NATURAL RESOURCES CONSERVATION, TEAM AWARD

2024 Secretary of Defense Environmental Awards

FORT CARSON, CO

INTRODUCTION

Fort Carson, the Mountain Post, was established in 1942, and for seven decades has enjoyed a proud history of preparing Soldiers for combat. In 1983, to support brigade level force-on-force maneuvers, the installation was expanded to include the Piñon Canyon Maneuver Site (PCMS) which is located approximately 150 miles to the southeast. Today, Fort Carson spans 373,390 acres in southeastern Colorado and is recognized as one of the world's premier locations to train and prepare Soldiers for battlefield success. The region's semi-arid climate supports year-round training. Vast open areas accommodate brigade-sized mounted maneuvers, and the rugged canyons are ideal for dismounted maneuvers.

Fort Carson is home to the 4th Infantry Division (4ID), which includes the 1st Stryker Brigade Combat Team (BCT), 2nd Infantry BCT, 3rd Armored BCT, 4th Sustainment Brigade, and the 4th Combat Aviation Brigade (CAB). Approximately 26,300 Soldiers and 5,000 Civilians work and train at Fort Carson. Sustaining the environment is integral in supporting the 4ID mission to prepare trained and ready expeditionary forces for deployment in support of Combatant Commander Requirements.

BACKGROUND

Fort Carson is a blend of cantonment (10,076 acres), impact areas (27,193 acres), managed forested lands (90,315 acres), lakes, canyons, arroyos, rivers and large expanses of shortgrass prairie. Nearly 336,121 acres are available for recreational activities. A diversity of plants and animals inhabit the installation, including several species of concern and the endangered black-footed ferret.

The Mission Sensitive Species Team
Within the Natural Resources Program is a team of biologists dedicated to the protection of mission sensitive species. Mission Sensitive Species are those species with the highest potential to impact DOD missions if federally listed under the Endangered Species Act (ESA). The Mission Sensitive Species Team (MSST) surveys for and protects the core habitats of DoD Mission Sensitive Species. These proactive efforts help ensure that training missions are less likely to be adversely impacted in the future. The MSST utilizes innovative technology and research to develop adaptive management strategies that incorporate climate resiliency tools. These conservation measures help to preclude the ESA listing of species that occur on the installation and ensure that training missions are less likely to be adversely impacted in the future.

Judging Criteria

- **Program Management**
- **Orientation to Mission**
- **Impact & Outcomes**
- **Technical Merit**
- **Stakeholder Interaction**
- **Transferability**

ACCOMPLISHMENTS

The MSST has conducted numerous sensitive species surveys to document current populations and track changes over time. Core use habitats are modeled and mapped to ensure that the maximum amount of area remains open for training, while simultaneously stalwartly protecting the core use areas of sensitive species. The team has fostered positive partnerships with DoD programs and national and local organizations. The MSST's efforts support mission readiness and promote sustainable rangeland use, while supporting the preservation of mission sensitive species.

MONARCH BUTTERFLY

The MSST documented locations of breeding monarchs.

Monarch butterflies are known to occur on Fort Carson. In response to the recent listing of the monarch butterfly as a candidate species, Fort Carson has adopted proactive measures to study and support this species to preclude a species listing. MSST biologists conduct annual surveys and map monarch locations.

With the locations of the butterflies documented, the MSST coordinates with the Fort Carson Fire Department (FCFD) to ensure prescribed burns are carefully timed to avoid impacts to both monarchs and their food source. Additionally, the MSST collaborates with Range Control to suspend mowing in areas where monarchs are actively breeding. The MSST biologists partner with the Integrated Training Area Management (ITAM) program to confirm that milkweeds and flowers are included in restoration seed mixes which increases redundancy on the landscape to buffer against military training and other disturbances.

MSST and MJV collaborate to survey for monarchs.

Funds were acquired from the Forestry Reserve Account to purchase 28 pounds of native flower seeds for the creation of 10 acres of high-quality pollinator habitat. The dispersed habitat-island plots provide a variety of milkweeds (essential for monarchs) and flowers that bloom all season, which benefit the monarchs and other pollinators.

Fort Carson joined the Manitou Pollinators to create a regional pollinator district and MSST members made presentations at several community events, both on and off the Installation. The Monarch Joint Venture (MJV) was created to facilitate data collection and sharing between DoD installations. During the summer of 2023, the MSST participated in field sampling efforts and shared monarch population data with the Monarch Joint Venture.

TRICOLORED & LITTLE BROWN BAT

Pallid bat captured during a mist net survey on PCMS.

Fort Carson is home to 18 species of bats, including the tricolored bat (a proposed endangered species),

the little brown bat (under federal review) and Townsend's big-eared bat (a species of special concern). In collaboration with Arizona Fish and Game the MSST conducted baseline surveys, mapped core habitats, and identified new roosting locations. The baseline surveys included a combination of acoustic monitoring equipment placed throughout the installation, numerous nights of mist netting surveys, and exploratory canyon surveys. These efforts resulted in the detection of eight species of bats that were not previously known to occur on the installation. One species, the cave myotis, was discovered through the DNA analysis of bat guano and is a state record indicating a substantial range expansion for this species.

In addition to the baseline surveys, biologists installed VHF tracking devices on nine bats which led to the discovery of three new roost locations that are now protected. Data from the study enabled the MSST to identify high priority areas (areas with the highest number and diversity of bats). The acoustic sampling data was used to create occupancy probability models for the candidate species. These models will guide management plans if either of these species becomes listed. All captured bats were tested for white-nose syndrome, which was not detected during the study.

The bat telemetry survey led biologists to new bat roosts.

It is important that potential bat roosts and hibernacula are not disturbed or destroyed by training activities. Some bats sleep in deciduous trees during the day, therefore the MSST surveys all project/training areas to ensure that bats are not utilizing these trees prior to training, tree disturbance or tree removal.

PINYON JAY

An ARU deployed in prime pinyon-pine habitat.

The pinyon jay occurs in low elevation conifer woodlands on Fort Carrson and has been historically observed on PCMS. Pinyon jays have coevolved with pinyon pines. The jays rely on the trees for food, and conversely, the jays disperse the pinyon seeds. Pinyon jays have been declining at a rate of 2%/year since 1967 (~80% decline). They are a USFWS petitioned species and a DoD mission-sensitive species. Bird Conservation Region 16, the region from Fort Carson to Four Corners (UT, AZ, NM and CO), is estimated to have 50% of the population. The MSST has been conducting pinyon jay surveys and mapping their occurrence on the installation. In addition to visual surveys, the MSST has deployed 15 acoustic recording units (ARUs) in prime habitats. Data obtained from the ARUs is analyzed for the presence of pinyon jay calls.

This summer, MSST staff teamed up with biologists from the DoD Partners in Flight (PIF) Program to conduct week-long surveys. Although no pinyon jays have been detected recently at PCMS, 20 individuals were documented on Fort Carson.

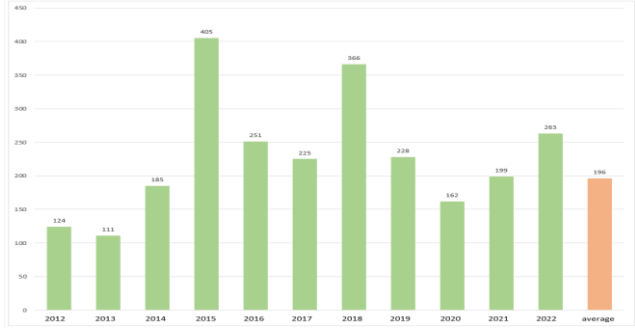
The MSST currently utilizes an adaptive management strategy for pinyon jay conservation to protect this species, while minimizing impacts to training. Some of the key recommendations include retaining pinyon pine over one-seeded juniper and retaining female one-seeded juniper over male one-seeded juniper. This ensures that pinyon jays will have a continuous food source. Pinyon pine trees only occur on approximately 9% of PCMS. Therefore, it is important to protect this habitat. The MSST coordinates with the FCFD to develop burn plans that protect pinyon pine-rich areas while meeting FCFD fuel load reduction and climate resiliency objectives.

BURROWING OWL

The MSST surveys for, and protects, burrowing owls.

Burrowing owls occur on Fort Carson and PCMS. These miniature raptors are protected under the Migratory Bird Treaty Act (MBTA), listed as a DoD Mission Sensitive Species, and listed as a Colorado State Threatened Species. Since the burrowing owl habitat encompasses a large amount of training area during the nesting season, an ESA designation of this species would have a profound (seasonal) negative impact on the Army training mission. On Fort Carson, these ground dwelling owls primarily nest within active prairie dog colonies. Most prairie dog colonies are in flat terrain within the short-grass prairie where the soil conditions are ideal for digging. During heavy training events, MSST collaborates with Range Control to create buffers around nesting owls. This effort also protects other species of concern that utilize prairie dog colonies including the swift fox, long-billed curlew, black-footed ferrets, mountain plover, and golden eagle.

The MSST has been collecting data on burrowing owls for over 12 years. By tracking the population trends, the MSST can determine if the management strategies avoid or minimize mission impacts while supporting the conservation of the species.



Graph depicts the recovery of burrowing owls on PCMS.

Nationally, the burrowing owl population has been trending downward; however, on PCMS the owls are experiencing an upward trend. In 2022, there were 262 burrowing owls, which is above the 11-year average of 229 owls. The documentation of increasing population trends on the Installation could help preclude a future species listing. MSST biologists have participated in the Avian Knowledge Network training and will be uploading burrowing owl data to support this DoD initiative.

MOUNTAIN PLOVER

The last mountain plover observed. (PCMS 2015).

The mountain plover is a mission sensitive species that has been declining significantly throughout its former breeding range. Two of the main causes are the loss of prairie dog colonies (which provide ideal habitat) and the lack of natural fire regimes. The MSST conducts extensive annual surveys for mountain plovers. The last plover observed on PCMS was in 2015. Between 2015 and 2017, PCMS experienced a 97% decline in prairie dog acres (suspected plague outbreak). On Fort Caron, the last plover observation was in 2012. Fort Carson experienced a plaque outbreak between 2010 and 2013 and only one third of the colonies survived. The loss of prairie dog habitat may have contributed to current absence of plovers on the Installation.

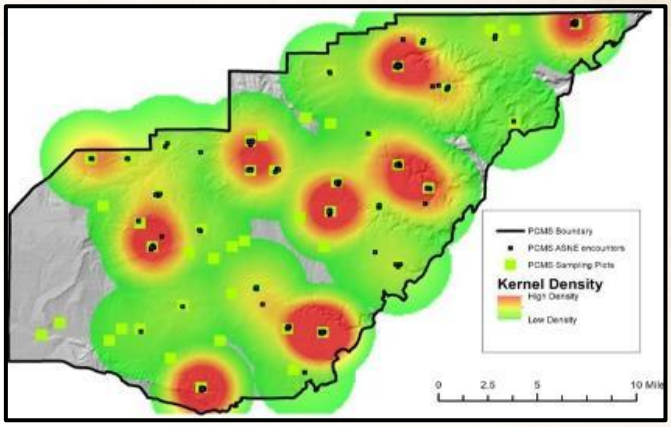
One of the goals of the MSST is to support the recovery of mountain plovers on the Installation. The MSST conducts visual surveys and deploys ARUs near prairie dog colonies to document a reoccurrence of the species. Since plovers frequently utilize prairie dog colonies, the MSST coordinates with Range Control to avoid heavy training near active nests. They also develop prescribed burn plans with the FCFD to maintain attractive habitat for plovers.

COLORADO CHECKERED WHIPTAIL

Colorado checkered whiptail foraging on PCMS.

The Colorado checkered whiptail (COCW) is a state-endemic reptile with significant populations on the installation. This all-female species will likely become federally listed in the near future, (as available habitat off installation becomes developed), potentially impacting the availability of training lands. To be proactive, Fort Carson partnered with Utah State University, Colorado State University and CO Natural Heritage Program researchers to implement a study that examined the levels of stress hormones within the lizards when exposed to aviation noise. These data results suggest that flyovers did not significantly impact the stress hormones CORT (corticosterone) and ROM (reactive oxygen metabolites) or plasma glucose, but there was some elevation of ketones. The MSST found the lizards to be somewhat resilient as they compensated for this to some degree by altering their feeding and movement behaviors. Adjusting timing and location of flyovers to avoid the peak reproductive period may help alleviate some potential negative impacts on the lizards. At Fort Carson, the highest density area of COCWs is approximately 1.5 miles from the flight route. Therefore, it is unlikely that any additional conservation mitigation is needed. If the COCW becomes listed, this data will be very beneficial to Fort Carson and other agencies, when minimizing impacts to this species.

Additionally, the study looked at the distribution of COCW across the Installation and identified high occupancy areas. The Kernel density distribution of all observed reptiles was compared to the known COCW population data to define significant concentrations or "core-use areas." Identifying these hot spots helps biologists prioritize protection areas.



Core high density areas for reptiles on PCMS.

COCW were rarely observed in the short-grass prairie or on the edges of roads. They were almost exclusively observed in pinon-juniper habitat, shale outcrops, canyons, and near vacant ranch houses. Fortunately, these areas are already protected or only experience light traffic. Therefore, major ground training exercises are not likely to significantly impact the COCW population.

The MSST has partnered with DoD Partners in Amphibian and Reptile Conservation (PARC). While conducting COCW and other reptile surveys, the biologists upload data to the PARC HerpMapper Program for all reptiles encountered. This information sharing between installations is mutually beneficial. The larger set of data enables biologists to identify trends across an entire region and therefore develop more informed management strategies. Additionally, the data sharing effort enables biologists to detect trends that are unique to their installation.

The Texas horned lizard, a Colorado State species of concern, documented on PCMS.

BLACK RAIL

Potential black rail habitat on Fort Carson.

Black rails are elusive wetland birds with dark speckled plumage that blends perfectly into the shadows. Although black rails are rarely seen, they have a distinct "keek-ee-do" call that is most often heard at night. The black rail population has declined by 50% over the past 50 years and it is now Federally listed. Although the reason for the decline is not certain, loss of habitat and climate change are likely culprits. For three years, Fort Carson has been intensely surveying for black rails. Surveys included nocturnal surveys (using the FoxPro playback device), visual surveys, and the deployment of ARUs throughout Fort Carson wetlands. During the three years, only one black rail was recorded. This individual bird responded to a playback call and was visually identified.

The MSST developed a black rail management plan which was submitted to the USFWS earlier this year and Fort Carson is currently undergoing consultation with the USFWS. Since these birds are dependent on wetlands, Fort Carson is ensuring that there is no net loss of wetlands. Ultimately, this means that there are no mission impacts other that what is already afforded under the Clean Water Act.

Black rails build their nest a few inches above the water, so any rapid fluctuations in the water level could be detrimental. The MSST strives to maintain constant water levels in areas where breeding could occur. Fort Carson utilizes NATO minefield breaching symbology to identify safe crossing locations through riparian areas.

SUMMARY

The MSST works together, combining time, knowledge, and material resources to effectively support mission sensitive species and military readiness. Biologists employ a blend of old technologies, like ARUs, with newer technologies, such as DNA testing, to gather important data on the health of populations of sensitive species. In many instances, if a species of concern becomes listed, there will likely be significant impacts to the military training mission. By taking proactive measures to conserve these species and their core habitats, the MSST biologists may help preclude a species listing.

Throughout this process the MSST has developed beneficial partnerships with internal stakeholders (e.g., FCFD, ITAM, Range Control), local organizations (e.g., Manitou Pollinators), national efforts (e.g., Monarch Joint Venture) and supported various DoD initiatives (e.g., AKK, PIF, PARC). The research and data collected by the MSST is transferable and will benefit other DoD installations that have the same species.

The MSST takes a comprehensive approach of integration and collaboration, to support mission sensitive species. The team employs proactive measures to reduce the likelihood of a species being listed by defining and managing core habitats, while maximizing open space to support training. The goal of the MSST is to enable military readiness through dynamic, integrated, innovative, and cost-effective habitat restoration and management projects. These efforts facilitate sustainable rangelands and allow for the highest quality of training for Soldiers.

Burrowing owls protected during Stryker training on PCMS.