control device. The plan shall identify the life expectancy of the installed water flow control device and estimated replacement costs for end of life replacement. All data collected during the field surveys will be compiled and presented in draft and final summary reports. The draft and final reports will include maps, habitat descriptions, survey locations, and management/conservation

recommendations as describe in Task 5 above. All spatial data and relevant mapping information shall be provided in a Geographical Information System (GIS) format and displayed on report maps. Coordination with any Federal Agency shall be completed through the installation NRM unless designated otherwise.

OPTIONAL TASKS

Optional tasks described below have specific years that the various tasks are anticipated to be funded. However, tasks may be funded earlier or later, or not at all, depending upon funding availability.

Option Year 1 (Planned for FY23)

Task 1. NSA Cutler Shorebird (Roseate Tern and Red Knot) Surveys

All elements of this task as described above under NSA Cutler Tasks, Task 1 and 1.1 on page 2 apply to this option year task.

Option Year 2 (Planned for FY24)

Task 1. NSA Cutler Shorebird (Roseate Tern and Red Knot) Surveys

All elements of this task as described above under NSA Cutler Tasks, Task 1 and 1.1 on page 2 apply to this option year task.

Task 2. NSA Cutler Bird and Bat Conservation - Migratory Bird Mortality and Incidental Take Study (4th Survey Year)

The Cutler Naval Facility and surrounding coastal habitats have been designated a nationally and globally Important Bird Area (IBA) as a result of the nesting and wintering seabirds and migratory shorebirds that stage in the area in the late summer. The extensive open areas within the antenna field provide unique habitat for nesting, migrating and wintering birds along the Maine Coast. There have been 285 species of breeding and migratory birds documented in the VLF array area since 1975. During the 2012 cooperative agency INRMP review process, the USFWS commented that the unique land management activities at NSA Cutler attract significant numbers of migrating and nesting birds and bats. As a result, there is an inherent risk of mortality and reduced productivity from collisions with overhead and guy wires associated with the tower field. From 2015 through 2017, the Natural Resource Program implemented 3 years of survey efforts to document avian mortality and the hazards associated with the tower field. The survey methods and results are documented in the 2018 technical memorandum (to be provided upon award), (Tetra Tech, Inc. 2018. Fatality Monitoring Technical Memo: Year 3 (2017). Naval Computer Telecommunications Area Master Station Atlantic Detachment (NCTAMSLANT DET) Cutler. Final Report. February). During the 2019 cooperative agency INRMP revision process, USFWS identified some additional deficiencies that should be addressed to better define the hazards and impact of the tower field to migratory birds.

For this task, the Cooperator shall conduct one (2) seasons of fatality monitoring in accordance with the methods identified in the 2018 Technical Memorandum prepared by Tetra Tech. This task requires the Cooperator to analyze field data using the same or comparable statistical approach to determine incidental take of migratory birds and bats for the current field season. It is expected that the Cooperator will spend 50 field days for one person (25 in spring and 25 in fall) for mortality survey work. Additionally, there would be one, five day, two-person site visit required to establish, maintain, and remove plots.

A report shall be developed that discusses the results of field surveys and statistical analysis, as well as, provide a comparison to previous fatality monitoring year results. Special attention shall be given to identifying geographic areas (i.e. or facilities with higher rates of mortality, identifying what portion of fatalities observed are migratory versus resident birds, if possible, and

what bird groups (i.e. waterfowl, gulls, neo-tropical migrants, resident breeding birds) were most prevalent in all years where fatality monitoring was performed. This information will help prioritize and focus future avoidance and minimization measures.

The Cooperator shall be responsible for obtaining all State and Federal collection permits associated with this task. All reporting elements of this task as described above under NSA Cutler Tasks, task 3.1 on page 4 apply to this option year task.

Option Year 3 (Planned for FY25)

Task 1. NSA Cutler Shorebird (Roseate Tern and Red Knot) Surveys

All elements of this task as described above under NSA Cutler Tasks, Task 1 and 1.1 on page 2 apply to this option year task.

Task 2. SERE Salmon Surveys

All elements of this task as described above under SERE School Tasks, Task 4, Subtask 4.1-4.5, and Task 4.1 starting on page 4 apply to this option year task.

Option Year 4 (Planned for FY26)

Task 1. NSA Cutler Shorebird (Roseate Tern and Red Knot) Surveys

All elements of this task as described above under NSA Cutler Tasks, Task 1 and Task 1.1 on page 2 apply to this option year task.

Task 2. NSA Cutler Bird and Bat Conservation - Migratory Bird Mortality and Incidental Take Study (4th Survey Year)

All elements of this task as described above under Option Year 2, NSA Cutler Bird and Bat Conservation - Migratory Bird Mortality and Incidental Take Study (4th Survey Year), Task 2 on page 7 apply to this option year task.

Substantial Government Participation

- The Navy will coordinate base access for Cooperating partner.
- The Navy will assist the Cooperators with study site selection, participate in study design and procedures, assist with surveys, review collection permits, coordinate with regulatory agencies, and review Cooperator reports.
- The Navy will provide all relevant survey data and reports collected to date, relevant to the work requested in this CESU.

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