United States Army Garrison, Alaska

Integrated Natural Resources Management Plan

September 2020

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Integrated Natural Resources Management Plan for U.S. Army Garrison Alaska, 2020

Approval

This Integrated Natural Resources Management Plan meets the requirements for the Sikes Act (16 U.S.C. 670a et seq), and Army Regulation 200-1, *Environmental Protection and Enhancement*.

For USAG Alaska:

Christopher J. Ruga

Colonel, U.S. Army

Commanding

08 OCT 20

Date

USFWS agrees that this INRMP meets the requirements of the Sikes Act (16 U.S.C. 670a et seq.) as amended and provides a benefit to the species and their habitats listed herein.

Sarah Conn
Supervisor, Fairbanks Field Office
Region 7, USFWS

SARAH CONN Digitally signed by SARAH CONN Date: 2020.10.29 16:51:32 -08'00'

October 29, 2020
Date

ADFG agrees that this INRMP meets the requirements of the Sikes Act (16 U.S.C. 670a et seq.) as amended and provides a benefit to the species and their habitats listed herein.

Douglas Vincent-Lang
Commissioner
Alaska Department of Fish and Game

DVL

10-22-2020
Date

Executive Summary

The US Army Garrison (USAG) Alaska Integrated Natural Resources Management Plan (INRMP) establishes policies, programs, prescriptions, projects, and procedures that the Army uses to manage natural resources on 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. This INRMP reflects the mutual agreement of the USAG Alaska, U.S. Fish and Wildlife Service (USFWS) and Alaska Department of Fish and Game (ADFG) concerning the conservation of the natural resources under their respective legal authorities. The INRMP references other related Army natural resource planning documents, including the Integrated Wildland Fire Management Plan (IWFMP).

INRMP STATUS

The initial Fort Wainwright and Fort Greely INRMPs were signed and implemented in 1998. These INRMPs were revised in 2002, in 2007 and in 2013 due to substantial changes in natural resources management proposals, as well as agency, tribal, and public stakeholder comments. The National Environmental Policy Act (NEPA) process was used to meet the Department of Defense's INRMP public review requirements for the initial Fort Wainwright and Fort Greely INRMPs in 1998. Due to substantive changes in the 2002 and 2007 Fort Wainwright INRMP revisions, public review was again accomplished through the NEPA process. Based on (1) no changes recommended during the annual 2019 review with USFWS and ADFG; (2) no change in the USAG Alaska mission; (3) no changes to USAG Alaska natural resources policy, programs, prescriptions, or procedures; (4) no change to the type of projects proposed in the previous plan; and (5) minor changes to the INRMP document itself, USAG Alaska has concluded that a major INRMP revision is not necessary and therefore proposes to implement an INRMP update in 2020.

2020 INRMP UPDATE

USAG Alaska is updating the INRMP in 2020 as required by the Sikes Act. Tribal and agency comment on the 2020 Fort Wainwright INRMP update is accomplished through the consultation process.

PROPOSED CHANGES TO THE 2020 USAG ALASKA INRMP

a. The 2020 USAG Alaska INRMP includes natural resource policies, programs, prescriptions, projects, and procedures for USAG Alaska. During the 2013 INRMP update, the USAG Alaska INRMPs were separate documents as Fort Wainwright and Fort Greely were considered separate Installation Management Command (IMCOM) installations. As a result of reorganization in 2018, USAG Fort Wainwright and USAG Fort Greely were combined into one garrison organization, USAG Alaska, which has chosen to combine the INRMP for both locations into one document.

b. Per Army guidance, the format of the 2020 USAG Alaska INRMP has changed. The 2020 USAG Alaska INRMP has been reformatted to match the US Army Environmental Command INRMP template, dated 22 August 2016. In an effort to streamline and shorten the document, the INRMP Memorandum of Understanding is incorporated into the document. Most appendices have been removed, and other related plans are incorporated

by reference (i.e. Integrated Pest Management Plan (IPMP), Wildlife Aircraft Strike Hazard Plan (WASH), IWFMP) (Appendix B2).

c. Per Army guidance, the specific dates attached to the INRMP are de-emphasized. The INRMP must be reviewed annually and evaluated for operation and effect at least once every 5 years, but if the policies, programs, procedures, and practices do not change substantially, with agreement of the Sikes Act partners, the existing plan will remain in effect. Specific projects will be included in an appendix and will be updated annually as they are funded, implemented, and completed, but project updates will not require new signatures from the Army or its Sikes Act partners as long as those projects are the same project types analyzed in previous INRMPs and NEPA documentation.

d. The updated INRMP has (1) added an analysis of impacts of climate change on mission and natural resource management, (2) limits firewood harvests based on annual allowable cut for each major training area, (3) increases prescribe fire acres to the maximum allowable perimeter as defined in approved burn plans and (4) continues to follow USFWS recommendations for Migratory Bird Treaty Act (MBTA) compliance including options for surveys prior to vegetation clearing during sensitive time frames.

e. Due to funding constraints and to bring the program into line with IMCOM priorities, the updated INRMP will (1) reduce implementation of natural resource projects not expressly required by law, (2) limit planning level surveys to areas impacted by the military mission, (3) remove Special Interest Area designation from Wood River Buttes, Clear Creek Buttes and the Tanana Flats Migratory Bird Area (training area (TA) 202 and 203), (4) remove spring restrictions from Sandhill Crane Roosting Area, (5) consider increasing firewood cutting prices, (6) consider implementing hunting, fishing and trapping fees, (7) focus natural resource programs and personnel to levels required to comply with applicable state and federal law and regulations.

ECOSYSTEM STATUS

USAG Alaska is subdivided into eight major areas: Fort Wainwright Main Post, Yukon Training Area, Tanana Flats Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area and Fort Greely. USAG Alaska lands have five vegetative types: moist tundra; treeless bogs; fens; open, low-growing spruce forests; and closed spruce-hardwood forests. The installations have a wide variety of flora and fauna, none of which are classified as threatened or endangered. There are approximately 509 vascular plant species, 38 documented mammal species, 16 documented fish species, 158 documented bird species, and one species of amphibian, the wood frog (*Rana sylvatica*). There are no reptile species. Although the natural resources program affects many species, moose (*Alces alces*), bison (*Bison bison bison*), grouse (Phasianidae), and black bear (*Ursus americanus*) are the most intensively managed by ADFG on USAG Alaska lands.

Fort Wainwright Main Post has been declared a “Superfund” site under the Comprehensive Environmental Response, Compensation, and Liability Act. Localized surface and groundwater pollution associated with past activities can be found on Fort Wainwright Main Post area but is generally considered the exception to otherwise uncontaminated surface and groundwater on USAG Alaska lands. There have been no indications of changes in the quality of surface water since Army occupation of the land. Additionally, trends in biological diversity on USAG Alaska lands have not been explicitly explored on all lands, but there is no evidence that Army activity has affected diversity at a large enough scale to impact the military mission. Effects of military use on soils are primarily evident in the Fort Wainwright and Fort Greely areas.

USAG Alaska's capability to support their current military missions is stable. The capability of the land to produce forest products has steadily improved since large-scale timber removal has not occurred and the forest is maturing, especially in areas where fires have been minimized. As a result, the installation can continue to support its small fuel wood and Christmas tree program. The capability of the ecosystem to support hunting, fishing, and trapping continues to be good. Fishing opportunities have increased in some areas due to stocking. Agriculture is not a viable option on Fort Wainwright or Fort Greely.

PARTNERSHIPS

This INRMP cannot be implemented by USAG Alaska alone. In accordance with land withdrawal legislation and the ecosystem management philosophy, USAG Alaska is forging partnerships with various agencies to manage its natural resources. Major partners in the implementation of this plan are the USFWS, ADFG, Bureau of Land Management (BLM) and US Army Alaska (USARAK). Other partners in this effort include Alaska Department of Natural Resources, universities, other federal and state agencies, Native groups, contractors, and private citizens.

SIKES ACT ROAD MAP

The Sikes Act Road Map references the chapters and paragraphs in the INRMP which is cross-referenced to the thirteen criteria points required by the Sikes Act. Stakeholder and interested parties can use the road map to quickly check the location and effectiveness of this INRMP in meeting Sikes Act requirements. Additional responsibilities to facilitate cooperative management on fish and wildlife issues on USAG lands and in the INRMP are outlined in the Memorandum of Understanding Between the Department of Defense (DoD), United States Fish and Wildlife Service (USFWS) and the Association of Fish and Wildlife Agencies (on behalf of state fish and wildlife agencies, such as the ADFG) dated July 2013 (Appendix A6) (Table ES-1).

Required Sikes Act Criteria	**Location in Integrated Natural Resources Management Plan**
1. No net loss in the capability of military installation lands to support the military mission of the installation.	Chapter 1 and 2, and throughout the INRMP
2. Establishment of specific natural resource management goals and objectives and time frames for proposed action.	Chapter 4 and 6
3. Integration of and consistency among the various activities conducted under the plan.	Chapter 5
4. Fish and wildlife management in accord with ADFG and USFWS, land management, forest management, and fish and wildlife-oriented recreation.	Chapter 4 and Chapter 6.
5. Fish and wildlife habitat enhancement or modification.	Chapter 4 and Chapter 6.
6. Provisions for spending hunting and fishing permit fees exclusively for the protection, conservation, and management of fish and wildlife, including habitat improvement, and related activities in accordance with INRMP.	Chapter 4 and Chapter 5
7. Wetland protection, enhancement, and restoration, where necessary for support of fish and wildlife.	Chapter 4 and Chapter 6.
8. Public access to the military installation that is necessary or appropriate for sustainable use of natural resources by the public to the extent that such use is consistent with the military mission and the needs of fish and wildlife resources, subject to requirements necessary to ensure safety and military security.	Chapter 1 and Chapter 4.
9. Sustainable use by the public of natural resources to the extent such use is not inconsistent with the needs of fish and wildlife resources management.	Chapter 1 and Chapter 4.
10. Enforcement of applicable natural resource laws and regulations.	Chapter 4
11. Exemption from procurement of services under Office of Management and Budget Circular A-76 and any of its successor circulars.	Chapter 5.
12. Priority for contracts involving implementation of this INRMP to state and federal agencies having responsibility for conservation of fish and wildlife.	Chapter 5.
13. Review of this INRMP and its effects every five years.	Chapter 1 and Chapter 5.

BENEFITS AND COSTS

Military Mission Benefits: Implementation of this plan will improve the quality of USAG Alaska lands and will improve long-range planning. The INRMP will improve mission sustainability by enhancing training areas, as well as providing for more intensive planning of missions.

Environmental Benefits: The plan provides the basis for the conservation and protection of natural resources. It will reduce vegetation loss and soil erosion due to military activities, reduce the potential for environmental pollution and provide for biodiversity conservation. Certain sensitive areas and species will be protected from unacceptable damage or degradation. Plan implementation will increase overall knowledge of USAG Alaska ecosystems through surveys and monitoring.

Other Benefits: Soldier sustainable range awareness will be enhanced for military training at USAG Alaska. Both community relations and USAG Alaska's environmental image will be enhanced. Quality of life for the USAG Alaska communities and its neighbors will be improved. Plan implementation will decrease long-term environmental costs and reduce potential liabilities from environmental noncompliance.

Costs: It will cost about $8,120,000 (adjusted for inflation increases) annually, starting in 2020, to implement this INRMP. Funding will be provided primarily either from environmental conservation funds or Sustainable Range Program (SRP) funds designated for implementation of the Integrated Training Area Management (ITAM) program. Other dollars will be from special natural resources funds, forestry, and fish and wildlife permit fees. Plan implementation will require staffing at the same level as in recent years, except for additional contract personnel to implement ITAM and new programs.

SUMMARY

The actions within this INRMP comply with environmental laws, conserve and protect USAG Alaska natural resources, improve its relationship with the public, and enhance the military mission. While this plan will not resolve all existing and/or future environmental issues, it does provide the guiding philosophy, personnel, and means to work toward resolution of such issues.

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CHAPTER 1. MANAGEMENT OVERVIEW

The United States Army must maintain the capability, through a total force effort, to put overwhelming land combat power on any future battlefield and defeat any potential enemies. A decisive victory depends on the ability to rapidly deploy, fight, self-sustain, and win quickly with minimum casualties.

The military's need for land is based in its trust responsibility to provide for the national defense of the people of the United States. The United States has adopted an international political and military strategy that requires the nation's military forces to be ready to deploy on short notice for engagement anywhere in the world. The American people rightly expect these forces to be highly trained and equipped with the highest-performance materiel and technology available. Ready, capable forces result from repetitive training. New or modified weaponry and other equipment must be field-tested before being placed with the using units. Because of the speed and maneuverability of modern armaments, today's and tomorrow's armed forces require large tracts of land for training and weapons testing. Changes in tactical doctrine and weapons technology, designed to dissuade any would be-aggressor, to win battles and minimize casualties to American and allied forces in the event of armed conflict, are increasing the need for such land despite reductions in the size of the U.S. military since the Cold War and the closure of some military installations.

In the 21st century, the Army faces unprecedented challenges to its ability to train. Increased environmental regulation of training lands and ranges coupled with increased economic development around Army installations contribute to a more challenging training climate. A sound land management program that provides economical and acceptable planning and execution is mandatory to protect that land as an essential training asset.

Implementing this Integrated Natural Resources Management Plan (INRMP) would continue to provide a sound land management program that conserves land as an essential training asset, excellent stewardship, compliance with environmental laws, and recreational opportunities that contribute to quality of life.

1.1 Purpose and Scope

The purpose of the US Army Garrison Alaska (USAG Alaska) INRMP is to detail the plans, policies, projects, priorities, partnerships, personnel, and programs necessary to support natural resources stewardship, military mission support, compliance, integration, and quality of life on USAG Alaska. The INRMP is prepared in cooperation with the Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service (USFWS), and the Commissioner of Alaska Department of Fish and Game (ADFG). The resulting plan reflects the mutual agreement of the parties concerning conservation, protection, and management of fish and wildlife resources. Consistent with the use of military installations to ensure the preparedness of the Armed Forces, the Sikes Act requires that Secretaries of the military departments carry out a program to provide for the conservation and rehabilitation of natural resources on military installations; the sustainable multipurpose use of the resources, which shall include hunting, fishing, trapping, and non-consumptive uses; and subject to safety requirements and military security, public access to military installations to facilitate the use. To facilitate the program, the Sikes Act requires that the Secretary of each military department prepare and implement an INRMP for each military installation over 5,000 acres in the United States. The plan must be reviewed as to operation and effect by the parties thereto on a

regular basis, but not less often than every 5 years. The first INRMPs for Fort Wainwright and Fort Greely were published in 1998, updated in 2002, 2007 and again in 2013. NEPA review for the INRMP was conducted in a 2007 Environmental Assessment, it was determined that no significant changes were proposed for the 2013 and 2020 update and therefore no updated NEPA review is required. This USAG Alaska INRMP update serves as the five-year review for operation and effect for USAG Alaska.

The INRMP shall, to the extent appropriate and applicable, provide for the following on USAG Alaska including Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Sears Creek Pump Station, Haines Fuel Terminal, Tok Fuel terminal, and other satellite locations:

- no net loss in the capability of military installation lands to support the military mission of the installation;
- fish and wildlife management in accord with ADFG and USFWS, land management, forest management, and fish- and wildlife-oriented recreation;
- fish and wildlife habitat enhancement or modifications;
- wetland protection, enhancement, and restoration, where necessary for support of fish, wildlife, or plants;
- integration of, and consistency among, the various activities conducted under the plan;
- establishment of specific natural resource management goals and objectives and time frames for proposed action;
- sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources;
- public access to the military installation that is necessary or appropriate for the use described above, subject to requirements necessary to ensure safety and military security;
- enforcement of applicable natural resource laws (including regulations).

1.2 Management Philosophy

We must strive to become systems thinkers if we are to benefit from the interrelationships of the triple bottom line of sustainability: mission, environment, and community.[1]

The Army's commitment to natural resources management is reflected in the U.S. Army Strategy for the Environment: Sustain the Mission – Secure the Future. The Strategy establishes a long-range vision that enables the Army to meet its mission today and into the future. It transitions the Army from a compliance-based environmental program to a mission-oriented approach based on sustainability. A sustainable Army simultaneously meets current as well as future mission requirements worldwide, safeguards human health, improves quality of life, and enhances the natural environment.

The Department of Defense (DOD) commitment to natural resources management is emphasized in DOD Instruction 4715.3, which requires that INRMPs be developed and maintained for all military installations. This INRMP is a tool to help natural resources personnel implement ecosystem management at USAG Alaska. The INRMP looks at how USAG Alaska's natural resources program objectives fit within the framework of the military mission and integrates the environmental program, outdoor recreation, the National

[1] R.L. Brownlee, Acting Secretary of the Army and Peter J. Schoomaker, General, Unites States Army, Chief of Staff.

Environmental Policy Act (NEPA), cultural resources, surrounding communities, and neighboring lands. It is also a source of information for responsible or interested parties that are not directly managing Fort Wainwright's natural resources. The INRMP is a component of, and fits within, the framework of the USAG Alaska Master Plan and the United States Army Alaska (USARAK) Range Complex Master Plan.

1.3 Mission and Natural Resource Management History

The United States Army must maintain its capability to put overwhelming land combat power on future battlefields and defeat potential enemies. Decisive victories depend on the Army's ability to rapidly deploy, fight, self-sustain, and win quickly with minimum casualties. As the Department of Defense's premiere land force, the Army relies on land to achieve its training and testing objectives and maintain force readiness. Force readiness depends on high quality, realistic training. The Army must train as it will fight. Realistic training areas and ranges are required to fully train Soldiers. A Soldier does not fire his/her weapon alone in battle. The Soldier's entire squad, platoon, company, and even battalion must coordinate their efforts to prevent any friendly fire accidents. This skill must be practiced on large-scale training areas and ranges that realistically portray a combat environment before going to war.

To accomplish this goal, the Army has separated garrison installation management and support functions from the warfighter, allowing the warfighter to focus entirely on the training mission. In Alaska, the Army warfighter component, USARAK, contains the units and Soldiers that train, deploy, fight, self-sustain, and win. The Stryker Brigade Combat Team, Airborne Brigade Combat Team, and Combat Aviation Brigade comprise a large portion of USARAK. Because of the relationship between accomplishing the training mission and range support operations, the installation range office has moved back within the USARAK structure and is currently managed within the USARAK Training Support Activity - Alaska (TSA AK) office. Other installation support operations, such as logistics, public works, and environmental are known as U.S. Army Garrison Alaska.

USARAK's mission is to execute continuous training and readiness oversight responsibilities for Army Force Generation in Alaska, support U.S. Pacific Command Theater Security Cooperation Program, and on order, execute Joint Force Land Component Command functions in support of Homeland Defense and Security in Alaska. USARAK faces several challenges in accomplishing its mission. One of these is ensuring that training facilities can support all required training events while integrating environmental stewardship into daily operations. As these critical challenges are met, USARAK also must continue to maintain a positive rapport with local communities.

Early efforts at natural resources management involved continuing programs initiated by the Air Force. By 1970, when the first natural resources professional was hired, the installation had developed two natural resources plans (USARAK 1970). In 1978, natural resources specialists from the three installations collaborated to draft a Natural Resources Conservation Program (Quirk et al. 1978). The first natural resources management plan specifically for Fort Wainwright was completed in 1981 (USARAK 1981). At that time, the Fort Wainwright program did not have an installation-specific cooperative plan and was still operating under a cooperative agreement between the 172nd Infantry Brigade, USFWS, and ADFG. The 1998 USAG Alaska INRMPs were the first INRMPs developed and implemented under the new requirements of the 1997 Sikes Act Amendments. The 2002 Fort Wainwright (Fort Wainwright 2002) and Fort Greely INRMPs (Fort Greely 2002) revised the 1998 INRMPs. When the INRMP was revised again in 2007 (USAGAK 2007), it was re-written to combine all Army-

managed lands in Alaska. In 2010, Fort Richardson combined with Elmendorf Air Force Base under the Base Realignment and Closure process of 2005 to become Joint Base Elmendorf-Richardson. The Air Force led joint base is now responsible for the natural resource management on the former Fort Richardson lands. The USAG Alaska INRMPs (Fort Greely and Fort Wainwright) were updated again in 2013.

1.4 INRMP Goals and Objectives

Goal	Objectives	INRMP Section
1. No net loss in the capability of military installation lands to support the military mission of the installation.	1a. Maintain quality training lands through damage minimization, mitigation, and restoration.	Chapter 4
	1b. Enable the mission through characterization, monitoring, compliance, and continuing oversight of natural resources.	Chapter 4
	1c. Implement projects that help preserve, maintain, repair, and improve natural resources for sustaining mission requirements.	Chapter 4 and Chapter 6
	1d. Obtain applicable permits (i.e. Clean Water Act (CWA) Section 401 and 404; Essential Fish Habitat; etc.) to support mission activities.	Chapter 4
2. Establishment of specific natural resource management goals and objectives and time frames for proposed action.	Revise natural resource management goals, objectives, and time frames as necessary during INRMP review for operation and effect.	Chapters 4 and 5.
3. Integration of, and consistency among, the various activities conducted under the plan.	3a. Ensure that USAG Alaska's natural resources program is integrated with other USAG Alaska plans (i.e. Master Plan, Integrated Pest Management Plan (IPMP), Integrated Wildfire Management Plan (IWFMP), Wildlife Aircraft Strike Hazard Plan (WASH), organizations, and activities.	Chapter 3
	3b. Ensure that natural resources management is integrated with USARAK Mission plans (i.e. Range Complex Master Plan), organizations, and activities.	Chapters 1 and 2
	3c. Ensure that USAG Alaska's natural resource program is coordinated with Sikes Act partners (USFWS, ADFG), stakeholders, tribes, and other interested organizations and parties.	Chapters 1 and 5
	3d. Provide USAG Alaska and mission commanders with information needed to make decisions, which include natural resources-related values.	Chapter 2
4. Provide for fish and wildlife management, land management, forest management, and fish and wildlife-oriented recreation.	4a. Protect, conserve, and restore native fauna and flora with an emphasis on biodiversity enhancement.	Chapters 4 and 6
	4b. Manage natural resources within the spirit and letter of environmental laws, particularly the Sikes Act, upon which this INRMP is predicated.	Chapters 1, 4 and 6.
	4c. Manage forest resources to support ecosystem values, mission-scape, and forest products as appropriate.	Chapters 4 and 6.
	4d. Manage game species (and their habitats) and provide hunting opportunities in accord with ADFG management and bag limits when not in conflict with mission or Natural Resource Conservation goals.	Chapters 4 and 6.
	4e. Implement migratory bird protection and conservation in accordance with all applicable laws and regulations.	Chapter 4.

Goal	Objectives	INRMP Section
	4f. Implement conservation and management efforts to further the conservation of federally listed species and State-listed species when such action is practicable and does not conflict with military mission or capabilities.	Chapter 4.
	4g. Manage and protect species at risk (SAR) giving high priority to proactive management of those species that, if listed, could adversely impact military readiness.	Chapter 4.
	4h. Develop, update, and manage spatial and tabular data containing natural resource planning level surveys, species, habitat, populations, etc.	Chapter 4
5. Provide for fish and wildlife habitat enhancement or modification.	5a. Enhance wildlife habitat away from mission activities when possible.	Chapters 4 and 6.
	5b. Identify, prioritize, monitor, and control for invasive species.	Chapters 4 and 6.
	5c. Rehabilitate altered or degraded landscapes and associated habitats.	Chapters 4 and 6.
	5d. Maintain or restore remaining native ecosystem types across their natural range of variation.	Chapters 4 and 6.
6. Wetland protection, enhancement, and restoration where necessary for support of fish and wildlife.	6a. Protect, restore, maintain, or enhance wetlands and unique areas.	Chapters 4 and 6.
	6b. Ensure no net loss of size, function, and value of wetlands, and preserve the natural and beneficial values of wetlands in carrying out activities in accordance with E.O. 11990.	Chapters 4 and 6.
	6c. Use a watershed-based approach to manage operations, activities, and lands to avoid or minimize impacts to wetlands, ground water, and surface waters on or adjacent to USAG Alaska.	Chapters 4 and 6.
7. Public access to the military installation that is necessary or appropriate subject to requirements necessary to ensure safety and military security.	7a. Provide access to the public for the educational or recreational use of natural resources when such access is compatible with military mission activities, ecosystem sustainability, and with other considerations such as security, safety, and fiscal soundness.	Chapter 1 and 4.
	7b. Provide public access for hunting, trapping, and fishing.	Chapters 1 and 4.
	7c. Provide conservation education opportunities to the military and civilian community.	Chapter 5.
	7d. Ensure that active and retired Service members and disabled veterans have access to its lands and waters for hunting, fishing in accord with state regulations, and/or non-consumptive use of wildlife where practicable and when not in conflict with mission objectives or the INRMP.	Chapters 1 and 4.
	7e. Ensure Alaska Natives have access to DoD sites and resources that are of religious importance, or that are important to the continuance of their cultures consistent with the military mission, appropriate laws and regulations and subject to the same safety, security, and resource considerations as the general public.	Chapters 1 and 4.
8. Sustainable use by the public of natural resources to the extent such use is not inconsistent with the needs of fish and wildlife resources management.	8a. Provide economic and other human-valued products of renewable natural resources (i.e. timber sales, firewood, Christmas trees, etc.) when such products can be produced in a sustainable fashion without significant negative impacts on the military training mission.	Chapter 4
	8b. Provide for sustainable hunting, trapping, and fishing programs in coordination with ADFG.	Chapter 4

Goal	Objectives	INRMP Section
9. Enforcement of applicable natural resource laws and regulations.	9a. Provide professional enforcement of natural resource laws.	Chapter 4
	9b. Provide Federal or State conservation and law enforcement officials access to DoD-controlled lands to conduct official business consistent with applicable requirements of laws and regulations.	Chapter 4 and Appendix A4.
10. Review of INRMP as to operation and effect by the parties on a regular basis, but not less often than every 5 years.	10a. Conduct operation and effect review of INRMP not less than every 5 years.	Chapters 1 and 5.
	10b. Conduct annual review of INRMP with USFWS and ADFG.	Chapters 1 and 5.
11. Provide a benefit to the species in the plan	11a. Manage with ADFG and USFWS to protect, restore, maintain, or enhance sensitive species and habitats in accord with their management goals.	Chapters 4 and 6.
	11b. Minimize impacts on migratory birds and address effects of activities on migratory birds in INRMPs and appropriate National Environmental Policy Act (NEPA) documents.	Chapter 4
	11c. In consultation with USFWS and ADFG, maintain or reestablish viable populations of native species on an installation's areas of natural habitat, when practical.	Chapter 4
	11d. Maintain ecological processes, such as disturbance regimes, hydrological processes, and nutrient cycles, to the extent practicable.	Chapter 4

1.5 Review, Revision, and Implementation and Reporting

1.5.1 Review and Revision

The USAG Alaska INRMP will be reviewed annually for implementation effectiveness consistent with DoDI 4715.03. USAG Alaska will invite USFWS and ADFG to meet annually to review status of INRMP objectives listed in section 1.4 above. USAG Alaska will document the meeting, adjust as necessary and revise the INRMP as necessary based on the review. Environmental Management System (EMS) standards will be incorporated into Annual Program Reviews (APR) in accordance with DoDI 4715.03. Cross-functional teams and the Plan-Do-Check-Act (adaptive management) process will be used to conduct the review.

The USAG Alaska INRMP will be reviewed for operation and effect no less than every 5 years. If the result of the review finds that numerous changes are needed, USAG Alaska will update the INRMP and provide the updated INRMP to USFWS and ADFG for review, coordination and signature in accordance with DoDI 4715.03, AR 200-1, DoD Memorandum on Guidelines for Streamlined INRMP Review (Jul. 2015), and USFWS Guidelines for Coordination on INRMPs, as appropriate (Jun. 2015).

1.5.2 Implementation

The Sikes Act requires not just preparation and update of an INRMP, but "implementation" of the INRMP. Implementation anticipates the execution of all "must fund" projects and activities in accordance with specific timeframes identified in the INRMP.

An INRMP is considered "implemented" if an installation:

- Actively requests, receives, and uses funds for "must fund" projects and activities.

- Ensures that sufficient numbers of professionally trained natural resources management personnel are available to perform the tasks required by the INRMP.
- Coordinates annually with all internal and external cooperating offices.
- Documents specific INRMP action accomplishments undertaken each year.

Natural resource requirements defined by the Office of the Secretary of Defense as environmental "must fund" are those projects and activities required to meet recurring natural resources conservation management requirements or current natural resources compliance needs. The Army equivalent to Office of the Secretary of Defense's "must fund" projects are projects as described in classes 0, 1, and 2 High (2H) in current Army policy and guidance for identifying environmental program requirements.

All projects listed in an INRMP are not necessarily environmental class 0, 1, or 2H. Implementation of INRMPs is a shared responsibility among those activities that use the land (e.g., trainers, facility managers, provost marshal) as well as those who ensure compliance and provide overall program oversight. Accordingly, projects necessary to implement INRMPs are not limited to environmental funds. However, INRMPs should include all projects.

Projects are contained in Chapter 6 of this plan and will be reviewed and updated annually upon completion of Army review and validation processes.

1.5.3 Goals, Objectives, and Targets

Goals:

- Fully implement the USAG Alaska INRMP to meet the requirements of the Sikes Act, Alaska Army Lands Withdrawal Renewal Legislative Environmental Impact Statement (LEIS), and Transformation Environmental Impact Statement (EIS) Record of Decision (ROD).

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
INRMP Implementation	USAG Alaska shall prepare and implement an INRMP for Fort Wainwright and Fort Greely. The USAG Alaska INRMP shall provide for fish and wildlife management in accord with ADFG and USFWS, land management, forest management, and fish- and wildlife-oriented recreation. The USAG Alaska INRMP shall provide for no net loss in the capability of military installation lands to support the military mission of the installation.	Sikes Act	Ongoing	USAG Alaska
	Consistent with the use of Fort Wainwright and Fort Greely to ensure preparedness of the Armed Forces, USAG Alaska shall (1) carry out a program to provide for the conservation and rehabilitation of natural resources, (2) provide for the sustainable multipurpose use of the resources (including hunting, fishing, trapping and non- consumptive uses), and (3) public access to facilitate the use of resources subject to safety and military security requirements.	Sikes Act	Ongoing	USAG Alaska

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
	Continue to implement INRMP.	Land Withdrawal LEIS	Ongoing	USAG Alaska
	Implement natural resources conservation program, Integrated Natural Resources Management Plans, and ecosystem management.	Transformation EIS ROD	Ongoing	USAG Alaska
	The USAG Alaska INRMP shall provide for establishment of specific natural resource management goals, objectives, and time frames for proposed action.	Sikes Act	Ongoing	USAG Alaska
Actively request, receive and use funds for “must fund” projects and activities	Implement INRMP by actively requesting, receiving, and using funds for priority projects and activities.	Army Regulation (AR) 200-1	Ongoing	USAG Alaska
	Ensure that sufficient numbers of professionally trained natural resource management personnel and natural resources law enforcement personnel are available and assigned the responsibility to perform tasks necessary to comply with Section 670e, Title 16, United States Code (16 USC 670e).	AR 200-1	Ongoing	USAG Alaska
Ensure sufficient number of professionally trained natural resources management personnel	The USAG Alaska INRMP shall provide for enforcement of applicable natural resource laws (including regulations).	Sikes Act	Ongoing	USAG Alaska
	Document in the USAG Alaska INRMP the determination of sufficient number of federal professionally trained natural resources management and enforcement personnel to implement USAG Alaska INRMP to meet Sikes Act requirements on Alaska Army lands	Sikes Act	Ongoing	USAG Alaska
	Program and budget for federal professionally trained natural resources management and enforcement personnel to conduct government in nature natural resources management.	Sikes Act	Ongoing	USAG Alaska
	Program, budget, and acquire other federal, laboratory, state, university, non-government organization (NGO), or private professionally trained natural resources support to conduct non-government in nature natural resources support.	Sikes Act	Ongoing	USAG Alaska
	Continue to use conservation officers to enforce state and federal game laws, and military rules and restrictions.	Battle Area Complex (BAX) and Combined Arms Collective Training Facility (CACTF) EIS ROD	Ongoing	USAG Alaska
	Fully fund conservation officers to enforce state and federal game laws, and military rules and restrictions.	Transformation EIS ROD	Ongoing	USAG Alaska
	USAG Alaska shall prepare INRMP in cooperation with USFWS and ADFG reflecting the mutual agreement of these agencies concerning conservation, protection and management of fish and wildlife resources.	Sikes Act, AR 200-1	Ongoing	USAG Alaska

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Coordinate annually with all cooperating offices	The Secretary of the Interior and the Secretary of the military department concerned shall, with respect to each lands withdrawn by section 3011, enter into a memorandum of understanding to implement the management plan for such lands under subsection (c).	Public Law (PL) 106-65	Ongoing	USAG Alaska
	The USAG Alaska INRMP shall provide for integration of, and consistency among, the various activities conducted under the plan.	Sikes Act	Ongoing	USAG Alaska
Coordinate annually with all cooperating offices	Conduct annual meeting with USFWS, ADFG, Bureau of Land Management (BLM) and USARAK	Sikes Act	Ongoing	USAG Alaska
	Continue government-to-government relationships with Alaska Native tribes to ensure tribal interests are not significantly affected by USARAK activities.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
	Continue to participle in Restoration Advisory Boards as appropriate.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
	Conduct annual in-progress review to document accomplishments.	Sikes Act, DoDI 4715.03, AR 200-1	Ongoing	USAG Alaska
Annually document specific INRMP accomplishments	Present annual INRMP accomplishments to USFWS and ADFG. Present annual summary of fish and wildlife enforcement actions to ADFG and the Alaska State Troopers.	Sikes Act, DoDI 4715.03, AR 200-1	Ongoing	USAG Alaska
	Create annual report listing INRMP accomplishments.	Sikes Act, DoDI 4715.03, AR 200-1	Ongoing	USAG Alaska

CHAPTER 2. INSTALLATION OVERVIEW

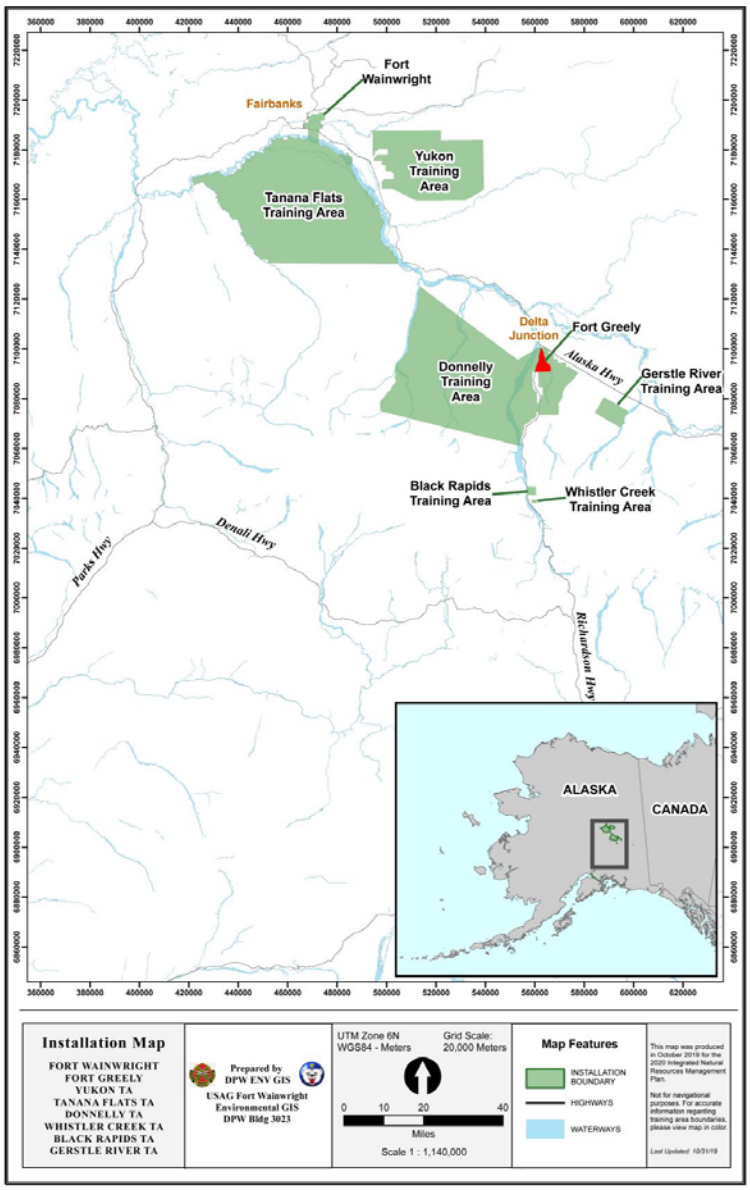
Alaska is a state of extraordinary beauty with a wealth of natural resources. Its area of 586,412 square miles is roughly equal to one-fifth the size of the continental United States. Because of its strategic location, the Army has maintained a presence in Alaska since 1867. The land in Alaska controlled by the Army comprises almost 10% of the total training land available to the Army. The following chapter describes the installation setting and the mission for the U.S. Army in Alaska.

2.1 Maps

2.1.1 Installation Map

Detailed installation maps are shown in Figures 2-2 and 2-3.

Figure 2-1. Location of USAG Alaska Lands in Alaska.



Fort Wainwright land acquisition is shown in Figure 2-2. Fort Greely and Donnelly Training Area land acquisition is shown in Figure 2-3.

Figure 2-2. Fort Wainwright Land Acquisition.

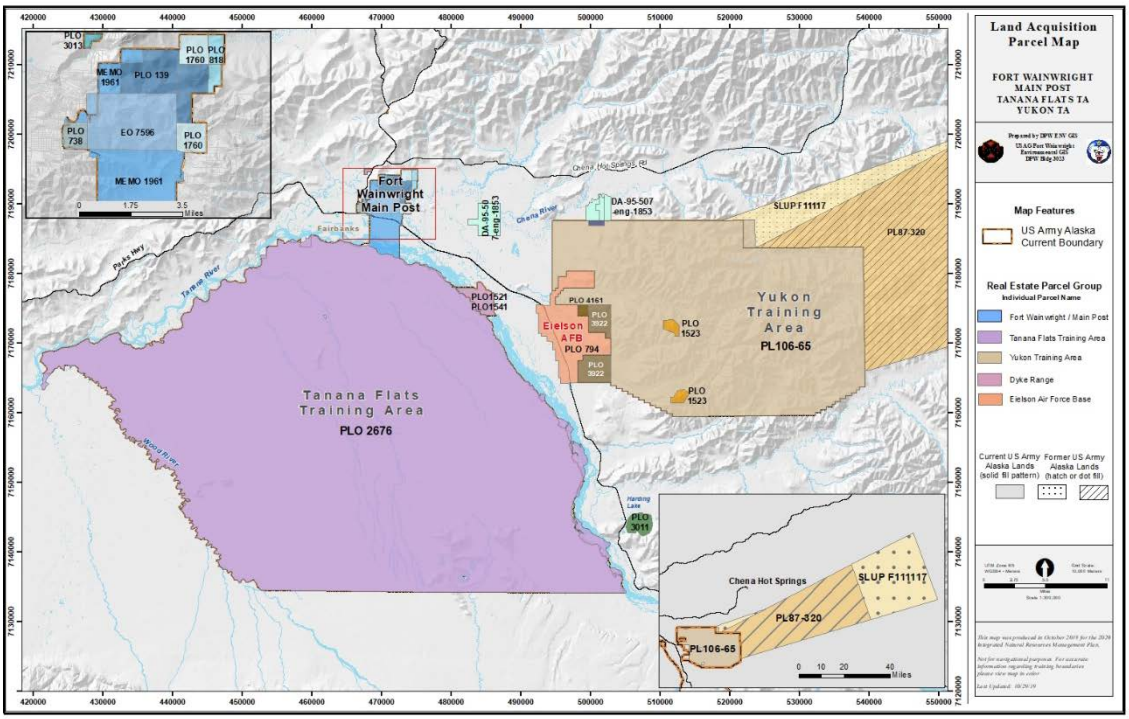
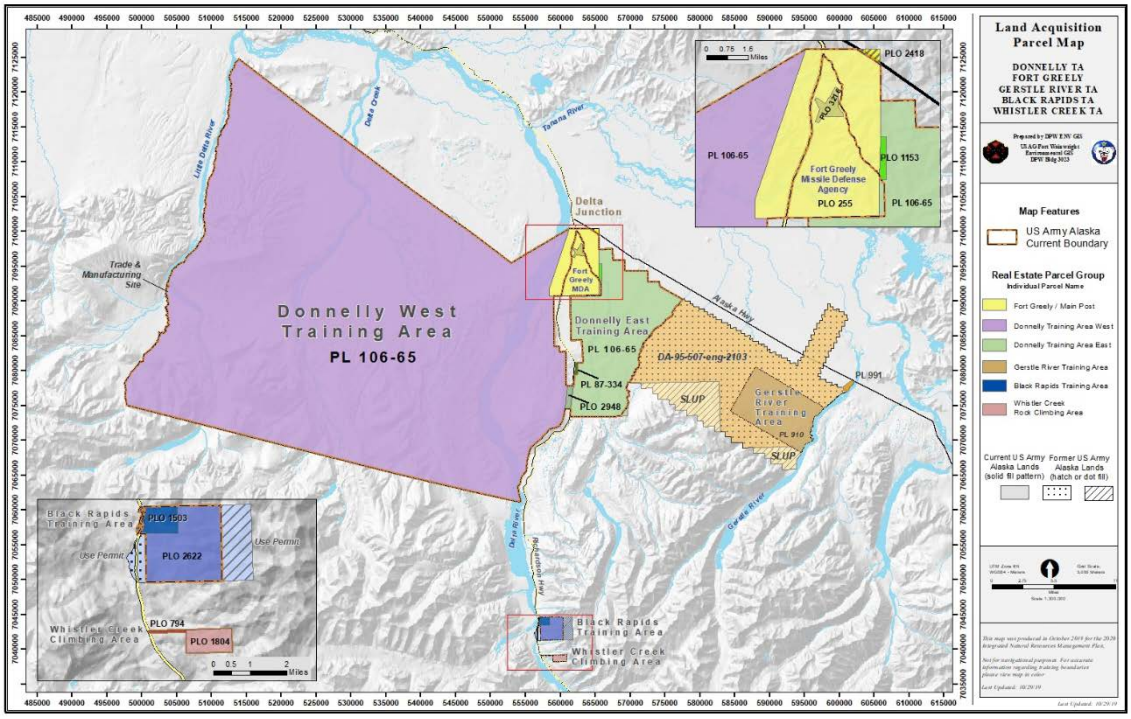


Figure 2-3. Fort Greely and Donnelly Training Area Land Acquisition.



2.1.2 Constraints Map

Detailed constraints maps are shown in Figures 2-4 and 2-5.

Figure 2-4. Fort Wainwright Constraints Map.

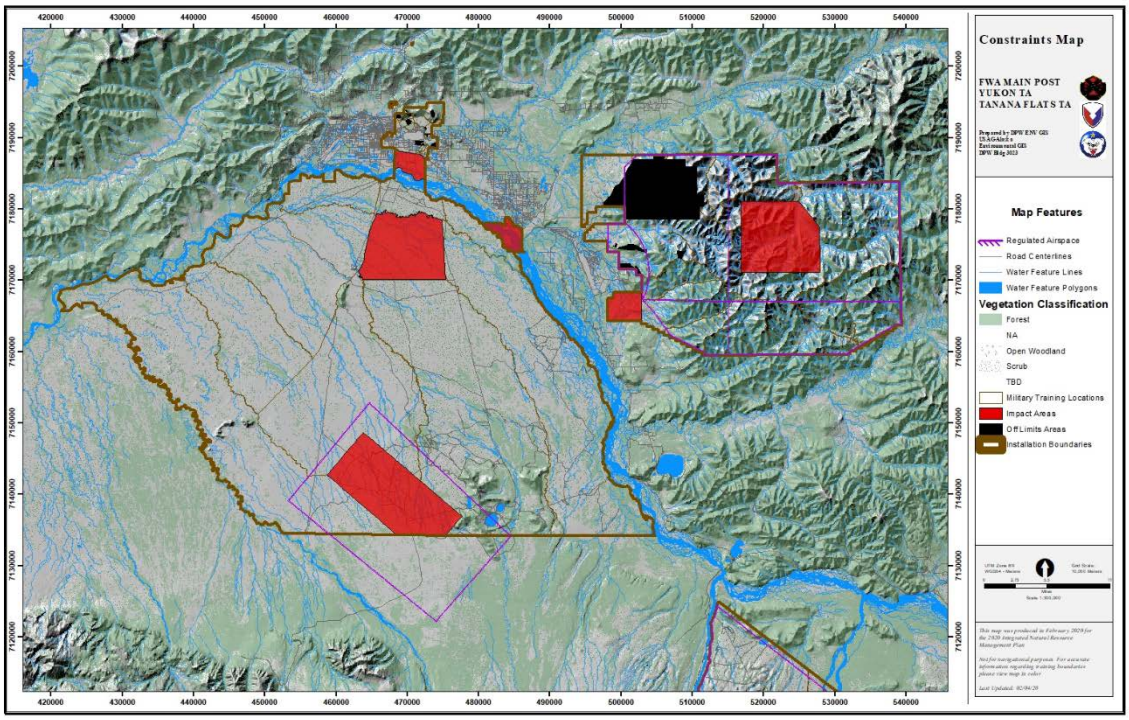
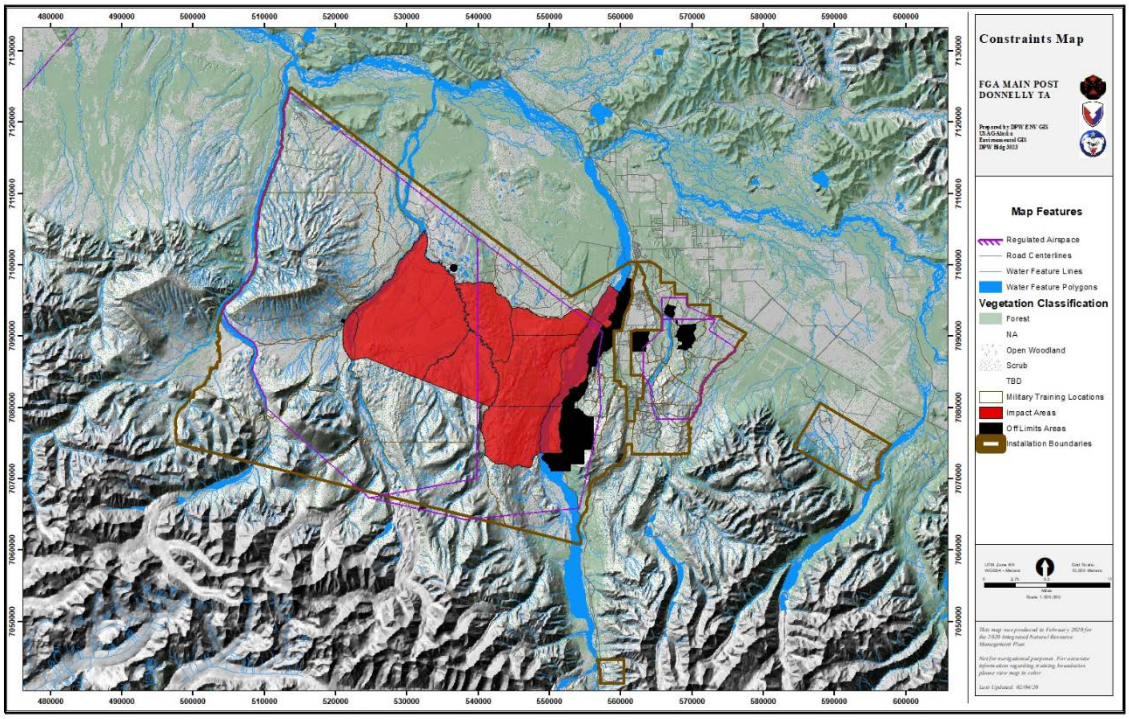


Figure 2-5. Fort Greely and Donnelly Training Area Constraints Map.



2.2 General Installation Information

The USAG Alaska includes Fort Wainwright Main Post, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Rock Climbing Area, Haines Fuel Terminal, Tok Fuel Terminal, Sears Creek Pump Station and Fort Greely. A general location of each installation with sub-installations is shown in Figure 2-1.

Fort Wainwright is in central Alaska, north of the Alaska Range in the Tanana River Valley. Fort Wainwright is the fourth largest Army training area in the United States. Fort Wainwright's Main Post, Yukon Training Area, and Tanana Flats Training Area comprise 928,017 acres. Fort Wainwright Main Post is 13,756 acres, including the small arms complex. The Tanana Flats Training Area is located across the Tanana River from the Main Post and occupies most of the land between the Wood and Tanana Rivers, stretching 32 miles south of the Main Post. The Yukon Training Area is 16 miles east-southeast of Fairbanks, adjacent to Eielson Air Force Base. The Yukon Training Area is roughly rectangular, stretching 28 miles east-to-west and 17.5 miles north-to-south. The Yukon Training Area encompasses much of the land between the Chena and Salcha Rivers, northeast of the Richardson Highway.

Donnelly Training Area is located 107 road miles southeast of Fairbanks and six road miles south of the junction of the Alaska and Richardson Highways. Donnelly Training Area is separated from Delta Junction by Jarvis Creek. Donnelly Training Area is composed of two sections. Donnelly Training Area West (approximately 522,000 acres) is located just south of Delta Junction and west of the Delta River. Donnelly Training Area East (approximately 112,000 acres) is located just south of Delta Junction and east of the Delta River. Gerstle River Training Area (20,580) lies between Granite Mountains and Gerstle River. It is 29 miles southeast of Delta Junction and about three miles southwest of the Alaska Highway; the rectangular area is oriented northwest to southeast and measures about five miles, north to south, and nine miles, east to west. Black Rapids Training Area (4,112 acres) and Whistler Creek Rock Climbing Area (542 acres) are 39 miles and 43 miles, respectively, south of Delta Junction and east of the Richardson Highway within the Alaska Range. Tok Fuel terminal (207 acres) is located 10 miles west of Tok near the village of Tanacross. Haines Fuel terminal (208 acres) is located on the outskirts of Haines. Sears Creek Pump Station is located along the Alaska Highway 50 miles southeast of Delta Junction. Fort Greely lies embedded within Donnelly Training Area, south of Delta Junction, Alaska. Fort Greely is approximately 6,795 acres consisting of a cantonment area, an airfield and missile fields.

2.3 Regional Land Use and Setting

Fort Wainwright Main Post and Tanana Flats and Yukon Training Areas are within the Fairbanks North Star Borough, which is populated with several scattered developments. Fairbanks, on the western boundary of Fort Wainwright, is the largest city in the borough with a population of slightly over 31,500, making it the second largest city in the state (2010 census data). The Fairbanks North Star Borough's population is over 82,000. The main cantonment area of Fort Wainwright lies within Fairbanks city limits. Residential developments have grown eastward, abutting the installation boundary along the North Post, the main cantonment area, and the western side of the small arms range complex. A majority of the land surrounding Fort Wainwright is State of Alaska-owned land. Principal land use management categories include fish and wildlife habitat, public recreation, forestry, agricultural sale, and settlement. The Chena River State Recreation Area lies adjacent to Yukon Training Area's northern boundary and is managed for public recreation. Eielson Air Force Base adjoins the western boundary of the Yukon Training Area. The Tanana Valley State Forest lies north of Fort Wainwright with

private and Fairbanks North Star Borough-owned land parcels to the south. Alaska Native corporation-owned and Native allotment parcels also border Fort Wainwright. Both Tanana Flats Training Area and Yukon Training Area are relatively isolated and reasonably protected from boundary encroachment, except for remote homesteads. Other developed areas include Fox and Chatanika to the north, and North Pole and Eielson Air Force Base to the east and south. Fort Greely is 90 miles to the southeast. The George Parks Highway, Steese Highway, Richardson Highway, Alaska Railroad, and the Trans-Alaska Pipeline bisect the area.

Southeast Fairbanks Census Area's (a non-incorporated borough which covers a large area around Donnelly Training Area) population is over 6,000. Delta Junction (located adjacent to Fort Greely and Donnelly Training Area) has 958 residents (2010 census) (BLM and U.S. Army, 1994a). Census information for the unincorporated region around Donnelly Training Area is more informative and includes Deltana (2,251), Fort Greely (539) Big Delta (591), and Whitestone (97), which together totals 4,436 residents.

2.4 Natural Environment

2.4.1 Climate

USAG Alaska hasthe northern continental climate of the Alaskan Interior, which is characterized by short, moderate summers; long, cold winters; and little precipitation or humidity. Weather is influenced by mountain ranges on three sides that form an effective barrier to the flow of warm, moist, maritime air during most of the year. Surrounding uplands also cause settling of cold, arctic air into Tanana Valley lowlands. Average monthly temperatures in Fairbanks range from –11.5°F in January to 61.5°F in July, with an average annual temperature of 26.3°F. The record low temperature is –66°F, and the record high is 98°F. The average frost-free period is 95 to 100 days. Prevailing winds in Fairbanks are from the southwest in June and July and from the north and northeast in winter. Average wind velocity is 5.3 miles per hour. The greatest average wind speed is in spring, with a high of 40 miles per hour recorded in Fairbanks. Winds are 5 miles per hour or less 60% of the time. Thunderstorms are infrequent, occurring only during late spring and early summer. Average annual precipitation is 10.4 inches, most of which falls as rain during summer and early fall. Average monthly precipitation ranges from a low of 0.29 inches in April to a high of 1.86 inches in July. Average annual snowfall is 67 inches, with a record high of 168 inches during the winter of 1970-1971. Average annual relative humidity is 55%, with lowest levels during spring and early summer (38% during mid-afternoon in May). Heavy fog is relatively common during December and January, with four or five foggy days each month. Ice fog can be expected any time temperatures drop below -30°F but is normally restricted to areas near human settlements where moisture is emitted from burning fuels (Bonito 1980).

2.4.2 Topography

USAG Alaska lies north of the Alaska Range, within the drainage of the Tanana River. The Main Post lies within the Tanana-Kuskokwim lowland. This depression was subsiding as the Alaska Range was rising to the south, and filling with sediments from those mountains. The area is bounded by uplands to the north, the Alaska Range to the south, and consists of alluvial fans extending northward from the mountains. The Tanana River flows along the northern edge of the lowland. The terrain is generally flat lowland, ranging from 420 to 6,150 feet above sea level (Nakata Planning Group 1987). Elevation gradients range from 40 to 50 feet per mile along upper portions of fans, to six to seven feet per mile in the Tanana Flats (Racine et al. 1990).

2.4.3 Hydrology

USAG Alaska's surface water resources are diverse and include numerous rivers, streams, ponds, and lakes. The volume of flow fluctuates dramatically by season. During the long period of freeze, usually from October to May, flow is limited to groundwater from aquifers into streams. Many small streams freeze solid (zero discharge) during winter. Snowmelt typically begins in March or April and reaches its peak in June. Flow is greatest during June and July. By the end of July, most snow has melted and a steady flow during August and September is sustained by rainfall.

2.4.4 Ecoregion

Ecological land classifications were done for USAG Alaska lands during 1994, 1995, 1996, and 1998. These reports included mapping by geomorphology, permafrost, vegetation, ecotypes, ecosubdistricts, and ecodistricts (Jorgenson et al. 1999). The Main Post and Tanana Flats Training Areas lies primarily in the Tanana River Floodplain ecodistrict. There are three ecosubdistricts of the Tanana Floodplain ecodistrict that make up Main Post they are the Chena Floodplains, the Fairbanks Lowlands, and the Little Chena Uplands, which includes the Birch Hill area of Fort Wainwright. The Little Chena Uplands are part of the Steese-White Mountain ecodistrict. Donnelly Training Area West is in the Hayes Mountains, Delta Highlands, and Delta Lowlands ecodistricts. Donnelly Training Area East and Fort Greely are in the Delta Lowlands and are dissected by the middle Tanana Floodplain (Delta River floodplain and Jarvis Creek floodplain). The southern portion of Donnelly Training Area East extends into the Delta Highlands with a small portion (Donnelly Dome) included in the Gakona ecodistrict.

2.5 Installation History

2.5.1 Pre-Military Land Use

Indigenous peoples lived in the area of USAG Alaska prior to settlement. Fort Wainwright consisted of a few homesteads prior to creation of the installation, but most of the land now part of Fort Wainwright was undeveloped.

2.5.2 Installation Military History

Fort Wainwright was originally referred to as the Alaskan Air Base or Alaskan Air Corps Station. It was designated as Ladd Field in December 1939. The original installation served three purposes: The Cold Weather Test Station; an air sub-depot for repair and testing of airplanes; and the central Alaskan station of the Alaskan Wing, Air Transport Command, for transportation of air freight and ferrying Lend-Lease planes to Russia (USARAK 1991). By 1947, the Army Air Corps had separated from the Army to become the Air Force, and what was then known as Ladd Field was transferred to the Air Force. In 1961, the Army reassumed command of Ladd Field and renamed the installation Fort Wainwright, after General Jonathan M. Wainwright (USARAK 1995). On 1 July 1963, Fort Wainwright became the home of the 171st Infantry Brigade, with the 172nd Infantry Brigade established at Fort Richardson. U.S. Army Alaska operated two independent brigades until post-Vietnam era drawdowns resulted in disbandment of the 171st Brigade in fiscal year 1973. At that time, the 172nd was headquartered at Fort Richardson with units detached at Fort Wainwright. In 1986, the newly reactivated 6th Infantry Division (Light) replaced the 172nd Infantry Brigade. The 6th Infantry Division, deactivated in Korea following distinguished service in two world wars and was recalled as a specialized arctic/mountain light contingency force under U.S. Army Pacific. Headquarters was established at Fort Richardson and remained there until 1990 when it was

transferred to Fort Wainwright (Higginbotham/Briggs & Associates 1991). The major unit at Fort Wainwright became the 1st Brigade, 6th Infantry Division (Light). The Arctic Support Brigade, headquartered at Fort Richardson, also had units at Fort Wainwright (USARAK 1995). In 1998, the 6th Infantry Division (Light) was deactivated, and the 172nd Infantry Brigade (Separate) was activated. In 2004 the 172nd Infantry Brigade was converted to a Stryker Brigade Combat Team.

Fort Greely originated as Station 17, Alaskan Wing, Air Transport Command, later known as Allen Army Airfield in 1942. In 1949, the installation became the site of the Arctic Training Center (Headquarters, U.S. Army Pacific 1996), because of its extreme winter conditions in interior Alaska and varied terrain, including rivers, lakes, swamps, and open plains. The post was designated as Fort Greely on 6 August 1955. Fort Greely became part of the 172nd Infantry Brigade in 1974, when U.S. Army Alaska was restructured. Fort Greely was realigned as part of the Base Realignment and Closure process of 1995. Some 624,000 acres, which included testing ranges, firing ranges, maneuver training areas, and other training facilities were initially transferred to Fort Richardson, but within a year were transferred to Fort Wainwright and would become known as Donnelly Training Area. Three outlying training areas, Gerstle River, Black Rapids Training Area, and Whistler Creek Rock Climbing Area which were part of Fort Greely, and Haines Terminal, Tok Terminal, and Sears Creek which were part of Fort Richardson, were transferred to Fort Wainwright at that time.

2.6 Current Military Missions

2.6.1 U.S. Army Garrison Alaska Mission

The USAG Alaska mission is to integrate resources and deliver installation services to enable the readiness of Army forces so that they will be ready to defend our nation in times of crisis.

2.6.2 USARAK Mission

USARAK's mission is to provide trained and ready forces in support of worldwide unified land operations; supports U.S. Pacific Command Theater Security Cooperation Program in order to contribute to a stable and secure operational environment. On order, executes Joint Force Land Component Command functions in support of Homeland Defense and Defense Support of Civil Authorities in Alaska. USARAK faces several challenges in accomplishing its mission. One of these is ensuring that training facilities are capable of supporting all required training events while integrating environmental stewardship into daily operations. As these critical challenges are met, USARAK also must continue to maintain a positive rapport with local communities.

Installation Users	Primary Mission	Garrison Resources Utilized
USARAK	Training and Readiness	Cantonment building space, Ranges and Maneuver lands
US Air Force (USAF) Red Flag	Training and Readiness	Ranges
USAF Detachment 460	Seismic Monitoring	Maneuver lands
Cold Regions Test Center (CRTC)	Cold Weather Testing	Cantonment building space, Ranges and Maneuver lands
Cold Regions Research and Engineering Laboratory (CRREL)	Cold Weather Research	Cantonment building space and Maneuver lands
BLM Alaska Fire Service (AFS)	Wildland Fire Suppression	Cantonment building space and Maneuver lands

Installation Users	Primary Mission	Garrison Resources Utilized
National Guard	Training and Readiness	Ranges and Maneuver lands
Missile Defense	Ground-based Midcourse Defense	Cantonment building space, Ranges and Maneuver lands

2.7 Public and Affiliates Access

Traditionally, there have been ample opportunities for the public to participate in recreational activities on USAG Alaska lands. In maintaining a liberal policy of public access, USAG Alaska relies on a responsible public to adhere to installation policies designed to promote physical security, minimize safety hazards, and protect natural and cultural resources. Fort Wainwright Main Post and Fort Greely are fenced with access control points. Range Control controls access on training lands for military and the civilian workforce. Access for cultural or historical affiliates is accomplished through coordination with Directorate of Public Works (DPW) Environmental.

USAG Alaska has established the USAG Alaska iSportsman system to facilitate recreational access onto military training lands. Civilians and military personnel requesting recreational access to Fort Wainwright lands and waters must obtain a Recreation Access Permit (RAP). This permit provides conditional authorization to enter Army training lands and is good for two calendar years. Permits can be obtained online (http://usartrak.isportman.net). After the RAP is obtained and prior to entering Fort Wainwright lands, all recreational users must log in, using the permit number located on the RAP, to the iSportsman system to ascertain which training areas are available for recreational use. Individuals are prohibited from entering areas other than those indicated as open on the iSportsman system. Individuals are also prohibited from entering any of the areas indicated as closed by placard, blockade, verbal warning, red flag, or other means of communication. Authorization for access is subject to change based on the current Force Protection Condition levels and mission training requirements.

The current off-road recreational vehicle access policy was adopted in the 2002-2006 INRMP update with modifications to Tanana Flats Training Area access in the 2007-2011 update. The current access policy is codified in USAG Alaska Regulation 190-13.

Subsistence has been legally defined to include the customary and traditional uses of fish and game in all of Alaska's rural areas. Access to USAG Alaska lands is permitted by the Army for subsistence purposes when it does not conflict with military training nor is a hazard to public safety.

While there are no subsistence priorities on military lands for those who qualify under federal or state rules, subsistence users do utilize subsistence resources on military lands.

CHAPTER 3. INTEGRATION OVERVIEW

3.1 Authorities & Responsibilities

Law/Reg/MOU #	Law/Reg/MOU Title	Responsible/Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
P.L. 106-65	Withdrawal of Fort Wainwright and Fort Greely Training Ranges, 2001	Department of Defense, Department of Interior	DPW Environmental (ENV) Chief, BLM
DoD Financial Management Regulation 7000.14-R, Vol. 11A, Ch.16	Accounting for Production and Sale of Forest Products, August, 2002	Department of Defense	DPW ENV Chief
16 U.S.C. §§668-668d	Bald & Golden Eagle Protection Act	U.S. Fish & Wildlife Service	DPW ENV Chief
DoDD 4715.21	Climate Change Adaptation and Resilience	Department of Defense	DPW ENV Chief
33 U.S.C. §1251 *et. seq.*	Clean Water Act	Environmental Protection Agency	DPW ENV Chief
40 C.F.R. Parts 1500- 1508	CEQ Regulations - Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the NEPA	All Federal Agencies (As Applicable)	DPW ENV Chief
42 U.S.C. §9601-9675	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	Environmental Protection Agency	DPW ENV Chief
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Department of Defense	DPW ENV Chief
DoDI 5525.17	Conservation Law Enforcement Program (CLEP), October 17, 2013	Department of Defense	Directorate of Emergency Services (DES) Director
DoD & USFWS MOU	Conservation of Migratory Birds MOU (Partners in Flight)	Department of Defense & U.S. Fish & Wildlife Service	DPW ENV Chief
DoDI 6055.06	DoD Fire and Emergency Services Program, December 21, 2006	Department of Defense	DES Director
16 U.S.C. §1531-1543	Endangered Species Act of 1973, as amended	U.S. Fish & Wildlife Service	DPW ENV Chief
Executive Order 13443	Facilitation of Hunting Heritage and Wildlife Conservation	Department of Defense	DPW ENV Chief
7 U.S.C. §136 *et. seq.*	Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended	Environmental Protection Agency	DPW Real Property Services
43 U.S.C. §1701	Federal Land Policy and Management Act of 1976	Department of Defense	BLM
7 U.S.C. § 2801	Federal Noxious Weed Act of 1974	Secretary of Agriculture	DPW Base Operations
33 U.S.C. § 1251-1376	Federal Water Pollution Control Act of 1977 (Clean Water Act), as amended	Environmental Protection Agency	DPW ENV Chief
16 U.S.C. §2901 – 2911	Fish and Wildlife Conservation Act of 1980	U.S. Fish & Wildlife Service	DPW ENV Chief
Executive Order 11988	Floodplain Management, May 24, 1977	Department of Defense	DPW ENV Chief
10 U.S.C. §2671	Hunting, Fishing and Trapping on Military Lands	Department of Defense	DPW ENV Chief
Executive Order 13112	Invasive Species, February 3, 1999	Department of Defense, State Department of Natural Resources (DNR), & other Federal Agencies (As Applicable)	DPW Base Operations

Law/Reg/MOU #	Law/Reg/MOU Title	Responsible/Administering Agency(s)	Responsible Directorate & Personnel Position Title(s)
16 U.S.C. §701, 702	Lacey Act of 1900	Secretary of the Interior	USFWS, DES Director
P.L. 94-265, as amended at P.L. 109-479	Magnuson-Stevens Fishery Conservation and Management Act	Regional Fishery Management Councils (both Federal and State Agencies)	DPW ENV Chief
16 U.S.C. §703 *et. seq.*	Migratory Bird Treaty Act, as amended	U.S. Fish & Wildlife Service	DPW ENV Chief
P.L. 107-314, Sec. 315	National Defense Authorization Act for Fiscal Year 2003: Incidental Taking of Migratory Birds during Military Readiness Activities	Department of Defense	DPW ENV Chief
P.L. 108-136, Sec. 318	National Defense Authorization Act for Fiscal Year 2004: Military Readiness & Conservation of Protected Species	Department of Defense	DPW ENV Chief
Public Law 91-190, 42 U.S.C. §4321-4347	National Environmental Policy Act (NEPA) of 1969, as amended	Department of Defense	DPW ENV Chief
32 C.F.R. 190	Natural Resource Management Program for the Department of Defense	Department of Defense	DPW ENV Chief
DoD & USFWS MOU	Promote the Conservation of Migratory Birds	Department of Defense	DPW ENV Chief
Executive Order 11990	Protection of Wetlands, May 24, 1977	Department of Defense, U.S. Fish & Wildlife Service, & U.S. Army Corps of Engineers	DPW ENV Chief
Executive Order 12962	Recreational Fisheries, June 7, 1995	Department of Defense & State DNR	DPW ENV Chief
42 U.S.C. 6901-6992 k	Resource Conservation and Recovery Act	Environmental Protection Agency	DPW ENV Chief
Executive Order 13186	Responsibilities of Federal Agencies to Protect Migratory Birds, January 10, 2001	U.S. Fish & Wildlife Service	DPW ENV Chief
33 U.S.C. §401 *et. seq.*	Rivers and Harbors Act of 1899	U.S. Army Corps of Engineers	DPW ENV Chief
16 U.S.C. §670a-f	Sikes Act	U.S. Fish & Wildlife Service, State DNR	DPW ENV Chief
Sikes Act Tripartite MOU	Cooperative Integrated Natural Resource Management Program on Military Lands	Department of Defense, U.S. Fish & Wildlife Service, & Association of Fish & Wildlife Agencies	DPW ENV Chief
16 U.S.C. §2001	Soil and Water Conservation Act	Secretary of Agriculture	DPW ENV Chief
10 U.S.C. §2665	Timber Sales on Military Lands	Department of Defense	DPW ENV Chief
Title I of P.L. 102-440, signed October 23, 1992 (106 Stat. 2224)	Wild Bird Conservation Act	U.S. Fish & Wildlife Service	DPW ENV Chief
16 U.S.C. §1271-1287	Wild and Scenic Rivers Act of 1968	Secretary of Interior, Secretary of Agriculture	DPW ENV Chief
AR 200-1	Environmental Protection and Enhancement	Department of Army	DPW ENV Chief

3.2 External Stakeholders

While any federally recognized tribe will be offered government-to-government interaction if they feel their tribal rights or resources are potentially affected by Army undertakings or actions, there are seven Alaska Native tribal governments that are regularly consulted. These federally recognized tribes have a historic relationship with USAG Alaska and have a cultural and historical affiliation with the lands managed by the USAG Alaska. There are no sites or resources of religious importance currently identified on USAG Alaska-managed training lands. There is one documented Traditional Cultural Property that is accessible to the relevant tribe, as it is not on a training area. There is one historic village of significance to a consulting tribe. Access issues are currently being consulted on. Both locations are adjacent to environmental restoration sites.

The primary consulting tribal governments with whom USAG Alaska enjoys a government-to-government relationship include the Chilkoot Indian Association (Haines), Village of Dot Lake, Healy Lake Village, Nenana Native Association, Northway Village, Native Village of Tanacross, and Native Village of Tetlin. Biannual regular are held with these tribes. USAG Greely has relations with Gulkana Village. Additionally, interaction with Alaska Native organizations also take place for the purposes of stakeholder input, mutually beneficial relationship building, or other purposes. These organizations are currently identified as Doyon, Ltd. and Tanana Chiefs Conference.

External Stakeholder	Type	Document/Agreement & Hyperlink	Brief Description
Alaska Department of Fish and Game	Required Partnership	INRMP signed by USAG Alaska, USFWS and ADFG for Natural Resources Management of Fort Wainwright, Alaska Lands	INRMP developed and updated in coordination with State to address state wildlife management goals where mutually agreed.
USFWS local field office	Required Partnership	INRMP signed by USAG Alaska, USFWS and ADFG for Natural Resources Management of Fort Wainwright, Alaska Lands	INRMP developed and updated in coordination with USFWS local office to address Recovery goals where mutually agreed.
Tribal governments	Required Partnership	Government-to-government drivers include the DoD and Army American Indian and Alaska Native Policies, AR200-1 and EO13175	INRMP developed and updated in consultation with Federally recognized Alaska Native tribes.
BLM	Required Partnership	PL 106-65 Resource Management Plans	BLM Resource Management Plans required by PL106-65 for management of certain military lands in Alaska (Yukon and Donnelly Training Areas)
		Memorandum of Understanding (MOU) between BLM and USAG Alaska Concerning Management of Lands in Alaska Withdrawn by PL 106-65 for Military Use	Defines responsibilities for natural resource management of PL106-65 withdrawn lands in Alaska

3.3 Internal Integration

The conservation program integrates with the Range Complex Master Plan, including the Integrated Training Area Management (ITAM) Work Plan at several levels. Informal project planning occurs as issues arise in either the conservation or range control offices, and solutions are sought by Natural Resources, ITAM, and Range staff. Designated meetings are also held 3 times a year where open communication is encouraged. In the fall, the Range Steering Committee meets to receive input from training area users on desired range and ITAM improvement projects. Conservation staff is invited to attend. In January or February, the Fort Wainwright and Donnelly Training Area ITAM Coordinators and Installation Range Officers host meetings to present upcoming projects that focuses on 2-3 years out. Projects that keep to natural resource and training/sustainability goals are sought out and often move to higher priority.

Responsible Directorate	Installation Plan (Date of Approval)	Personnel Position Title(s)	Integration Methods	Contact Frequency
DES	Conservation Law Enforcement Patrol Distribution Plan (2018)	Conservation Officers	E-mail, phone, meetings	Weekly
DPW	Installation Action Plan(s) (annual)	Restoration Manager	E-mail, phone, meetings	Monthly
DPW	Installation Master Plan (2016)	DPW Master Planner	E-mail, phone, meetings	Monthly
DPW	Integrated Cultural Resources Management Plan (2019)	Cultural Resources Manager	E-mail, phone, meetings	Daily
DPW	Integrated Pest Management Plan (2019)	Natural Resources Specialist	E-mail, phone, meetings	Monthly
DES	Integrated Wildland Fire Management Plan (2019)	Fire Chief	E-mail, phone, meetings	Monthly
Training Support Activities Alaska (TSA AK)	Range Complex Master Plan (2019)	ITAM Coordinator	E-mail, phone, meetings	Weekly
Directorate of Plans Training Mobilization and Security (DPTMS)	WASH Plan (2016)	Airfield Operations Manager	E-mail, phone, meetings	Monthly

3.3.2 Internal Coordinating Offices

Responsible Directorate	Personnel Position Title(s)	Communication Methods	Contact Frequency
TSA AK	Range Officer	Phone, E-mail, Meetings	Weekly
TSA AK	Scheduler	Phone, E-mail, Meetings	Weekly
TSA AK	Range Planner	Phone, E-mail, Meetings	Monthly
DPW	Master Planning	Phone, E-mail, Meetings	Monthly
DPW	ENV Compliance	Phone, E-mail, Meetings	Daily
DES	Fire Chief	Phone, E-mail, Meetings	Weekly

Responsible Directorate	Personnel Position Title(s)	Communication Methods	Contact Frequency
DES	Conservation Law Enforcement Officer (CLEO)	Phone, E-mail, Meetings	Weekly

CHAPTER 4. PROGRAM ELEMENTS

4.1 Geospatial Information Systems (GIS)

4.1.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
GIS Data Layers	*GIS Database*	multiple	annual	2018

4.1.2 Supplemental Resources

Description	Document Title	Location & Hyperlink	Last Update
GIS Standards	Federal Geographic Data Committee standards	Current version found in USAG Alaska DPW Environmental	2018
GIS Standards	Tri-Services Spatial Data Standards	Current version found in USAG Alaska DPW Environmental	2018

4.1.3 History

The USAG Alaska Geographic Information System (GIS) is a foundational capability of natural resource management. GIS is a computer-based tool capable of assembling, storing, manipulating, and displaying geographically referenced information, (i.e., data identified according to their locations). The system can be used to analyze and model (manipulate, overlay, measure, compute, and retrieve) the digital spatial data and display the new map products and tabular resources information showing the results of the spatial analysis. GIS technology integrates common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps. These abilities distinguish GIS from other information systems.

USAG Alaska Fort Wainwright DPW Environmental personnel, with assistance from USAG Alaska Fort Wainwright 516th Signal Brigade, manage the GIS application server. The server supports GIS users from USAG Alaska Fort Wainwright and Fort Greely DPW, and USARAK TSA-AK Range Control at Fort Wainwright, Donnelly Training Area, and Joint Base Elmendorf Richardson (JBER).

Each of the three primary GIS users are responsible to be data stewards for their data layers. DPW Environmental takes care of natural resource data layers, such as soils, water, vegetation, forestry, and wildlife resources. DPW Real Property is ultimately responsible for real property data layers such as boundaries and infrastructure. USARAK TSA AK maintains data layers for range and training activities.

4.1.4 Current Condition

USAG Alaska maintains a robust GIS database, updated regularly according to Federal Geographic Data Committee standards and Tri-Services Spatial Data Standards.

4.1.5 Goals, Objectives, and Targets

Goals:

- Provide a decision support capability to natural resources, range, and engineer planners and managers.
- Develop and maintain USAG Alaska Geographic Information System spatial database and data layers.
- Maintain Geographic Information System data in accordance with Federal Geographic Data Committee standards and Tri-Services Spatial Data Standards, including metadata standards.
- Coordinate and synchronize the three decision support systems.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Maintain GIS Server	Keep the GIS server running continuously.	AR 200-1	Ongoing	USAG Alaska
Maintain GIS Data Layers	Update GIS data layers annually.	AR 200-1	Ongoing	USAG Alaska, USARAK
	Upload updated GIS data layers to Army Mapper.	AR 200-1	Ongoing	USAG Alaska, USARAK

4.1.6 Program Management Units

The USAG Alaska GIS maintains spatial data for all program management units for all other program elements on Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapid Training Area, Whistler Creek Training Area, Haines Fuel Terminal, Tok Fuel Terminal, Sears Creek Pump Station, and other satellite sites.

4.2 Conservation Law Enforcement

4.2.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Enforcement Database	Military Police (MP) Blotter	multiple	daily	2018

4.2.2 Supplemental Resources

Description	Document Title	Location & Hyperlink	Last Update
USAG Alaska Conservation Enforcement Regulations	USAG Alaska Regulation 190-13	Current version found in USAG Alaska DPW Environmental	2015
USAG Alaska Conservation Law Enforcement Plan	DODI 5525.17	Current version found in USAG Alaska Emergency Services Office	2020
USARAK Regulation 350-2	US Army Alaska Range Regulation	Current version found in USARAK Range Office	*2011*

4.2.3 History

There are five components of the USAG Alaska conservation enforcement program which include enforcing conservation laws, reducing theft and vandalism, interacting with the public, enforcing trespass, and conservation officer training.

Many aspects of natural resources management require effective enforcement if they are to be successful. Such features as harvest controls, protection of sensitive areas, pollution prevention, hunting and fishing recreation, non-game protection, and others that are dependent on effective law enforcement. Enforcement of laws primarily aimed at protecting natural and cultural resources from impacts of outdoor recreation activities is an integral part of the installation's natural resources management program. Game laws must be implemented in accordance with applicable state and federal laws and as approved by the commander in the INRMP.

The Alaska State Constitution mandates that ADFG is responsible for the management of fish and wildlife populations (including management of hunting, fishing, and trapping activities) on all public lands within the State. Military lands are included within the definition of public lands. In accordance with the Sikes Act, (16 U.S.C. Section 670, (4)(A)(ii)), "*nothing in this title – enlarges or diminishes the responsibility and authority of any State for the protection and management of fish and resident wildlife"*. Fish and wildlife management and enforcement on USAG lands are implemented through concurrent jurisdiction with the State of Alaska. Harvest control, hunting, and fishing are managed in accordance with ADFG and Board of Game and Board of Fish regulations. Alaska State Troopers, ADFG personnel, BLM Law Enforcement, USFWS Law Enforcement, and USAG Alaska Conservation Officers enforce State fish and game laws on USAG lands.

Enforcement of laws primarily aimed at protecting wildlife and other natural resources is an integral part of the installation's natural resources management program. Conservation enforcement on USAG Alaska lands includes enforcement of all natural resource related and environmental laws, enforcement of trespass, interaction with the public, and conservation enforcement officer training. Effective law enforcement is critical to natural resources conservation and the continuance of hunting, trapping, and fishing programs on a sustained basis. Trespass is often the first step to most illegal range activity and reducing illegal trespass could also reduce illegal range activity. Conducting conservation enforcement is required by Public Law 86-797 (Sikes Act) to implement the INRMP.

4.2.4 Current Status

The Director of Emergency Services is the senior USAG Alaska law enforcement official. The director is responsible for coordination and supervision of fish and wildlife law enforcement on all Army lands in Alaska. The USAG Alaska Chief of Police supervises the Conservation Enforcement program. They also coordinate and receive technical direction from the Environmental Division, Natural Resources Section staff in accordance with Army Regulation 200-1 and USAG Alaska Fort Wainwright Regulation 190-13.

USAG Alaska lands have concurrent jurisdiction. Conservation enforcement can be performed by officers with federal or state commissions. Enforcement is a joint responsibility of USAG Alaska, USFWS, the Alaska Department of Public Safety (State Troopers), and BLM. ADFG employees are also deputized to enforce fish and game regulations. Citations written by USAG Alaska personnel are adjudicated by the Federal Magistrate, whereas citations issued by Alaska State Troopers go through the state system for adjudication.

During the fall hunting season, USAG Alaska personnel use flights to monitor any trespass within the impact areas and other restricted areas on post. USAG Alaska conservation officers also contact individuals and groups of people that are hunting in areas that are closed for training. Conservation officers play a key role during the hunting season as they are the only members of the USAG Alaska Law Enforcement community that is familiar with the training areas. Fort Wainwright has trespassers every year in training areas that were closed for training events. Training activities cease when the safety of the soldiers training or the trespasser's is at risk until the trespasser has been removed. The most likely time to have trespass issues is during the hunting and trapping season (10 August through 30 April), however trespass does occur at all times of the year. When a quick response is needed to remove trespassers from areas closed for training, the conservation officers are the only ones that can respond in a timely manner.

Crossing the installation boundary, or the internal boundary of an off-limits area, without approval constitutes trespass. Trespass is the most frequent infraction occurring on military installations, which is often the precursor to other illegal activities. Simply crossing the boundary without approval constitutes this action.

Timber and cultural resources are real property and the responsibility of USAG Alaska to protect these resources. Timber theft is an activity that is increasing on USAG Alaska lands. Theft of timber resources changes the characteristics of training areas and negatively impacts military training. Cultural artifacts have value both for personal enjoyment and commercial sale. Protection of timber and cultural resources is directly related to the control of trespassers.

In many cases, conservation officers are the primary contact between USAG Alaska natural resources management and the public. This is an important role for the conservation officers to play, because they represent not only the conservation branch but all of USAG Alaska. These contacts are an excellent opportunity for USAG Alaska to accomplish public outreach, awareness, and education.

Army Regulation 200-1 and the Sikes Act require effective natural resources law enforcement on military installations. There are requirements that this enforcement be closely coordinated with the natural resources organization and that enforcement be accomplished by professionally trained conservation enforcement personnel. A generally recognized requirement exists for a Land Management Police Training course through the Federal Law Enforcement Training Center (or equivalent natural resources training) and an additional 40-hour-minimum annual refresher training for enforcement officers. Fort Wainwright is currently authorized for three conservation officers.

4.2.5 Goals, Objectives, and Targets

Goals:

- Provide a conservation enforcement to support natural resource management on USAG Alaska lands.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Outreach	Promote the interaction of conservation officers with the public.	AR 200-1	Ongoing	USAG Alaska, USARAK

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Training	Maintain conservation enforcement training.	AR 200-1	Ongoing	USAG Alaska, USARAK
	Enabling training by policing training areas for trespass and wildlife encounters.	USARAK 350-2	Ongoing	USAG Alaska, USARAK
Enforce Natural Resource Laws to support Hunting, Trapping and Fishing	Enforce laws and regulations pertaining to implementation of the natural resources program.	Sikes Act, AR 200-1, USAG Alaska Reg 190-13	Ongoing	USAG Alaska
	Continue to use conservation officers to enforce state and federal game laws, and military rules and restrictions. As concurrent jurisdiction installations for fish and wildlife laws, the Alaska Wildlife Troopers and ADFG staff, in addition to USAG conservation officers and BLM and USFWS law enforcement, also enforce fish and game regulations on USAG installations.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
	Reduce the number of natural resource-related violations.	AR 200-1	Ongoing	USAG Alaska
	Increase the coverage and frequency of conservation enforcement activities USAG Alaska.	AR 200-1	Ongoing	USAG Alaska

4.2.6 Program Management Units

Program management units for conservation law enforcement are Fort Wainwright Main Post, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids and Whistler Creek Training Areas, Haines and Tok Fuel Terminals, Sears Creek Pump Station, other satellite sites, and Fort Greely.

4.3 Climate Change

The changing climate may have a significant impact on natural resources in interior Alaska and on Fort Greely and Fort Wainwright lands. Habitat transition or modification as a result of increased temperature, drought, altered hydrology, and alteration of fire regimes with climate change will complicate the ability of USAG Alaska to maintain compliance with natural resource laws and regulations to maintain habitat for rare, threatened, and endangered species as it exists now. Warmer temperatures may expand the northern limits of native and invasive species, resulting in species interaction and ecosystem changes. Changes in permafrost and soil moisture may result in entire ecosystem shifts in interior Alaska, with permafrost wetlands draining and transitioning to a willow/scrub habitat. Projected increases in the depth of the permafrost active layer will result in changes to surface and subsurface hydrology, resulting in increased surface drainage and/or wetland transition.

The changing climate may also have a significant impact on the military mission. Increased precipitation may result in more snow in interior Alaska, resulting in increased snow loads on structures with the potential need for design adaptations for existing buildings and increased maintenance costs of snow removal. Increased temperatures will result in degradation of permafrost in interior Alaska, potentially damaging foundations, roads, pipelines, and communications structures. Building and structure foundations, roads, and pipelines may require retrofits to protect their integrity due to increased active layer thickness of permafrost soils. Increased drying conditions may result in some impact areas being unavailable for incendiary or pyrotechnic rounds. Live-fire exercises also may be curtailed. Land-based

training is likely to be affected mostly by changes in access to training areas. The Fort Greely and Fort Wainwright training areas are utilized for winter training when wetland areas and permafrost soils are frozen and snow covered. Access to some of these training lands is by ice bridges constructed in the winter over the Tanana and Delta Rivers. Increases in temperature and changes to permafrost would result in shorter durations of training access with some training areas becoming unusable.

Threat	Natural Resource Affected	INRMP Management Reference
Warmer Temperatures	Permafrost Degradation	Section 4.4 Soils, Erosion and Sedimentation
Drought	Habitat Alteration	Section 10.1 Flora and Habitat
Increased Precipitation	Soil Degradation and Erosion	Section 4.4 Soils, Erosion and Sedimentation
Altered Hydrology	Wetland Loss	Section 6.3 Wetlands
Altered Fire Regimes	Forest Species Mix	Section 10.2 Forest Management and Section 10.3 Wildland Fire Management

USAG Alaska proposes to use adaptive management techniques built into this INRMP to adjust to changes resulting from any number of factors, potentially including changing climate, regional land use constrains, and encroachment that may impact the military mission.

4.4 Soils, Erosion, and Sedimentation

4.4.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Soil Surveys*	*Soil Survey of Fort Wainwright Area, Alaska*	US Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS)	One time	2001
	Soil Survey Progress Report, Fort Greely, Alaska 2003 Field Survey	Salcha Delta Soil and Water Conservation District (SDSWCD)	One time	2003
	Soil Survey of Fort Greely and Donnelly Training Area, Alaska	USDA, NRCS	One time	2005
	Fort Greely LiDAR Technical Data Report	Quantum Spatial and SDSWCD	One Time	2014
	Soil Survey of Tanana Flats Training Area, Fort Wainwright, Alaska	SDSWCD and Colorado State University (CSU)	One Time	2016
	Black Rapids Training Area Soil Survey	SDSWCD and CSU	One Time	2017
	Yukon Training Area LiDAR Technical Data Report	Quantum Spatial and SDSWCD	One Time	2018
Land Condition Monitoring**	*ITAM RTLA Annual Report*	USARAK TSA AK	Annual	2019
Soil Rehabilitation**	*ITAM Annual Report*	USARAK TSA AK	Annual	2018
	Fort Greely Fugitive Dust Plan	SDSWCD	One Time	2015

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Soil Rehabilitation**	*Final Proposed Plan Soil and Groundwater Remediation Strategy for South Tank Farm*	Space and Missile Defense Command (SMDC)	One Time	2016
	Base Realignment and Closure (BRAC) Site 94 Remedial Investigation Report	SMDC	One Time	2016
	BRAC Site 94 Feasibility Study Report	SMDC	One Time	2016

**Reports located in Building 3023, Fort Wainwright. Spatial data stored in USAG Alaska GIS.*
***Reports located at USARAK TSS-AKI. Spatial data stored in the USARAK GIS.*

4.4.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
Transformation ROD	*Transformation of US Army Alaska EIS*	Current version found in USAG Alaska DPW Environmental	2004
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2018
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013
AR 350-19	*Sustainable Range Program*	Current version found in USARAK Range Office	2005
USARAK Regulation 350-2	*US Army Alaska Range regulation*	Current version found in USARAK Range Office	2011

4.4.3 Program History

Soil resources management entails the conservation of soils as the foundation of other natural resources. USAG Alaska contributes to soil conservation through surveys, monitoring, rehabilitation, and effective management strategies. Management of soil resources is shared between USAG Alaska Natural Resources and USARAK ITAM. USAG Alaska is responsible for fence line to fence line soils and topography planning level surveys and USARAK ITAM conducts annual monitoring of soils in areas impacted by maneuver training. Soils have been mapped at various scales at different times since the 1970s. A comprehensive soil conservation program has been hampered by the lack of consistent soils data across all management units.

4.4.4 Current Condition

A soil survey has been completed for all training lands. Land condition monitoring and soil rehabilitation are conducted by USARAK ITAM annually in areas that receive military training impacts.

4.4.5 Program Goals, Objectives, and Targets

Goals:

- No net loss in the capability of military installation lands to support the military mission of the installation.
- Maintain or improve water quality.

- Minimize erosion and sedimentation.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Conduct Topography Planning Level Survey	Survey, map and maintain installation-wide topographical data with elevation, elevation contours, and associated data consistent with U.S. Geological Survey (USGS) standards and topographic map products at a scale and resolution adequate for planning updated no less than every 10 years.	AR 200-1	Ongoing	USAG Alaska
Conduct Soils Planning Level Survey	Survey, map and maintain an installation-wide soils and permafrost survey that classifies, categorizes, describes, and maps soils by map unit, and meets current National Cooperative Soil Survey standards and procedures at a scale and resolution adequate for planning.	AR 200-1	Complete	USAG Alaska
Monitor Soils	Annually monitor soils in areas used for maneuver training to quantify damage resulting from military and recreational use. Analyze seasonal ground strength for maximizing training land use. Assess soil conditions for potential high-use maneuver locations.	Land Withdrawal LEIS, Transformation EIS ROD, AR 350-19	Ongoing	USARAK
Monitor Permafrost	Identify and monitor changes in permafrost throughout the installation. Conduct permafrost mapping, sensitivity analysis, and model development. Study the effect of fire on active layer thickness and permafrost degradation as it affects maneuver lands. Evaluate permafrost areas - develop specific actions for management and use of permafrost areas. Prevent off-road vehicle traffic in high permafrost areas during summer months when the ground is thawed.	Land Withdrawal LEIS, Transformation EIS ROD	Ongoing	USAG Alaska
Protect and Prevent Damage to Soils	Implement soils protection and damage prevention best management practices (BMPs) in post regulations and during military exercises. Continue use of resource protection area maps to protect vulnerable soils. Comply with training exercise regulations (USARAK Range Regulation 350-2).	Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19, USARAK Reg 350-2	Ongoing	USARAK
Enhance and Rehabilitate Soils	Rehabilitate maneuver trails and areas on a rotational basis. Implement a Training Area Recovery Plan. Continue to implement damage control.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	Ongoing	USARAK

4.4.6 Program Management Units

Program management units for soil resources management consist of major training areas on USAG Alaska lands, including Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids

Training Area,Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.5. Geology

4.5.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Geological Surveys*	*Seismicity of Continental Alaska, in Neotectonics of North America*	Geological Society of North America	One time	1991
	National Earthquake Information Center	US Geological Survey (USGS)	One time	1998
	Structural and Kinematic Evolution of the Yukon-Tanana Upland Tectonites, East Central Alaska, a Record of Late Paleozoic to Mesozoic Crustal Assembly	Geological Society of North America	One time	1998
	Determining Holocene and Late Pleistocene Slip Rates Along the Denali Fault Using Cosmogenic ^{10}Be analysis of Boulders on Displace Moraines	USGS	One time	2004

**Reports located in Building 3023, Fort Wainwright. Spatial data stored in USAG Alaska GIS.*

4.5.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
Transformation ROD	*Transformation of US Army Alaska EIS*	Current version found in USAG Alaska DPW Environmental	2004
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006

4.5.3 Program History

There has not been much geologic fieldwork on Fort Wainwright or Fort Greely since the lands were withdrawn in the 1950s. Most of the geologic research focused on the Alaska Range and Denali fault directly to the south of Donnelly Training Area. A small amount of seismic research was undertaken to support the siting of the bridge over the Tanana River near Salcha.

4.5.4 Current Condition

USAG Alaska is located within a large geological province known as the Yukon-Tanana terrane. This is a region of deformed and faulted metamorphic rocks of Paleozoic and possibly Precambrian age. The rocks have been intruded by plutons of Mesozoic and Cenozoic age and overlain by younger sedimentary formations of Tertiary and Quaternary age.

For many years the older metamorphic and igneous rocks in interior Alaska were known collectively as the Birch Creek Schist. However, this nomenclature is out of favor with the scientific and mineral industry. The Y-T terrane is now recognized as a complex assemblage of many rock types with a very complicated geologic history.

Moderate seismic activity occurs throughout the region. However, the earthquakes have not been linked to movement along known faults. They may be associated with block rotation between the Tintina and Denali faults.

4.5.5 Program Goals, Objectives, and Targets

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Maintain geological survey information	Include and upload geological survey information when updates are available.	AR 200-1	Ongoing	USAG Alaska

4.5.6 Program Management Units

Program management units for geological resources management consist of watersheds on USAG Alaska, including Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area (TFTA), Yukon Training Area (YTA), Donnelly Training Area (DTA), Gerstle River Training Area (GRTA), Black Rapids Training Area (BRTA), Whistler Creek Training Area (WCTA), Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.6 Water Resources

4.6.1 General Water Conservation

4.6.1.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Water Quality Monitoring	*Groundwater-Discharge Wetlands in the Tanana Flats, Interior Alaska*	US Army Corps of Engineers (USACE) CRREL	One Time	1991
	Energetics Residues from Alaska Training Ranges	USACE Engineer Research Development Center (ERDC) CRREL	One Time	2005
	ORAP Survey	EA Engineering Science	One Time	2012
	Quantification of trace metals in soils at the Colorado, Known Distance, and Georgia Small Arms Ranges on Donnelly Training Area East, Alaska	US Army Corps of Engineers ERDC CRREL	One Time	2013
Water Quality Monitoring	*Water sampling on US Army Garrison Fort Wainwright Training Lands*	US Army Corps of Engineers ERDC CRREL	One Time	2013
	Jarvis Creek Hydrologic Analysis with Preliminary Design Alternatives for Select Sites	SDSWCD	One Time	2015
	Water sampling and groundwater modeling in Donnelly Training Area East, Fort Greely Alaska	US Army Corps of Engineers ERDC CRREL	One Time	2015

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
	Impact Area Buffer Study for energetic compounds and trace metals, Fort Wainwright, Alaska	US Army Corps of Engineers ERDC CRREL	One Time	2016
Water Quality Enhancement	*Aufeis Formation in Jarvis Creek and Flood Mitigation*	US Army Corps of Engineers ERDC CRREL	One Time	2010
	Fort Greely Multi-Sector General Permit (MSGP) Storm Water Pollution Prevention Plan (SWPPP)	Travis/Peterson Environmental Consulting, Inc.	One Time	2015
	Mining and Reclamation Plan, Eastern Material Site	USAG Fort Greely	One Time	2016
	Mining and Reclamation Plan, Southern Material Site	USAG Fort Greely	One Time	2016
	Fort Greely Municipal Solid Waste Landfill, Unit 2 and C&D Cell Closure Plan	M2C1 Construction and Engineering	One Time	2019
	Fort Greely Inert Waste Monofilll Closure Plan	M2C1 Construction and Engineering	One Time	2019
Water Quality Decontamination	*PL106-65 2006 Decontamination Report to Congress*	US Army Garrison Alaska	Annual	2006
	Final Proposed Plan Soil and Groundwater Remediation Strategy for South Tank Farm	SMDC	One Time	2016
	BRAC Site 94 Remedial Investigation Report	SMDC	One Time	2016
	BRAC Site 94 Feasibility Study Report	SMDC	One Time	2016

4.6.1.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
Transformation ROD	*Transformation of US Army Alaska EIS*	Current version found in USAG Alaska DPW Environmental	2004
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013
AR 350-19	*Sustainable Range Program*	Current version found in USARAK Range Office	2016
USARAK Regulation 350-2	*US Army Alaska Range regulation*	Current version found in USARAK Range Office	2017

4.6.1.3 Program History

The source of spatial surface water distribution across the installation is USGS topographic maps. Colorado State University mapped all the lakes and ponds on Forts Wainwright and Greely in 2015 and Salcha Delta Soil and Water Conservation District mapped many of the streams. Surface and ground water sampling are conducted as part of the Army's Restoration program as required by CERCLA. Soil and water quality monitoring, as required by PL 106-65

and the Alaska Army Lands Withdrawal Legislative EIS, was conducted annually from 2001-2013. USAG Fort Greely created reclamation plans for borrow sites in 2016 and M2C1 provided landfill closure plans in 2019 to enhance water quality on Fort Greely. USAG Alaska maintains Multi-Sector General Permits for both Fort Greely and Fort Wainwright lands to enhance water quality.

4.6.1.4 Current Condition

Army-related industrial activity in Main Post has, to an unknown degree, contributed to groundwater pollution, generally associated with leaking underground storage tanks, facilities where chemicals were stored, and places where chemicals were dumped during the early history of the post. These areas are currently included in an intensive monitoring program. Pollution is generally localized, and there is no indication of deep groundwater pollution. The recent trend has been toward water quality improvement as Army restoration projects mitigate damage to groundwater quality. Practices that have led to groundwater contamination have been discontinued; for example, underground storage tanks have been removed and all petroleum, oils, and lubricants are now stored in above-ground tanks surrounded by containment berms.

Due to past contamination of localized areas, primarily within the Fort Wainwright Main Post area, USAG Alaska land area is classified as a Comprehensive Environmental Response, Compensation, and Liability "Superfund" site. Remediation is ongoing. Groundwater management consists of restoration projects associated with individual sources of pollution, generally associated with the "Superfund" designation.

The quality of surface water outside of the Main Post of Fort Wainwright has remained high throughout Army occupation. There has been no reason to suspect surface water a degradation of surface water beyond localized or temporary sedimentation. Limited water quality testing has occurred to accommodate other projects, and this limited data is available for baseline analysis.

4.6.1.5 Program Goals, Objectives, and Targets

Goal:

- Maintain or improve water quality.

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Conduct Surface Water Planning Level Survey	Survey, map, and maintain installation-wide surface water data that describes the distribution and extent of surface waters. Data collected is consistent with USGS standards at scale and resolution adequate for planning updated no less than every 10 years.	AR 200-1	Ongoing	USAG Alaska
Monitor Water Quality	Implement water quality sampling program. Continue and expand monitoring of groundwater resources. Expand the soil and water monitoring program to include all USARAK lands. Implement program to identify possible munitions contamination to soils, water, and permafrost. Monitor all sites to detect and correct future changes in drainage patterns.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD	Ongoing	USAG Alaska
Protect Water Quality	Comply with Conditional Fog Oil Permit from Alaska Department of Environmental	Land Withdrawal	Ongoing	USARAK

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
	Conservation (ADEC). Implement decontamination data collection system. Implement programs to track munitions usage. Modify current practices to reduce chance of firing high explosive munitions into active river channels. Prevent direct fire into lakes and ponds. Continue ice bridging permits. Prevent maneuver near lakes and ponds. Promote vegetated buffer zones between small arms range footprints and lakes and streams. Comply with training exercise regulations (USARAK Range Regulation 350-2).	LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, USARAK Reg 350-2		
Enhance Water Quality	Harden approaches to fords and ice bridges on anadromous creeks and rivers. Place new targets further away from open waterways.	Transformation EIS ROD	Ongoing	USARAK
Conduct Decontamination to Protect Water Quality	Maintain a program of decontamination of PL 106-65 lands consistent with applicable Federal and State law. Annually prepare and submit to the Committees on Appropriations, Armed Services, and Energy and Natural Resources of the Senate and the Committees on Appropriations, Armed Services, and Resources of the House of Representatives a description of the decontamination efforts during the previous fiscal year and the decontamination activities proposed to be undertaken on such lands during the next fiscal year. Each report shall specify the following: (A) amounts appropriated and obligated or expended for decontamination of such lands, (B) the methods used to decontaminate such lands, (C) the amounts and types of decontaminants removed from such lands, (D) the estimated types and amounts of residual contamination on such lands, and (E) an estimate of the costs for full decontamination of such lands and the estimate of the time to complete such decontamination.	PL 106-65	Ongoing	USAG Alaska

4.6.1.6 Program Management Units

Program management units for water resources consist of watersheds on USAG Alaska, including Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area (TFTA), Yukon Training Area (YTA), Donnelly Training Area (DTA), Gerstle River Training Area (GRTA), Black Rapids Training Area (BRTA), Whistler Creek Training Area (WCTA), Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.6.2 Wetland Resources

4.6.2.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
	Wetland Delineation at Fort Wainwright, Alaska	USACE Waterways Experiment Station	One Time	1998

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Wetlands Planning Level Survey	*Wetland Delineation at Fort Greely, Alaska*	USACE ERDC CRREL	One Time	2000
	Wetlands and Waterbodies Delineation Report, Range and Training Lands Feasibility Study for Tanana Flats and Donnelly Training Areas, Alaska	Colorado Data Scapes and HDR Alaska	One Time	2009
	Wetland Report for the Donnelly Training Area East (DTA East) Fort Wainwright, Alaska	CSU Center for Environmental Management of Military Lands (CEMML)	One Time	2012
	Wetland Delineation Report for the Yukon Training Area, Fort Wainwright, Alaska	CSU CEMML	One Time	2016
	Alaska Delineation of Wetlands and Waters of the U.S. Preliminary Jurisdictional Determination and Canister Lake Bathymetry Survey	SDSWCD	One Time	2016
	Wetland Delineation for Fort Wainwright Main Post	CSU CEMML	One Time	2017
Wetlands Regulatory Compliance	*Wetlands Assessment for Battle Area Complex and Combined Arms Collective Training Facility on Donnelly Training Area, Phases 1 and 2*	ABR, Inc.	One Time	2004
	Wetlands Assessment for the Battle Area Complex and Combined Arms Collective Training Facility on Donnelly Training Area: North Texas Range, Eddy and Donnelly Drop Zones	CSU CEMML	One Time	2005
	Wetland Delineation for Donnelly Drop Zone Expansion on Donnelly Training Area, Alaska	CSU CEMML	One Time	2007
	Wetland Delineation of the Husky Drop Zone, Fort Wainwright, Alaska	CSU CEMML	One Time	2009
	Multipurpose Machine Gun Range and Known Distance Range in the Small Arms Complex, Fort Wainwright, Alaska	CSU CEMML	One Time	2010
Wetlands Regulatory Compliance	*Wetland Report for the Molybdenum Ridge and Vicinity, Donnelly Training Area West, Fort Wainwright, Alaska*	CSU CEMML	One Time	2011
	North and South RLOD, Donnelly Training Area West, Fort Wainwright, Alaska	CSU CEMML	One Time	2011
	Donnelly Training Area West Trail Corridor Wetlands Delineation	CSU CEMML	One Time	2013
	Wetland, Archaeological and Raptor Study for Realistic Ordnance Delivery (RLOD) and Battle Area Complex (BAX) at Donnelly Training Area, Fort Wainwright, Alaska	CSU CEMML	One Time	2014
	Wetland, Archaeological and Raptor Study for Trail Network Upgrade in Tanana Flats Training Area, Fort Wainwright, Alaska	CSU CEMML	One Time	2015

4.6.2.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
Sikes Act	*Natural Resources Management on Military Lands*	Current version found in USAG Alaska DPW Environmental	2003
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
Transformation ROD	*Transformation of US Army Alaska EIS*	Current version found in USAG Alaska DPW Environmental	2004
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013
AR 350-19	*Sustainable Range Program*	Current version found in USARAK Range Office	2016
USARAK Regulation 350-2	*US Army Alaska Range Regulation*	Current version found in USARAK Range Office	2017

4.6.2.3 Program History

During the past two decades, three major wetland mapping efforts have been made to identify and classify wetlands and waterbodies on USAG Alaska lands. In 1992, the National Wetlands Inventory mapped portions of Fort Wainwright based on the presence of wetland vegetation interpreted from color-infrared photography; these maps are periodically updated by the National Wetlands Inventory using current aerial imagery. In 1998, the U.S. Army Corps of Engineers Waterways Experiment Station completed wetland mapping for a portion of the installation that included a review of existing information, wetland identification and characterization, base map, and final report. In 2008 – 2019, the Center for Environmental Management of Military Lands produced wetland surveys based on a review of existing information (e.g., National Wetlands Inventory maps, NRCS soil surveys) and field surveys that identify waters of the U.S. as small as 0.1 acre. USAG Alaska currently uses Center for Environmental Management of Military Lands' map for management, planning, and permitting purposes. Datascapes and HDR created a wetland and waterbody survey of Fort Greely in 2009 and Salcha Delta Soil and Water Conservation District conducted a wetland delineation of Fort Greely and Canister Lake in 2016.

The 1992, National Wetlands Inventory mapping effort produced a wetland survey that covered Main Post, and approximately 18% of the Tanana Flats Training Area, 50% of Yukon Training Area, and 33% of Donnelly Training Area. The NWI was a photogrammetric exercise based on available low-resolution imagery and very few ground-truth points on Fort Wainwright.

The U.S. Army Corps of Engineers Waterways Experiment Station completed large scale, low resolution wetland mapping of Main Post, Tanana Flats Training Area and Yukon Training Area in 1998 and Donnelly Training Area in 2000 based on ABR Inc.'s Ecological Land Classification (Jorgenson et al. 1999). The project consisted of wetland identification and characterization based on a review of existing information and no ground truth. While this mapping was used for general planning purposes, the US Army Corps of Engineers Regulatory has not accepted this data as a base layer for regulatory wetland delineation purposes.

HDR Alaska and Colorado Datascapes mapped wetlands and waterbodies in a 7,236-acre parcel near Blair Lakes (approximately 1% of the entire Tanana Flats Training Area) in 2009.

The Center for Environmental Management of Military Lands produced wetland maps for Main Post (2008-2019), Yukon Training Area (2009-2019), and Donnelly Training Area (2010-2019) based on field surveys and National Wetlands Inventory maps and NRCS soil surveys.

4.6.2.4 Current Condition

USAG Alaska's wetland and waterbody management program facilitates compliance with Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbor Act, and other environmental regulations. Wetland and waterbody management on Fort Wainwright lands is implemented on the primacy that conduct of the military mission must comply with applicable laws and should not result in long-term damage to the environment. Training and testing that incorporates environmental stewardship make this possible and allow for the maintenance of a quality military training and testing environment, as well as protection of sensitive habitats, such as wetlands.

There are over 1 million acres of wetlands located across all major training areas on USAG Alaska lands. Military operations have minimal impact on wetlands in most watersheds. The most impacted wetlands are located on Main Post. USAG Alaska actively manages wetlands through the USACE Alaska Regulatory permit process.

4.6.2.5 Program Goals, Objectives, and Targets

Goals:

- Ensure that USAG Alaska, USARAK, tenant organizations, and Missile Defense are in compliance with all applicable federal and state laws and regulations regarding wetlands.
- Provide wetland areas for realistic military training while maintaining ecosystem integrity and minimizing impacts to wetlands.
- Promote early coordination between installation staff and DPW Environmental to prevent adverse impacts to wetlands.
- Provide a customer-friendly process to initiate wetland permits for military exercises or construction.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Conduct Wetlands Planning Level Surveys	Survey, map, and maintain installation-wide wetlands data that describes the distribution and extent of wetlands. Develop and maintain USAG Alaska wetlands information database.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 200-1	Ongoing	USAG Alaska
Comply with Wetlands Regulatory Requirements	Delineate wetlands to support Clean Water Act Section 404 permitting for construction activities and military training exercises. Continue functional assessment of wetlands to support Clean Water Act Permitting. Obtain Clean Water Act Section 404 permits and/or Rivers and Harbors Act Section 10 permits for	Clean Water Act, Transformation EIS ROD	Ongoing	USAG Alaska

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
	activities that fill wetlands. Implement additional wetlands mitigation on a case-by-case basis.			
Protect and Prevent Damage to Wetlands	Continue damage control measures as listed in USARAK Regulation 350-2. Continue use of resource protection area maps to protect wetlands. Annually monitor wetlands in areas used for maneuver training to quantify damage resulting from military and recreational use. Conduct a detailed study to assess impacts of recreational vehicles to sensitive wetlands and vegetation.	Sikes Act, Transformation EIS ROD, BAX CACTF EIS ROD, USARAK Regulation 350-2	Ongoing	USAG Alaska, USARAK TSA AK
Enhance and Restore Wetlands	Provide for wetland enhancement and restoration where necessary for support of fish, wildlife, or plants.	Sikes Act	Ongoing	USAG Alaska

4.6.2.6 Program Management Units

Program management units for wetland resources consist of watersheds on USAG Alaska lands, including Fort Wainwright Main Post, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station. As required by US Army Corps of Engineers Regulatory Division, sixth-order watersheds are used for wetlands delineation and permitting purposes.

4.6.3 Floodplains

4.6.3.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Floodplain management	*Delta River Floodplain Assessment*	USDA NRCS	One Time	2005
	Aufeis Formation in Jarvis Creek and Flood Mitigation	US Army Corps of Engineers ERDC CRREL	One Time	2010

4.6.3.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
BAX/CACTF ROD	Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS	Current version found in USAG Alaska DPW Environmental	2006

4.6.3.3 Program History

The Federal Emergency Management Agency (FEMA) established 100-year, 500-year and outside of 500 year floodplain boundaries surrounding Fairbanks, including Main Post, Tanana Flats Training Area, and Yukon Training Area. Main Post and the upper northwest portion of

the Yukon Training Area rely on the Chena Flood Control Project for flood protection. Floodplain boundaries have not been developed for Fort Greely and Donnelly Training Area. It is known that the east bank of the Delta River is much higher than the west bank, which significantly reduces the flooding potential of the Delta River toward Fort Greely or Delta Junction.

Jarvis Creek, located on Donnelly Training Area East, can occasionally flood, causing problems to Fort Greely and the Battle Area Complex. This flooding can occur in the spring when a build-up of aufeis in Jarvis Creek approximately 14 miles upstream of the confluence of Jarvis Creek and the Delta River diverts flow down an abandoned stream channel through the Battle Area Complex. USAG Alaska funded the US Army Corps of Engineers Cold Region Research and Engineering Laboratory to research flooding and provide recommendations on how to control flooding.

4.6.3.4 Current Condition

USAG Alaska continues to update floodplain information from FEMA and add it to the GIS database when it becomes available. USAG Alaska and USARAK TSA-AK continue to monitor Jarvis Creek and the weather conditions that cause aufeis to form in the channel for potential flooding.

4.6.3.5 Program Goals, Objectives, and Targets

Goals:

- Ensure that USAG Alaska, USARAK, and Missile Defense are in compliance with all applicable federal and state laws and regulations regarding floodplains.
- Promote early coordination between installation staff and DPW Environmental to prevent adverse impacts to floodplains.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Floodplain Surveys	Survey, map and maintain installation-wide floodplain data that describes the distribution and extent of wetlands.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 200-1	Ongoing	USAG Alaska
Floodplain Monitoring	Monitor weather conditions and Jarvis Creek for indications of aufeis buildup that may lead to flooding.	Clean Water Act, BAX CACTF EIS ROD	Ongoing	USAG Alaska

4.6.3.6 Program Management Units

Program management units for floodplains consist of watersheds on USAG Alaska, including Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.7 Sensitive Species

4.7.1 Threatened and Endangered Species

There are no federally listed threatened or endangered (T&E) species that have been found on Fort Wainwright or Fort Greely lands.

4.7.2 Species at Risk

4.7.2.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
T&E and Rare Plant Survey	*A Floristic Inventory of Fort Wainwright Military Installation, Alaska*	Alaska Natural Heritage Program for US Army CRREL	One Time	1996
T&E and Rare Plant Survey	*An Inventory of the Vascular Flora of Fort Greely, Interior Alaska. 2001*	US Army CRREL	One Time	2001
Rusty Blackbird Observation Data	*An Avian Habitat Assessment for the Koole Lake Region, Donnelly Training Area West, Alaska (09-23)*	CEMML CSU	One Time	2011
	2011 Olive-sided Flycatcher Surveys on the Tanana Flats Training Area	CEMML CSU	One Time	2012
	Distributions of Landbirds on the Tanana Flats and Yukon Training Areas	CEMML CSU	One Time	2011
	Estimating the Abundance of Rusty Blackbirds in Relation to Wetland Habitats in Alaska	US Geological Survey (USGS)	One Time	2010
	Migratory Bird Habitat Mapping and Enhancement Study: Fort Wainwright, Alaska	CEMML CSU	One Time	2015
	Neotropical Bird Habitat Assessment, Fort Wainwright, Alaska	CEMML CSU	One Time	2018
	Neotropical Bird Habitat Assessment, Donnelly Training Area, Alaska	CEMML CSU	One Time	2019

4.7.2.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
Endangered Species Act	*Endangered Species Act of 1973, as amended*	Current version found in USAG Alaska DPW Environmental	1973
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.7.2.3 Program History

There are no federally listed threatened or endangered flora and fauna species known to occur on USAG Alaska lands, and therefore no species-specific T&E surveys have been conducted.

Vegetative species at risk are recorded during other surveys, such as flora planning level surveys, vegetative community surveys, and Range and Training Land Assessment (RTLA) surveys. Fauna species at risk are recorded during other surveys, such as fauna planning level surveys, avian surveys, and non-game surveys. The only Army Species at Risk is the rusty blackbird. Rusty blackbird data has been collected on USAG Alaska lands.

4.7.2.4 Current Condition

Vegetative threatened, endangered, and rare species surveys were originally compiled in the 1990s. The inventory list is updated when previously unidentified species are found during other plant surveys. USAG Alaska annually reviews the Alaska Center for Conservation Science, *Rare Vascular Plant List* (2018), to identify species of interest. USAG Alaska will continue to monitor for rusty black birds, analyze proposed actions for effects on rusty black birds, and consult with ADFG and USFWS regarding species status and habitat considerations for species at risk.

4.7.2.5 Program Goals, Objectives, and Targets

Goals:

- Protect species at risk that occur on Fort Wainwright lands.
- Manage and protect species at risk to preclude listing.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Conduct Species at Risk Surveys	Maintain an installation-wide species at risk survey that maps and shows the occurrence, habitat distribution, and habitat management areas of species at risk occurring on the installation updated no less than every 5 years. Continue monitoring information regarding candidate, threatened, and endangered species published from USFWS. Incorporate species at risk surveys into other surveys.	AR 200-1, Endangered Species Act, Land Withdrawal LEIS, BAX CACTF EIS ROD	Ongoing	USAG Alaska
Inventory and Monitoring	Gather data to prevent listing of species at risk.	AR 200-1	Ongoing	USAG Alaska

4.7.2.6 Program Management Units

Program management units for species at risk consist of individual training areas on USAG Alaska lands which include Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.8 Migratory Birds

4.8.1 MBTA Covered Species

4.8.1.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Migratory Bird Monitoring	*Distribution of Landbirds among Habitats on the Tanana Flats and Yukon Maneuver Area 1998*	Alaska Bird Observatory	One time	1999
	Habitat Selection and Densities of Passerines Breeding in Interior Alaska	Alaska Bird Observatory	One Time	2004
Migratory Bird Monitoring	*The Trumpeter Swan, Cygnus bucinnator: A Review of USAG-AK Aerial Survey Results and Monitoring Recommendations*	CSU CEMML	One Time	2006
	Winter Owl Survey Report, Yukon Training Area, Alaska	CEMML CSU	One Time	2007
	2009 FWA Waterfowl Productivity: Technical Report	CEMML CSU	One Time	2009
	Osprey, Pandion haliaetus, Monitoring Report, Fort Wainwright, Alaska	CEMML CSU	One Time	2011
	2011 Duck Box Project	CEMML CSU	One Time	2011
	2011 Olive-sided Flycatcher Surveys on the Tanana Flats Training Area, Fort Wainwright, Alaska	CEMML CSU	One Time	2012
	Distributions of Landbirds on the Tanana Flats and Yukon Training Area Multi-Year Technical Report, Fort Wainwright, Alaska	CEMML CSU	One Time	2012
	2014 Fauna Planning Level Survey for Avian Species and Distribution on Fort Wainwright, Alaska	CEMML CSU	One Time	2014
	Monitoring of Subalpine Whimbrels on Donnelly Training Area, Fort Wainwright, Alaska	CEMML CSU	One Time	2014
	Small Game Monitoring	CEMML CSU	One Time	2016
	Delta Junction Sandhill Crane Migration Survey Report	CEMML CSU	One Time	2015
	Mew Gull Monitoring	CEMML CSU	One Time	2018
	Mitigation of Migratory Bird Flight Risk Study	CEMML CSU	One Time	2018
	Whimbrel Surveys and Nest Survival, Fort Wainwright, Alaska	CEMML CSU	One Time	2019
	Fauna Planning Level Survey for Avian Species and Distribution on Fort Wainwright, Alaska	CEMML CSU	One Time	2018
Migratory Bird Population Management	*Fort Wainwright Grebe Productivity Report*	CEMML CSU	One Time	2009
	Alaska productivity surveys of geese, swans, and brant	USFWS	One Time	2009
	2009 Tanana Flats Training Area Trumpeter Swan, Cygnus buccinator, Nest and Brood Surveys Report	CEMML CSU	One Time	2012
Migratory Bird Habitat Management	*Duck Box Project Report Fort Wainwright and Donnelly Training Area, Alaska*	CEMML CSU	One Time	2006
	Boreal Owl, Aegolius funereus, Box Project Report, Fort Wainwright, Alaska	CEMML CSU	One Time	2007

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
	FWA Duck Box Project: Indicated Breeding Pair and Brood Report, Fort Wainwright, Alaska	CEMML CSU	One Time	2011
	An Avian Habitat Assessment for the Koole Lake Region, Donnelly Training Area West, Alaska	CEMML CSU	One Time	2011
	Migratory Bird Habitat Mapping and Enhancement Study: Fort Wainwright, Alaska	CEMML CSU	One Time	2015
	Mew Gull Study	CEMML CSU	One Time	2018
	Fauna Planning Level Surveys of Shorebirds in Donnelly Training Area, Fort Wainwright, Alaska	CEMML CSU	One Time	2018
	Neotropical Bird Habitat Assessment, Fort Wainwright, Alaska	CEMML CSU	One Time	2018
	Sandhill Crane Monitoring Study	CEMML CSU	One Time	2018
	Neotropical Bird Habitat Assessment, Donnelly Training Area, Alaska	CEMML CSU	One Time	2019
	Migratory Bird Habitat Mapping and Enhancement Study: Fort Wainwright, Alaska	CEMML CSU	One Time	2015

4.8.1.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
16 U.S.C. §703 *et. seq.*	*Migratory Bird Treaty Act, as amended*	Current version found in USAG Alaska DPW Environmental	1998
16 U.S.C. §670a-f	*Sikes Act, as amended*	Current version found in USAG Alaska DPW Environmental	2012
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
16 U.S.C. §718a-j	*Migratory Bird Hunting and Conservation Stamp Act*	Current version found in USAG Alaska DPW Environmental	1934
DoDI 4715.03	*Conservation Program for Natural Resources, March 18, 2011*	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.8.1.3 Program History

Fort Wainwright acknowledges migratory birds that fall under the U.S. Fish and Wildlife Service's sensitive species, priority species recognized in the ADFG Wildlife Action Plan (2015), and species of concern identified by the Alaska Raptor Group, Alaska Boreal Partners in Flight, and the Alaska Shorebird Group (2019). As these species' habitat use changes over time, Fort Wainwright adapts to these changes by implementing best management practices to conserve habitat for these species. This involves working with biologists within the agencies and groups mentioned to ensure important habitats remain in concert with the training mission but are not bound to habitat conservation in habitats altered by climate change.

A number of migratory bird surveys have been conducted to identify species and their habitats. Anderson et al. (1998) used point count methodology to conduct landbird surveys in 1998 on Fort Greely and Donnelly Training Area. Nine of ten birds listed as priority species by the Western Working Group, Partners in Flight (1998) were found. These surveys were part of an avian planning level survey and were conducted to develop Geographic Information System databases, bird-habitat models, and status reports. A follow-up survey was conducted in 2003 by the Alaska Bird Observatory to better define habitat selection of landbirds, particularly for previously documented species of concern, (Benson 1999). They collected information on the distribution of landbirds in various habitat types using the Ecological Land Classification for the Yukon Training Area and Tanana Flats Training Area. Additional landbird targeted projects included surveys of all songbird and shorebird species between 2015 and 2019 describing habitat use of the species identified as Landbirds of Concern by the Alaska Boreal Partners in Flight (Landbird Conservation Plan for Alaska Biogeographic Regions version 1.0) and shorebird species of Greatest and High Conservation Concern (Alaska Shorebird Conservation Plan 2019).

USAG Alaska has conducted aerial trumpeter swan brood surveys on Donnelly Training Area. Results suggest swans are increasing their range and use of Donnelly Training Area lakes for nesting. The U.S. Fish and Wildlife Service began conducting statewide trumpeter swan surveys in the 1960s but did not include Donnelly Training Area because habitat was considered marginal. A U.S. Fish and Wildlife Service survey did include some portions of Donnelly Training Area in 1995, but in 2000, swan surveys were taken over by USAG Alaska. Aerial brood surveys were conducted on Donnelly Training Area in 2001 and 2003 and as many as 60 swans were observed. All but one brood was located on Donnelly Training Area West. A survey for trumpeter swans in 2001 found 56 swans on the installation, including 26 cygnets. Trumpeter swan surveys conducted by USFWS in 1990, 1995, and 2000 covered parts of Donnelly Training Area including kettle lakes in the southwest portion of the Donnelly Training Area West and along the Delta River.

During migration periods, more than 300,000 cranes and 20,000 geese, ducks, and swans pass through the Delta Junction/Fort Greely area. The quality of Donnelly Training Area wetlands could make significant contribution to their importance to fall-staging waterfowl. In spring and fall, the majority of the migrating sandhill cranes (*Grus canadensis)* pass through Donnelly Training Area between 27 April and 15 May and between 1 and 30 September.

Raptors are increasingly becoming a priority for inventory and monitoring (Smith et al. 2018, Welsh et al. 2019). Owl surveys have been initiated along various routes on Fort Wainwright. The Birch Hill Boreal Owl nest box project was reinstated on main post Fort Wainwright and Donnelly Training Area during the spring 2006.

Additional bird surveys conducted annually on Donnelly Training Area (2000 – 2019) and Yukon Training Area (1982 – 2019) by USAG Alaska and Alaska Department of Fish and Game personnel include a Breeding Bird Survey route, ruffed grouse drumming surveys and sharp-tailed grouse lek surveys. In 2006 and 2007, plots to monitor long-term trends in Alaska landbird populations were established. These plots follow the Alaska Landbird Monitoring Survey (ALMS) Protocols designed by Boreal Partners in Flight.

4.8.1.4 Current Condition

USAG Alaska continues to monitor breeding bird populations. Sandhill cranes are monitored to minimize disturbance due to military training in the fall. Sandhill crane resting areas are an important management concern. USAG Alaska monitors a whimbrel nesting colony in Donnelly Training Area and ALMS and breeding bird annual surveys. USAG Alaska

recommends all vegetation clearing follows USFWS Region 7 guidelines to avoid disturbing migratory bird nests. Swans are monitored by USFWS. Grouse lekking and brood counts are monitored by the Alaska Department of Fish and Game.

4.8.1.5 Program Goals, Objectives, and Targets

Goals:

- Maintain an inventory of migratory birds and conduct monitoring to update the inventory.
- Work cooperatively with USFWS and ADFG to manage migratory bird populations.
- Manage and protect migratory bird habitat.
- Maintain Migratory Bird Treaty Act (MBTA) compliance.
- Monitor cranes to minimize conflicts and safety concerns with military training.
- Maintain important swan nesting habitat.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Inventory and Monitoring	Conduct bird surveys and identify habitat for neotropical migrants.	Land Withdrawal LEIS	Ongoing	USAG Alaska
	Conduct Sandhill Crane monitoring during fall migration periods.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
Population Management	The INRMP shall provide for migratory bird management.	Sikes Act	Ongoing	USAG Alaska
	Determine noise impacts to key species.	Land Withdrawal LEIS	Not started	USAG Alaska
	Continue to monitor effects of military training on cranes and whimbrels during vital seasons.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
Habitat Management and Protection	The INRMP shall provide for migratory bird habitat enhancement or modification.	Sikes Act	Ongoing	USAG Alaska
	INRMP shall provide for wetland protection, enhancement, and restoration where necessary for support of migratory birds.	Sikes Act	Ongoing	USAG Alaska
Regulatory Compliance	Continue compliance with federal and state laws and regulations relating to migratory bird conservation or management.	MBTA, Bald and Golden Eagle Protection Act (BGEPA), Sikes Act	Ongoing	USAG Alaska

4.8.1.6 Program Management Units

Program management units for migratory birds consist of individual training areas within USAG Alaska lands including Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.8.2 Bald and Golden Eagle Protection Act Species

4.8.2.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
BGEPA Monitoring	*Tanana Flats Training Area Raptor Nest Inventory Report, Fort Wainwright, Alaska*	CEMML CSU	One Time	2011
	A Review of Historical Raptor Studies for Interior Alaska, with emphasis on the Tanana Flats, and Recommendations for Future Work	CEMML CSU	One Time	2013
	Raptor Survey Report: Fort Wainwright, Alaska	CEMML CSU	One Time	2016
	Fauna Planning Level Survey Study	CEMML CSU	One Time	2018
	Wildlife Surveys on Fort Wainwright Training Lands, Alaska	ABR	One Time	2019

4.8.2.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
16 U.S.C. §§668-668d	*Bald and Golden Eagle Protection Act*	Current version found in USAG Alaska DPW Environmental	1972
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
BAX/CACTF ROD	Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS	Current version found in USAG Alaska DPW Environmental	2006
16 U.S.C. §670a-f	*Sikes Act, as amended*	Current version found in USAG Alaska DPW Environmental	2012
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017

4.8.2.3 Program History

A number of bald and golden eagle surveys have been conducted in conjunction with raptor surveys across USAG Alaska lands. A survey of cliff and tree nesting raptors on Fort Wainwright was conducted in 1998 by ABR, Inc. (Anderson et al. 1998). This survey evaluated areas on Tanana Flats Training Area and Yukon Training Area, particularly on the Chena and Tanana rivers. A pre-leaf-out (mid-May) aerial survey was used to identify and map large stick nests constructed by bald eagles (*Haliaeetus leucocephalus*). This project located and mapped active and inactive nest structures for bald and golden eagles and collected incidental information on other cliff-nesting (e.g., gyrfalcon (*Falco rusticolus*) and tree-nesting (e.g., northern goshawk (*Accipiter gentilis*) and great grey owl (*Strix nebulosa*)) species. The golden eagle is the most commonly occurring cliff-nester in the study area, and three golden eagle nests were found. Unoccupied golden eagle nests were observed near Molybdenum Ridge and on Ptarmigan Creek. Golden Eagle nests have been identified in the Whistler Creek Training Area and immediately north of the Black Rapids Training Area.

4.8.2.4 Current Condition

Bald eagles are abundant on USAG Alaska lands. Golden eagles are known to occur in areas of the installation that do not receive frequent impacts from military operations. Thirteen Golden Eagle and 22 Bald Eagle nests were located on USAG Alaska lands in 2018, of which 3 Golden Eagle and 13 Bald Eagle nests were occupied.

4.8.2.5 Program Goals, Objectives, and Targets

Goals:

- Maintain Bald and Golden Eagle Protection Act (BGEPA) regulatory compliance.
- Maintain an inventory of Bald and Golden Eagle nests and conduct monitoring to update the inventory every 5 years.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Population Management	The INRMP shall provide for eagle management.	Sikes Act	Ongoing	USAG Alaska
	Determine noise impacts to bald and golden eagle species.	Land Withdrawal LEIS	Not started	USAG Alaska
	Continue to monitor effects of military training on bald and golden eagles during vital seasons.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
Habitat Management and Protection	The INRMP shall provide for eagle habitat enhancement or modification.	Sikes Act	Ongoing	USAG Alaska
	INRMP shall provide for wetland protection, enhancement, and restoration where necessary for support of eagles.	Sikes Act	Ongoing	USAG Alaska
Regulatory Compliance	Continue compliance with federal and state laws and regulations relating to eagle conservation or management.	MBTA, BGEPA, Sikes Act	Ongoing	USAG Alaska

4.8.2.6 Program Management Units

Program management units for bald an golden eagles consist of individual training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.9 Fish and Wildlife

4.9.1 Recreation

4.9.1.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Harvest Data Collection	*iSportsman USARTRAK Annual Harvest Data*	iSportsman USARTRAK	Annual	2018

4.9.1.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
16 U.S.C. §670a-f	*Sikes Act, as amended*	Current version found in USAG Alaska DPW Environmental	2012
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013
USAG Alaska Plan	*Fort Greely Outdoor Recreation Plan*	Current version found in USAG Alaska Fort Greely DPW Environmental	2019
USAG Alaska Regulation 190-13	*Enforcement of Hunting, Trapping and Fishing on Army Lands in Alaska*	Current version found in USAG Alaska DPW Environmental	2009

4.9.1.3 Program History

Recreation management has a long legacy on USAG Alaska lands. Hunting, fishing, and trapping on USAG Alaska lands are regulated by both the State of Alaska, through its hunting and trapping regulations and the federal government through Army-wide and installation specific regulations. The ADFG issues various regulations for fisherman, hunters, and trappers in Alaska. Army Regulation 200-1, and USAG Alaska Regulation 190-13 (*Enforcement of Hunting, Trapping, and Fishing on Army Lands in Alaska*) and the ADFG annual Hunting and Fishing Regulations are the primary means of establishing controls on fishing, hunting, and trapping as well as other natural resources-related activities on USAG Alaska lands. USAG Alaska Regulation 190-13 pertains to hunting, trapping, fishing, and off-road recreational vehicle use on Fort Wainwright lands. The USAG Alaska recreation supplements (updated at least every two years) condense these regulations into a user-friendly format and are distributed to the public.

Pursuant to 16 USC 670a-f and Army Regulation 200-1, USAG Alaska is authorized to collect, spend, and administer fees for hunting, fishing, or trapping on USAG Alaska lands. Army funding policies make it almost impossible to fund hunting and fishing programs unless a fee system is installed. Due to several factors, USAG Alaska has not historically charged for hunting, trapping, or fishing permits but may be charging fees upon implementation of this INRMP update. Almost all military installations issue permits for hunting, fishing, and trapping, but most are charging a fee for those permits. Joint Base Elmendorf Richardson currently charges $125 per moose permit and USAG Alaska is considering charging a similar fee.

Funds collected for hunting, trapping, or fishing fees pursuant to the Sikes Act (account 21X5095) may be used only to defray the costs of fish and wildlife management programs. The quality of hunting and fishing opportunities are usually in direct relationship with the effort expended for habitat protection and improvement and will receive primary emphasis when developing annual work plans to implement the fish and wildlife management program. Funds collected for hunting and fishing permits will not be used for construction of recreational structures (for example, blinds, deer stands, fishing piers, and so on) or for transportation of hunters to designated stations, unless the only means of participation is by escorted transportation required to reach the hunting and/or fishing areas. Such facilities are primarily

for recreational use and therefore should be funded from the installation Morale, Welfare, and Recreation (MWR) account.

Pursuant to Army Regulation 215-1, USAG Alaska special hunting programs may operate with MWR oversight and conduct game harvest procedures and objectives in accordance with the INRMP and applicable state or federal policies. All hunters on army property must have completed a hunter safety course or equivalent, as required by Army Regulation (AR) 350-19, and possess a state hunting license prior to issuance of an installation hunting permit.

4.9.1.4 Current Condition

Training areas on USAG Alaska lands are open to fishing, hunting, and trapping when the training areas are not being used for military training. Hunters, trappers, and fishermen must follow state regulations and USAG Alaska Regulation190-13. USAG Alaska currently uses iSportsman to manage recreational access onto its lands.

4.9.1.5 Program Goals, Objectives, and Targets

Goals:

- Provide for sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources.
- Provide high quality, sustainable hunting, trapping, and fishing opportunities to Soldiers, civilians, and the public.
- Consider implementation of hunting, trapping, and fishing fees to make the program self-sustainable.
- Increase hunting, trapping, and fishing opportunities for disabled veterans.
- Support ADFG population goals on USAG Alaska lands.
- Provide professional enforcement of natural resources related laws.
- Provide for the same fee schedule for all participants, except for senior citizens, children, and the handicapped. Membership in any installation club or organization will not give members priority in participating in hunting, fishing programs, or other consumptive and non-consumptive outdoor recreation opportunities.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Manage hunting, trapping and fishing	Implement hunting, trapping, and fishing fees on USAG Alaska lands.	Sikes Act, AR 200-1, USAG Alaska Reg 190-13	Ongoing	USAG Alaska
	Sell hunting, trapping, and fishing permits online through USAG Alaska iSportsman.	Sikes Act, AR 200-1, USAG Alaska Reg 190-13	Ongoing	USAG Alaska
	Implement disabled veteran hunting program.	Sikes Act, AR 200-1, USAG Alaska Reg 190-13	Ongoing	USAG Alaska
	Continue to work with ADFG to provide hunter education safety courses.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
	Work with ADFG to support stocked lake program brochures, signs and improvements.	BAX CACTF EIS ROD	Ongoing	USAG Alaska

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
	Maintain fishing opportunities for public.	Land Withdrawal LEIS	Ongoing	USAG Alaska

4.9.1.6 Program Management Units

Program management units for recreation consist of individual training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.9.2 Fisheries Management

4.9.2.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Inventory and Monitoring	*Northern Rail Extension EIS, Fisheries and Hydrology Data Deliverable*	Prepared by ENTRIX, Inc for Surface Transportation Board, Section of Environmental Analysis	One Time	2007
	Identification and inventory of anadromous and resident fish species in tributaries to the Tanana River between Nenana and Delta Junction, Alaska	USFWS, Fairbanks Field Office	One Time	2012
	Documenting Anadromous Headwaters in the Tanana Flats of Interior Alaska, in Response to Proposed Road Development	CEMML CSU	One Time	2014
	Tanana Flats Training Area King Salmon Habitat Study	CEMML CSU	One Time	2018

4.9.2.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
16 U.S.C. §670a-f	*Sikes Act, as amended*	Current version found in USAG Alaska DPW Environmental	2012
16 U.S.C. ch. 38 §1801 et. seq.	*Magnuson-Stevens Fishery Conservation and Management Act*	Current version found in USAG Alaska DPW Environmental	2007
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
State of Alaska Fishing Regulations	2019 -2020 Alaska Fishing Regulations	Current version found in USAG Alaska DPW Environmental	2019
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.9.2.3 Program History

USAG Alaska works with National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service to enhance smart development that minimizes environmental impacts to Essential Fish Habitat (EFH). USAG Alaska must consult with NOAA Fisheries regarding any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken that may adversely affect EFH as mandated by the Magnuson-Stevens Fishery Conservation and Management Act and other legislation.

In 2008 and 2009, Hander and Legere (2012) conducted an inventory of anadromous and resident fish species for several waterways in the Tanana Flats: Clear Creek, Willow Creek, and Wood River. This work resulted in Clear Creek being nominated to the state *Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes.* Other anadromous waters in the Tanana Flats Training Area include 5-mile Clear Creek and portions of Bear and McDonald Creeks. Portions of the Yukon Training Area have also been surveyed to include the Chena River and Moose Creek drainages.

Baseline planning level surveys for fish have now been conducted on most of Fort Greely and Donnelly Training Area. Work on Donnelly Training Area included streams flowing from the Oklahoma and Delta River impact areas, and streams flowing into Jarvis and Ober creeks which will meet mitigation requirements set forth in the Land Withdrawal Legislative Environmental Impact Statement (U.S. Army Alaska and Colorado State University 1999). These surveys determined which fish species use the various waterways that course through Donnelly Training Area. Fish survey information can be found on the ADFG website at http://www.adfg.alaska.gov/index.cfm?adfg=ffinventory.interactive.

Depending on fish availability, the Alaska Department of Fish and Game stocks Fort Wainwright according to the Statewide Stocking Plan for Recreational Fisheries (ADFG 2019). Alaska Department of Fish and Game has utilized lakes on Donnelly Training Area that are suitable for fish stocking for many years. Donnelly Training Area has numerous lakes that provide opportunities for recreational fishing.

Fish stocking is an important aspect of fisheries management in Alaska, since fishing opportunities in some areas would be very limited without stocking. According to the ADFG's Statewide Stocking Plan (ADFG 2019), stocking diverts angling pressure away from sensitive native stocks while maintaining fishing opportunities. Fish stocking directly supports quality of life for the Delta-Greely community.

ADFG stocks several lakes on Fort Wainwright Training Areas under the Statewide Stocking Plan, which is updated annually. Stocking information for lakes on USAG Alaska lands can be found at http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportLakeData.main.

4.9.2.4 Current Condition

Most of the rivers and lakes in the training areas have been surveyed (see ADFG web site for information). Chena River, Tanana River, Moose Creek, McDonald Creek, Bear Creek, 5 Mile Clear Creek, and Clear Creek have been identified to have spawning anadromous salmon.

4.9.2.5 Program Goals, Objectives, and Targets

Goals:

- Maintain an inventory of fish species and conduct monitoring to update the inventory.
- Work cooperatively with and ADFG and USFWS to manage fisheries populations.
- Manage and protect fisheries habitat.

- Maintain fisheries regulatory compliance.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Inventory and Monitoring	Monitor stocked lakes.	Land Withdrawal LEIS	Ongoing	USAG Alaska
	Maintain an inventory of fish species occurring on Fort Wainwright lands.	AR 200-1	Ongoing	USAG Alaska
Population Management	INRMP shall provide for fisheries management in accord with Board of Fisheries regulations.	Sikes Act	Ongoing	USAG Alaska
Habitat Management and Protection	INRMP shall provide for wetland protection, enhancement, and restoration where necessary for support of fish.	Sikes Act	Ongoing	USAG Alaska
	The INRMP shall provide for fish habitat enhancement or modifications	Sikes Act	Ongoing	USAG Alaska
Regulatory Compliance	Continue compliance with federal and state laws and regulations relating to fish conservation or management.	BAX CACTF EIS ROD	Ongoing	USAG Alaska

4.9.2.6 Program Management Units

Program management units for fisheries management consist of major drainages within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.9.3 Game Management

4.9.3.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Inventory and Monitoring	*Donnelly Training Area Caribou, Ranger tarandus, USAG-AK Surveys 2004-2005, and Management Recommendations*	CSU CEMML/ADFG	Annual	2005
	Results of Alaska Department of Fish and Game Wildlife Surveillance Activities in Game Management Unit 20D Supporting US Army Garrison Alaska's Integrated Natural Resources Management Plan	ADFG	One Time	2005
	Units 20A, 20B, 20C, and 20F black bear management report. Pages 223-237 in C. Brown, editor. Black bear management report of survey and inventory activities 1 July 2001-30 June 2004	ADFG	One Time	2005
	Units 20ABC&F and 25C brown bear management report. Pages 203 - 218 in C. Brown, editor. Brown bear management report of survey and inventory activities 1 July 2002-30 June 2004	ADFG	One Time	2005
	The Delta Bison Herd: A Short History, USAG-AK Calving Surveys and Management Recommendations	CSU CEMML/ADFG	Annual	2006
	Units 20B, 20C, 20D, 20E, and 25C Caribou management report of survey	ADFG	Annual	2009

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
	and inventory activities 1 July 2006-30 June 2008			
	Units 20A, 20B, 20C, 20F, and 25C Wolf. Pages 162-173 in P. Harper, editor. Wolf management report of survey and inventory activities 1 July 2005-30 June 2008	ADFG	One Time	2009
	FWA Moose Gate Monitoring Report, Fort Wainwright, Alaska	CSU CEMML/ADFG	Annual	2010
	2010 Unit 20A Black Bear Population Estimate Using DNA-based Mark/Recapture Method Presentation	ADFG	One Time	2010
	Aerial Dall Sheep Survey of Black Rapids and Whistler Creek Training Area and the Delta River, Bear Creek to Flood Creek, 21 May 2010	CSU CEMML/ADFG	Annual	2010
	Aerial Dall Sheep Survey of Alaska Range Mountains in the South West Portion of Donnelly Training Area-West on 4 May 2010	CSU CEMML	One Time	2010
	Unit 20B moose. Pages 345-365 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007-30 June 2009	ADFG	One Time	2010
	Unit 20A moose. Pages 320-344 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007-30 June 2009	ADFG	One Time	2010
Inventory and Monitoring	*Final Report Fort Wainwright Moose Study*	CSU CEMML	One Time	2012
	Final Wildlife Planning Level Survey, Fort Greely, Alaska.	HDR	One Time	2012
	Biological Surveys and Contaminants Investigation for the Gerstle River Training Area, Alaska	USFWS	One Time	2013
	Status of Grouse, Ptarmigan, and Hare in Alaska, 2014	ADFG	Annual	2017
	Sharp-tailed Grouse Monitoring Project Report, Donnelly Training Area, Alaska	CSU CEMML/ADFG	Ongoing	2019
	Ruffed Grouse Monitoring Project Report, Yukon Training Area, Alaska	CSU CEMML/ABR	Ongoing	2019
	Dall Sheep (Ovis dallii) roadside surveys near Black Rapids Training Area	CSU CEMML	Ongoing	2019
Habitat Management	*Regeneration Survey of Sites Harvested for Grouse Habitat in the Yukon Training Area*	CSU CEMML	One Time	2001
	Yukon Training Area Grouse Habitat prescribed Fire Monitoring: Immediate Post-Burn Fire Effects	BLM AFS	One Time	2011
	Summer habitat Selection by Sharp-tailed Grouse in Eastern Interior Alaska, Final Wildlife Research Report	ADFG	One Time	2012
	Evaluating Habitat Use of an Alaskan Dall Sheep (Ovis dalli dalli) Population via Camera-traps	CSU CEMML	One Time	2014
	Buffalo Dome Flats Bison Range Management Report	SDSWCD	One Time	2016
	Fort Greely, Alaska Low Volume Irrigation	SDSWCD	One Time	2018

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
	Fort Greely, Alaska Canister Lake Habitat Improvement Project Analysis	SDSWCD	One Time	2018
Population Management	*Population dynamics of black bear populations, Fort Wainwright, Alaska.*	ADFG	One Time	1991
	Managing for elevated yield of moose in Interior Alaska	ADFG	One Time	2009
	Annual Movement Patterns, Nutrition and Antler Characteristics of Moose in Game Management Unit 20D	ADFG	One Time	2011
	Spring black bear density and moose calving distribution in the U.S. Army's Tanana Flats Training Area, Game Management Unit 20A, Interior Alaska	ADFG	One Time	2012
Inventory and Monitoring	*Final Report Fort Wainwright Moose Study*	CSU CEMML	One Time	2012
	Final Wildlife Planning Level Survey, Fort Greely, Alaska.	HDR	One Time	2012
	Biological Surveys and Contaminants Investigation for the Gerstle River Training Area, Alaska	USFWS	One Time	2013
	Status of Grouse, Ptarmigan, and Hare in Alaska, 2014	ADFG	One Time	2017
	Sharp-tailed Grouse Monitoring Project Report, Donnelly Training Area, Alaska	CSU CEMML/ADFG	Ongoing	2019
	Ruffed Grouse Monitoring Project Report, Yukon Training Area, Alaska	CSU CEMML/ABR	Ongoing	2019

4.9.3.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
16 U.S.C. §670a-f	*Sikes Act, as amended*	Current version found in USAG Alaska DPW Environmental	2012
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
State of Alaska Hunting Regulations	2019 – 2020 Alaska Hunting Regulations	Current version found in USAG Alaska DPW Environmental	2019
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.9.3.3 Program History

ADFG manages game species, monitors populations, and sets bag limits. ADFG maintains historic data on game management species. In 2010, USAG Alaska initiated a study with ADFG to characterize moose calving areas in Tanana Flats Training Area, according to both timing and distribution. Repeat aerial observations of radio-collared moose with neonates were used to outline calving areas. One hundred thirty-eight calving sites for 90 female moose were discovered. Most sites were between the Wood River Buttes and Blair Lakes with peak timing

from 21 May to 25 May. More information on management of this moose herd can be found in Young 2010.

In 2010, USAG Alaska initiated a study with ADFG to generate a population estimate for the Tanana Flats Training Area. Using genetic mark-recapture, 81 black bears and 11 grizzly bears were uniquely identified. The density of black bears, 59 individuals ≥1-year-old per 1,000 km^2 (SE = 7.3; 95% CI = 46–75 bears), appeared stable and in keeping with the 1991 estimate. The sampling design did not capture a density estimate for the more wide-ranging grizzly bear. Gardner et al. (2012) found that black bears are concentrated around Salchaket Slough, Bear Creek, Willow Creek, and McDonald Creek. Grizzly bears were found throughout the study area.

Hechtel (1991) found that bear harvest appeared to be sustainable and directly linked to access, with a mean harvest of 11.2 bears per year from Tanana Flats Training Area from 1980 to 1990. No serious black bear conservation problems were identified related to Tanana Flats Training Area land management. Since 1974 (when harvested black bears were first required to be sealed), black bear harvest on Tanana Flats Training Area has varied from zero (1975) to 25 (1981). During the Fall, black bear harvest on Tanana Flats Training Area is primarily opportunistic by moose hunters. Since 1974, the bag limit has been three bears annually with no closed season. Bear baiting was closed from 1977 through the 1982-1983 season due to conflicts with pipeline construction activity. Since the 1983-1984 season, the practice has been legal. Baiters must acquire permits from the state of Alaska and USAG Alaska Environmental Division office. Harvest across Game Management Unit 20 has generally been higher since re-opening of baiting, but the difference is not statistically significant. Grizzly bears are hunted during all but summer months. Only a few grizzly bears (0-3 annually during the past five years) are harvested from Tanana Flats Training Area. From 1997 to 2012, black bears harvested from spring baiting methods averaged 7.6 bears per year.

4.9.3.4 Current Condition

Bear, moose, wolves, and other game species are abundant USAG Alaska lands. ADFG manages these populations primarily through monitoring and harvest. USAG Alaska works with ADFG to allow access for monitoring and currently issues free permits through iSportsman to allow access for legally licensed hunters and trappers to harvest game populations.

4.9.3.5 Program Goals, Objectives, and Targets

Goals:

- Maintain an inventory of game species and conduct monitoring to update the inventory.
- Work cooperatively with ADFG to manage game populations.
- Manage and protect game species habitat.
- Minimize game species interactions with military training.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Inventory and Monitoring	Continue moose, bison, and caribou surveys in partnership with Alaska Department of Fish and Game (ADFG) and waterfowl surveys with the United States Fish and Wildlife Service (USFWS).	BAX CACTF EIS ROD	Ongoing	USAG Alaska

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
	Continue bison monitoring in partnership with ADFG.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
Population Management	Avoid conducting activities or operations as practical in or near bison habitat during mid-February to early September when bison are present.	BAX CACTF EIS ROD	Ongoing	USAG Alaska USARAK
	Comply with training exercise regulations (USARAK Range Regulation 350-2) to protect wildlife.	BAX CACTF EIS ROD	Ongoing	USARAK
	Continue to monitor effects of military training on select wildlife species during vital seasons.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
	Determine noise impacts to key species.	Land Withdrawal LEIS	Not Started	USAG Alaska
Habitat Management and Protection	Conduct prescribed burning on Donnelly Training Area East to improve or maintain habitat.	BAX CACTF EIS ROD	Ongoing	USAG Alaska
	Continue to maintain existing bison food plots at Donnelly Training Area East.	BAX CACTF EIS ROD	Ongoing	USAG Alaska

4.9.3.6 Program Management Units

Program management units for game management consists of individual training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.9.4 Non-Game Management

4.9.4.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Inventory and Monitoring	*Wildlife studies at Fort Wainwright and Fort Greely, Central Alaska, 1998*	ABR Inc.	One Time	2000
	A Small Mammal Inventory of Donnelly Training Area, Alaska	CSU CEMML	One Time	2005
	2010 Project Summaries [Wildlife]	CSU CEMML	One Time	2010
	Wood frog Monitoring Project Report, Yukon Training Area, Alaska	CSU CEMML	One Time	2012
	Preliminary Bat Surveys on Donnelly Training Area, Alaska	CSU CEMML	One Time	2012
	Little Brown Bat (Myotis lucifugus) Monitoring on Donnelly Training Area, Alaska	CSU CEMML	One Time	2013
	Report on Little Brown Bat Study, Fort Wainwright, Alaska	CSU CEMML	One Time	2016
	Evaluating Bat Habitat on Fort Wainwright, Alaska	CSU CEMML	One Time	2017
	Evaluating Bat Habitat on Donnelly Training Area	CSU CEMML	One Time	2018
	Tanana Flats Training Area Small Mammal Surveys on Fort Wainwright, Alaska	CSU CEMML	One Time	2019

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
	Inventory of Threatened Bat Species on Fort Wainwright	CSU CEMML	One Time	2019

4.9.4.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
16 U.S.C. §670a-f	*Sikes Act, as amended*	Current version found in USAG Alaska DPW Environmental	2012
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.9.4.3 Program History

Non-game management occurs incidental to surveys and management of other species. Amphibian (frog) and small mammal studies have been conducted. The ADFG non-game section has also conducted work on USAG Alaska lands. Bat species inventory and species identification, and habitat associations.

4.9.4.5 Program Goals, Objectives, and Targets

Goals:

- Monitor non-game species as indicators of ecosystem health.
- Work with USFWS and ADFG to monitor species of concern.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Fauna Planning Level Survey	Maintain an installation-wide fauna survey, including field data that maps and shows the occurrence, habitat distribution, and habitat management areas of fauna occurring on the installation updated no less than every 5 years.	AR 200-1	Ongoing	USAG Alaska
Inventory and Monitoring	Maintain an installation-wide fauna list.	AR 200-1	Ongoing	USAG Alaska
Population Management	Monitor habitat conditions for species of concern.	AR 200-1	Ongoing	USAG Alaska
Habitat Management and Protection	Maintain critical habitat structures for species of concern.	AR 200-1	Ongoing	USAG Alaska

4.9.4.5 Current Condition

USAG Alaska has several habitat types which affect non-game species. Major changes to habitat types are due to wildfire, flooding, and insect outbreaks. Natural habitat features are

maintained on most of USAG Alaska lands while Main Post of Fort Wainwright and Fort Greely are most affected.

4.9.4.6 Program Management Units

Program management units for non-game management consist of training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.10 Vegetative Resources

4.10.1 Flora and Habitat

4.10.1.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Flora PLS	*A Floristic Inventory of Fort Wainwright Military Installation, Alaska*	Alaska Natural Heritage Program for CRREL	One Time	1996
	An Inventory of Vascular Flora of Fort Greely, Interior Alaska	ERDC CRREL	One Time	2001
Vegetation PLS	*Vegetation Pattern in the Tanana Flats Wetland Complex, Interior Alaska*	Institute of Northern Forestry, US Forest Service	One Time	1994
	An Ecological Land Survey for Fort Wainwright, Alaska	ERDC CRREL / ABR, Inc.	One Time	1999
	An Ecological Land Survey for Fort Greely, Alaska	ERDC CRREL / ABR, Inc.	One Time	2001
	Fort Greely Ecological Land Classification Survey	SDSWCD	One Time	2011
	Final Flora Planning Level Survey, Fort Greely, Alaska	HDR	One Time	2012
	Vegetation Planning Level Study, Fort Wainwright, Alaska	CSU CEMML	One Time	2014
	Ecosystem Monitoring Study Fort Wainwright, AK	CSU CEMML	One Time	2015
Monitor Vegetation	*ITAM Range and Training Lands Assessment Annual Report*	CSU CEMML	Annual	2018
Vegetation Protection and Damage Prevention	*The Use and Environmental Impacts of Airboats on the Tanana Flats, Fort Wainwright, Alaska*	ERDC CRREL	One Time	1990
	Investigations of Impacts to Fen Ecosystems and Wildlife from Airboat Traffic on the Tanana Flats, Fort Wainwright 2002-2006	ABR, Inc. for USACE ERDC CRREL	One Time	2007

4.10.1.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	Current version found in USAG Alaska DPW Environmental	1999
Transformation ROD	*Transformation of US Army Alaska EIS*	Current version found in USAG Alaska DPW Environmental	2004

Description	Document Title	Location & Hyperlink	Last Update
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	Current version found in USAG Alaska DPW Environmental	2006
DoDI 4715.03	*Conservation Program for Natural Resources, March 18, 2011*	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013
AR 350-19	*Sustainable Range Program*	Current version found in USARAK Range Office	2016
USARAK Regulation 350-2	*US Army Alaska Range Regulation*	Current version found in USARAK Range Office	*2017*

4.10.1.3 Program History

During 1995-1996, the Cold Regions Research and Engineering Laboratory conducted a floristic inventory for USAG Alaska lands. The inventory focused on vascular plants, cryptogams (i.e., mosses and lichens) were not identified. The inventory found 491 taxa (including subspecies and varieties), representing 227 genera in 72 families. This is about 26% of Alaska's vascular flora. At least 10 taxa collected represented extensions of known ranges. Plants were collected from the Main Post, Tanana Flats Training Area, and Yukon Training Area.

Plants were collected from 31 plots of the Little Chena Upland and Chena/Tanana Floodplain, 51 plots of the Tanana Flats Lowlands, 38 plots of the Yukon-Tanana Upland. A total of 1,003 collections were made at 123 sites all over Fort Wainwright lands. The Center for Environmental Management of Military Lands mounted three sets of collected plants. One set was laminated and remains at Fort Wainwright, and the other two are dry mounted and stored at the University of Alaska Museum of the North, Fairbanks.

During 1997 and 1998 Cold Regions Research Engineering Laboratory conducted a floristic inventory in conjunction with other work at Donnelly Training Area, and collected 723 specimens, *An Inventory of the Vascular Flora of Fort Greely, Interior Alaska*. These collections represented 497 vascular plant taxa from 64 families and 198 genera. Eleven of these species represent significant range extensions (>150 km). A total of 1,406 collections were made at 101 sites within this unit. The Center for Environmental Management of Military Lands laminated one full set of collected plants for use by the Donnelly Training Area Integrated Training Area Management program. A mounted set was kept at the Donnelly Training Area Integrated Training Area Management office, and an incomplete mounted set was kept by Cold Regions Research Engineering Laboratory.

From 2001-2011 the Range Training Land Assessment program increased the plant taxa list to 512 for Yukon Training Area and Fort Wainwright Main Post and to 560 for Fort Greely and Donnelly Training Area. Also, a ground truth survey was conducted in 2008-2010 to provide additional data on common cluster plant community groups (Viereck 1992, Level 5) associated with the land cover types (Viereck 1992, Level 4) they are found in. Over 3,240 plots were sampled in Yukon Training Area and over 6,100 plots were sampled in the Donnelly Region.

In 2009 Range and Training Land Assessment crews made trips to botanize Gerstle River Training Area resulting in a new list of 141 species. In 2012, HDR conducted a floristic plant inventory of Fort Greely.

Black Rapids Training Area has been found to host a few species not known on Donnelly Training Area. The original 83 plant species was a combination of records collected from Environmental Division and Range and Training Land Assessment staff observations done in 2002. In 2010 a ground truth survey was performed where 395 plots were sampled in 2011 by the Environmental Division, Range Control, and Training Land Assessment staff. In this survey, staff made trips to botanize Black Rapids Training Area which resulted in a new list of 176 species including two rare plants: *Stellaria alaskana* and *Lupinus kuschei*.

Ecological land classifications were done for USAG Alaska lands during 1994, 1995, and 1998. This report included mapping by geomorphology, permafrost, vegetation, ecotypes, ecosubdistricts, and ecodistricts (Jorgenson et al. 2001). In 2008-2010 a ground truth survey was implemented to provide accurate data for land cover types, over 1,200 points were sampled. The ecological land classification mapping was reedited in 2011 after the initial report to update classification changes, mainly disturbances including urban/training land development and wildfires. An ecological land survey was conducted by SDSWCD for Fort Greely lands in 2011.

4.10.1.4 Current Condition

Vegetation communities are mapped every 5 years to a 2.5-acre minimum mapping unit according to Alaska Vegetation Classification System (Viereck et al). Vegetation communities are remapped after wildfires, clearing activities, and flooding events. USAG Alaska has no plant species of concern and will continue to monitor the Alaska Center for Conservation Science plant status list annually for changes in plant species status.

4.10.1.5 Program Goals, Objectives, and Targets

Goals:

- Manage vegetation to provide realistic scenarios for military training.
- Manage vegetation to reduce risk of large catastrophic wildland fire.
- Manage vegetation to promote ecosystem health.
- Manage vegetation to provide habitat to fish and wildlife.
- Manage vegetation communities of interest (such as fens and steppe communities).

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Conduct Vegetation Planning Level Survey	Survey, map, and maintain installation-wide vegetation communities data that describes the distribution and extent of dominant and co-dominant plant communities (alliances) updated no less than every 5 years.	AR 200-1	Ongoing	USAG Alaska
Conduct Flora Planning Level Survey	Maintain an installation-wide vascular plant survey that produces a list of plant species with verified nomenclature, classification, and annotation compatible with the Natural Resources Conservation Service's (NRCS) Plant List of Accepted Nomenclature, Taxonomy, and Symbols (PLANTS) updated no less than every 5 years.	AR 200-1	Ongoing	USAG Alaska

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Monitor Vegetation	Annually monitor vegetation in areas used for maneuver training to quantify damage resulting from military and recreational use.	Land Withdrawal LEIS, AR 350-19	Ongoing	USARAK TSA AK
Protect and Prevent Damage to Vegetation	Continue use of resource protection area maps to protect vulnerable habitats. Continue production and use of Sustainable Range Awareness materials to reduce avoidable impacts from training. Continue limitations on incendiary devices during high fire hazard. Continue implementing recreational vehicle use policies on Fort Wainwright. Conduct a detailed study to assess impacts of recreational vehicles to sensitive wetlands and vegetation.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	Ongoing	USAG Alaska, USARAK TSA AK
Enhance and Restore Vegetation	Continue implementation of Range and Training Land Assessment (RTLA) and Land Rehabilitation and Maintenance (LRAM) programs to minimize and to rehabilitate vegetation damage, and to gather long-term monitoring data.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	Ongoing	USARAK TSA AK

4.10.1.6 Program Management Units

Program management units for flora and habitat management consist of training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.10.2 Forest Management

4.10.2.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Inventory and Monitoring	*Forest Planning Level Survey, Fort Greely, Alaska*	HDR	One Time	2012
	Forest Health Survey at Fort Wainwright, Alaska	CSU CEMML	One Time	2014
Management	*Site Index Summary for Fort Wainwright and Fort Greely, Alaska*	CSU CEMML	One Time	2003
	Haines and Tok Fuel Terminals Timber Report	CSU CEMML	One Time	2014

4.10.2.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
DoDI 4715.03	*Conservation Program for Natural Resources, March 18, 2011*	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

Description	Document Title	Location & Hyperlink	Last Update
USARAK Regulation 350-2	*US Army Alaska Range Regulation*	Current version found in USARAK Range Office	*2017*

4.10.2.3 Program History

From about 1900 to 1940, extensive harvesting occurred in lowland sites, especially along the Tanana River. Mining also disturbed lowland forests. These disturbances were typically smaller scale than the large upland fires, and they created a complex mosaic of stand types and ages.

Total land area available for forest management is 374,678 acres. Beginning in 1999, USAG Alaska began an annual inventory of 10% (about 37,000 acres) of lands that may have viable commercial forest values. This inventory used ecological land classification units to delineate and sample stands to determine merchantable volumes by species. The inventory delineated areas where USAG Alaska manages vegetation rights and sampled all stands with commercial forest potential. The inventory of these lands was completed in 2004. Permanent sample plots establishment started in 2001 and was completed in 2005. Two hundred sixty-five permanent sample plots were established throughout USAG Alaska lands.

Permanent plot locations and intensity are systematically stratified by forest type across the landscape. Two hundred sixty-five permanent plots were established on USAG Alaska lands between 2001 and 2004. One hundred plots are in the Yukon Training Area. Five plots are in the Gerstle and Black Rapids Training Areas. Fifty plots are in the Tanana Flats Training Area. Sixty plots are located at Donnelly Training Area. Plots are re-measured every 5 to 10 years and re-measurement started in 2006. Forest stand maps are updated annually for all USAG Alaska lands. Variable plot inventories are conducted on all lands where USAG Alaska manages vegetation rights. These inventories are re-measured every 10 years.

Forest cover maps are updated annually using fire history perimeters, military construction overlays, and overlays of other clearing projects. Forest stands are delineated and attributed on a Geographic Information System using a combination of air photo interpretation, heads up digitizing, and ground truth plot information. Forest stand data attributed in the Geographic Information System comes from forest inventory plot information. Forest stand maps are used for forest utilization planning, identifying specific military training area requirements, military training range location, wildfire management, and natural resource management concerns.

The first forest management plan for USAG Alaska lands was completed in 2001.

4.10.2.4 Current Condition

Forest inventory and forest stand maps are maintained for all USAG Alaska lands. USAG Alaska sells firewood, money is deposited into the DoD Forestry Account. USAG Alaska issues approximately 200 firewood permits annually. USAG Alaska also cuts approximately 50 acres (1000 cords) per year primarily to support military training and wildfire management, secondary benefits are for forest health and wildlife habitat.

4.10.2.5 Program Goals, Objectives, and Targets

Goals:

- Maintain a diverse forest to enhance a varied military training environment.

- Maintain ecosystem functionality and manage vegetation and timber in support of ecosystem management objectives.
- Maintain and enhance the health, productivity, and biological diversity of forest and woodland ecosystems.
- Reduce wildland fire risk.
- Maintain forestry operations and standards as defined by the State of Alaska Forest Practices Act.
- Maintain forest inventory.
- Operate a firewood program within the limits of annual allowable harvest within each major training area as defined by the State of Alaska Forest Practices Act.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Forest Inventory	Maintain a current inventory of forest and vegetative resources.	AR 200-1	Ongoing	USAG Alaska
Mission Support	Conduct firewood sales to remove wood from project sites.	AR 200-1	Ongoing	USAG Alaska
	Implement forest management practices through timber stand improvement, timber management, firewood sales, and firewood salvage cuts.	AR 200-1	Ongoing	USAG Alaska
Mission Support	Support training area redesign maneuver corridors.	AR 200-1	Ongoing	USAG Alaska
	Minimize restrictions to training from forest management policies and issues. Reduce wildland fire risk to military infrastructure. Reduce the risk of wildland fires leaving the installation.	AR 200-1	Ongoing	USAG Alaska
Maintain Forest Health and Ecosystem Management	Conduct forest health monitoring.	AR 200-1	Ongoing	USAG Alaska
	Control forest pests.	AR 200-1	Ongoing	USAG Alaska
	Conduct firewood salvage operations.	AR 200-1	Ongoing	USAG Alaska
	Improve wildlife habitat through timber stand improvement, prescribed burning, mechanized vegetation removal and hand thinning.	AR 200-1	Ongoing	USAG Alaska
	Promote sustainable production of forest products.	AR 200-1	Ongoing	USAG Alaska
Public Outreach	Educate surrounding public with FireWise Program.	AR 200-1	Ongoing	USAG Alaska
	Provide firewood for local military and civilian population.	AR 200-1	Ongoing	USAG Alaska
	Provide Christmas trees.	AR 200-1	Ongoing	USAG Alaska
	Provide quality recreational opportunities.	AR 200-1	Ongoing	USAG Alaska
Regulatory Compliance	Employ standard forestry practices to meet and comply with MBTA, BGEPA, CWA, NEPA and National Historic Preservation Act (NHPA).	AR 200-1	Ongoing	USAG Alaska
	Update annually Fort Wainwright firewood policy.	AR 200-1	Ongoing	USAG Alaska

4.10.2.6 Program Management Units

Program management units for forest management consist of training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.10.3 Wildland Fire Management

4.10.3.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Inventory and Monitoring	*Forest Health Survey at Fort Wainwright, Alaska*	CSU CEMML	One Time	2014
Management	*Site Index Summary for Fort Wainwright and Fort Greely, Alaska*	CSU CEMML	One Time	2003
	Haines and Tok Fuel Terminals Timber Report	CSU CEMML	One Time	2014
	Fort Greely Wildland Fire Management Program 2015 Tasker and Review	USAG Fort Greely	One Time	2015

4.10.3.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
PL 106-65	*Alaska Military Lands Withdrawal*	Current version found in USAG Alaska DPW Environmental	2001
Wildland Fire Management Plans	*Alaska Interagency Wildland Fire Management Plan*	Current version found in USAG Alaska DPW Environmental	1998
Wildland Fire Management Guidance	*Army Wildland Fire Policy Guidance*	Current version found in USAG Alaska DPW Environmental	2006

4.10.3.3 Program History

Wildland fire is an important component of the ecosystem on military lands in Alaska. Fire has been a natural force in the Alaskan interior for thousands of years and has been a key environmental factor in these cold-dominated ecosystems. Without fire, organic matter accumulates, the permafrost table rises, and ecosystem productivity declines. Vegetation communities become much less diverse, and their value as wildlife habitat decreases. Even some of the plant and animal species normally associated with later successional stages will find the environment unsuitable. Fire rejuvenates these ecosystems. It removes some of the insulating organic matter and results in a warming of the soil. Nutrients are added both by ash from the fire, and by increased decomposition rates. Vegetative regrowth quickly occurs, and the cycle begins again.

Fire is critical for maintaining the viability of boreal ecosystems, yet fire can also be a threat to human life, property, and valued resources. The realization that fire plays an essential ecological role, but also has a destructive potential in relation to human life and values can make the fire management decisions process very difficult. This component plan describes the programs, policies, and procedures for integrated wildland fire management on USAG Alaska lands.

Under natural conditions fire is common. Fire cycles are estimated to be 100-150 years. Fires occur in a wide range of sizes, often creating openings of hundreds to many thousands of acres.

For the last several decades, wildland fire has been actively suppressed on portions of USAG Alaska lands which has helped decrease the natural disturbance level in upland areas. The high level of human-caused disturbance in the early 1900s, and fire suppression since the 1950s, have resulted in a distribution of age classes that is heavy in the 60 to 120-years category with fewer younger stands. It is important to maintain younger stands for timber recruitment and wildlife habitat. Older forests are more susceptible to severe wildland fire and to insect and disease damage. More species and age diversity will result from the careful application of fire management techniques and harvest activities. In areas where private property and military infrastructure are not threatened, wildland fires will be allowed to burn.

4.10.3.4 Current Condition

The designated wildland fire program manager for USAG Alaska lands is the Fort Wainwright Fire Chief. There are four fire management options on Fort Wainwright and Fort Greely: Critical, Full, Modified, and Limited.

Critical Management Option – These lands receive maximum detection coverage and are given highest priority for initial attack response, which is immediate and aggressive. Landowners/managers are notified of the situation as soon as possible. These areas receive priority over adjacent lands and resources in the event of escaped fires.

Full Management Option – Areas receive maximum detection coverage as well as immediate and aggressive initial attack response. If initial attack is successful, or the fire is controlled within the first burning period, special agency notification is not required. If the fire escapes and requires additional suppression, affected landowners/managers are notified to develop further fire suppression strategies.

Modified Management Option – This option provides a level of management equivalent to full or limited, depending on conditions. The level of management is assigned on an annual basis each summer. A high degree of protection is provided during critical burn periods but decreases as risks are diminished. Initial attack action is based on the potential for damage, constraints on affected land, and/or discussions with the landowner/manager. If there is no initial attack, the landowner/manager is informed of the fire status daily, and unmanned fires are monitored.

Limited Management Option – This option is used in areas where the resources at risk do not warrant the expense of suppression or in areas where natural fire is important to ecosystem sustainability. Fires within these areas receive routine detection effort. Attack response is based on the need to keep the fire within limited management option areas and the need to protect critical sites. Landowners/managers are immediately notified of the fire situation, and the status of unmanned fires is monitored.

USAG Alaska averages over 100 reported wildfires each year. Of these fires, there are an average of 10 wildfires per year over 1 acre in size, with a 10-year average of 15,000 acres burned per year (not all 15,000 acres burn each year, there are a few big fire years which account for most of the acreage burned). USAG Alaska responds to all reported wildfires. Wildfire response varies from monitoring to suppression actions. USAG Alaska maintains approximately 250 miles of fuel breaks on the installation to minimize wildfire spread from impact areas and live fire ranges to adjacent values at risk or off installation. USAG Alaska conducts wildfire risk assessments and wildfire fuels treatments on all infrastructure in the training lands (approximately 200 sites) on a five year cycle and maintains wildfire risk maps based on vegetation types, proximity to the installation boundary, military infrastructure, and ranges (306,500 acres in high risk, 281,300 acres in medium risk, 986,600 acres in low risk).

USAG Alaska treats approximately 50 acres mechanically and 50,000 acres with prescribe fire each year within and around impact areas and live fire ranges to reduce the spread of fire and provide cover for military training.

4.10.3.5 Program Goals, Objectives, and Targets

Goals:

- Establish fire management procedures and protocols to provide USAG Alaska the capability to complete their missions to maintain combat readiness and fulfill resource management intent.
- Incorporate the role of wildland fire as an essential ecological process and natural change agent into the planning process.
- Maintain and enhance the health, productivity, and biological diversity of the ecosystem through fire suppression, fire prevention, and fuels reduction.
- Develop fire management programs and activities which are based on the best available science; that incorporate public health and environmental quality considerations; and support USAG Alaska natural and cultural resource management goals and objectives.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Conduct Wildland Fire Planning	Update Integrated Wildland Fire Management Plan annually as the Annual Operating Plan.	AR 200-1	Ongoing	USAG Alaska
	Participate in Alaska Interagency Fire Management Plan.	AR 200-1	Ongoing	USAG Alaska
	Create burn plans for each prescribed burn that meet multiple stewardship, mission objectives, and safety objectives.	AR 200-1	Ongoing	USAG Alaska
Reduce Fire Starts through Wildfire Prevention	Utilize fire danger rating system based on Fire Weather Index.	USARAK Regulation 350-2	Ongoing	USARAK, USAG Alaska
	Maintain and enforce Fort Wainwright regulations.	USARAK Regulation 350-2	Ongoing	USARAK, USAG Alaska
Maintain Military Facilities through Pre-suppression Activities	Reduce forest hazard fuels around military facilities.	AR 200-1	Ongoing	USAG Alaska
	Maintain forest fuel inventory.	AR 200-1	Ongoing	USAG Alaska
	Establish a series of firebreaks and/or fuel breaks at high fire risk training areas to reduce the probability of a fire moving into high value areas or off installation. Establish monitoring protocols and minimum specifications for these breaks.	USARAK-Memorandum of Agreement (MOA)-029	Ongoing	USAG Alaska
Control Wildland Fires through Suppression Activities.	Maintain effective procedures to report wildfires.	AR 200-1	Ongoing	USAG Alaska
	Conduct initial response.	PL 106-65, AR 200-1	Ongoing	USAG Alaska
	Coordinate with Alaska Fire Service during fire-fighting operations, maintain database of known sites on Fort Wainwright lands that require suppression actions and provide Resource Advisors.	PL 106-65, AR 200-1	Ongoing	USAG Alaska
	Establish and maintain fire management qualifications for all firefighters and fire	AR 200-1	Ongoing	USAG Alaska

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Wildland Fire Safety, Training and Compliance	managers, and ensure all personnel assigned to those positions are trained to a level appropriate for their expected duties.			
	Provide for firefighter and public safety in every fire management activity.	AR 200-1	Ongoing	USAG Alaska

4.10.3.6 Program Management Units

Each of the major training areas are broken down into zones based on their fire management options. Fort Wainwright Main Post and Fort Greely are managed as a critical zone. Tanana Flats Training Area is managed as a limited management zone. The western portion of Yukon Training Area is managed as a full management zone while the eastern half is managed as a limited zone. Donnelly Training Area East is managed as a full management zone while Donnelly Training Area West and Gerstle River is managed as a limited zone. Black Rapids Training Area is managed as full zone. High hazard impact areas in each of the training areas are managed as limited zones. Tok and Haines Fuel Stations and Sears Creek Pump Station are managed as full or modified zones.

4.10.4 Grounds Maintenance

4.10.4.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Inventory	*Fort Wainwright Urban Tree Inventory Report*	USAG Alaska	One Time	2013
Planning, Protection and Enhancement	*Fort Wainwright Community Tree Ordnance*	USAG Alaska	One Time	2002
	Fort Wainwright Landscape Plan	USAG Alaska	One Time	2006
	Fort Wainwright Master Plan planting standards and species recommendations	USAG Alaska	One Time	2016

4.10.4.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013
Master Plan	*Fort Wainwright Master Plan*	Current version found in USAG Alaska DPW Environmental	2016

4.10.4.3 Program History

Natural resource managers for USAG Alaska have provided support for the management of improved grounds for many years. An urban tree inventory was conducted in 2013 on the cantonment area of USAG Alaska. In addition to providing recommendations for landscape plantings in the cantonment area, the natural resource program annually applies for Tree City USA. As part of the requirements for Tree City USA, USAG Alaska celebrates Arbor Day and provides education and outreach by providing seedlings to the Fort Wainwright community.

4.10.4.4 Current Condition

USAG Alaska maintains Tree City USA status for Fort Wainwright. Landscape plan, planting recommendations and techniques are included in the USAG Alaska Master Plan for both Fort Wainwright and Fort Greely.

4.10.4.5 Program Goals, Objectives, and Targets

Goals:

- Maintain improved grounds as a natural landscape.
- Utilize native local species in landscape plantings.
- Minimize maintenance for landscape plantings.
- Prevent the introduction of noxious and invasive species.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Inventory and Monitoring	Maintain inventory of urban tree plantings.	AR 200-1	Ongoing	USAG Alaska
Planning, Protection and Enhancement	Contribute to the Fort Wainwright Landscape Plan.	AR 200-1	Ongoing	USAG Alaska
	Provide recommendations for native, localized species and landscape maintenance.	AR 200-1	Ongoing	USAG Alaska
Education and Outreach	Apply annually for Tree City USA.	AR 200-1	Ongoing	USAG Alaska
	Conduct annual Arbor Day celebration.	AR 200-1	Ongoing	USAG Alaska

4.10.4.6 Program Management Units

Grounds maintenance management units consist of master planning zones within Fort Wainwright Main Post and Fort Greely.

4.10.5 Agricultural Leases

Currently, there are no areas on USAG Alaska lands that are used for agricultural leases. If any USAG Alaska lands are evaluated in the future for this type of out-lease, agriculture out-leasing shall be conducted in such a manner to support mission operations, support conservation compliance, and execute natural resources stewardship, maintain healthy ecosystems, sustain biodiversity.

4.11 Integrated Pest Management

4.11.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Inventory and Monitoring	*Behavior of bark beetles (Ips perturbatus and Dendroctonus rufipennis) along fire perimeters in Interior Alaska*	CSU CEMML	One Time	2015
	Mew Gull Abundance, Nesting, and Survival on Fort Wainwright, Alaska:	CSU CEMML	One Time	2016

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
	Identifying High-Use locations and Providing Education for Nesting Prevention			
	Cliff Swallow Surveys	CSU CEMML	One Time	2017
	Cliff Swallow Surveys	CSU CEMML	One Time	2018
Management and Control	*Nuisance Gull Management Plan, Fort Wainwright, Alaska*	CSU CEMML	One Time	2006
	2009 Cliff Swallow Nesting Barrier Project Report, Fort Wainwright, Alaska	CSU CEMML	One Time	2009
	2011 Cliff Swallow Nesting Barrier Project Report, Fort Wainwright, Alaska	CSU CEMML	One Time	2011
	Mitigation of Migratory Bird Flight Risk Study	CSU CEMML	One Time	2018
	Integrated Pest Management Plan for Fort Wainwright, Alaska	USAG Alaska	One Time	2018

4.11.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
AR 200-1	*Integrated Pest Management*	Current version found in USAG Alaska DPW Environmental	2018

4.11.3 Program History

Pest management is the responsibility of the Directorate of Public Works and conducted by a certified pest controller. Other organizations involved include Provost Marshal's Office Conservation Law Enforcement Officers and Directorate of Public Works Environmental Resources. The Pest Management Coordinator for USAG Alaska is within DPW Environmental, Directorate of Public Works. The Coordinator is not involved in routine pest management operations but serves as a technical advisor to the program.

Noxious animal control responsibility is shared. In general, Pest Control Branch, Directorate of Public Works, and the Provost Marshal's Office work within the cantonment area. The Provost Marshal's Office, assisted by the ADFG and the Alaska State Troopers if available, handles problems with game animals. A memorandum of understanding with the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Wildlife Services provides control for some noxious animals within Main Post of Fort Wainwright.

All chemicals used on USAG Alaska lands are Environmental Protection Agency-approved. Pesticide use on USAG Alaska has fallen dramatically since 1994. Remodeling and new construction have also helped reduce the volume of pesticides used since these buildings are more pest resistant and new construction usually has fewer pest problems.

The most difficult objective for USAG Alaska has been the reduction of herbicides. In general, the acreage of improved grounds has not been reduced enough to allow for a 50% reduction in herbicides without changing the appearance of the post. Reduced grounds maintenance has eliminated about 1/8th of improved grounds since 1993, but significant future reductions are unlikely. Dandelion (an exotic species) control is especially difficult to achieve if herbicide reduction objectives are implemented.

4.11.4 Current Condition

On USAG Alaska lands, vegetation control is required on the airfield, shoulders of main roads, storage areas, and in pavement cracks. Military Police or the Alaska State Troopers are called to handle road-killed moose, depending on the location of the incident. If carcasses are still safe for human consumption, they are donated, using a charity list maintained by the Alaska State Troopers. Cliff swallows are a significant nuisance. Cliff swallows may build nests under eaves of buildings, including residences, creating a nuisance and health concern. Droppings are unsightly and are a growth medium for a fungus that causes a respiratory infection (histoplasmosis). Swallows also are infested with mites. Exclusion from nesting sites is the preferred means for controlling cliff swallows. Sometimes it is necessary to destroy gull nests, which may include eggs or young. USAG Alaska annually obtains USFWS and ADFG permits prior to any intentional take of migratory birds. USAG Alaska personnel conduct nest destruction and egg take only under the guidelines identified in the required permits. Detection and action early in the breeding season will avoid destruction of gull nests with young or eggs.

4.11.5 Program Goals, Objectives, and Targets

Goals:

- Meet requirements defined by the Army pest management program Measures of Merit.
- Use alternative strategies (sanitation, trapping, biological control, mechanical control, etc.).
- Select the least toxic pesticides.
- Select precision application techniques that target specific pests and habitats.
- Emphasize education, communication, monitoring, inspection, and record keeping.
- Prevent the introduction of noxious and invasive species.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Planning	Update the Installation Pest Management Plan no less than once every 5 years.	AR 200-5	Ongoing	USAG Alaska
	Submit Pesticide Use Proposal (PUP) and Pesticide Use Form (PUF) annually.	AR 200-5	Ongoing	USAG Alaska
Reporting	Report annually on pesticide applicator certification	AR 200-5	Ongoing	USAG Alaska
	Report annually on pounds of active ingredient applied.	AR 200-5	Ongoing	USAG Alaska
Control	Control pest, noxious and invasive species.	AR 200-5	Ongoing	USAG Alaska

4.11.6 Program Management Units

Program management units for pest management consist of training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.12 Noxious Weeds and Invasive Species

4.12.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Monitor	*Non-Native Plant Species Survey and Mapping on Fort Wainwright Lands, 2009*	CSU CEMML	One Time	2009
	Invasive Vegetation Survey of Fort Greely, AK	SDSWCD	One Time	2015

4.12.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
EO 13112	*Invasive Species*	Current version found in USAG Alaska DPW Environmental	2016
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.12.3 Program History

Invasive species monitoring has been included as part of other surveys continually occurring within the installation. These projects span fisheries management, small mammal inventories, flora and fauna planning level surveys, and a multitude of avian surveys. These surveys document invasive species present. Invasive species monitoring has also occurred informally through the Range and Training Land Assessment program and natural resources program. The Range and Training Land Assessment program has quantitatively documented invasive plant species on training lands at plot locations, and pest control manages invasive plant species in cantonment areas. New methods are needed for surveying Army lands that specifically focus on invasive alien species. USAG Alaska lands currently have few faunal invasive species and the primary focus of these efforts are currently invasive vascular plants such as *Elodia spp*. Forest insects, diseases and invasive plant species are annually monitored on USAG Alaska lands by the US Forest Service. Annual Forest Health Survey Reports are available from the US Forest Service, State and Private Forestry, Forest Health website.

4.12.4 Current Conditions

USAG Alaska opportunistically surveys for invasive species focusing on high use areas and recent disturbance areas. This is accomplished by working closely with the Pest Management Plan and focusing control efforts on State listed Noxious Species. The state list of Noxious Species is annually reviewed and checked for presence on USAG Alaska lands. The US Forest Service, State, and Private Forestry monitors the cantonment areas and training lands for invasive insects and diseases annually.

4.12.5 Program Goals, Objectives, and Targets

Goals:

- Detect and manage invasive species in order to inhibit negative impacts to the environment and military training operations.

Objectives and Targets

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Conduct Invasive Species and Noxious Weed Inventory and Monitoring	Conduct annual surveys to determine the location and extent for invasive species including but not limited to plants, fish, birds, mammals, amphibians, and insects.	Executive Order (EO) 13112, AR 200-1	Ongoing	USAG Alaska
	Map locations of invasive populations, maintain a current Geographic Information System database for proactive management, and share information with the Alaska Exotic Plants Information Clearinghouse invasive database.	EO 13112, AR 200-1	Ongoing	USAG Alaska
Conduct Invasive Species and Noxious Weed Management and Control	Develop and implement protocol to inhibit movement of invasive species among posts from military convoys and training exercises.	EO 13112, AR 200-1	Ongoing	USAG Alaska
	Control the spread of invasive species and eradicate when practicable.	EO 13112, AR 200-1	Ongoing	USAG Alaska

4.12.6 Program Management Units

Program management units for invasive species management consist of training areas within Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, Whistler Creek Training Area, Haines and Tok Fuel Terminals, and Sears Creek Pump Station.

4.13 Wildlife Airstrike Hazard

4.13.1 Program Management Data

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
WASH Management	*Wildlife Aircraft Strike Hazard (WASH) Program*	USAG Alaska	One Time	2014
	Mitigation of migratory bird flight risk study	CSU CEMML	One Time	2018
	Mew Gull study	CSU CEMML	One Time	2018

4.13.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
16 U.S.C. §670a-f	*Sikes Act, as amended*	Current version found in USAG Alaska DPW Environmental	2012
16 U.S.C. §703 *et. seq.*	*Migratory Bird Treaty Act, as amended*	Current version found in USAG Alaska DPW Environmental	1998
7 U.S.C. §136 *et. seq.*	Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended	Current version found in USAG Alaska DPW Environmental	1972
DoDI 4715.03	Conservation Program for Natural Resources, March 18, 2011	Current version found in USAG Alaska DPW Environmental	2017
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.13.3 Program History

USAG Alaska DPW Environmental has been working together with Ladd Army Airfield and Allen Army Airfield operations for many years to reduce the number of birds attracted to the airfield. In addition to bird surveys and input on habitat management around the airfield, USAG Alaska has been partnering with ADFG to spread barley at Creamer's field to attract birds away from Ladd Army Airfield. USAG Alaska entered into an agreement with USDA APHIS Wildlife Services to manage permits and migratory birds on Main Post FWA in 2018.

4.13.4 Program Goals, Objectives, and Targets

Goals:

- Continue to work with USDA APHIS Wildlife Services to obtain permits and manage nuisance species on USAG Alaska lands. The pest management program will place bird exclusion devices where swallows and pigeons are roosting or nesting.
- Produce education materials for Wildlife Aircraft Strike Hazard, including posters, handouts, and trainings.
- Attend Post Ladd Airfield team meetings.
- Work with DPTSM to minimize birds on the airfield.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Inventory and Monitoring	Identify key nuisance species, their desired habitat and food source.	Sikes Act, DoDI 4715.03, AR 200-1	Ongoing	USAG Alaska
Population Management	Partner with USDA APHIS Wildlife Service to continue managing nuisance species on Main Post.	FIFRA, MBTA	Ongoing	USAG Alaska
	Partner with ADFG Creamer's Field to provide barley to attract key bird species away from Ladd Army Airfield.	Sikes Act, DoDI 4715.03	Ongoing	USAG Alaska
Habitat Management	Manage wildlife habitat on Main Post to reduce the desirability of the habitat to attract nuisance wildlife.	Sikes Act, DoDI 4715.03, AR 200-1	Ongoing	USAG Alaska
Regulatory Compliance	Obtain an annual depredation permit as necessary to control key species.	MBTA	Ongoing	USAG Alaska

4.13.5 Current Condition

The Ladd and Allen Army Airfield Wildlife Aircraft Strike Hazard (WASH) Programs are designed to help minimize the risk of a strike to fixed- and rotary-winged aircraft or human health and safety posed by populations of hazardous wildlife on and around Ladd and Allen Army Airfields. An integrated approach of techniques, tactics, and entities is used to support the overall WASH Program. Both programs are joint cooperative relationships between aircrews and tenant units. Both airfields have a year-round potential for wildlife strikes with aircraft. The months of April thru September present a bird strike and mammal strike potential with October thru March a potential for mammal strike being more of a hazard. It is impossible to avoid all wildlife strikes, but actions can be taken to minimize the potential of a strike. By employing passive and active wildlife management techniques, the probability of wildlife strikes in and around the airfield can be reduced. The goal of both WASH plans are to resolve a

human/wildlife conflict, while maintaining the varied wildlife populations and habitats for the benefit and enjoyment of the people.

4.13.6 Program Management Units

Program management units for wildlife airstrike hazard consist of Fort Wainwright Main Post and Allen Army Airfield on Fort Greely.

4.14 Compatible Use Buffering and Conservation Easements

4.14.1 Program Management Data

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Management	*USAG Alaska Army Compatible Use Buffer (ACUB) Plan*	USAG Alaska	One Time	2014

4.14.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
10 U.S.C. 2684a	*Agreements to Limit Encroachments and Other Constraints on Military Training, Testing, and Operations*	Current version found in USAG Alaska DPW Environmental	2003
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

4.14.3 Program History

USAG Alaska was granted ACUB approval in November 2011. USAG Alaska is currently updating the ACUB plan originally approved by the Deputy Chief of Staff (DCS) G9 in November 2011. This plan updates ACUB priority area boundaries to support the evolving US Army Alaska (USARAK) mission on USAG Alaska lands and match the Fort Wainwright Joint Land Use (JLUS) study area. The current priority area boundaries, as defined in the 2011 ACUB plan, encompass 6,449 acres distributed across three different Priority Areas.

4.14.4 Program Goals, Objectives, and Targets

Goals:

- Mitigate urban encroachment by minimizing potential noise and safety conflicts with neighboring residential areas.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Management	Continue to enter into conservation easements and joint land use studies	10 U.S.C. 2684a	Ongoing	USAG Alaska

4.14.5 Current Status

As of December 2016, USAG Alaska's ACUB partner had purchased 49 parcels of 590.39 acres in Priority Areas 1a, 1b and 1e, making significant progress towards successful completion of the goals for these priority areas.

4.14.6 Program Management Units

Program management units for compatible use buffering and conservation easements consist of areas surrounding Fort Wainwright Main Post, Fort Greely, and Donnelly Training Area. ACUB boundaries match the Fort Wainwright Joint Land Use Study (JLUS) boundaries.

4.15 Integrated Training Area Management

ITAM maintains the live maneuver training environment and sustains the Army's live training capability by repairing maneuver damage and creating a resilient and resistant training land base. ITAM fundamentally supports installation compliance with the Sikes Act and is a critical component of installation natural resource management. USAG Alaska's ITAM planning process generates land management projects from Senior Commander's requirements by integrating mission analysis and maneuver training tasks with terrain capability assessments, land condition requirements, and sustainable range awareness.

4.15.1 Program Data Management

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Range and Training Land Assessment	*Alaska Region RTLA Survey Report*	USARAK TSA AK	Annual	2019
	Military Exercise Monitoring Report	USARAK TSA AK	Annual	2019
	Maneuverability Assessment Report	USARAK TSA AK	Annual	2019
	Maneuver Damage and Hazard Assessment Report	USARAK TSA AK	Annual	2019
	Vegetation Recovery Assessment Report	USARAK TSA AK	As Needed	2018
	Trail Inventory and Condition Report	USARAK TSA AK	As Needed	2017
	Training Asset Accessibility Report	USARAK TSA AK	Every 5 years	2016
Land Rehabilitation and Maintenance	*LRAM Crew Report*	USARAK TSA AK	Annual	2019

Reports located at USARAK TSA-AK Range Control offices. Spatial data stored in the USARAK GIS.

4.15.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
Legislative EIS	*Alaska Army Lands Withdrawal Renewal Legislative EIS*	USAG Alaska DPW Environmental, USARAK Range Offices	1999
Transformation ROD	*Transformation of US Army Alaska EIS*	USAG Alaska DPW Environmental, USARAK Range Offices	2004
BAX/CACTF ROD	*Battle Area Complex (BAX) / Combined Arms Collective Training Facility (CACTF) EIS*	USAG Alaska DPW Environmental, USARAK Range Offices	2006
AR 350-19	*Sustainable Range Program*	Current version found in USARAK Range Offices	2005
USARAK Regulation 350-2	*US Army Alaska Range regulation*	Current version found in USARAK Range Offices	2011

4.15.3 Program History

ITAM is a core component of the Sustainable Range Program (SRP) and is responsible for maintaining training land to help the Army meet its training requirements. ITAM maintains the live maneuver training environment and sustains the Army's live training capability by repairing

maneuver damage and creating a resilient and resistant training land base. ITAM fundamentally supports installation compliance with the Sikes Act and is a critical component of installation natural resource management. USAG Alaska's ITAM planning process generates land management projects from Senior Commander's needs by integrating mission analysis and maneuver training tasks with terrain capability assessments, land condition requirements, and sustainable range awareness.

The USARAK Integrated Training Area Management (ITAM) program at Fort Wainwright began in 1996 with implementation of the Alaska Region Land Condition Trend Analysis (LCTA) program component, and support from the USARAK GIS Coordinator located at Fort Richardson, now Joint Base Elmendorf-Richardson. LCTA surveys began in Fort Greely and Donnelly Training Area in 1997, along with implementation of the other ITAM components (Land Rehabilitation and Maintenance (LRAM), GIS, Training Requirements Integration (TRI), and Environmental Awareness). In 1999, ITAM Coordinators were hired at Fort Wainwright and Donnelly Training Area, doubling the staff, and allowing for larger and more complex LRAM projects to be conducted. In about 2004, LCTA became Range and Training Land Assessment (RTLA) and Environmental Awareness became Sustainable Range Awareness (SRA). RTLA data has been analyzed and archived each year, and reports have been produced every year for both Fort Wainwright (Main Post, Yukon Training Area and Tanana Flats Training Area) and for Donnelly Training Area (to include Black Rapids and Gerstle River Training Areas). A GIS technician was hired in 2014 to provide direct support to both locations. The Land Rehabilitation and Maintenance and GIS components have developed into robust programs that support the major goals of SRP ITAM.

Specific integration between ITAM and the conservation program is carried out by the ITAM Coordinators, along with the USARAK ITAM Program Manager located at Joint Base Elmendorf-Richardson. This includes integrating ITAM into the INRMP, providing the INRMP proponent a copy of the most current validated ITAM work plan, and coordinating INRMP updates that may have a potential to impact live force-on-force or force-on-target training.

4.15.4 Current Condition

ITAM and Range project approvals begin with project development and inclusion into the work plan build during the fall of the prior fiscal year. Descriptions, cost estimates, photos, maps, and draft NEPA checklists are required at this point for approval by Army Training and Doctrine Command Capability Manager (TCM) Ranges. Projects are then presented to DPW Environmental and environmental support needs are identified. Generally, the rough outline of these projects has already been presented in out-year lists for environmental support planning. The NEPA checklist is finalized and it will note all compliance-related requirements. The ITAM Coordinator or Installation Range Officer also submits a work order request to DPW for Garrison approval. ITAM is responsible for providing all project details that might be needed for Section 404 CWA wetland permits, cultural resources review and State Historic Preservation Office coordination, MBTA and BGEPA compliance, ADFG fish habitat permits, National Marine Fisheries coordination, and any other permits or coordination that must take place. DPW Environmental is responsible for obtaining permits and conducting appropriate coordination. DPW Engineering will conduct project oversight during construction. Typically, the project contractor is responsible for the SWPPP and DPW excavation clearance (dig permit). If the project is conducted in-house, ITAM or range staff would be responsible for the SWPPP and dig permit.

ITAM works with DPW Environmental and/or Master Planning GIS staff to develop resource protection area maps (previously termed environmental limitations overlays). These maps are focused in the down range training areas and incorporate wetlands, cultural resources, wildlife

habitat areas, and underground utilities. ITAM and Range staff use these maps to help locate projects and to help training units identify locations that will satisfy training needs with the least environmental impact and/or environmental permitting requirements/restrictions.

INRMP Review Timeline: ITAM shall participate in annual reviews/updates of the INRMP to incorporate changes to mission support and to append current work plans by the end of the second quarter of each fiscal year.

4.15.5 Program Goals, Objectives, and Targets

Goals:

The ITAM program consists of five components:

1. Training Requirements Integration (TRI). The ITAM Coordinator provides decision support to the Range Office on range operations and range modernization plans by serving as an intermediary between DPW Environmental, and the Range office. The ITAM Coordinator is expected to be actively engaged with DPW Environmental and be knowledgeable of all environmental issues that may affect live training. TRI also includes integrating live training requirements into the plans and actions of other installation support offices. This is to ensure the plans and work plans of installation Environmental and DPW are directly supporting mission, and do not engage in actions that could conflict with or inhibit live training.

2. Land Rehabilitation and Maintenance (LRAM). The LRAM component is the primary ITAM effort in achieving the core mission of sustaining realistic live training. LRAM is all the planning and projects necessary to keep land usable for live training. LRAM projects are designed to: address safety hazards and repair training damage on maneuver land; maintain training lands that receive regular use and require maintenance to maintain operational conditions; reconfigure existing lands to optimize their availability for a variety of live training uses. A comprehensive list of best management practices (BMPs) for erosion control and environmental compliance is included in Appendix D of the Range PEA (Range Complex and Training Land Upgrades Final FoNSI and PEA, USAG 2010) and is presented in Appendix B1 of this document. Compliance with the Alaska Pollutant Discharge Elimination System (APDES) under the CWA is achieved through coverage under the Alaska Construction General (ACG) permit which uses BMPs to limit erosion and prevent discharges to surface waters.

LRAM vegetation management techniques include reseeding with native vegetation, and fertilizing when appropriate, masticating woody vegetation when clearing is needed and using woody debris to promote erosion control, tree removal by feller-buncher in accordance with timber salvage requirements, brushing or mowing where conditions allow, hand crew chainsaw and brush-cutter use where large heavy equipment is not appropriate, tree and shrub retention within and around project sites. Besides reseeding, revegetation methods also include willow live stating, vegetation matting, and tree/shrub planting. Full descriptions of these and more can be found within the SOPs and BMPs listed in Appendix D of the Range PEA, or on the SRP website.

3. Range and Training Land Assessment (RTLA) is conducted at Fort Wainwright and at Donnelly Training Area. The main purpose is to maintain awareness of training land conditions in order to apply mitigation when and where it is most needed. Through a regular program of monitoring, areas can be identified for repair before they become safety issues or require expensive engineering solutions. The RTLA component includes a mix of inventory and monitoring techniques, for several different assessments conducted either on a regular basis, or one time depending on need. The various assessments currently being used are listed in

the annual ITAM work plan. Data analysis and report-writing occurs through the fall and winter, with annual reports available at each range control office.

4. Sustainable Range Awareness (SRA) promotes avoidance of damage to training land resources. Fort Wainwright produces Soldier's Field Cards specific to Fort Wainwright and to Donnelly Training Area. These are available at DPW Environmental and both range control offices.

5. Geographic Information System (GIS) provides mapping and analysis to support Range Operations, Range Safety, Range Modernization, and ITAM projects. Because it supports the entire SRP operation, it is referred to as the "SRP GIS" program. The USARAK SRP GIS program is integrated with the DPW Environmental and Master Planning GIS programs as outlined in section 4.1. Specifically, within the SRP program, the GIS Coordinator and GIS Tech perform common mission support tasks that include image processing, GPS field data collection, spatial analysis such as line of sight, buffer analysis, surface danger zones, and custom training maps.

Objectives and Targets:

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Maintain GIS database	Maintain a database of natural and cultural resources by storing, compiling, and maintaining spatial and tabular data on the GIS.	Land Withdrawal LEIS	Ongoing	USAG Alaska
Conduct Impact Monitoring	Conduct periodic monitoring of the resources that are important indicators of overall ecosystem integrity and capability of lands to support military missions by identifying impacts on resources (spatial analysis) by trainers/testers and non-military land users at various intensities (activities, frequency, and duration).	Land Withdrawal LEIS Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	Ongoing	USARAK
Educate Land Users	Educate users to prevent avoidable damage to the land and minimize unavoidable damage resulting from training, testing, and other mission activities.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	Ongoing	USARAK
Protect and Prevent Damage to Natural Resources	Continue resource protection and damage prevention best management practices (BMPs) in LRAM Projects and during military exercises. Continue use of resource protection area maps to protect vulnerable resources.	Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	Ongoing	USARAK
Maintain Quality Training Lands	Maintain desirable land condition to support SRP goals of accessibility, availability, and capability of training lands. Distribute military training by managing training space and strategies. Repair training areas and sites that have been damaged, reconfigure areas and sites to provide improved Soldier training environments for sustainability.	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	Ongoing	USARAK

4.15.6 Program Management Units

Program management units for ITAM consist of training areas within Fort Wainwright, including Fort Wainwright Main Post, Fort Greely, Tanana Flats Training Area, Yukon Training Area, Donnelly Training Area, Gerstle River Training Area, Black Rapids Training Area, and Whistler Creek Training Area.

CHAPTER 5. IMPLEMENTATION

5.1 Environmental Awareness

5.1.1 Program Management Data

Data Description	Document / Report Title	Source	Frequency of Collection	Last Update
Management	*USAG Alaska Environmental Awareness Plan*	USAG Alaska	One Time	2001

5.2.2 Supplemental References

Description	Document Title	Location & Hyperlink	Last Update
AR 200-1	*Environmental Protection and Enhancement*	Current version found in USAG Alaska DPW Environmental	2013

5.2.3 Program History

USAG Alaska has historically helped to plan, organize, and conduct the annual Alaska Forum on the Environment. USAG Alaska environmental personnel are invited to give outreach presentations and to set up a booth. Earth Day is celebrated every year on April 22. Each year, the U.S. Army celebrates Earth Day at approximately 200 major commands, installations and organizations in the continental United States, Alaska, Hawaii, Korea, Japan, Italy, and Germany. USAG Alaska conducts Arbor Day celebrations in partial requirements for the Tree City USA designation annually.

5.1.4 Goals, Objectives and Targets

Objectives	Targets	Regulatory Requirement	Status	Responsible Agency
Education	Newcomers briefing		Ongoing	USAG Alaska
Outreach	Continue to publish articles in post Newspaper	BAX CACTF EIS ROD	Ongoing	USAG Alaska
Outreach	Maintain a USAG Alaska website and USAG Alaska iSportsman system to provide up-to-date information to public.	BAX CACTF EIS ROD, Land Withdrawal LEIS	Ongoing	USAG Alaska
	Tribal meetings.	BAX CACTF EIS ROD	Ongoing	USAG Alaska

5.1.5 Current Condition

USAG Alaska puts out environmental awareness materials at Earth Day, Arbor Day, EQCC meetings and newcomers briefing. USAG Alaska also makes announcements on iSportsman and updates the Environmental Handbook. ITAM also conducts Sustainable Range Awareness specifically to reach soldiers to minimize damage during training operations.

5.2 Natural Resource Staff and Training

5.2.1 Federal Natural Resource Staff

USAG Alaska has determined that five federal natural resource positions minimally meet the Sikes Act requirement for maintaining professionally trained natural resource management staff for managing over 1.5 million acres. USAG Alaska also employs three civilian conservation law enforcement officers. Which meets the Sikes Act requirement for professionally trained conservation officers.

Location	Position	Number of Positions	Organization	Classification
FWA	Planning Branch Chief	1	Directorate of Public Works Environmental Division	Federal GS-13
FWA	Natural Resources Manager	1	Directorate of Public Works Environmental Division	Federal GS-12
FGA	Natural Resources Manager	1	Directorate of Public Works Environmental Division	Federal GS-12
FWA	Natural Resources Specialist	1	Directorate of Public Works Environmental Division	Federal GS-11
FGA	Natural Resources Specialist	1	Directorate of Public Works Environmental Division	Federal GS-11
FWA	Conservation Officer	2	Directorate of Emergency Services	Federal GS-09
FGA	Conservation Officer	1	Directorate of Emergency Services	Federal GS-09

5.2.2 Natural Resources Support

Support to the natural resources program, where it is severable from management, planning, implementation, or enforcement actions of natural resources, may be provided by on-site contract personnel. USAG Alaska has used several universities in recent years to help with specialized needs.

The Sikes Act requires installations to give priority to Federal and State agencies having responsibility for the conservation and management of fish and wildlife when contracting for services to implement the provisions of this INRMP. The Sikes Act also authorizes installations to enter into cooperative agreements in support of natural resources work. DoD policy (2014) directs military installations to give the same preference to federal and state wildlife agencies when using a cooperative or interagency agreement under Section 103a of the Sikes Act to obtain services to implement the provisions of the INRMP.

Interdisciplinary training is essential for Department of Defense natural resource managers. It addresses practical job disciplines, statutory compliance requirements, applicable Department of Defense/Department of Army regulations, pertinent state and local laws, and current scientific and professional standards as related to the conservation of our nation's natural resources. The natural resource training objective is to identify technical requirements as well as the resources (cooperative agreements, Legacy, Integrated Training Area Management, Memoranda of Understanding, and so forth) available to implement and execute a successful and proactive program, the goal being to maintain and enhance the military mission,

biodiversity, conservation stewardship, and the management of the total ecosystem from the practical standpoint of day-to-day operations as well as long-term planning.

5.3 Knowledge and Information Gaps

Management Objective	Target	Research Requirement	Priority
Update and Maintain Surface Water Planning Level Survey	Surface Water Data Layer	Surface water data layer only 70% complete, data over 20 years old. Surface water changes constantly in Alaska, especially in braided rivers and streams. Original fence line to fence line survey never completed due to funding constraints.	1
Update and Maintain Topographical Planning Level Survey	Topographical Data Layer	Topographical data layer only 75% complete, data over 20 years old. Need to update all topography with a greater precision. Original fence line to fence line survey never completed due to funding constraints.	2
Update and Maintain Fauna Planning Level Survey	Fauna Planning Level Survey	Still need to determine if some rivers are anadromous or contain resident high value fish.	3
Update and Maintain Vegetation Communities Planning Level Survey	Vegetation Community Data Layer	Vegetation community data layer only 80% complete. Survey was originally completed but the forest burned, and new survey needed.	4
Update and Maintain Wetlands Planning Level Survey	Wetlands Data Layer	Wetlands data layer only 80% complete. Original fence line to fence line survey never completed due to funding constraints.	5
Short and long-term climate change impacts on USAG Alaska natural resources	Specific, localized climate predictions for USAG Alaska and interior Alaska	Very little data exists for projected data for potential climate changes 25-50 years out. There are some recent UAF work that has help contribute to our knowledge of change less than 100 years out.	6
Water Quality Monitoring	Develop monitoring protocol to assess potential for off-site migration of contaminants from live-fire training.	Characterization studies of munitions residues in impact areas have been conducted, however those studies came short of developing an effective monitoring protocol to detect potential off-site migration of contaminants.	7

5.4 Funding

5.4.1 Description

The intent of the funding section of this INRMP is to link resources with the goals established. The funding section of this plan will therefore be used to develop and support environmental funding requirements.

The purpose of environmental conservation funding is to enable the Army mission by funding characterization, monitoring, compliance, and continuing oversight of installation natural and cultural resources. Conservation funding allows Army managers to exercise stewardship of natural and cultural resources by facilitation of the planned management of natural and cultural resources, via the Integrated Natural Resources Management Plan and Integrated Cultural

Resources Management Plan. This is accomplished in coordination with facility managers, trainers, and other land users, through funding and implementation of projects that help preserve, maintain, repair, and improve natural and cultural resources for sustaining mission requirements.

The purpose of environmental compliance funding is to enable the Army mission by funding implementation of legally mandated actions to protect and enhance environmental media from the negative effects of pollution and human alteration and to allow sustained access to and use of operational ranges to meet doctrinal training requirements. While most of these funding requirements are not covered here in this INRMP, there are a few compliance funded projects that are intertwined with natural resources management.

Reimbursable programs support military readiness, land management, and revenues from these programs supplement base operations and other funding. Agriculture/grazing out-leases are authorized by 10 USC 2667(d), and commercial forestry by 10 USC 2665. Reimbursable programs may be used to enhance and maintain wildlife habitats. The Army has about 800,000 acres of land leased under agriculture/grazing, and 1.4 million acres under some form of commercial forestry. The Army also has executive agent responsibilities over the Department of Defense Forestry Reserve Account.

Army facilities are funded with two types of funding: Base Operating Support and Sustainment, and Restoration, and Modernization. The purpose of sustainment funding is to enable the Army mission by funding the sustainment of range and other facilities in good working order to meet long-term doctrinal training requirements. The purpose of restoration funding is to restore failed or failing facilities, systems, and components damaged by a lack of sustainment; excessive age, fire, storm, flood, freeze, or other natural occurrences; and to improve facilities to current standards. Modernization funding adapts facilities to meet new standards and includes the erection, installation, or assembly of a new real property facility, the addition, expansion, extension, alteration, conversion, or complete replacement of an existing real property facility. Real Property Services funding provides for those activities of an installation support nature. It includes those support elements and services identified as indirect overhead by Headquarters, Department of Army, and grounds maintenance activities. This includes abatement and disposal of building hazardous waste resulting from the performance of real property services.

There are three types of Sustainable Range Program funding that affect the management of natural resources: range operations, range modernization, and Integrated Training Area Management funding. Range operations funding provides for the operation and management of training ranges, range modernization funding upgrades range facilities, and Integrated Training Area Management funding repairs, maintains and reconfigures maneuver training lands.

5.4.2 History

Until the latter part of the 1980s, natural resources funding was primarily Operations and Maintenance dollars within Directorate of Public Works. As environmental funds (internally "fenced" Operations and Maintenance) increased and regular Operations and Maintenance funding decreased, natural resources projects came to rely more heavily upon environmental compliance funding. As was the case in the eighties, the Army once again plans to reduce the amount funded through the environmental account, and increase funding through facilities and range program accounts.

Environmental funds are a special category of Operations and Maintenance's budget. Until 2005, the Environmental Program Requirements process governed environmental funding. They were special in that they were fenced by Department of Defense, but they are still subject to restrictions of Operations and Maintenance funds. "Must fund" classifications included mitigation identified within Findings of No Significant Impact, items required within Federal Facilities Compliance Agreements, and planning level surveys. This INRMP is a Federal Facilities Requirement Agreement that contains projects and programs to mitigate various military activities. Currently, the Environmental Program Requirement Report system has been replaced by the Environmental Cost Standardization model to implement the Army Strategy for the Environment. The Environmental Cost Standardization uses a cost model to develop installation environmental requirements that are predictable. A great deal of confusion exists concerning environmental funding of new or unpredictable requirements, or how installations will communicate new or adjusted requirements to Army headquarters.

Each year since 2008 Installation Management Command (IMCOM) has published funding guidance to help clarify valid environmental funding requirements. Despite the clarification provided by the IMCOM environmental funding guidance, potential overlap exists between environmental funding with reimbursable funding, sustainment, restoration and modernization funding, base operations funding, Sustainable Range Program (range operations, range modernization, and ITAM) funding. To address this issue, in 2005 the Army developed a funding matrix which clarifies appropriate bill payers for very specific actions which support or affect natural resources. In the 2005 agreement, Deputy Chief of Staff (DCS) G9 agreed to provide natural resources support above and beyond common levels of service to the Sustainable Range Program (i.e. wetlands delineations for range construction). The 2005 funding matrix is currently under revision.

5.4.3 Funding Goals

- Articulate the desired end state that individual plan goals seek to reach.
- Cover at least five years of resourcing.
- Include a section in the plan that lays out the funding required to achieve the established goals for each of the years covered.

5.4.4 Funding Requirement Summary

Five year summary of cost to implement funding USAG Alaska INRMP (in thousands). Table for individual objectives and targets is included below in Chapter 6.

Source	2020	2021	2022	2023	2024
Environmental	3,600	3,100	2,700	2,400	2,200
Reimbursable	20	20	20	20	20
SRM	1,300	1,300	1,300	1,300	1,300
Base Operations	200	200	200	200	200
SRP	3,000	3,000	3,000	3,000	3,000

CHAPTER 6. FIVE YEAR IMPLEMENTATION PLAN

6.1 USAG Alaska Projects

INRMP Objective	Proposed Project Title	Driver	Execution Timeframe	Effectiveness Indicator	Monitoring Frequency	Reporting
Conduct Topography Planning Level Survey	Complete survey and mapping of installation-wide topographical data	AR 200-1	10/18 through 9/22	100% installation coverage	One time	Annual INRMP activity report
Conduct Surface Water Planning Level Survey	Complete survey and mapping of installation-wide surface water data	AR 200-1	10/18 through 9/22	100% installation coverage	One time	Annual INRMP activity report
Geospatial Data Management	Update all Natural Resource Geospatial Data	AR 200-1, Installation Geospatial Information and Services Program	10/18 through 9/22	Comply with annual data call submission	Annual	Annual INRMP activity report
Enhance and Rehabilitate Soils	Map and monitor changes in permafrost throughout the installation.	Land Withdrawal LEIS, Transformation EIS ROD	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Wetland Management	Maintain installation wetland map and survey wetlands in project footprints	Clean Water Act, AR 200-1	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Protect and Prevent Damage to Natural Resources	Produce natural resources training area limitations GIS data for resource protection maps	AR 200-1	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Protect and Prevent Damage to Riparian Zones	Monitor riparian zone crossing sites	AR 200-1, Magnuson-Stevens Fisheries Act	10/18 through 9/22	Monitor permitted sites as needed	Annual	Annual INRMP activity report
Protect and Prevent Damage to Soils	Monitor recreational vehicle impacts to the land	AR 200-1	10/18 through 9/22	identify issues and take appropriate steps as needed	Annual	Annual INRMP activity report
Flora Management	Maintain Plant Species list and monitor for species of concern	AR 200-1	2029	100% installation coverage	Annual	Annual INRMP activity report
Vegetation Management	Maintain Vegetation/Forest Stand/Wildfire Fuel Map	AR 200-1	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Forest Management	Conduct Forest Inventory	AR 200-1	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report

INRMP Objective	Proposed Project Title	Driver	Execution Timeframe	Effectiveness Indicator	Monitoring Frequency	Reporting
Forest Management	Conduct Firewood Sales	AR 200-1	10/18 through 9/22	up to annual allowable cut	Annual	Annual INRMP activity report
Forest Management	Conduct Reforestation on Cut Over Areas	AR 200-1	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Forest Management	Maintain Forestry Operational Access Trails	AR 200-1	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Forest Management	Update Forest Management Plan	AR 200-1	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Wildfire Management	Monitor Wildland Fire Fuel Breaks	AR 200-1	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Wildfire Management	Conduct Wildland Fire Fuel Break Conversion to Fire Resistant Vegetation	AR 200-1	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Wildfire Management	Wildland Fire Hazardous Fuel Reduction	AR 200-1	10/18 through 9/22	40,000 acres per year	Annual	Annual INRMP activity report
Wildfire Management	Update Wildfire Management Plan as the Annual Operating Plan	AR 200-1	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Wildfire Management	Implement wildfire prevention program	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD, AR 350-19	10/18 through 9/22	Ensure stakeholders are engaged	Annual	Annual INRMP activity report
Recreation Access	Maintain Internet Based Access System and Kiosks at Primary Entrances	AR 200-1, 190-13	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Public Outreach	Maintain Internet Based Public Outreach Program	AR 200-1	10/18 through 9/22	Maintain and update Environmental Division website and update iSportsman	Annual	Annual INRMP activity report
Conservation Officers	Maintain Conservation Officers Program	AR 200-1	10/18 through 9/22	DES is made aware of continued need for CLEOs	Annual	Annual INRMP activity report

INRMP Objective	Proposed Project Title	Driver	Execution Timeframe	Effectiveness Indicator	Monitoring Frequency	Reporting
Fish and Wildlife Management	Implement the Wildlife Aircraft Strike Hazard Program on Main Post	AR 200-1	10/18 through 9/22	100% coverage of Main Cantonment	Annual	Annual INRMP activity report
Fish and Wildlife Management	Complete Fisheries Planning Level Survey	AR 200-1	10/18 through 9/22	100% installation coverage	One time	Annual INRMP activity report
Fish and Wildlife Management	Continue Bison Food Plot Management	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD	10/18 through 9/22	40 acres per year	Annual	Annual INRMP activity report
Fish and Wildlife Management	Consolidate Noise Impact Studies for Sensitive Wildlife Species	Land Withdrawal LEIS, Transformation EIS ROD, BAX CACTF EIS ROD	10/18 through 9/22	100% installation coverage	One time	Annual INRMP activity report
Fish and Wildlife Management	Survey project footprints for species of concern.	Endangered Species Act, AR 200-1	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Fish and Wildlife Management	Survey installation for Bald and Golden Eagle Nests	Bald and Golden Eagle Protection Act	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Landscape Management	Tree City Designation	AR200-1	10/18 through 9/22	Receive Designation	Annual	Annual INRMP activity report
Landscape Management	Urban Forestry on Main Post	AR200-1	10/18 through 9/22	Consult with installation stakeholders and provide insight into project planning	Annual	Annual INRMP activity report
Protect and Prevent Damage to Natural Resources	Coordinate projects with ITAM	AR200-1	10/18 through 9/22	Consult with installation stakeholders and provide insight into project planning	Annual	Annual INRMP activity report
Fish and Wildlife Management	Maintain Fauna Species list and monitor for species of concern	AR 200-1	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Invasive Species Management	Coordinate with Installation Pest Management Plan for Invasive and Noxious Species	AR 200-1	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report

INRMP Objective	Proposed Project Title	Driver	Execution Timeframe	Effectiveness Indicator	Monitoring Frequency	Reporting
	Monitoring and Control					
Fish and Wildlife Management	Coordinate with US Fish and Wildlife Service in regards to Migratory Bird Management and maintain monitoring program	AR 200-1, EO 13186	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Wildfire Management	Obtain Smoke Management Permits for Prescribed Fires	AR 200-1	10/18 through 9/22	As needed	Annual	Annual INRMP activity report
Recreation Management	Coordinate with Directorate of Family and Morale, Welfare, and Recreation on Installation Outdoor Recreation Plan	AR 200-1, 190-13	10/18 through 9/22	100% installation coverage	Annual	Annual INRMP activity report
Recreation and Public Safety	Bison Trail Wildlife Safety and Berry Improvement	AR 200-1	10/18 through 9/22	Clearing of willows and brush that provides food source for grouse and propagation of berry stands	Annual	Annual INRMP activity report
Wildlife and Public Safety	Wildlife Exclusionary Fence	AR 200-1	2020	As needed on Fort Greely	One-Time	Annual INRMP activity report
Wetland Management	Wetland Planning Level Survey	AR 200-1	10/18 through 9/22	100% Fort Greely installation coverage	Annual	Annual INRMP activity report
Pest Management	Invasive Species Planning Level Survey	AR 200-1	2019, 2021, 2023	Conduct field work and complete final report of invasive plants on Fort Greely	Every other year	Annual INRMP activity report
Recreation Management	Fort Greely Rocket Launch Handicapped Observation Platform	Sikes Act	10/19-09/22	Install handicapped accessible observation platform with way point interpretive signage	One-Time	Annual INRMP activity report
Recreation Management	Upgrade Off Road Vehicle Recreation Area	AR 200-1	10/19-09/21	Development of trails, signage, construction of loading ramp to prevent	One-Time	Annual INRMP activity report

INRMP Objective	Proposed Project Title	Driver	Execution Timeframe	Effectiveness Indicator	Monitoring Frequency	Reporting
				resource degradation.		
Wildland Fire Management	Update Wildfire Management Plan include soil erosion mitigation.	AR 200-1	10/19-09/23	Update wildfire management plan and improve firebreaks soil/vegetation management on Fort Greely.	Annual	Annual INRMP activity report
Vegetation Management	Nursery Development and Maintenance	AR 200-1	10/19-09/23	Annual maintenance of nursery and propagation of locally adapted species for riparian stabilization, erosion control, fire break maintenance, reforestation and Christmas tree production.	Annual	Annual INRMP activity report
Wildlife Management	Pollinator Inventory and Habitat Improvement	AR 200-1	10/19-09/23	Inventory of bats, bees, and birds for pollination of native plants. Installation of bird and bat houses and improvement of habitat for naïve fauna on developed lands.	Annual	Annual INRMP activity report
Recreation Management	Modification and improvement of traditional gathering areas (berries)	AR 200-1	10/19-09/23	Maintain vegetation height and density, pest and nutrient management of areas to promote vigorous berry production.	Annual	Annual INRMP activity report
Public Outreach	Annual Environmental Public Outreach Event (Deltana Fair)	AR 200-1	10/19-09/23	Conduct activities and display related to natural and cultural resources at	Annual	Annual INRMP activity report

INRMP Objective	Proposed Project Title	Driver	Execution Timeframe	Effectiveness Indicator	Monitoring Frequency	Reporting
				the Deltana Fair		
Public Outreach	Biannual cultural and natural resources field days	AR 200-1	10/19-09/23	Conduct a cultural resource field day in the spring and natural resource field day in the fall to promote topics of concern to the Fort Greely public and partners	Annual	Annual INRMP activity report

6.2 USARAK TSA AK Projects

ITAM Objective	Proposed Project Title	Driver	Execution Timeframe	Effectiveness Indicator	Monitoring Frequency	Reporting
Support Mounted Maneuver Training	Complete between 2.5 and 10 miles of Maneuver Trail Maintenance, Construction and/or Enhancement	Range Control Master Plan	10/19 through 9/24	Total Miles maintained and/or enhanced	Annual	Range Control Master Plan Tool (RCMPT)
Support Mounted Maneuver Training	Maintain approximately 250 acres of bivouac and dismounted maneuver space	Range Control Master Plan	10/19 through 9/24	Acres treated	Annual	Range Control Master Plan Tool (RCMPT)
Support Aviation Operations	Maintain soil stability and vegetative cover on all (30) landing zones	Range Control Master Plan	10/19 through 9/24	Percent Ground Cover	Annual	Range Control Master Plan Tool (RCMPT)
Support Aviation Operations	Minimize surface hazards on approximately 2,789 acres of drop zones	Range Control Master Plan	10/19 through 9/24	Hazard Frequency	Annual	Range Control Master Plan Tool (RCMPT)
Support Artillery/Mortar Training	Maintain line of site and mitigate vertical obstructions to direct and indirect fire on approximately 103 acres of firing points	Range Control Master Plan	10/19 through 9/24	FP survey	Annual	Range Control Master Plan Tool (RCMPT)
Support Artillery/Mortar Training	Repair, maintain, and reconfigure firing points to meet doctrinal standards on approximately 96 acres	Range Control Master Plan	10/19 through 9/24	FP survey	Annual	Range Control Master Plan Tool (RCMPT)

Appendix A1. Acronyms

ABCT	Airborne Brigade Combat Team
ACUB	Army Compatible Use Buffer
ADFG	Alaska Department of Fish and Game
AEC	Army Environmental Command
AFS	Alaska Fire Service
ABCT	Airborne Brigade Combat Team
ANILCA	Alaska National Interest Lands Conservation Act
APR	Annual Program Review
AR	Army Regulation
BAX	Battle Area Complex
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practices
BRTA	Black Rapids Training Area
CACTF	Combined Arms Collective Training Facility
CEMML	Center for Environmental Management of Military Lands
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CSU	Colorado State University
CLEO	Conservation Law Enforcement Officer
CRREL	Cold Regions Research and Engineering Laboratory
CWA	Clean Water Act
DCS	Deputy Chief of Staff
DES	Directorate of Emergency Services
DPTMS	Directorate of Plans, Training, Mobilization and Security
DOD	Department of Defense
DoDI	Department of Defense Instruction
DPW	Directorate of Public Works
DTA	Donnelly Training Area
EIS	Environmental Impact Statement

EMS	Environmental Management System
EO	Executive Order
ERDC	Engineering Research and Development Center
GIS	Geographic Information System
GRTA	Gerstle River Training Area
IMCOM	Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMP	Installation Pest Management Plan
ITAM	Integrated Training Area Management
IWFMP	Integrated Wildland Fire Management Plan
ISB	Interim Staging Base
JLUS	Joint Land Use Study
LEIS	Legislative Environmental Impact Statement
LRAM	Land Rehabilitation and Maintenance
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PL	Public Law
PLS	Planning Level Survey
PLO	Public Land Order
RMP	Resource Management Plan
ROD	Record of Decision
RTLA	Range and Training Land Assessment
SBCT	Stryker Brigade Combat Team
SDSWCD	Salcha Delta Soil and Water Conservation District
TFTA	Tanana Flats Training Area
TSA AK	Training Support Activities Alaska

UAF	University of Alaska Fairbanks
USAGAK	US Army Garrison Alaska
USAG	US Army Garrison
USARAK	US Army Alaska
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
WASH	Wildlife Airstrike Hazard
WCRCA	Whistler Creek Rock Climbing Area
YTA	Yukon Training Area

Appendix A2. Literature Cited

Alaska Department of Fish and Game. 2010. *2010 Unit 20A Black Bear Population Estimate Using DNA-based Mark/Recapture Method Presentation*. Alaska Department of Fish and Game. Juneau, Alaska. 26 slides.

Alaska Department of Fish and Game. 2015. 2015 Alaska Wildlife Action Plan. 228 pages.

Alaska Shorebird Group. 2019. Alaska Shorebird Conservation Plan Version III. Alaska Shorebird Group, Anchorage, AK. 149 Pages.

Anderson, B.A., Ritchie, R.J., Lawhead, B.E., Rose, J.R., Wildman, A.M., and S.F. Schlentner. 2000. *Wildlife studies at Fort Wainwright and Fort Greely, Central Alaska, 1998.* Prepared by: ABR, INC. – Environmental Research and Services. Fairbanks, Alaska.

Benson, Anna-Marie. 1999. *Distribution of Landbirds among Habitats on the Tanana Flats and Yukon Maneuver Area 1998*. Alaska Bird Observatory. Fairbanks, Alaska. 37 pages.

Bonito, L.J. 1980. *Final Environmental Impact Statement Concerning Proposed Land Withdrawal for the 172nd Infantry Brigade (Alaska) at Fort Wainwright*. Fort Wainwright, AK. 112 pp. + appendices.

Boreal Partners in Flight. 2005. Landbird Conservation Plan for Alaska Biogeographic Regions version 1.0. 35 pages.

Bureau of Land Management and U.S. Army. 1994a. *Fort Greely: Resource Management Plan, Final Environmental Impact Statement.* Bureau of Land Management, Steese/White Mountains District and U.S. Army, 6th Infantry Division (Light). Anchorage, Alaska. 132 pp.

Bureau of Land Management. Draft Eastern Interior RMP/EIS (CD).Bureau of Land Management and U.S. Army. 1994b. *Fort Wainwright Yukon Training Area*. Resource Management Plan and Final Environmental Impact Statement. Bureau of Land Management, Anchorage, AK. 109 pp.

Fort Greely. 2002. *2002-2006 Fort Greely Integrated Natural Resources Management Plan.* Fort Greely, Alaska + Appendices.

Fort Wainwright. 2002. *2002-2006 Fort Wainwright Integrated Natural Resources Management Plan.* Fort Wainwright, Alaska + Appendices.

Gardner, C.L., N.J. Pamperin, B.D. Taras, K.A. Kellie, and R.D. Boertje. 2012. *Spring black bear density and moose calving distribution in the U.S. Army's Tanana Flats Training Area, Game Management Unit 20A, Interior Alaska.* Alaska Department of Fish and Game. Juneau, AK.

Hander, R.F. and N.M. Legere. 2012. *Identification and inventory of anadromous and resident fish species in tributaries to the Tanana River between Nenana and Delta Junction, Alaska.* USFWS, Fairbanks Field Office, Fairbanks, AK.

Hechtel, J. L. 1991. *Population dynamics of black bear populations, Fort Wainwright, Alaska*. Alaska Department of Fish and Game Natural Resources Report #91-2. Juneau, AK.

Jorgenson, T., J. Roth, M. Raynolds, M. Smith, W. Lenz, A. Zusi-Cobb and C. Racine. 1999. *An Ecological Land Survey for Fort Wainwright, AK*. ABR, Inc. prepared for ERDC CRREL TR 99-9. Hanover, N.H.

Jorgenson, M. T., Roth, J., Smith, M., Schlentner, S., Lentz, W., Pullman, E., & Racine, C. 2001. *An Ecological Land Survey for Fort Greely, Alaska*. (ERDC/CRREL TR-01-4). US Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Lab. Hanover, NH.

Nakata Planning Group. 1987. *Master Plan Report*. Prepared for U.S. Army Corps of Engineers, Alaska District. Anchorage, AK.

Naval School, Civil Engineer Corps Officers. Natural Resource Management Compliance – Support Information (CD). Naval School, Civil Engineer Corps Officers, Port Hueneme, California.

Quirk, W.A., W. Gossweiler, and E. Kiker. 1978. *Natural Resources Conservation Program*. A Management Plan for Natural Resources on 172d INF BDE Lands, Alaska. 30 pp. + app.

Racine, C.H., R. Bishop, C. Collins, P. Kuropat, and J. Walters. 1990. *The Use and Environmental Impacts of Airboats on the Tanana Flats, Fort Wainwright, Alaska*. U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory. Hanover, N.H. 123 pages

The Training Network. Hazardous Chemicals – Safety in Healthcare (CD). The Training Network, Durham, North Carolina.

The Training Network. Universal Precautions (CD). The Training Network, Durham, North Carolina.

Travis/Peterson Environmental Consulting, Inc. 2015. Multi-Sector General Permit (MSGP) Storm Water Pollution Prevention Plan (SWPPP). Prepared for Salcha Delta Soil and Water Conservation District.

USAGAK. 2007. *2007-2011 U.S. Army Garrison Integrated Natural Resources Management Plan*. Fort Richardson, Alaska plus appendices.

USAG Fort Greely, Alaska. 2019. *Outdoor Recreation Plan.* USAG Fort Greely, Alaska.

USAG Fort Greely, Alaska. 2015. *Wildland Fire Management Program 2015 Tasker and Review.* Fort Greely, Alaska.

USAG Fort Greely Alaska. 2015. *Natural Resources FGA NR REG 200-1.* USAG Fort Greely, Alaska.

USAG Fort Greely, Alaska. 2005. *Environmental Assessment Fort Greely Installation, Fort Greely, Alaska.* USAG Fort Greely, Alaska.

United States Army Garrison Fort Greely. 2014. *U.S. Army Garrison, Fort Greely, Alaska Integrated Natural Resources Management Plan.* USAG Fort Greely, Alaska.

United States Army Garrison Fort Greely. 2007. *U.S. Army Garrison, Fort Greely, Alaska Integrated Natural Resources Management Plan 2007-2011.* USAG Fort Greely, Alaska.

United States Department of Defense. 2013*. Integrated Natural Resources Management Plan (INRMP) Implementation Manual.* US Department of Defense, Washington, DC.

US Army Garrison Fort Wainwright. 2018. Draft Integrated Pest Management Plan for Fort Wainwright, Alaska. US Army Garrison Fort Wainwright. Fairbanks, Alaska. 103 pages.

US Army Garrison Fort Wainwright. 2014. Wildlife Aircraft Strike Hazard (WASH) Program. US Army Garrison Fort Wainwright. Fairbanks, Alaska. 40 pages.

US Army Garrison Fort Wainwright. 2006. *Fort Wainwright Landscape Plan*. US Army Garrison Fort Wainwright. Fairbanks, Alaska. 19 pages.

US Army Garrison Fort Wainwright. 2002. Fort Wainwright Community Tree Ordnance. US Army Garrison Fort Wainwright. Fairbanks, Alaska. 12 pages.

US Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United Staes Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management. 93 pages.

USARAK. 1981. *Natural Resources Management Plan, Fort Wainwright, Alaska*. Natural Resources Branch, Fort Wainwright, AK. 27 pp. + appendices.

USARAK. 1970. *Wildlife and Fisheries Plan for Fort Jonathan M. Wainwright, Alaska*. Natural Resources Branch, Fort Wainwright, AK. 23 pp. + appendices. Revised March 1970.

Viereck, L.A., C.T. Dyrness, A.R. Batten, and K.J. Wenzlick. 1992. *The Alaska Vegetation Classification*. Gen. Tech. Rep. PNW-GTR-286. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 278 p.

Young, D.D. 2010. *Unit 20A moose*. Pages 320-344 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007-30 June 2009. Alaska Department

Appendix A3. Summary of Changes to INRMP

1. The 2020 USAG Alaska INRMP includes natural resource policies, programs, prescriptions, projects, and procedures for both installations. During the 2013 INRMP update, the USAG Alaska INRMPs were separate documents as Fort Wainwright and Fort Greely were considered separate IMCOM installations. As a result of reorganization in 2018, USAG Fort Wainwright and USAG Fort Greely were combined into one garrison organization, USAG Alaska, which has chosen to combine the INRMP for both locations into one document.
2. Per Army guidance, the format of the 2020 USAG Alaska INRMP has changed. The 2020 USAG Alaska INRMP has been reformatted to match the US Army Environmental Command INRMP template, dated 22 August 2016. To streamline and shorten the document, the INRMP Memorandum of Understanding is incorporated into the document (most appendices have been removed and other related plans are incorporated by reference (i.e. IPMP, WASH plan, IWFMP).
3. Per Army guidance, the specific dates attached to the INRMP are de-emphasized. The INRMP must be reviewed annually and evaluated for operation and effect at least once every 5 years, but if the policies, programs, procedures, and practices do not change substantially, with agreement of the Sikes Act partners, the existing plan will remain in effect. Specific projects will be included in an appendix and will be updated annually as they are funded, implemented, and completed, but project updates will not require new signatures from the Army or its Sikes Act partners as long as those projects are the same project types analyzed in previous INRMPs and NEPA documentation.
4. The updated INRMP has:
    1) Added an analysis of impacts of climate change on mission and natural resource management;
    2) Limits firewood harvests based on annual allowable cut for each major training area;
    3) Increases prescribe fire acres to the maximum allowable perimeter as defined in approved burn plans; and
    4) Continue to follow USFWS recommendations for MBTA compliance including survey options prior to vegetation clearing.
5. Due to funding constraints and to bring the program into line with IMCOM priorities, the updated INRMP will:
    1) Reduce implementation of natural resource projects not expressly required by law,
    2) Limit work to complete planning level surveys to areas impacted by the military maneuver mission;
    3) Remove Special Interest Area designation from Wood River Buttes, Clear Creek Buttes, and the Tanana Flats Migratory Bird Area (training area 202 and 203),
    4) Remove spring restrictions from Sandhill Crane Roosting Area;
    5) Consider increasing firewood cutting prices to match current rates set by the State of Alaska Division of Forestry;
    6) Consider implementing hunting, fishing, and trapping fees to match current rates set by other DoD installations;
    7) Reduce natural resource programs and personnel down to levels to only those required to comply with federal law and regulations.

Appendix A4. Memorandum of Understanding between US Department of Interior Bureau of Land Management Alaska and USAG Alaska Concerning Lands in Alaska Withdrawn by Public Law 106-65 for Military Use

I. Purpose

This document serves as the Memorandum of Understanding (MOU) required by Section 3014 of Public Law (PL) 106-65 for management of PL 106-65 withdrawn lands in Alaska. Through this MOU, U.S. Army Garrison Fort Wainwright (hereinafter referred to as "Army") and Department of Interior, Bureau of Land Management Alaska (hereinafter referred to as "BLM") fulfill the mandate of the Military Lands Withdrawal Act of 1999 to implement Resource Management Plans for lands in Alaska withdrawn under Section 3011 of PL 106-65 and the mandate of the Sikes Act to implement Integrated Natural Resource Management Plans for all military lands. This agreement clearly defines the authorities, roles, and responsibilities of the two agencies to efficiently and effectively manage these withdrawn lands.

II. Objective

Communication and coordination is needed to ensure effective cooperation between BLM and the Army (hereinafter collectively referred to as the "Parties") for management of lands in Alaska withdrawn by PL 106-65. PL 106-65 directs the Secretary of the Interior, through BLM, to manage the withdrawn lands, pursuant to the Federal Land Policy and Management Act of 1976 (FLPMA). In addition, the Sikes Act requires the Department of Defense to manage natural resources on all of its lands, to include all withdrawn lands, and Army Regulation 200-1 requires the Army to prepare, update and implement Integrated Cultural Resources Management Plans for all installations with significant cultural resources. The overlapping authorities of these laws can lead to confusion about management responsibility and authority and diminish cooperation between agencies. This MOU applies to lands in Alaska withdrawn for military purpose under Section 3011 of PL 106-65, listed in the law as the Fort Greely East and West Training Ranges, and the Yukon Training Range of Fort Wainwright, currently known as Donnelly Training Area and Yukon Training Area, Fort Wainwright, Alaska.

III. Authority

A. Military Lands Withdrawal Act of 1999 (Public Law 106-65)
B. Federal Land Policy and Management Act of 1976 (Public Law 94-579), as amended (43 U.S.C. 1701 et seq.)
C. Sikes Act (Public Law 86-797), as amended (16 U.S.C. 670 et seq.)
D. Section 6 of the Engle Act of 1958 (Public Law 85-33 7)
E. 1994 Fort Greely and Fort Wainwright Yukon Maneuver Area Resource Management Plans (RMPs), as amended
F. US Army Garrison Fort Wainwright Integrated Natural Resource Management Plan
G. (INRMP), as updated
H. Army Regulation 200-1

IV. Procedure

A. Definitions

As used herein, the Parties agree to the following definitions:

1. Joint Management[2]

Joint Management refers to congressionally directed shared responsibility by the BLM and Department of Defense for organizing, controlling, and supervising activities on certain withdrawn federal lands. For instance, Section 3014 of PL 106-65 directs the Secretary of the Interior to manage lands withdrawn under section 3011 pursuant to the FLPMA and other applicable laws. Likewise, the Sikes Act requires the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations, sustainable multi-purpose use of the resources [including hunting, fishing, trapping and non-consumptive uses], and public access to military installations [subject to military safety and security requirements], including all public lands withdrawn from all forms of appropriation under public laws and reserved for the use by the Secretary of Defense or the Secretary of a military department.[3] These overlapping requirements do not absolve either agency from responsibility for natural and cultural resources management on the same withdrawn lands; rather they enhance the ability of both agencies to partner to provide more effective, joint management.

2. Military Use

PL 106-65 Section 3011 (c) (l) defines military use as "(A) military maneuvering. training, and equipment development and testing; (B) training for aerial gunnery, rocketry, electronic warfare, and tactical maneuvering and air support; and (C) other defense-related purposes consistent with the purposes specified in I Section 301 l(c)(l)]". Other defense related purposes include activities required to support military use, such as construction, repair, maintenance, and upgrade of (1) training range facilities, (2) training area transportation networks and (3) training lands. Military use, broadly defined, therefore also includes any use or action that serves to support the military mission. As an example, a Sikes Act INRMP details plans, programs, policies, and projects that support infrastructure, ranges, and habitat to support the type of training and testing listed above. Therefore, natural resources management activities conducted through an approved Sikes Act compliant INRMP are included in the broad definition of military use.

3. Stewardship

Stewardship actions are those actions which maintain or enhance natural or cultural resources entrusted to the federal government by the public. Stewardship actions include policies that protect, maintain, or enhance natural or cultural resources and potentially limit use that might degrade natural or cultural resources. Stewardship

[2] Interagency Handbook for the Joint Stewardship of Withdrawn or Permitted Federal Lands Used by the Military. DOI - BLM, USDA - USFS, DOD. 2000.

[3] Congress specifically included lands such as those "temporarily withdrawn" from the public domain, citing PL 99-606 (the military Lands Withdrawal Act of 1986 – the precursor to PL 106-65) as an example in committee reports.

actions also include policies to promote public recreational use of natural resources within constraints of public safety, security and long-term resource sustainability.

B. Vegetation and Minerals Management

1. Authority

    a. BLM. PL 106-65; FLPMA; Section 6 of the Engle Act of 1958.

    b. Army. PL 106-65; Sikes Act.

2. Responsibility

    a. The Parties have concurrent vegetation management jurisdiction and responsibilities.

    b. The BLM has sole jurisdiction and responsibility over minerals management pursuant to Section 6 of the Engle Act of 1958, except the Army is authorized by Section 3022 of PL106-65 to use sand, gravel, or similar mineral material resources for construction needs on lands withdrawn by PL 106-65.

3. Agreements and Understanding

    a. BLM has determined, with the concurrence of the Army, that consistent with Public Land Order 5187, at this time none of these withdrawn lands are suitable for opening to the operation of the Mining Law of 1872, the Mineral Leasing Act of 1920, the Mineral Leasing Act for Acquired Lands of 194 7 or the Geothermal Steam Act of 1970.

    b. BLM agrees to defer authority to the Army to sell timber, firewood and other wood products while conducting vegetation management actions for the purpose of military mission support or stewardship consistent with the RMPs and INRMP. The Parties recognize the advantage of depositing funds into the military forestry reserve account which allows proceeds from sales of forest products to be cycled back into natural resource projects on the installation from which it was produced.

    c. The Army is responsible for detecting and managing non-native invasive species consistent with the RM-P's and INRMP.

    d. The BLM is responsible for detecting and managing non-native invasive species associated with nonmilitary-controlled activities consistent with the RMP's and BLM policy.

    e. BLM retains the authority under Section 3014(a) of PL 106-65 to issue agricultural leases for non-military purposes consistent with the RMPs and INRMP, with Army concurrence. BLM agrees to defer authority to the Army to issue agricultural leases for actions which provide military mission support

    f. The Parties agree that BLM retains authority for minerals management, and that BLM will not issue any permit or lease for the disposition of mineral materials, including sand and gravel and related materials, without the concurrence of the Army. BLM does not grant authority to Army to permit, lease, or sell minerals or allow exploration or mining.

C. Military Mission Support Actions

1. Authority

    a. Army. PL 106-65. USC Title 10.

2. Responsibility

    a. The Army is responsible for all environmental compliance requirements related to the conduct of the military mission.

3. Agreements and Understanding

    a. The Army is responsible for all environmental compliance requirements related to the conduct of the military mission, to include, but not limited to: National Environmental Policy Act documentation, Clean Water Act compliance (Section 404 permitting, Section 401 storm water), National Historic Preservation Act (NHPA) Compliance, Section 106 NHPA consultation, essential fish habitat consultation, Migratory Bird Treaty Act compliance, etc.

    b. To the extent funds are available for such purpose the Army shall maintain a program of decontamination of these withdrawn lands consistent with applicable Federal and State law.

    c. BLM agrees to defer authority to the Army to conduct vegetation management actions that support the military mission consistent with the RMPs and INRMP, to include actions that reduce fuel loading, create/maintain fire or fuel breaks, etc. BLM may provide fuel management or prescribed fire services to the Army but only if established through a separate agreement between the BLM Alaska Fire Service (BLM AFS) and the Army.

D. Natural and Cultural Resource Stewardship Actions

1. Authority

    a. BLM. PL 106-65; FLPMA.

    b. Army Sikes Act

2. Responsibility

    a. The Army is primarily responsible for stewardship actions.

    b. BLM retains authority to conduct stewardship actions with Army concurrence.

    c. Proponent agency is responsible for all environmental documentation and permitting requirements for its stewardship actions.

3. Agreements and Understanding

    a. Data Sharing

        i. The Parties agree to share data and reports resulting from any natural or cultural resource studies conducted on these withdrawn lands.

        ii. Studies initiated by agencies other than the Army shall be approved by both Parties prior to being conducted.

    b. Natural Resources

i. BLM agrees to maintain RMPs as required by PL 106-65. BLM agrees to gain concurrence for RMP updates from the Army. Both Parties agree to implement the RMPs.

ii. The Army agrees to maintain an INRMP as required by the Sikes Act. The Army agrees to ensure that the INRMP is consistent with RMPs.

iii. BLM defers wildlife and wildlife habitat management authority to Army for the purpose of natural resource stewardship actions consistent with the RMPs and the INRMP. The Army agrees to provide an annual report to BLM on these actions.

iv. BLM defers vegetation management authority to Army for the purpose of natural resource stewardship actions consistent with the RMPs and the INRMP. The Army agrees to provide an annual report to BLM on vegetation management actions.

v. Army agrees to take primary responsibility for outdoor recreation actions. Army will work to maximize access for recreational activities within the constraints of public safety, military security and long-term natural resource sustainability.

vi. Army agrees to take primary responsibility for habitat and wetland management actions consistent with the RMPs and INRMP.

c. Cultural Resources

i. BLM agrees to defer authority to Army to issue Archaeological Resources Protection Act permits.

ii. The Army agrees to take primary responsibility to maintain historic property inventories and databases as required by Section 110 of the NHPA.

iii. The Army agrees to take primary responsibility for compliance with the Native American Graves Protection and Repatriation Act.

E. Real Estate Actions

1. Authority

a. BLM. PL 106-65; FLPMA.

b. Army. USC Title 10.

2. Responsibility

a. Army is responsible for all real estate actions required to support military actions or activities.

b. BLM is responsible for issuing authorizations for non-military (third-party) uses of the withdrawn lands.

3. Agreements and Understanding

a. The Army shall prepare all documents for real estate actions involving the military mission. The Army shall provide copies of all real estate actions to BLM.

b. The Army shall prepare all applicable environmental documentation, consultation and permitting for military activities on these withdrawn lands. This documentation should address impacts of the proposed military activities on the decisions and resources addressed in the RMPs. The Army shall coordinate all NEPA documents, formal consultations and permits with BLM, providing opportunity to comment, during each stage of the authorization process. The BLM shall comment in writing. The Army shall provide BLM copies of all final NEPA documents, consultations or permits.

c. BLM shall prepare all documents for all real estate actions not involving a military nexus. All non-military use of the withdrawn lands shall be subject to such conditions and restrictions as may be necessary to permit the continued and future military use of such lands. Any use authorized by BLM must have Army concurrence to ensure military use is not hindered. The Army shall grant or deny concurrence in writing. The Army may attach stipulations designed to protect present or future military use to any concurrence for non-military use. Such stipulations may not be used as a de facto means of denying military use. The Army's concurrence may be withdrawn for cause.

d. BLM or the proponent shall prepare all applicable environmental documentation, consultation and permitting for non-military activities on these withdrawn lands following a preliminary consultation with the Army. BLM shall coordinate all NEPA documents, formal consultations and permits with the Army, providing opportunity to comment, during each stage of the authorization process. The Army shall comment in writing. BLM shall provide the Army copies of all final NEPA documents, consultations or permits.

e. The Army shall promptly notify BLM in the event that these withdrawn lands will be used for defense related purposes other than those specified in section 3011(c) (1) of PL 106-65. Such notification must indicate the additional uses involved, the proposed duration of such uses and any proposed restrictions to be imposed on otherwise permitted non-military uses of the withdrawn lands.

F. Wildland Fire Management

1. Authority

a. PL 106-65.

2. Responsibility

a. The Army is responsible for preventing and suppressing brush and range fires occurring within and outside these withdrawn lands as a result of military activities.

b. The BLM shall aid in the suppression of fires occurring within and outside these withdrawn lands as a result of military activities upon the request of the Army. The specific details concerning the type and process for obtaining BLM assistance, including reimbursement for BLM costs, shall be established through a separate agreement between the BLM AFS and the Army.

c. The BLM is responsible for preventing and suppressing brush and range fires occurring within and outside these withdrawn lands as a result of non-military

activities, including fires ignited by natural causes and human causes not related to military activities.

3. Agreements and Understanding

a. Wildland fire management actions will be conducted in accordance with the RMPs and the Interagency Wildland Fire Management Plan.

b. The Army may seek assistance from the BLM in the suppression of brush and range fires resulting from military activities.

c. The Army may seek assistance from the BLM in completing Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR) once the fire is declared contained.

d. The Army is required to provide for a transfer of funds from the Army to BLM as compensation for any assistance provided in the suppression (including ES and BAR activities) of brush and range fires resulting from military activities. The specific details concerning when and how funds are transferred between the BLM and the Army are to be established through a separate agreement between the BLM AFS and the Army.

G. Enforcement and Access

1. Authority

a. BLM. PL 106-65; FLPMA.

b. Army. Title 10. Sikes Act.

2. Responsibility

a. The Parties share concurrent jurisdiction over these withdrawn lands.

b. The military's need for safe and secure training areas dictates that the Army has primary responsibility for controlling access to these withdrawn lands. The Army agrees to take primary responsibility for enforcement and access control.

c. BLM retains the authority to conduct enforcement.

3. Agreements and Understanding

a. All hunting, fishing, and trapping on these withdrawn lands shall be conducted in accordance with the provisions of section 2671 of title 10, United States Code.

b. The Army will maintain signs at all major road and trail entrances to the withdrawn lands identifying the property and access requirements.

c. The Army will maintain signs warning the public and prevent access into impact areas and other restricted areas.

d. The Army may allow specific non-military uses and users into closed areas as appropriate.

e. The Army will close potentially dangerous lands in addition to those described in the RMPs if any are created or discovered.

f. The Army may close a buffer around impact areas during use.

g. The Army may restrict vehicle use more than described in the RMPs if required to prevent conflict with the military mission.

h. BLM, with Army concurrence, may impose greater restrictions on non-military vehicle use than described in the RMPs as necessary to protect the environment.

i. The Parties, through mutual consent, may lift the restrictions on vehicle use described in the RMPs.

j. All trespass constitutes an infringement on the military mission and is subject to Army and BLM enforcement activities. In cases in which the action of the trespasser, if otherwise undertaken pursuant to valid permit or other authorization would require the payment of rentals, fees or appraised value, the Army will coordinate law enforcement activities with BLM, but this should in no way inhibit or delay the Army's abatement activity.

V. Administration

A. Nothing in the MOU shall be construed as obligating the Army or BLM to expend funds in excess of appropriations authorized by law.

B. The Parties agree to the following measures to coordinate implementation and resolve disputes regarding this MOU and the RMPs:

1. The primary Army point of contact will be the Natural Resources Manager (located within the department of Public Works, Environmental Resources Division). The Natural Resource Manager will coordinate actions through the appropriate military chain of command for approval or concurrence.

2. The primary BLM point of contact will be the Eastern Interior Field Office (EIFO) Assistant Field Manager. The EIFO Assistant Field Manager will coordinate actions through the appropriate BLM chain of command for approval or concurrence.

3. The second level for project coordination and dispute resolution shall be:

a. US Army Garrison Fort Wainwright Director of Public Works

b. BLM EIFO Field Manager

4. The above-named points of contact may be changed by written notification.

5. The third level for project coordination and dispute resolution shall be:

a. US Army Garrison Fort Wainwright Commander

b. BLM Fairbanks District Manager

C. BLM and the Army may enter into supplemental agreements where necessary to specify interrelationships in detail or for specific projects or activities. Any supplemental agreement will be in accordance with this MOU and PL 106-65.

D. The Parties will review this agreement at least every five years to determine its adequacy, effectiveness and need for updating.

E. The terms of this MOU may be renegotiated at any time at the request of either signatory, following 30 days' notice to the other party.

F. Either party may propose changes to this MOU during its term. Such changes will be in the form of an amendment and will become effective upon signature by both parties. Such amendments may be signed by the signatory or that person's successor or designee.

G. This MOU will expire 6 November 2026, unless cancelled, extended, or renewed.

H. Authorized Representatives - By signature below, the Parties certify that the individuals listed in this document as representatives of the Parties are authorized to act in their respective areas in matters related to this MOU.

I. This MOU will become effective upon the last date of signature below by the Parties.

APPROVED:

ORIGINAL SIGNED 10/14/2016
Bud Cribley
State Director, Alaska State Office
Bureau of Land Management

ORIGINAL SIGNED 11/18/2016
Sean C. Williams
Colonel, U.S. Army Fort Wainwright
Commanding

Appendix A5. INRMP EA Final Finding of No Significant Impact

United States Army Garrison, Alaska Integrated Natural Resources Management Plan

The National Environmental Policy Act of 1969 requires federal agencies to consider potential environmental impacts prior to undertaking a course of action. Within the Department of the Army, the National Environmental Policy Act is implemented through regulations promulgated by the Council on Environmental Quality [40 CFR Parts 1500 – 1508], with supplemental guidance provided by Army National Environmental Policy Act regulations [32 CFR Part 651]. In accordance with National Environmental Policy Act, U.S. Army Garrison, Alaska (USAG-AK) has prepared an environmental assessment to consider the environmental effects of the proposed Integrated Natural Resources Management Plan for USAG-AK lands (Fort Wainwright and Fort Richardson).

Description of Action: The decision is whether to implement Alternative 1: Continue Current Integrated Natural Resources Management Plan without Updates (No Action); Alternative 2: Implement Updated Integrated Natural Resources Management Plan (Proposed Action); or Alternative 3: Suspend Integrated Natural Resources Management Plan.

Under Alternative 2, an off-road recreational vehicle policy sub-alternative must be chosen. These include Sub-Alternative A: Implement limited seasonal, spatial, water level, and weight restrictions on off-road recreational vehicles and motorized watercraft, Sub-Alternative B: Implement moderate seasonal, spatial, water level and weight restrictions, and Sub-Alternative C: Implement significant seasonal, spatial, water level and weight restrictions on off-road recreational vehicles and motorized watercraft.

As individual natural resource projects are initiated, this Environmental Assessment would be utilized as the foundation for NEPA analysis. Project-specific assessments would tier from it to account for site- specific conditions and impacts.

Procedure: Analysis of potential environmental impacts associated with each alternative action is set forth in the United States Army Garrison, Alaska Integrated Natural Resources Management Plan Environmental Assessment. The findings of this Environmental Assessment are incorporated into this decision document. Potential issues were determined to be relevant if they fell within the scope of the proposed action, if they suggested different actions, or if they influenced the decision on the proposed action. Early in the process, USAG-AK and agency stakeholders or experts were informed of the proposed action, and their comments were solicited. Solutions responsive to public concerns and questions were integrated into elements of the proposed action. Public review was conducted from December 17, 2006 through January 15, 2007. No public comments were received during the public comment period.

Discussion of Anticipated Environmental Impacts for Implementation of the U.S. Army Garrison Alaska Proposed Integrated Natural Resources Management Plan:

Under Alternative 1 (no action alternative), policies enacted under previous Integrated Natural Resources Management Plans would continue without any new standard procedures or new projects. Alternative 1 would provide minor to beneficial impacts to soils, vegetation, water, fish and wildlife, public access and recreation, cultural resources. Alternative 2 would put in place 16 new procedures and policies and five years of projects designed to support the military mission and conserve the environment. Sub-Alternative 2a would provide mostly beneficial impacts to soils, vegetation, water and fish and wildlife resources and minor to beneficial impacts to recreation and access, and cultural resources. Sub-alternative 2b would provide beneficial impacts to soils, vegetation, water and fish and wildlife resources, and cultural resources, but would provide moderate impacts to recreational users. Sub-alternative 2c would provide beneficial impacts to soils, vegetation, water and fish and wildlife resources, and cultural resources, but would provide severe impacts to recreational users. Alternative 3 would stop all-natural resource management and would result in severe negative impacts to all resources and public access and recreation and would result in the inability 10 sustain lands for military purposes. After consideration of potential environmental impacts, community concerns, and U.S. Anny Alaska mission requirements, Alternative 2a: Implement Updated Integrated Natural Resources Management Plan including revised recreation use policy was found to offer the best course of action.

Mitigation Measures: Natural resources management actions are mitigation for other activities Including mitigation for tl1e Army mission in Alaska, Anny Transformation in Alaska, Alaska Land Withdrawal and other actions. Therefore, no additional mitigation measures are proposed.

Conclusion: In an attempt to balance the Anny's training and readiness responsibilities and land stewardship obligations, USAG-AK has chosen Alternative 2: Implement Updated Integrated Natural Resources Management Plan as its preferred alternative and Sub-Alternative A: implement limited seasonal, water level, and weight restrictions on off-road recreational vehicles and motorized watercraft. Based on a review of the information contained in this Environmental Assessment, USAG -AK determined that implementation of the updated Integrated Natural Resources Management Plan, as set forth in Alternative 2, is not a major federal action that would significantly affect the quality of the environment witl1in the meaning of Section l02(2XC) of the National Environmental Policy Act of 1969, as amended. Accordingly, the preparation of an environmental impact statement for this proposed action is not required.

Point of Contact: Requests for further information should be directed to Carrie McEnteer, USAG-AK National Environmental Policy Act Coordinator, IMPC-FW A-PWE, l060 Gaffney Rd #4500, Fort Wainwright, AK 99703-4500; (907) 353-9507; carrie.mcenteer@us.army.mil.

Approved by:

Original Signed 2/27/2007

DAVID L SHUTT
Colonel, U.S. Army

Commanding

Appendix B1. INRMP Standard Operating Procedures (Best Management Practices)

The following is a list of BMPs USAG Alaska and USARAK TSA AK will implement for this INRMP:

Continue using resource protection area maps to protect vulnerable habitats when developing projects to avoid construction in sensitive areas and to indicate areas with restrictions on maneuver training.

Avoid ground disturbing projects in permafrost and highly erodible soils whenever possible.

Avoid wetlands and seasonal water bodies during the non-frozen season especially wetland types identified by the USFWS as high value.

Use certified weed free native seed and local seed sources as practical for revegetation projects.

Use biodegradable erosion control products as practical.

Vehicular travel on winter trails should use the State of Alaska, Department of Natural Resources recommendations for minimum snow and frost depth.

Maintain 100-foot riparian buffers when practical for projects located near surface water.

Preserve natural vegetation and the soil organic mat to the greatest extent practical in areas with high erosion potential, wetlands, riparian zones, permafrost soils, and steep slopes.

Review ecotype and habitat maps to determine if a project has the potential to be located within the preferred habitat of a species of interest or a USFWS species of conservation concern.

Retain key habitat features for wildlife within project areas as defined by the Alaska Department of Fish and Game, Alaska Wildlife Action Plan (examples include cavity trees, snags, and downed logs).

Sandhill Cranes (*Grus Canadensis*) pose a significant Wildlife Aircraft Strike Hazard to low-altitude aviation training exercises in the Delta River corridor (Washington, Mississippi, and Small Arms Impact Areas). To avoid Wildlife Aircraft Strike Hazards and unintentional Sandhill Crane take, observers should be posted at observation points to monitor for Sandhill Cranes 2 hours before sundown between September 1 and September 30.

Avoid conducting activities or operations in a way that would directly adversely impact fish and wildlife resources. Military training activities shall not intentionally target wildlife when conducting firing activities and shall not intentionally harass fish and wildlife (defined here as intentionally driving or flying at fish and wildlife with the intent to move or change their movement). Explosive ordinances, or munitions containing explosives, shall not be fired or dropped as practical within 500 meters of Bison (*Bison bison bison*), Moose (*Alces alces*), Caribou (*Rangifer tarandus*), Black Bear (*Ursus americanus*), Brown Bear (*Ursus arctos*), Dall Sheep (*Ovis dalli*), and Sandhill Cranes.

Continue to ban the use of any munitions containing white phosphorus in wetlands.

Avoid disturbing known bat maternity roost sites as practical.

Comply with training restrictions relating to wildlife per USARAK Range Regulation 350-2. Comply with recreational activities restrictions and vehicle use policies, per USAG Alaska Regulation 190-13.

Comply with training exercise regulations and wildfire prevention as stipulated by USARAK Range Regulation 350-2.

Obtain ADFG Habitat Permits for actions impacting anadromous and resident high value fish and follow fish passage design guidelines from USFWS and ADFG as practical (www.akfishhabitat.org).

Natural drainage patterns shall be maintained to the extent practicable by the installation of culverts in a sufficient number and size under access roads and trails to prevent ponding, diversion, or concentrated runoff that would result in adverse impacts to adjacent wetlands and other fish and wildlife habitats.

Comply with the Bald and Golden Eagle Protection Act requirements.

Follow USFWS recommendations for tower construction to minimize wildlife impacts as practical.

Follow ADFG recommendations for fence construction to minimize wildlife impacts as practical.

Follow ADFG recommendations to minimize bear human interactions as practical.

Follow Alaska Forest Resources and Practices Act recommendations for timber harvest, reforestation, and access activities as practical.

Review project areas for invasive species and assess invasiveness using information from the Alaska Center for Conservation Science, Exotic Plant Information Clearinghouse, https://accs.uaa.alaska.edu/invasive-species/non-native-plants. Species with an invasiveness of 70 or greater which may pose an invasive threat due to a high propensity to spread should be addressed with the following practices: wash vehicles and boots to remove any soil and plant material before entering training areas, inspect and remove plant material from boats and floatplanes before entering training areas. Further recommendations for invasive species management include: use certified weed free seed and erosion control products, only use ornamental landscape plants recommended by the University of Alaska Fairbanks (UAF) Cooperative Extension Service, certify material sites are weed free before using sites for construction projects and follow UAF Cooperative Extension Service's guidelines for controlling the spread of invasive species.

Special attention will be given to USFWS Birds of Conservation Concern and species that warrant special attention due to vulnerability when projects are reviewed. Standard conservation measures are recommended in order to avoid impacts to migratory birds that incidentally may breed in a project area. Such conservation measures would include: all vegetation removal, trimming, and grading of vegetated areas should be scheduled outside of the peak bird breeding season to the maximum extent practicable. Recommend no mechanized vegetation clearing from May 1 – July 15 for migratory birds and starting March 1 for owls, jays

and ravens. If the proposed project activities cannot occur outside the bird nesting season, surveys should be conducted no more than five days prior to scheduled activity. If any active nests or breeding bird behavior are detected within the area of impact during surveys, recommend no vegetation removal activities should be conducted until nestlings have fledged or the nest fails or breeding behaviors are no longer observed. If the activity must occur, recommend establishing a buffer zone around the nest and no activities will occur within that zone until nestlings have fledged and left the nest area.

Appendix B2. Associated Management Plans and 2013 Sikes Act MOU

List of associated management plans and Sikes Act Memorandum of Understanding (2013). All listed documents available by contacting DPW Environmental or visiting the DPW Environmental website at: https://home.army.mil/alaska/index.php/fort-wainwright/garrison/public-works/environmental/natural-resources

Tittle	Responsible Agencies	Last Updated
Memorandum of Understanding Between the U.S. Department of Defense and the U.S. Fish and Wildlife Service and the Association of Fish and Wildlife Agencies for Cooperative Integrated Natural Resource Management Program on Military Installations	Department of Defense, Department of Interior, Association of Fish and Wildlife Agencies	2013
Integrated Wildfire Management Plan	USAG Alaska, Department of Interior	2020
Fort Greely Integrated Wildland Fire Management Plan	USAG Alaska	2012
Integrated Pest Management Plan	USAG Alaska	2018
LAAD Army Airfield Wildlife Strike Hazard Plan	USAG Alaska	2016
Allen Army Airfield Wildlife Strike Hazard Plan	USAG Alaska	2019
Fort Wainwright Conservation Law Enforcement Standard Operating Procedure	USAG Alaska	2020
Integrated Cultural Resource Management Plan	USAG Alaska	2019
USAG Fort Wainwright Regulation 190-13	USAG Alaska	2013
Fort Greely Proposed Resource Management Plan	USAG Alaska, Department of Interior	1993
Fort Wainwright Proposed Resource Management Plan	USAG Alaska, Department of Interior	1993