Fort Wainwright 2017 Natural Resources Management Report to the Bureau of Land Management

Prepared by:
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Introduction:

Effective communication and coordination between the Bureau of Land Management (BLM) and the Army has been identified as a need in the recent document entitled "Memorandum of Understanding between the U.S. Department of the Interior, Bureau of Land Management Alaska, and the U.S. Army Garrison Fort Wainwright concerning the management of lands in Alaska withdrawn by Public Law 106-65 for military use". This document, with brief project descriptions from FWA and DTA Environmental and ITAM staff and cooperators, serves as an annual report to the BLM as stipulated by that memorandum.

The FWA environmental office is guided by the Fort Wainwright Integrated Natural Resources Management Plan (INRMP), which establishes policies, programs, prescriptions, projects, and procedures that U.S. Army Garrison Fort Wainwright (USAG FWA) uses to manage natural resources on Army training lands in Alaska. The INRMP contains goals and specific objectives necessary to (1) sustain "no net loss" in the capability of military lands to support mission requirements, (2) support stewardship of natural resources, (3) ensure compliance with applicable environmental laws, and (4) maximize public access within the constraints of the military mission while protecting public safety and conserving the environment. The Fort Wainwright INRMP reflects mutual agreement of USAG FWA, U.S. Fish and Wildlife Service (USFWS) and the Alaska Department of Fish and Game (ADFG) concerning the conservation of the natural resources under their respective legal authorities. The INRMP consolidates other related Army natural resource planning documents in one place, including the Ecosystem Management Plan, Integrated Wildland Fire Management Plan, Endangered Species Management Plan, Forestry Management Plan, Watershed Management Plan, and Outdoor Recreation Management Plan. The INRMP also incorporates the applicable BLM Resource Management Plans for Yukon and Donnelly Training Areas. The INRMP for Fort Wainwright was last updated in 2013 (https://usartrak.isportsman.net/regulations.aspx), and is scheduled for update in 2018.

The FWA and DTA ITAM programs are housed within the USARAK Sustainable Range Program, and are guided by the FWA ITAM work plan, which is updated annually. The ITAM program is also integrated into the FWA INRMP. ITAM provides sustainable range management directly to the Army mission of USARAK, while coordinating with the FWA environmental staff. The goals of the ITAM program are to support the installation's training mission by providing maneuver land and decision support capability based on the integration of training requirements, land conditions, maneuver ranges, and land management requirements. For overall questions concerning environmental goals and polices, please contact Dan Rees:

Dan Rees
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Forestry

Forest Inventory
Maintaining healthy forest conditions is the primary objective of the FWA forestry program. Forest inventory and analysis and forest health monitoring permanent plots are an effective method for detecting changes in vegetation health, composition, structure, wildfire fuel loading and determining growth and mortality which can be applied in growth projection models. Inventory and monitoring of Fort Wainwright's forest resources also provides an indicator of ecosystem integrity, biodiversity of species and habitats, and sustained production of commercially valuable forest products. In addition, inventory and monitoring help to determine areas where improvements or rehabilitation are needed to maintain ecosystem integrity and to support military training activities. Vegetation cover type mapping is used to delineate and attribute forest species, size, type and distribution. Continuous forest inventory plots are used to detect changes in insect and disease abundance in representative forest stands across the landscape.

Vegetation cover type maps are updated annually using fire history perimeters, military construction overlays and overlays of other clearing projects. Vegetation types are mapped to level 4 standards using techniques identified in the US Forest Service publication, The Alaska Vegetation Classification (Viereck et al. 1973). In addition, size class and density are added to forest stands using techniques developed by the State of Alaska Division of Forestry. Vegetation cover types are delineated and attributed on a GIS using a combination of air photo interpretation, heads up digitizing, and ground truth plot information. Vegetation types are mapped to a five acre minimum mapping unit on all Fort Wainwright lands.
Vegetation cover type maps are used for forest utilization planning, identifying specific military training area requirements, military training range location, and natural resource management concerns. In fiscal year 2017 Fort Wainwright updated 5,000 acres of vegetation cover maps.

Fort Wainwright maintains a system of continuous forest inventory plots using standardized techniques developed by the US Forest Service, Forest Inventory and Analysis Program. Two hundred and fifty continuous forest inventory plots are monitored throughout the forested vegetation types of Fort Wainwright. Continuous forest inventory plot locations and intensity are systematically stratified by forest type across the landscape. These plots are re-measured every ten years. 10% of the forest inventory plots are forest health monitoring plots and are re-measured every five years. Plot data collected includes: tree species composition, size class distribution, understory and forest floor species composition, canopy cover, tree species crown size and position, stem density, basal area, mean annual growth, regeneration composition and density, wildfire fuel loading, disease and insect observations and merchantable volumes by species. In fiscal year 2017 Fort Wainwright re-measured 6 forest inventory plots.

For information contact: **Adam Davis**, Forester, CSU/CEMML, adam.l.davis.ctr@mail.mil, (907) 361-1168

Timber Stand Improvement and Reforestation
This project saw 19.4 acres of previously harvested areas in the YTA replanted to a mix of spruce and larch at 100-foot spacing. Project completed 30 September 2017.

For information contact: **Colin Barnard**, Programs Administrator, SDSWCD
Colin.barnard@salchadeltaswcd.org, (907) 867 – 6099

Vegetation Management
Fort Wainwright conducts active vegetation management to increase military training opportunities, enhance wildlife habitat and reduce wildland fire fuels. Ninety Five forested acres were hand thinned on Fort Wainwright lands to facilitate military maneuver training and wildfire hazard fuel reduction. Trees were generally thinned from original forest densities to a 15 foot average tree or tree clump spacing; understory shrubs and ladder fuels were also removed from the treatment sites. Residual slash was disposed of by pile burning or chipping on site.

In 2017 100 acres were cleared for wildfire hazard fuel reduction in the winter utilizing heavy equipment and track walking. Spring prescribed fires burned approximately 35,000 acres of mostly grass and grass/shrub vegetation types on live fire ranges within Fort Wainwright. BLM, Alaska Fire Service is the lead on all of Fort Wainwright's prescribed burns.

For more information contact: **Dan Rees**, Natural Resource Manager, USAG FWA, daniel.c.rees.civ@mail.mil, (907) 361-9318

FWA Forest Protection Fire
This project installed a firebreak north of OP 30 in the West DTA that was 26,976 feet long by 100 feet wide (approx. 62 acres) using timber harvesting and shearblading. Project completed March, 2017.

For information contact: **Colin Barnard**, Programs Administrator, SDSWCD Colin.barnard@salchadeltaswcd.org, (907) 867 - 6099

Soil Surveys
Tanana Flats, Donnelly Training Area West, Gerstle River Training Area, and Black Rapids Training area Soils Planning Level Study will inventory and map approximately 1,000,000 acres of Army Training Land. Data to be collected includes soil classification, location, engineering limits and distribution. This study will update and ground truth existing soils maps and classify and map previously unmapped military lands. The study will adhere to guidelines on soil survey and mapping procedures as defined by the USDA Natural Resource Conservation Service for level four surveys. Soils will be classified according to morphology, physical and chemical properties; the spatial positioning of soils in the landscape and plotting on maps; the boundaries between kinds of soil; the interpretations of soils according to their capability to support various crops, grasses, and trees; a description of soil behavior under use or treatment for plant production or for other purposes; and a description of soil productivity under different management systems. The Natural Resources Conservation Service's Soil Survey procedures and documentation standards are required. GIS based data of the soil study area and individual soil types will be mapped to a minimum map unit of 2.5 acres. The Tanana Flats Training Area (approximately 25,000 acres) survey is scheduled for completion the first week of July 2018. The Survey for DTA West (approximately 500,000 acres) will be complete sometime in January 2018. To date 25,000 acres have been surveyed and analyzed for the Gerstle River Training Area and Black Rapids Training Area. Report due on 30 June 2018.

For information contact: **Colin Barnard**, Program Manager, SDSWCD, Colin.barnard@salchadeltaswcd.org, (907) 867 – 6099

Public Access to Training Lands

Recreation Tracking and Access
Fort Wainwright maintains an automated online recreational access system called the U.S. Army Recreation Tracking System USARTRAK for military training lands that is specific to Fort Wainwright and Donnelly Training Area (DTA) lands. This system is designed to de-conflict recreational activities with military training. To access Fort Wainwright land for recreation; users must obtain a Recreation Access Permit (RAP) and check into the training area(s) they wish to recreate in. Users can obtain a RAP, check into training areas and view closed areas online at https://usartrak.isportsman.net or at one of Fort Wainwrights electronic kiosks located at Fort Wainwright and Fort Greely front gate visitor centers. Army Range Control also uses the system to open and close training areas to recreation. Environmental staff provides additional permitting for bear baiting, trapping, and firewood cutting.

USARTRAK/iSportsman Visitor Check-in FY 2017	
Data Point	**Quantity**
People checked into USARTAK	4,942
Check ins	8,830
User days (1 calendar day = 1 user day)	26,174
Average user days/person	3.5

USARTRAK/iSportsman Visitor Check-ins September 2017		
Data Point	**Quantity**	**% all users for 2017**
People checked into USARTAK	2,146	43%
Check ins	2,999	34%
User days (1 calendar day = 1 user day)	11,031	42%
Average user days/person	4	N/A

Approximately 52% of the users on Army Land are hunting fishing or trapping. 43% are only hunting.

For more information contact: **Shawn Osborn**, Natural Resource Specialist, USAG FWA, shawn.f.osborn2.civ@mail.mil, (907) 361-4539

Range and Training Land Assessment (RTLA) and Land Restoration and Maintenance (LRAM)

Sustainable Range Study for DTA and BRTA
FWA DTA and Black Rapids Training Area (BRTA) Range and Training Land Assessment (RTLA) surveys are conducted annually. In 2017, field surveys were done from June through September. Four types of field surveys were completed, including: (1) Training Land Sustainability (TLS) Assessment, which measures overall condition of training lands by collecting data on vegetative species and cover; (2) Maneuverability Assessment, which measures how easily an area surveyed for TLS is to utilize for maneuver exercises; and (3) Vegetation Recovery Assessment, which measures the percentage of cover along areas that were once cleared for construction projects.. All RTLA surveys were conducted by trained CSU staff. RTLA 2017 field data analysis is in progress and will be presented in the annual report by 30 June 2018. An in-office assessment of the Range Facility Management Support System (RFMSS) data is conducted on a calendar year basis. This analysis retrieves annual data from the RFMSS, which tracks military use of training areas. This information is then mapped to

display the number of days utilized and personnel trained per training asset, which shows a distribution of use and associated impact across the DTA. RFMSS data reports are available annually by 30 June for the prior calendar year.

FWA DTA Land Rehabilitation and Maintenance (LRAM) crew worked May through November 2017 on vegetation maintenance projects within DTA, Gerstle River Training Area (GRTA), and BRTA. These projects consisted of brush clearing and tree removal for the purpose of improving training capabilities for military training. For these projects, salvageable trees were stacked for firewood gathering, and limbs, tops, and brush were stacked for pile burning by AFS. Hazard trees were removed from 15.8 acres, including around bivouac sites. Trees were cleared for line of sight around 2.9 acres of firing range targets, and brush was removed at 9 additional line of sight locations. 4 acres of brush were cleared at GRTA landing zones. Brush and overhanging trees were cleared back on 7.1 miles of trails in DTA East and 3.3 miles of ski and foot trails at BRTA. Woody debris was cleared out around 0.5 acre of live fire targets. Military disturbance on 5 acres of bare ground were reseeded. Spruce beetle mitigation activities were also conducted on 5 acres. The LRAM crew consisted of four staff employed by both CSU and the Salcha-Delta Soil and Water Conservation District (SDSWCD). All staff was trained and followed appropriate safety procedures. Project areas for 2017 were determined by ITAM and RTLA/LRAM coordinators with input from Range Control. Projects are coordinated with Natural Resources and SDSWCD. The full report on 2017 LRAM crew projects will be produced by 30 June 2018 and presented in conjunction with the 2017 RTLA Final Report.

For more information contact: **Deborah White**, DTA RTLA/LRAM Coordinator, CSU/CEMML**,** deborah.s.white19.ctr@mail.mil, (907) 873-1617

Sustainable Range Study YTA and TFTA

FWA RTLA surveys were conducted in June through August of 2017 in the Local Training Areas, Tanana Flats Training Area (TFTA), and Yukon Training Area (YTA). Three types of field surveys were completed summer of 2017, which include; (1) 868 acres of Training land Sustainability (TLS) Assessment which measures overall condition of training lands by collecting data on vegetative species and cover; (2) 25 acres of Vegetation Recovery Assessment which measures the percentage of cover along areas that were once cleared for construction projects; and (3) A little over 1 mile of Trail Inventory and Condition Assessment which tracks types of trails available for use along with the condition of each one surveyed. All RTLA surveys were conducted by trained CSU staff. An in-office assessment of the Range Facility Management Support System (RFMSS) 2017 data will be conducted after 31 December 2016. This analysis retrieves annual data from RFMSS, which tracks use of training areas. This information is then mapped to display the number of days utilized and personnel trained per training asset. RTLA 2017 field data analysis is in progress and will be presented in the annual report by 31 January 2018.

FWA LRAM crew worked April through October 2017 on vegetation maintenance projects within the local training areas, YTA and TFTA. These projects consisted of brush clearing and tree removal for the purpose of improving training capabilities for military training. For these projects, salvageable trees were stacked for firewood gathering, and limbs, tops, and brush were stacked for pile burning by the Alaska Fire Service (AFS) or chipped on site for ground cover improvements. Hazard trees were removed from 34 acres, including thinning around bivouac sites and ranges. A little over 14 acres were clear cut of trees and shrubs, to remove line of sight and training obstructions. The LRAM crew also mowed approximately 28 acres in effort to maintain existing design parameters. A little over one acre of land was also treated for erosion control through seeding and the spreading of organic ground cover. Lastly the

crew cut in approximately 2 miles of restored trails and maintained vegetation along 19 miles of trails and access routes. The LRAM crew consisted of four staff employed by CSU. All staff was trained and followed appropriate safety procedures. Project areas for 2016 were determined by ITAM and RTLA/LRAM coordinator with input from Range Control and FWA Natural Resources. The full report on 2017 LRAM crew projects will be produced by 31 January 2018 and presented in conjunction with the RTLA Final Report.

For more information contact: **Brenda Fiddick**, FWA RTLA/LRAM Coordinator, brenda.l.fiddick.ctr@mail.mil, (907) 353-6702

Range Maintenance

DTA TA 530 and 531 TARP
This project saw 1958 feet of damaged trail near Donnelly Dome in DTA repaired. In addition, 12.1 acres of maneuver damage was repaired and replanted to native vegetation on Donnelly Drop Zone. Project completed 30, September 2017.

DTA TA 502 Bivouac Soil Stabilization and Reconfiguration
The project is located in Training Area 502 near the Kiska Combined Arms Collective Training Facility (CACTF), off of Tok Road. The CACTF is northwest of the site and the Battle Area Course (BAX) is to the southeast. Created a bivouac site based around a hardened loop trail 0.27 mile in length with two access points from Tok Road. Cleared and area of 2.9 acres using a hydroax. Created 12 gravel parking pad arcs on a 25-foot radius outward from the loop trail and one 140 feet x 200 feet gravel assembly pad in the center. Project completed 20 June 2017.

BRTA Base Camp Training Area Repair Plan
This project saw 3066 feet of the Red Slope trail repaired and drainage features improved. In addition 3022 feet of the Lift trail was improved with new drainage features. Both trails were seeded to Alaska native grasses. Project completed July 2017.

YTA TA 301 Maneuver Damage Repair
The project is located in Training Area 301 in the North-Western section of the YTA. The project would focus in and around the Husky Drop Zone (DZ) where large scale maneuver, bivouac, and landing zone operations occur in conjunction with personnel and equipment drop training to maintain military readiness and preparedness. 13.6 acres of Maneuver Damaged areas were repaired and reseeded to native grass. In addition, 14.2 acres of Thermokarsted areas were smoothed and replanted to native grass. Project completed 30 September 2017.

YTA TA 305 and 306 Maneuver Trail Repair
This project saw sections of North Beaver Creek Trail repaired from maneuver damage. 6109 feet of discontinuous sections of this trail were repaired with installation of geotextile and gravel as well as drainage features and culverts where necessary. Project competed September 19, 2017.

YTA Stuart Creek 2 TARP
The project is located in the YTA Training Areas affected by the Stuart Creek 2 fire of 2013; specifically Training Areas 306, 307, 308, 309, and 315. This project saw the removal of 24.2 acres of stumps as well as 37.6 acres of burned over spruce stands using a masticating hydroax. Project completed October 20, 2017.

USFS Beaver Creek and Skyline Roads NSEB Mitigation Project
Recent wildfire and suppression activities in the Yukon Training Area due to the Stuart Creek 2 Fire have resulted in significant tree damage to residual white spruce in the area. The additional stress placed on the white spruce stands has increased northern spruce engraver beetle (NSEB) activity in the area. This project monitored NSEB levels in the area using baited traps as well as treating areas of increased activity by removing damaged trees either individually with hand crews or in larger swaths with hydroax equipment. Project completed September 30, 2017

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Wetlands

Wetlands Surveys
Wetland determinations were conducted June – October 2017 by CSU staff on FWA, TFTA, YTA and DTA east using the US Army Corp of Engineers three-parameter approach (positive identification of hydrophilic vegetation, hydric soil, and wetland hydrology). Functional assessment data, such as signs or sightings of fish or wildlife, recreation and subsistence use, level of disturbance, landscape hydrology, and potential to remove sediments, nutrients or toxicants, were recorded for wetland sites. Data were collected, organized and stored using an Access Database. Wetland determinations were used to delineate wetlands and waterbodies using GIS. Wetlands and waterbodies were then classified using the Cowardin wetlands and Viereck vegetation classification systems. Reports, including maps describing the above information, will be submitted to the funding agent and Army Corps of Engineers (Corps) Regulatory branch.

For more information contact: **Kate Beattie**, Katherine.l.beattie.ctr@mail.mil, (907) 361-7724

Wetlands Functional Assessments
Functional assessment data were collected in conjunction with wetland determinations on 1,388 acres of the FWA, TFTA, YTA and DTA east from June – October 2017 by CSU staff. Determinations will be used to delineate wetlands and waterbodies which will be assigned Assessment Areas. Boundaries of Wetland Assessment Areas were delineated using GIS where there is a significant change in hydrology or an upland boundary. 57,000 Acres were mapped for FWA land in 2017. The functions and values of wetlands and waterbodies were quantified using the Alaska Wetland Assessment Method (AKWAM). Field observations and aerial imagery will be used to fill out AKWAM functional assessment forms. Assessment Areas are ranked based on values assigned to various functions and services, including habitat for threatened and endangered species, wildlife support, fish support, water storage, sediment, nutrient and toxicant removal, sediment and shoreline stabilization, production and export of nutrients for food chain support, ground water discharge and recharge, uniqueness, and use or potential use for recreation and education. Reports including maps describing the above information were be submitted to Corps Regulatory branch in September 2018.

For more information contact: **Kate Beattie**, Katherine.l.beattie.ctr@mail.mil, (907) 361-7724

Monitoring of Invasive Plant Species
Invasive plant species surveys were conducted June – October 2017 by CSU staff on Fort Wainwright lands using the Alaska Exotic Plants Information Clearinghouse (AKEPIC) standard protocol. Potential survey sites were prioritized based on methods developed by the

AKEPIC and/or the US Forest Service (Field Guide Invasive Plant Field Guide, Monitoring and Mapping Protocol Inventory, 2002) and other reliable methods. Field surveys targeted areas with likely infestations by focusing on areas with a human disturbance vector, areas disturbed by natural processes and intersections of pathways, such as a bridge across a river. Location, area of infestation and percent cover were recorded for 20 high priority invasive plant species. Absence data were also collected to document areas surveyed where no invasive plant species were found. Survey locations were used to make GIS based plant map that details location, type and size of infestation. Data will be curated by the Alaska Exotic Plants Information Clearinghouse (AKEPIC) and available via their database and mapping application which is designed to document infestations of non-native plants across Alaska. A total of 6,778 acres were surveyed; 306 acres were infested with invasive plants. Of the 5,945 points sampled 2,600 of those contained invasive plants. The Fort Wainwright invasive plant report for 2017 will be submitted in January 2018.

For information contact: **Adam Davis**, Forester, CSU/CEMML, adam.l.davis.ctr@mail.mil, (907) 361-1168

Invasive Plant Species Vegetation Planning Level Survey
The purpose of this project was to Map non-native and invasive species on FWA Cantonment Area, Yukon Training Area (YTA), Tanana Flats Training Area (TFTA), and Donnelly Training Area (DTA) and present that data in an ArcGIS geospatial format. In addition, a best management and control plan was developed, which includes appropriate herbicide and mechanic treatment recommendations that are area specific and based on the plant survey.

For information contact: **Colin Barnard**, Programs Administrator, SDSWCD
Colin.barnard@salchadeltaswcd.org, (907) 867 - 6099

Surface Water Planning Study TFTA and DTA
TFTA and DTA Surface Water will be inventoried and mapped for approximately 10,000 acres of Army Training Land in regards to surface water classification, location and distribution. This survey will update and ground truth existing surface water maps, providing a surface water flow map with minimum mapping unit of one hectare, water quality attributes of each water body and associated report will be delivered to the FWA Environmental Office. The survey will focus on the impact of developed winter and all season trails to fisheries resources. To date field work has been done to install and maintain measurement stations at 3 sites in West DTA and 4 sites in TFTA. GIS stream digitizing has been done for 50% of the contracted area. A final report will be provided that describes surface water distribution, and data will be entered into relational and GIS databases for use by natural resources personnel. Report due 30 September 2018.

For information contact: **Colin Barnard**, Programs Administrator, SDSWCD
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Wildlife

Fauna Level Planning Survey for Songbirds
The primary objectives of this project are to assist FWA with the optimal management of training lands, to minimize restrictions to the military mission due to natural and cultural resource related constraints, to protect and enhance biological diversity and ecological health on all FWA lands, and to ensure compliance with all environmental laws and regulations. Bird surveys were conducted in May, June, and early July of 2017, and consist of three monitoring

standard methods, the Breeding Bird Survey (BBS), the Alaska Landbird Monitoring System, and remote bird surveys (RBS) in both DTA and FWA. All bird surveys were conducted by trained CSU wildlife staff. BBS and ALMS data were reported to the U. S. Geological Survey (USGS) in September 2017. RBS were used to improve annual bird count data and supported the Neotropical Bird Habitat Assessment Study conducted by CSU staff. Progress will be reported at the Fall Inter-annual Progress Report (IPR) meeting. Annual report for the Fauna Level Planning Survey will be produced by 31 March2018.

For information contact: **Justin Smith**, Wildlife Biologist, CSU/CEMML, justin.a.smith230.ctr@mail.mil, (907) 361-3001

Neotropical Bird Habitat Assessment
Many species of neotropical birds such as Olive-sided Flycatchers and Rusty Blackbirds are in decline, probably due to widespread mismatch in insect emergence and spring arrival. Rusty Blackbirds have experienced a 90% decrease in their population across the boreal forest of Canada and Alaska. These aerial insectivores, as well as many others, are species of concern identified by DOD Partners in Flight, Audubon Alaska, and Alaska Department of Fish and Game. The Joint Pacific Alaska Range Complex EIS (2013) requires investigation into the effects of increased development, such as noise, on neotropical songbirds. In addition, the Alaska Army Lands Withdrawal Renewal EIS (1999) states that bird surveys will continue on withdrawn lands to identify habitat areas for neotropical migrants.

Two projects, both designed to assess how migratory Neotropical songbirds use habitat in the TFTA, YTA, and DTA. Trained CSU staff conducted point count songbird surveys on 264 randomly selected sites on the TFTA, YTA, and DTA in May though early July of 2017. Data were entered and checked by September, and data analysis is currently underway. A poster was presented at the annual biannual Alaska Bird Conference in Cordova to describe the first season of data. Prior to data collection, written plans were approved by the Conservation Chief. A final report for these projects will be produced by September 2018, and September 2019 (for DTA only) along with a predictive habitat use maps.

For information on this project in FWA contact: **Justin Smith**, Wildlife Biologist, CSU/CEMML, justin.a.smith230.ctr@mail.mil, (907) 361-3001

For information on this project in DTA contact: **Kim Jochum**, Wildlife Biologist, CSU/CEMML, kim.a.jochum2.ctr@mail.mil (907) 873-1616

Shorebird Studies Interior
Alaska, specifically the boreal forest and alpine habitats, have several species of shorebirds that are ‘species of concern’ as listed by the U.S. Fish and Wildlife Service, Alaska Audubon Watch List, and the Alaska Wildlife Action Plan, highlighting vulnerable populations. The effects of climate change may be especially pronounced on this habitat type due to wetland drying and increased fire frequency, influencing the special suite of birds that nest here. Relatively little is known about the distribution of shorebirds in interior Alaska. Consequently, efforts to better understand the distribution of shorebirds in the boreal forest and alpine habitats of Fort Wainwright will not only increase our understanding of how these birds will fare under several climate change scenarios but also aid the military in predicting how shorebird occurrence may interact with training activities.

Shorebird plot surveys of 400 x 400 meters were conducted in TFTA and DTA during May, June and early July 2017 based on a stratified random sample across upland and lowland

habitats to determine habitat use and breeding ecology of shorebirds on military lands in TFTA and DTA. A double observer method was used to estimate detection and occupancy of shorebirds in the Interior. Overall 140 plots were sampled twice

We observed 12 of 14 predicted species of shorebirds during plot surveys in 2016 and 2017 (484 total observations). Timing of surveys was an important determinant in number of shorebirds observed (e.g., May vs July). The most important variables for occupancy were distance to wetlands, elevation, scrub canopy percent, scrub presence, and forest absence. We documented species of concern on military lands in Interior Alaska. We conclude military lands in Interior Alaska provide important breeding habitat for these species. Our results provide the Department of Defense with habitat relationships that can be used to refine shorebird occupancy maps and inform military use of habitat. Habitats identified as high use by shorebirds are susceptible to climate change and predicted to dramatically change as permafrost melts, water tables change, and temperatures rise.

For information on this project contact: **Kim Jochum**, Wildlife Biologist, CSU/CEMML, kim.a.jochum2.ctr@mail.mil (907) 873-1616

Sandhill Crane Monitoring
Sandhill Cranes are identified as a priority management species in the Fort Wainwright INRMP. The Delta River and Delta Creek were identified in the Alaska Army Lands Withdrawal Renewal Final Legislative Environmental Impact Statement as important roosting habitat for Sandhill Cranes. In the interest of conserving this species Fort Wainwright agreed to limit disturbance in these areas from 25 April to 15 May and 1 September to 30 September. The Delta River corridor on Fort Wainwright lands includes 3 heavily used training areas (Small Arms Impact Area, Mississippi Impact Area and Washington Impact Area). Various munitions are fired into these training areas using everything from shoulder fired weapon systems to air to ground ordinance delivered by fixed and rotary wing aircraft. Being able to predict occupancy of these areas by Sandhill Cranes is important to planning training missions.

Point observations were conducted to monitor Sandhill Crane night roosting behavior along the Delta River in the Small Arms, Mississippi and Washington Impact Areas with the goal of assessing the impact of military training to Sandhill cranes during spring and fall migration. Spring surveys were conducted from 25 April to 15 May, while fall surveys were conducted from 30 August to 3 October, one hour prior to sunrise. Cranes were surveyed for on 13 mornings during spring and 22 mornings in the fall. No cranes were observed using the river bed for roosting purposes in the spring whereas between 2,000 and 3,000 cranes roosted on the river bed in fall of 2017 at a time. The variance in data is based on limited visibility before sunrise and/or due to weather. Cranes were often heard or observed flying over the river bed; confirming direct roosting on the river proved sometimes difficult. A final report for this project will be produced by September 2018.

For information on this project contact: **Kim Jochum**, Wildlife Biologist, CSU/CEMML, kim.a.jochum2.ctr@mail.mil (907) 873-1616

Evaluating Bat Habitat on FWA
Little brown bats (*Myotis lucifugus*) have experienced severe population declines in eastern North America in the last ten years. USFWS will make a determination by 2023 to potentially list the little brown as threatened or endangered on the Threatened and Endangered Species Act. Little was known about bat natural history in interior Alaska, and especially on Fort Wainwright lands. Multiple studies are ongoing. The goal of these studies is to determine bat

use and habitat associations throughout FWA training lands. Several sites were surveyed for bat presence using passive and active detection methods in 2017. We found areas of high bat use on northern Main Cantonment, western YTA, and parts of TFTA and DTA. A report summarizing study results from data collected from Main Cantonment, YTA, and TFTA from 2014-2017 was completed and submitted in September 2017.

Further, to determine occupancy rates, bat acoustic detectors were deployed across DTA in stratified random sample locations for roughly two weeks for each deployment period. A total of 684 calls in 31 locations were recorded, and five high use areas were detected across DTA and GRTA. Presence of bats along the DTA West boundary was documented. A final report for this project will be produced by September 2018.

For more information on this project in FWA contact: **Garrett Savory**, Wildlife Biologist, CSU/CEMML, garrett.a.savory.ctr@mail.mil (907) 361-9689

For information on this project in DTA contact: **Kim Jochum**, Wildlife Biologist, CSU/CEMML, kim.a.jochum2.ctr@mail.mil (907) 873-1616

Evaluating High Use Bat Habitat Using Mist Nets and Radio Telemetry on Fort Wainwright Training Lands, Alaska

The objectives of this study are 1) genetic testing of individuals for species distinction, 2) roost detection, and 3) identification of habitats that are used by bats. We attempted to capture bats from July through September 2017 on Main Cantonment and Yukon, Tanana, Donnelly, and Gerstle River Training Areas. We netted a total of 12 bats. We collected morphometric data on all captured bats and attached a wing band with a unique ID. On a subset of the bats we collected skin tissue for identification via DNA analysis. On five of the bats we attached radio transmitters in order to track the bats to roost sites. A potential maternity roost was discovered just outside of military lands in the northwest portion of YTA. Collection of field data will continue in 2018. A final report for this project will be produced by September 2019.

For more information on this project in FWA contact: **Garrett Savory**, Wildlife Biologist, CSU/CEMML, garrett.a.savory.ctr@mail.mil (907) 361-9689

For information on this project in DTA contact: **Kim Jochum**, Wildlife Biologist, CSU/CEMML, kim.a.jochum2.ctr@mail.mil (907) 873-1616

Mew Gull Study

Mew Gulls often nest on buildings, vehicles, and other structures on Fort Wainwright Main Cantonment during May through July; this causes problems with operations on Fort Wainwright. Gulls and their nests with eggs and young are protected under the Migratory Bird Treaty Act. So far, Fort Wainwright has been only allowed a maximum of ten nest to be removed each year with a permit from US. Fish and Wildlife Service. It is unknown how many gulls nest on Fort Wainwright Main Cantonment. The purpose of this study is to estimate the number of mew gulls nesting on Fort Wainwright Main Cantonment and determine what factors effect nesting location. The study will also estimate Mew Gull nest survival and determine what factors effect survival. In the summers of 2016 and 2017, the Fort Wainwright Main Cantonment was surveyed for gull nests which then a portion of found nests were monitored. Analysis of data and report will be ready by September 2018.

For more information contact: **Garrett Savory**, Wildlife Biologist, CSU/CEMML,

garrett.a.savory.ctr@mail.mil (907) 361-9689

Migratory Bird Nesting Habitat Study
Tree Swallows have experience population declines in North America in recent decades; one potential cause for the decline is lack of nesting habitat. In the summer of 2015, over 250 tree swallow nest boxes installed on Fort Wainwright lands to provide nesting habitat to Tree Swallows. Cliff Swallows are known to nest on buildings on Main Cantonment and pose a safety hazard and nuisance to personnel. In prior years anti-nesting material was installed on selected buildings on Main Cantonment. In 2015 three cliff swallow nest structures were constructed to provide alternative habitat to Cliff Swallow. In 2016 and 2017, nest boxes, buildings, and nest structures were surveyed to determine swallow use. Eighty-seven nest boxes were used by songbirds for nesting in both years, while 49 of which were likely used by tree swallows. The anti-nesting deterrents continue to work well to deter Cliff Swallows from nesting on buildings. However none of the nest structures were used by Cliff Swallows. The final report will be available January 2018.

For more information contact: **Garrett Savory**, Wildlife Biologist, CSU/CEMML, garrett.a.savory.ctr@mail.mil (907) 361-9689

Mitigation of Migratory Bird Flight Risk Study
The purpose of this project is to assess the risk of wildlife strikes to aircraft using Ladd Army Airfield. Surveys for wildlife presence occurred from April through September, three days per week, in 2016. Data analysis and report will be ready in 2018.

For more information contact: **Garrett Savory**, Wildlife Biologist, CSU/CEMML, garrett.a.savory.ctr@mail.mil (907) 361-9689

TFTA King Salmon Habitat Survey
Yukon River Chinook salmon (*Oncorhynchus tshawytscha*) are a valuable commercial, subsistence, and recreational species that have experienced drastic declines in abundance over the last decade. Juvenile rearing habitat for Chinook salmon is an important resource that has not been properly documented in the Tanana Flats. Development in this area, such as the Tanana Flats Roadway, could threaten both winter and summer rearing habitat and would be in violation of the JPARC EIS (2013).

The goal of this project is to determine likely habitat for juvenile Chinook salmon on the Tanana Flats. In the winter of 2015/2016 minnow traps (ADF&G permit # SF2016- 040d) were deployed along Clear Creek to capture and collect juvenile salmonids for identification in addition, habitat and water characteristics were recorded in these locations. No juvenile salmon samples were collected in minnow traps. In winter 2016/2017, sites were sampled for environmental DNA (eDNA), which will substituted traditional sampling methods. Fifteen sites were sampled, and seven were found to have Chinook salmon DNA present, indicating juvenile Chinook salmon presence. All data and documentation is stored on the federal network drive. A final report for this project will be produced by September 2018.

For information on this project in FWA contact: **Justin Smith**, Wildlife Biologist, CSU/CEMML, justin.a.smith230.ctr@mail.mil, (907) 361-3001

Tanana Flats Training Area Small Mammal Surveys
Small mammal communities have not been studied in the Tanana Flats where there is

significant interest for military development, such as the Tanana Flats Roadway Access. Species of particular concern are the Alaska tiny shrew (*Sorex yukonicus*) and water shrew (*Sorex palustris*). The goal of this study is to identify which species of small mammals occur on the Tanana Flats Training Area. We trapped for small mammals from July through August 2017 using a variety of methods including pitfall, snap, and Sherman traps. So far, we have identified four species of shrews (one of which was the water shrew) and four species of voles that occur on TFTA. We plan to continue field surveys in 2018. A final report will be available by September 2019.

For more information contact: **Garrett Savory**, Wildlife Biologist, CSU/CEMML, garrett.a.savory.ctr@mail.mil (907) 361-9689

Additional Wildlife Monitoring Efforts

On FWA and DTA training lands, other wildlife surveys are conducted with the goal of maintaining long- term monitoring projects. Most monitoring efforts occur on an annual basis and generally are not specifically funded, as appose to specific projects described previously. All surveys were conducted by trained CSU wildlife staff. Please contact any of the wildlife staff for additional information on additional wildlife monitoring efforts. More detailed progress will be reported at the Fall IPR meeting. These additional surveys include:

(1) Small game surveys (Ruffed Grouse and Sharp-tailed Grouse), which is in collaboration with ADF&G. In DTA, 20 Sharp-tailed Grouse leks were visited two to four times each, and two established Ruffed Grouse transects were carried out four times each during April and May 2017. To monitor Ruffed Grouse in FWA; drumming counts (auditory counting) at nine roadside locations, and brood surveys (visual counting) on ten clear cut plots managed to improve grouse habitat were conducted since 2012. All data are incorporated in statewide small game reports.

(2) In BRTA Dall sheep activity and habitat use were monitored via game cameras. Cameras are maintained once or twice a year.

(3) Additional raptor nests known or newly detected are recorded and monitored for breeding success across DTA.

Waterfowl surveys were conducted in waterways on both FWA and DTA from late-June to mid-September.