



CHAPTER 4. PHYSICAL RESOURCES MANAGEMENT

4.1 Integrated Training Area Management (ITAM)

Army training is designed to challenge soldiers, leaders, and units. As the Department of Defense's (DOD) 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 use of these lands for training and testing purposes causes damage that can potentially reduce the quality of training on these lands. ITAM serves the overall needs of the Army by overcoming the apparent conflict between force readiness and stewardship.

There are four components of ITAM. These four components work in unison to accomplish the ITAM mission:

- ▶ Land Condition Trend Analysis (LCTA)
- ▶ Training Requirements Integration (TRI)
- ▶ Land Rehabilitation and Maintenance (LRAM)
- ▶ Environmental Awareness (EA)

4.1.1 ITAM Goals and Objectives

ITAM is a key part of the Army's commitment to environmental stewardship. Four of the Chief of Staff of the Army's goals serve as the foundation for official ITAM policy. ITAM goals and objec-



Soldiers participate in the Land Rehabilitation and Maintenance program.

tives all contribute to one or more of the overall natural resources program goals of stewardship, military training support, compliance, quality of life, and integration. The four ITAM goals and objectives are listed below:

- Integrate environmental planning procedures into all operations.
- Protect natural and cultural resources.
- Ensure operations comply with environmental standards and receive no notices of violation or fines for noncompliance.
- Prevent future pollution and reduce hazardous waste and toxic releases.

The ITAM program is the Army's formal strategy for focusing on sustained use of training and testing lands. The intent of the ITAM program is to systematically provide a uniform training land management capability across the total Army. The Army will manage its lands in a manner to ensure no net loss of training capabilities and to support current and future training and mission requirements. The integration of stewardship principles into training land and conservation management practices ensures that the Army's lands remain viable to support future training and mission requirements.

ITAM establishes a systematic framework for decision-making and management of Army training lands. It integrates elements of operational, environmental, master planning, and other programs

that identify and assess land use alternatives. The ITAM program also supports sound natural and cultural resources management practices and stewardship of land assets, while sustaining those assets to support training, testing, and other installation missions.

The goals of the Army's ITAM program are as follows:

- Achieve optimal sustained use of lands for the execution of realistic training by providing a sustainable core capability that balances usage, condition, and level of maintenance.
- Implement a management and decision-making process that integrates Army training and other mission requirements for land use with sound natural and cultural resources management.
- Advocate proactive conservation and land management practices.
- Align Army training land management priorities with the Army training, testing, and readiness priorities.

The objectives for meeting the ITAM program goals are as follows:

Determine the capacity of the land to:

- Sustain training and testing through diagnostic methods, models, and tools.
- Support assignment of the optimum type, frequency, duration and intensity of training and testing that can be conducted on a given parcel.
- Identify the risks and costs associated with exceeding the capacity of the land.
- Allocate training land uses, including the type, frequency, duration and intensity of use, based on the capacity of the land to sustain those uses.
- Support sustained use of land by planning, programming, and executing repair and maintenance projects, and by reconfiguring and redesigning training and testing areas to meet recognized requirements.

- Educate users to prevent avoidable damage to the land and minimize unavoidable damage resulting from training, testing, and other mission activities.
- Establish a defined land condition baseline for natural and cultural resources that will be maintained through ITAM and is relevant to the installation environmental setting and mission activity.
- Monitor land and natural resources conditions and determine trends in those conditions.
- Stabilize and sustain natural and cultural resources conditions by changing type, frequency, duration, or intensity of use, or by applying adjusted levels of repair and maintenance.
- Increase understanding of Army mission training requirements by educating environmental and natural resources personnel.

4.1.2 ITAM Planning – Training Requirements Integration (TRI)

Description and Justification: TRI is a decision support procedure that integrates all requirements for land use with natural and cultural resources management processes. TRI integrates the installation training and testing requirements for land use derived from the Range and Training Land Program (RTLTP), the range operations and training land management processes, and the installation training readiness requirements with the installation's natural resources conditions. The Army Training and Testing Area Carrying Capacity (ATTACC) program is the standard ITAM methodology for estimating training land carrying capacity by relating training load, land condition, and land maintenance practices. The integration of all requirements occurs through continuous consultation among the Directorate of Plans, Training, and Mobilization (DPTM), natural and cultural resources managers, and other environmental staff members. The output of the TRI process is incorporated in the installation's Integrated Natural Resources Management Plan (INRMP).

TRI supports the Army's requirements for environmentally sustainable training lands. TRI improves coordination and facilitates cooperation, deci-

sion-making, and allocation by providing uniform information regarding land conditions, trends, and any necessary modification of requirements. The TRI goals are achieved when training, testing, and environmental requirements are balanced in the decision-making process. The Sikes Act requires "no net loss" in the capability of military lands to support the military mission.

Measures of Effectiveness:

- Ensure sustained accessibility to adequate training lands to support training to standards under realistic natural condition.
- Provide military trainers and land managers with the necessary technical and analytical information to make good decisions.
- Integrate doctrinally-based training and testing with land constraints.
- Quantify training land carrying capacity.
- Reduce the number of Notices of Violation (NOVs) resulting from military maneuver training.
- Ensure the scope of training and mission activity is integrated into the INRMP.

Management History: TRI was first implemented at Fort Wainwright in 1997. ITAM and natural resources personnel have been co-located with Range Control at Fort Wainwright, ensuring effective integration of natural resources and military requirements. USARAK used a contract to build the interface and deliver AKITAM Version 1.0 in 1998 with an updated version renamed SMOTE delivered in 2001. SMOTE has connectivity to the Range Facilities Management Support System (RFMSS). USARAK has purchased computers and printers for each Range Control to store, display, and print maps and overlays.

Current Management: TRI supports USARAK's requirements for environmentally sustainable training lands. TRI improves coordination and facilitates cooperation, decision-making, and allocation by providing uniform information regarding land conditions, trends, and any necessary modification of requirements. The TRI goals are achieved when training, testing, and environmental requirements are balanced in the decision-making

Table 4-1. Training Requirements Integration.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Integrate training and testing requirements with training land management into a prioritized ITAM work plan, and execute requirements subject to availability of resources.	USARAK ITAM	High	x	x	x	x	x
Optimize training land management decisions by coordinating mission requirements and land maintenance activities with training and testing land carrying capacity.	USARAK ITAM	High	x	x	x	x	x
Identify existing and projected training land resources and prioritized land use requirements.	USARAK ITAM	High	x	x	x	x	x
Generate prioritized requirements for land rehabilitation, repair, and/or reconfiguration.	USARAK ITAM	Medium	x	x	x	x	x

process. The Sikes Act requires “no net loss” in the capability of military lands to support the military mission. USARAK currently conducts TRI on Fort Wainwright annually. TRI is approved and funded through 2002. Unless this INRMP is approved and funded, TRI will cease in 2003.

Proposed Management: See Table 4-1.

Other Management Alternatives Considered and Eliminated: There are other potential methods of managing training lands and scheduling smarter to minimize disturbance. However, other methods would be either inadequate or cost prohibitive.

4.1.3 ITAM Monitoring (Land Condition Trend Analysis)

Description and Justification: Land Condition Trend Analysis (LCTA) is the component of the ITAM program that provides for the collecting, inventorying, monitoring, managing, and analyzing of tabular and spatial data concerning land conditions on an installation. LCTA provides data needed to evaluate the capability of training lands to meet multiple use demands on a sustainable basis. It incorporates a relational database and GIS to support land use planning decision processes. LCTA collects physical and biological resources data to relate land conditions to training and testing activities. These data are intended to provide

information to effectively manage land use and natural resources.

Management Areas: LCTA maps land use on Fort Wainwright. There are three general land uses on the Fort Wainwright installation that can be described as: (1) urban areas, (2) impact areas, and (3) training areas. Training areas are further delineated into primary land use for maneuver, bivouac, foot-use, road rights-of-way, firing points, and firing ranges; and secondary land use such as gravel pits, recreation areas, campgrounds, wildlife habitat cuts, and rights-of-way. Land use categories are described as follows:

Maneuver Areas (including unimproved trails): Maneuver areas are generally open to semi-open areas where vehicles can move without running into obstacles such as trees, range buildings, streams, wetlands, and lakes. Military activities that occur in maneuver areas include conducting offensive operations, conducting tactical movement, movement to contact, relocating a unit to a new site, defending assigned area, relocating/establishing new area of operations, trail construction, mobility and counter mobility operations, reducing obstacles with equipment, and constructing obstacles with equipment.

Criteria that may exist to classify an area as a maneuver area include all signs of ruts, tire tracks, SUSV tracks, and vegetation disturbance that

was caused by vehicles, evidence of ground and vegetation disturbance, wind or water erosion, and digging/earth moving/soil disturbance.

Bivouac Areas: Bivouac areas are areas where units stop together for a period of time. Most often, bivouac areas are semi-open to semi-closed areas where the units “camp out.” Activities conducted in bivouac areas include assembly area operations, combat service support operations, and unit security and defense operations. Signs of use are tent trenches and stakes, check points, ambush emplacements, communication wire, military and camouflage netting and trash (MREs, concertina wire, communication wire, cigarette butts, or human waste), past or current foxholes, defilade positions, erosion and any other evidence of use left by units in the previous year. These areas often have bare ground and scarred trees.

Foot Use Areas: Foot use areas show little or no impacts from military use. In these areas, units are on foot and are conducting movement to contact and land navigation. Foot use areas could occur in any vegetation type with any amount of canopy cover, but are often areas that preclude vehicular movement in the summer and the winter. Examples of foot use areas are dense forests, steep terrain, and wetlands. Visible impacts, if any, on the land include any signs and evidence of foot trails, trampled vegetation, footprints, ambush sites (rip wires, spent shell casings), spent smoke grenades, and land navigation flagging.

Drop Zones/Landing Zones: Drop zones or landing zones are cleared areas used for dropping troops and equipment that are maintained by mowing and hydro-axing. These areas should have vegetation but are probably highly disturbed. Military activities include airborne assault, air assault in support of combined arms, aeromedical evacuation, and landing zones for rotary wing aircraft.

Ranges: Ranges are semi-permanent or permanent facilities for weapons firing, demolition, assault courses, or other specific training, usually with associated buildings or berms. This includes firing ranges, assault courses, urban assault areas, etc. Military uses of ranges include direct fire weapons training, MOUT training, hand grenade training, and demolition training.

Firing Points: Firing points are localized areas from which either artillery or mortars are fired. These areas are often open areas with high vegetation disturbance. Firing points are sometimes also designated by survey markers.

Airstrips/Assault strips: Airstrips and assault strips are semi-permanent or permanent facilities for aircraft landings and take-offs that are not paved or part of an urban area.

Road Corridors: Road corridors are defined as semi-permanent or permanent access ways (including ditches and the open right-of-way on each side of the road) that are improved, semi-improved or receive some type of maintenance. Non-permanent or semi-permanent trails that receive no maintenance are not classified as roads and are included in maneuver areas.

Right-of-Way: Rights-of-way are any area used for utility or pipelines (electric, gas, or communication). Areas bordering either side of improved roads are part of the road corridor and are not considered a separate right-of-way polygon in this case.

Habitat Management: Any habitat manipulations such as tree clearings and prescribed burns that are done to improve habitat for game species can be defined as habitat management areas.

Excavation: Excavations are gravel pits, military engineer training areas, or similar types of areas that show signs of digging, either manual or mechanical.

Measures of Effectiveness:

- Determine the condition of the land and its ability to support military training.
- Identify and recommend land rehabilitation and maintenance priorities.
- Identify areas degraded due to erosion and recommend erosion control repair priorities.
- Identify wetlands disturbance and recommend reclamation priorities.

Provide information that may affect force structure and stationing decisions at MACOM and DA levels.

Table 4-2. Land Condition – Trend Analysis.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Conduct annual LCTA monitoring on Fort Wainwright.	USARAK ITAM	High	x	x	x	x	x
Conduct annual LCTA data analysis and management during 2002-2006.	USARAK ITAM	High	x	x	x	x	x
Prepare annual LCTA report during 2002-2006.	USARAK ITAM	High	x	x	x	x	x

Management History: LCTA was initiated on Fort Wainwright in 1996 with 35 allocated core plots. LCTA plots were well distributed on Fort Wainwright with the exception of artillery impact areas.

Core plots are designed to be monitored intensively on a long-term basis. Frequency of intensive monitoring is dependent upon management objectives and the amount of change occurring annually on the post. Plots will be monitored using the standard methodology once every 5 to 10 years.

Alaska Region LCTA was developed in 1996 and was implemented on Fort Wainwright that same year. This methodology was created to determine the status of training lands and to provide the ecological information necessary to predict carrying capacity. LCTA plots were monitored annually during 1996-2001 using this modified technique.

Current Management: USARAK currently conducts LCTA monitoring on 10,000 acres of Fort Wainwright per year. LCTA is currently approved and funded through 2002. Unless this INRMP is approved and funded, LCTA monitoring will cease in 2003.

Proposed Management: See Table 4-2.

Other Management Alternatives Considered and Eliminated: There are many other potential methods of monitoring training lands to determine land condition. However, Alaska Region LCTA methods were developed specifically for the Alaskan ecosystems, with the specific purpose of assessing land condition in terms of its usefulness for military training. Other methods that include collecting data at many more points per year could be developed, but these would be cost prohibitive.

4.1.4 ITAM Management

4.1.4.1 Land Rehabilitation and Maintenance (LRAM)

Description and Justification: LRAM is a preventive and corrective land rehabilitation and maintenance procedure that reduces the long-term impacts of training and testing on an installation. It mitigates training and testing effects by combining preventive and corrective land rehabilitation, repair, and/or maintenance practices. It includes training area redesign and/or reconfiguration to meet training requirements.

LRAM uses technologies such as revegetation and erosion control techniques to maintain soils and vegetation required to support the military mission. These specifically designed efforts help installations maintain quality military training lands and minimize long-term costs associated with land rehabilitation or additional land purchases. LRAM includes programming, planning, designing, and executing land rehabilitation, maintenance, and reconfiguration projects based on requirements and priorities identified in the TRI and LCTA components of ITAM.

Management Areas: Management areas for LRAM are listed in Table 4-3 and a map of these areas is shown in Figure 4-1.

Measures of Effectiveness:

- Sustain long-term training and testing on lands held under the stewardship of the U.S. Army.
- Sustain the overall condition of installation lands to ensure long-term military viability of its installations.

Figure 4-1. Erosion Control/LRAM Management Areas.

See FWA INRMP Maps\FWA INRMP FIG04-01.PDF.

- Increase mobility, access, and availability within and between training areas.

Management History: There have been a number of LRAM projects completed since 1996 on Fort Wainwright. Most of these projects were designed to improve access to training areas, thereby reducing damage to wetlands and deposition of sediment into wetland areas.

Current Management: USARAK attempts to repair approximately 10% of degraded sites on Fort Wainwright per year and to improve sites for military use. Types of LRAM projects include repairing degraded land, improving access into training areas, hardening bivouac areas, and repairing

ranges. Ongoing projects include those funded in late 2001 but not projected to be completed until 2002. If this INRMP is not approved and funded, LRAM projects will cease after 2002.

Proposed Management: USARAK proposes to implement a Training Area Recovery Plan (TARP) program, a rotational system of rest, rehabilitation, and erosion control as part of the proposed action. Each training area on Fort Wainwright will be taken out of rotation and placed off-limits to military and recreational vehicle once every ten years for a period of two years. Maintenance actions for erosion control, LRAM, range maintenance, and roads and grounds maintenance will be scheduled during the first year each training area is scheduled

Table 4-3. Land Rehabilitation and Maintenance.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Implement Training Area Recovery Plan (TARP) Program.	USARAK DPTSM / Conservation	High	x	x	x	x	x
Improve access and maneuverability in Manchu Lake Maneuver Corridor – Phase 3.	USARAK ITAM	High	x				
Repair and revegetate LTA 104 and 114.	USARAK ITAM	High	x				
Harden lower Winter Camp Bivouac.	USARAK ITAM	High	x				
Improve access and maneuverability in Manchu Lake Maneuver Corridor – Phase 4.	USARAK ITAM	High		x			
Repair and revegetate Firebird Bivouac.	USARAK ITAM	High		x			
Improve access and maneuverability in Manchu Lake Maneuver Corridor – Phase 5.	USARAK ITAM	High			x		
Improve Husky DZ access trail.	USARAK ITAM	High			x		
Improve Johnson Road Maneuver Corridor.	USARAK ITAM	High			x		
Improve access and maneuverability in Manchu Lake Maneuver Corridor – Phase 6.	USARAK ITAM	High				x	
Improve Skyline Maneuver Corridor.	USARAK ITAM	High				x	
Improve winter trails in YTA 2.	USARAK ITAM	High				x	
Obtain necessary NEPA, Section 106 and CWA Section 404 permits.	USARAK ITAM	High	x	x	x	x	x
Improve access and maneuverability in Manchu Lake Maneuver Corridor – Phase 7.	USARAK ITAM	High					x
Improve bivouac access trails YTA.	USARAK ITAM	High					x
Improve Brigadier Maneuver Corridor.	USARAK ITAM	High					x
Produce annual report of project status.	USARAK Conservation	High	x	x	x	x	x

for rest and repair, although emergency actions to repair damage must take place anytime, anyplace. Proposed actions for 2002 - 2006 are shown in Table 4-3.

Other Management Alternatives Considered and Eliminated: There are many other potential sites for repair and maintenance on Fort Wainwright. However, less than 10% of the total number of sites that are degraded can be fixed per year because of cost limitations. Repairing fewer than that number of sites can lead to poor water quality and may result in degradation of the military mission.

4.1.4.2 Environmental Awareness (EA)

Description and Justification: EA is the component of ITAM that fosters a conservation ethic in military personnel. EA consists of the following three elements: training/education materials, an implementation plan for awareness training, and command emphasis. EA consists of the development of a videotape production, soldier handbooks, soldier field cards, and posters focused on maneuver damage prevention. The handbook includes a summary of restrictions on training to preserve the quality of training lands as well as a map showing areas with special environmental considerations. The videotape, handbooks, and soldier field cards were all developed in conjunction with Fort Wainwright's EA program. EA provides a means to educate land users on their environmental stewardship responsibilities. It provides for the development and distribution of educational materials to land users. These materials relate the principles of land stewardship and the practices of reducing training and/or testing impacts. EA also includes information provided to environmental professionals concerning operational requirements.

The Sikes Act requires "no net loss" in the capability of military lands to support the military mission. EA supports this compliance goal by reducing maneuver damage, reducing long-term maintenance costs for repair of training lands, and improving operational security skills. When land users practice environmental stewardship in the field, they are also achieving Army mission objectives. The EA program provides the land users with an understanding of how mission, training, testing, and other activities impact the land's capacity for

sustaining a realistic training environment. EA also educates land users on how their land use affects the resident wildlife and vegetation.

Measures of Effectiveness:

- No net loss in the capability of Fort Wainwright to support the military mission.
- Decrease the number of Notices of Violation and fines as a result of military training.
- Minimize the amount of maneuver damage.
- Educate land users of their environmental stewardship responsibilities.
- Conduct operational awareness for environmental professionals.
- Brief at least 60 soldiers in at least two pre-command briefings per year during 2002-2006.
- Pass out a minimum of 500 handbooks and 1000 field cards per year during 2002-2006.
- Brief a minimum of 1000 soldiers in range safety briefings and pre-exercise briefings per year.

Management History: Fort Wainwright's EA program was initiated in 1997 and was fully implemented by 1999. EA consists of the development of a videotape production, soldier handbooks, soldier field cards, and posters focused on maneuver damage prevention. The videotape, which is shown to all soldiers during in-processing and at Range Control safety briefings, focuses on prevention of maneuver damage. The handbook includes a summary of restrictions on training to preserve the quality of training lands as well as a map showing areas with special environmental considerations. The videotape, handbooks, and soldier field cards were all developed in conjunction with Fort Wainwright's EA program. Modifications will likely occur during 2002.

Current Management: USARAK actively works to educate soldiers to minimize damage and reduce waste both in the cantonment area and in the training areas. USARAK briefs EA during range safety meetings, pre-command courses, and pre-exercise classes. At these classes, current EA materials, such as field cards and handbooks, are distrib-

Table 4-4. Environmental Awareness.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Brief EA during range safety briefings, pre-command course classes, and pre-exercise briefings.	USARAK ITAM	High	x	x	x	x	x
Distribute up-to-date EA handbooks and soldier cards.	USARAK ITAM	High	x	x	x	x	x
Update EA handbook and field cards in 2003.	USARAK ITAM	High		x			
Update EA video in 2004.	USARAK ITAM	High			x		
Develop ITAM web page by 2003.	USARAK ITAM	High		x			

uted. In addition, each soldier is required to have either a handbook or a field card with them during major field exercises. These actions will continue throughout 2002-2006. However, if this INRMP is not approved and funded, no new materials will be developed and reproduced.

Proposed Management: See Table 4-4.

Other Management Alternatives Considered and Eliminated: There are many potential options for educating soldiers and civilians working in the training areas to reduce damage. However, these methods have been developed to most effectively reach the appropriate audience. A lower level of effort could lead to greater environmental damage and possible fines for non-compliance. A greater level of effort would be cost prohibitive.

4.1.5 ITAM Responsibilities

4.1.5.1 Department of the Army

The Office of the Deputy Chief of Staff, Operations and Plans (ODCSOPs), Headquarters, Department of the Army, is the functional proponent and as such, exercises overall supervision for the ITAM program. The Directorate of Training issues policy, allocates resources, and oversees execution of ITAM.

The Office of the Assistant Chief of Staff for Installation Management, Directorate of Environmental Programs, provides conservation policy in support of the ITAM program. The Office of the Directorate of Environmental Programs issues policy, allocates resources, and oversees execution of ITAM. In addition, The Directorate of Environmental Programs

works with ODCSOPs to ensure that the Army's ITAM and Conservation programs are mutually supporting and integrated.

The United States Army Environmental Center (USAEC) provides environmental technical support to HQDA, MACOMs, and installations, based on approved and resourced ITAM User Requirements.

The United States Army Training Support Center is the executive agent for the ITAM program. The Directorate of Combat Training Support integrates ITAM with other Army training systems and programs, provides support to MACOMs and installations for the TRI component of ITAM, develops and submits an annual ITAM work plan describing executive agent needs, organizes and hosts semi-annual Program Management Reviews, and participates on the Executive Management Council and Council of Colonels.

4.1.5.2 U.S. Army Pacific (USARPAC)

USARPAC develops, provides, and integrates ITAM policy to USARAK; provides management oversight; and represents USARAK's needs to executive ITAM program management organizations.

4.1.5.3 U.S. Army Alaska

The ITAM program links the efforts of the Directorate of Plans, Training, Security, and Mobilization (DPTSM), who has responsibility for installation training land management, with the efforts of the Directorate of Public Works (DPW) and the natural and cultural resources/environmental staffs



Stream bank repair controls erosion and improves habitat.

to support the overall objectives of sustaining a well-trained and equipped combat force.

Directorate of Plans, Training, Security, and Mobilization: DPTSM establishes ITAM program priorities and policies, and manages the overall ITAM program in USARAK. DPTSM oversees ITAM funding provided to USARAK, submits an annual work plan reflecting ITAM requirements, provides user requirements input to USARPAC, submits technical support requests, and submits execution reports. DPTSM also provides training and other mission land use data to the environmental management staff.

Directorate of Public Works: Executing the USARAK ITAM program (according to DPTSM priorities and policies) is the responsibility of the DPW. DPW coordinates all ITAM related maintenance, repair, and facility management work and prepares and submits an annual work plan reflecting ITAM requirements to DPTSM.

4.2 Watershed Management

4.2.1 Watershed Management Goals and Objectives

Watershed management goals and objectives all contribute to one or more of the overall natural resources program goals of stewardship, military training support, compliance, quality of life, and integration. AR 200-1 establishes the following objectives for water resources on Army lands:

- Conserve all water resources.

- Control or eliminate sources of pollution to surface or groundwater through conventional or innovative treatment systems.
- Demonstrate leadership in attaining the national goal of zero discharge of water pollutants.
- Provide drinking water that meets applicable standards.
- Cooperate with federal, state, and local regulatory authorities in forming and implementing water pollution control plans.
- Control or eliminate runoff and erosion through sound vegetative and land management practices.
- Consider non-point source pollution abatement in all construction, installation operations, and land management plans and activities.

Attainment of most of the above objectives is not the responsibility of Army natural resources programs. But some of them, especially the first and last two, are clearly natural resources management concerns. Erosion has not been identified as a significant threat to water quality. Munitions explosions and associated wildfires cause soil disturbance, which increases the risk of erosion.

4.2.2 Watershed Management Planning

Implementation of the watershed management program includes the necessary planning, budgeting, organizing, and overseeing of contracts. The primary emphasis for this component of the watershed management program is to prepare and update the soil resources management plan and the soil and water quality monitoring protocol.

4.2.2.1 Soil Resources Management Plan

Description and Justification: Prepare, update, and implement a soil resources management action plan for Fort Wainwright. This plan will contain information on the location, extent, and severity of erosion sites, as well as detailed scopes of work necessary to repair the sites. USARAK is required to correct active erosion sites near sensitive areas such as streams and wetlands. This plan will stay in compliance with the Clean Water Act and the

Table 4-5. Soil Resources Management Plan.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Conduct annual updates of the soil resources management action plan.	USARAK Conservation	High	x	x	x	x	x
Prepare and update soil resources management action plan for the planning period of 2007-2011.	USARAK Conservation	High					x
Complete NEPA documentation for update.	USARAK Conservation	High					x

Sikes Act, which requires “no net loss” in the capability to support the military mission of Fort Wainwright. Updates of the soil resources management plan are required by Public Law 106-65 (Military Land Withdrawal Act) as mitigation for the land withdrawal LEIS and Public Law 86-797 (Sikes Act) every five years to implement the INRMP. Per Memorandum DAIM-ED-N, 21 March 1997, this component of the INRMP is a class 1 requirement.

Measures of Effectiveness:

- Complete, update, and maintain the soil resources management plan.
- Effectively protect soils while allowing military use.
- Involve agencies in soil resources planning and provide public review.

Management History: The first soil resources management action plan was completed in 2001 by Gene Stout and Associates. Earlier planning and scoping for erosion control projects was completed in 1998 and 1999 by ADNR Plant Materials Center.

Current Management: Current management actions to update the soil resources management plan will cease in 2002. If this INRMP is not approved and funded, no new soil resources management plan will be prepared, updated, or implemented. Policies already in place in the current soil resources management plan will continue.

Proposed Management: See Table 4-5.

Other Management Alternatives Considered and Eliminated: There are no alternatives to maintaining a current soil resources management plan in

terms of updates at least every five years. NEPA documentation is also legally mandated.

4.2.2.2 Soil and Water Quality Management Plan

Description and Justification: Prepare, update, and implement a soil and water quality action plan for Fort Wainwright. This plan will guide management actions for maintaining and improving soil and water quality as a result of unexploded ordnance (UXO) and other potential contaminants. It is required to comply with the Safe Drinking Water Act, the Clean Water Act and the Sikes Act, which requires “no net loss” in the capability to support the military mission of Fort Wainwright. Updates of the soil and water quality management plan are required by Public Law 106-65 (Military Land Withdrawal Act) as mitigation for the land withdrawal LEIS and Public Law 86-797 (Sikes Act) every five years to implement the INRMP. Per Memorandum DAIM-ED-N, 21 March 1997, this component of the INRMP is a class 1 requirement.

Measures of Effectiveness:

- Complete, update, and maintain the soil and water quality management plan.
- Effectively protect water quality while allowing military use.
- Involve agencies in soil and water quality planning and provide public review.

Management History: The first soil and water quality management plan was completed in 2001.

Current Management: Current management actions to update the soil and water quality management plan will cease in 2002. If this new INRMP is not approved and funded, no new soil and water

Table 4-6. Soil and Water Quality Management Plan.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Conduct annual updates of the soil and water quality management action plan.	USARAK Conservation	High	x	x	x	x	x
Prepare and update soil and water quality management action plan for the planning period of 2007-2011.	USARAK Conservation	High					x
Complete NEPA documentation for update.	USARAK Conservation	High					x

quality management plan will be prepared, updated, or implemented. Policies already in place in the current soil and water quality management plan will continue.

Proposed Management: See Table 4-6.

Other Management Alternatives Considered and Eliminated: There are no alternatives to maintaining a current soil and water quality management plan in terms of updates at least every five years. NEPA documentation is also legally mandated.

4.2.3 Watershed Management Inventory and Monitoring

4.2.3.1 Soil and Water Quality Monitoring

Description and Justification: Groundwater, surface water, and soil monitoring will be conducted to evaluate the presence of contaminants from the impact area. Monitoring water quality is important for measuring ecosystem health on Fort Wainwright. Soil and water quality monitoring evaluates the quality of water coming onto and leaving Fort Wainwright and identifies any potential contaminants leaving the impact area. Water quality monitoring is required to comply with the Clean Water Act and other environmental laws and regulations, as well as to formulate options for managing those species particularly dependent upon high water quality, as required by the Sikes Act and AR 200-3. Soil and water quality monitoring is required by Public Law 106-65 (Military Land Withdrawal Act) as mitigation for the land withdrawal LEIS and by Public Law 86-797 (Sikes Act) every five years to implement the INRMP and is a class 1 requirement.

Groundwater monitoring is not a natural resources program within Army environmental management, but is included in this INRMP to show the program is conducted on Fort Wainwright.

Management Areas: Management areas for soil and water quality monitoring focus on impact areas and ranges. Surface water sampling locations will be concentrated where rivers and creeks enter and leave the installation. Soil sampling will occur in rivers and creeks at the edge of the impact areas.

Measures of Effectiveness:

- Annually monitor surface water as it enters and leaves Fort Wainwright to identify potential contaminants or potential contaminant migration.
- Monitor soils and sediments in streambeds along the Fort Wainwright boundary annually to identify potential contaminants or potential contaminant migration.
- Provide results of sampling studies to appropriate agencies.

Management History: Monitoring groundwater was emphasized after the post was placed on the National Priorities List in 1994. The resulting Federal Facilities Agreement has commitments from USARAK to monitor this critical resource. As a result, USARAK has installed about 100 monitoring wells over the years. This program is important to natural resources management, but is not considered a natural resources function. On Fort Wainwright, it is a responsibility of the compliance and/or restoration program, and therefore, details of this program are not included within this INRMP.

Table 4-7. Soil and Water Quality Monitoring.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Complete development of monitoring protocol to evaluate soil and water quality and determine if there are contaminants in soil and surface and groundwater.	USARAK Compliance	High	x	x	x		
Monitor surface water and soils for potential contaminants.	USARAK Compliance	High			x	x	x
Continue to monitor existing wells for potential groundwater contamination.	USARAK Restoration	High	x	x	x	x	x

Current Management: Surface water is not currently monitored on Fort Wainwright. USARAK is developing monitoring protocol to evaluate soil and water quality. This project is currently funded through 2002.

Groundwater monitoring will continue in 2002-2006 as part of programs implemented by the Environmental Resource Division (ERD). The monitoring efforts indicate that there are no significant levels of groundwater contamination at Fort Wainwright. What little contamination that has been detected is at very low levels and is of no threat to human health. Groundwater levels in the wells are monitored each month, and extensive chemical testing is conducted on a quarterly basis.

Proposed Management: See Table 4-7.

Other Management Alternatives Considered and Eliminated: There are no alternatives to conducting soil and water quality monitoring. Water quality monitoring is required to comply with the Clean Water Act and other environmental laws and regulations. It will help formulate options for managing those species particularly dependent upon high water quality, as required by the Sikes Act and AR 200-3. Soil and water quality are important issues for the surrounding population. Monitoring groundwater on Fort Wainwright is a requirement of CERCLA.

4.2.3.2 Soils Planning-level Survey

Description and Justification: Conduct a planning-level soil survey on Fort Wainwright. Identify and map soils, correlate soils to permafrost areas, and establish relationships among terrain components. Fort Wainwright's soil survey is essential to estab-

lishing a database for planning effective management of withdrawn public lands. Soils data are required for input into the military training and scheduling process. The soils planning-level survey is required by AR 200-3, supports compliance with the Clean Water Act, and is required to implement this INRMP as mandated by Public Law 86-797 (Sikes Act). Per Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey is a class 1 requirement.

Measures of Effectiveness:

- Complete, maintain, and update a soils planning-level survey on Fort Wainwright.
- Complete a topography planning-level survey on Fort Wainwright.
- Identify the requirement for a soils planning-level survey in the Environmental Program Requirements (EPR).

Management History: Planning-level soil survey fieldwork was completed for 70,000 acres of Fort Wainwright in 1997.

Proposed Management: See Table 4-8.

Other Management Alternatives Considered and Eliminated: There are no alternatives to maintaining a current soils planning-level survey. Under the Sikes Act, AR 200-3, and Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey must be updated every 10 years.

4.2.3.3 Floristics Planning-level Surveys

Description and Justification: Conduct a floristic survey of Fort Wainwright. This project is the 10-year update to determine trends in floristic biodiversity and to improve the quality of the floristic

Table 4-8. Soil Planning-level Survey.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Update the soil planning-level survey in 2008.	USARAK Conservation	High				x	

database. Floristics inventory activities set the foundation on which many decisions regarding land management are based. An accurate floristic planning-level survey is required by AR 200-3, supports compliance with the Endangered Species Act, and is required to implement this INRMP as mandated by Public Law 86-797 (Sikes Act). Per Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey is a class 1 requirement.

Measures of Effectiveness:

- Complete, maintain and update a flora planning-level survey on Fort Wainwright.
- Complete, maintain, and update a threatened and endangered flora species survey.
- Identify the requirement for a floristics planning-level survey in the EPR.

Management History: Updates to the baseline floristic inventory will be made every 10 years. Thus, the floristic survey will be updated in FY 06. Results of this survey will not be available until this INRMP is updated in the future. It is likely that the survey will include cryptograms.

Current Management: The LCTA program updates the plant collection as new species are found. Otherwise, there are no ongoing survey actions to update the floristic planning-level survey.

Proposed Management: See Table 4-9.

Other Management Alternatives Considered and Eliminated: There are no alternatives to maintaining a current floristics planning-level survey. Under the Sikes Act, AR 200-3, and Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey must be updated every ten years.

Table 4-9. Floristics Planning-level Survey.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Update the floristics planning-level survey.	USARAK Conservation	High					x

4.2.3.4 Vegetation Communities Planning-level Survey

Description and Justification: Conduct 10-year update of the vegetation planning-level survey. A vegetation survey is conducted as part of an ecological land classification that synthesizes results from integrated resources studies to map ecologically sensitive portions of the landscape to facilitate land management and minimize impacts to ecosystems. The project is designed to emphasize three aspects of ecosystem management on Fort Wainwright: the sensitivity and recovery of ecosystems to disturbance, permafrost distribution and relative stability, and the value of wildlife habitats. The identification of ecologically sensitive areas on Fort Wainwright and threats to these areas are critical to management of the entire installation. This project will directly support the military mission by identifying locations where special precautions should be taken during training, and thus, by default, also identifying areas where special precautions need not necessarily be taken. An accurate vegetation communities planning-level survey is required by AR 200-3, supports compliance with the Endangered Species Act, and is required to implement this INRMP as mandated by Public Law 86-797 (Sikes Act). Per Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey is a class 1 requirement.

Measures of Effectiveness:

- Complete, maintain, and update a vegetation communities planning-level survey.
- Identify the requirement for a vegetative communities planning-level survey in the EPR.

Table 4-10. Vegetation Planning-level Survey.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Update the vegetation planning-level survey.	USARAK Conservation	High				x	

- Identify, locate, and map any rare or sensitive vegetation communities on Fort Wainwright.
- Characterize physical and thermal properties of permafrost, analyze relationships of permafrost with other terrain components, model permafrost distribution, and assess the response of permafrost to disturbance.
- Analyze Fort Wainwright for habitat use by passerines and small mammals, and rank them to diversity of wildlife species by relative value.

Management History: Field surveys for the ecological land classification were completed in Fiscal Year 96. In 1997, ABR completed follow-up work on the expanded pilot study, which included verification of mapping accuracy and further field sampling in ecosystems not sampled adequately in 1996.

All of Fort Wainwright was mapped into categories of ecosites, ecodistricts, and ecosubdistricts. Combining vegetation associations and geomorphological classes creates ecosites. Ecosites are subgroups representing vegetation types or successional stages within a uniform soil and geomorphic class. YTA, for example, has 32 ecosites, which have been mapped at a 1:50,000 scale (Jorgenson et al. 1996; Center for Ecological Management of Military Lands 1998). Ecosubdistricts have relatively uniform geomorphic features and recurring patterns of soils and vegetation. Several vegetation classes may be included in an ecosubdistrict, but they are usually related because they occur as different stages in a successional sequence. Ecodistricts are broader areas with similar geology, geomorphology, and hydrology and are similar to physiographic units.

A preliminary map and report was produced for USARAK in 1998, with a final map and report completed in 1999. Survey data is stored in a digi-

tal format in the USARAK GIS. The ecological land survey will be updated in FY 05.

Current Management: In 1995, USARAK contracted the Center for Environmental Management of Military Lands – Colorado State University (CEMML-CSU) and ABR to create an ecological land classification for Fort Wainwright. There are no ongoing survey actions to update the floristic planning-level survey.

Proposed Management: See Table 4-10.

Other Management Alternatives Considered and Eliminated: There are no alternatives to maintaining a current vegetation planning-level survey. Per the Sikes Act, AR 200-3, and Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey must be updated every 10 years.

4.2.3.5 Topographical Planning-level Survey

Description and Justification: Conduct a 10-year update of a topographical planning-level survey. An accurate topographical planning-level survey is required by AR 200-3 and is required to implement this INRMP as mandated by Public Law 86-797 (Sikes Act). Per Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey is a class 1 requirement.

Measures of Effectiveness:

- Complete, maintain, and update a topography planning-level survey.
- Identify the requirement for a topography planning-level survey in the EPR.

Management History: A topographical planning-level survey has not been completed for Fort Wainwright.

Current Management: There are no ongoing survey actions to update the topographical planning-level survey.

Table 4-11. Topography Planning-level Survey.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Update the topography planning-level survey.	USARAK Conservation	High				x	

Proposed Management: See Table 4-11.

Other Management Alternatives Considered and Eliminated: There are no alternatives to maintaining a current topographical planning-level survey. Per the Sikes Act, AR 200-3, and Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey must be updated every 10 years.

4.2.3.6 Surface Water Planning-level Survey

Description and Justification: Conduct a 10-year update of a surface water planning-level survey. An accurate surface water planning-level survey is required by AR 200-3 and is required to implement this INRMP as mandated by Public Law 86-797 (Sikes Act). Per Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey is a class 1 requirement.

Measures of Effectiveness:

- Complete, maintain, and update a surface water planning-level survey.
- Identify the requirement for a surface water planning-level survey in the EPR.

Management History: A surface water planning-level survey has not been completed for Fort Wainwright.

Current Management: There are no on going survey actions to update the surface water planning-level survey.

Proposed Management: See Table 4-12.

Other Management Alternatives Considered and Eliminated: There are no alternatives to maintaining a current surface water planning-level survey.

Table 4-12. Surface Water Planning-level Survey.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Update the surface water planning-level survey.	USARAK Conservation	High				x	

Per the Sikes Act, AR 200-3, and Memorandum DAIM-ED-N, 21 March 1997, this planning-level survey must be updated every 10 years.

4.2.4 Watershed Management

Watershed management on Fort Wainwright consists of surface water management, groundwater management and erosion control. Groundwater management consists of restoration projects to resolve individual sources of pollution, generally associated with the CERCLA “Superfund” designation. These projects are not classified as natural resources management and are not included within this INRMP.

4.2.4.1 Surface and Ground Water Quality Management

Description and Justification: Managing water quality on Fort Wainwright consists of developing best management practices designed to reduce chemical release from expended munitions in the impact areas. Activities such as moving targets away from open water and wetlands reduce the likelihood that potential releases may occur. Water quality management is required to comply with the Clean Water Act and the Sikes Act, which requires “no net loss” in the capability to support the military mission of Fort Wainwright. Conducting water quality management is required by Public Law 106-65 (Military Land Withdrawal Act) as mitigation for the land withdrawal LEIS and Public Law 86-797 (Sikes Act) to implement the INRMP.

Management Areas: The primary management areas for soil and water quality management at Fort Wainwright focus on impact areas and ranges. Sur-

face water sampling locations will be concentrated on areas where these rivers and creeks enter the installation and leave the installation. Soil sampling will occur in these rivers and creeks at the edge of the impact areas.

Measures of Effectiveness:

- Reduce the impacts of chemical release of munitions.
- Reduce the physical impacts of munitions on wetlands.

Management History: There is no evidence that surface waters on Fort Wainwright are polluted, either from activities on the installation or in upstream areas off the installation. Therefore, there has been no regular monitoring of surface waters. The Stuart Creek watershed on YTA has perhaps the greatest potential for pollution of surface waters due to military missions. Thus, it has the highest priority for surface water monitoring on Fort Wainwright.

The responsibility for groundwater monitoring does not fall within the natural resources program in the DOD system of environmental management. However, a brief summary of groundwater monitoring is provided to show its importance as an environmental compliance activity on Fort Wainwright.

USARAK will establish a water quality monitoring program on YTA at the confluence of Stuart Creek and the south fork of the Chena River. This project began in 1998 with emphasis on measuring levels of nitrates, nitrites, explosive residues, and sediment loading. The degree and extent of future monitoring will be determined based on initial monitoring results.

The installation uses over 200 wells to monitor groundwater on the Main Post. Wells are placed in locations of known or suspected plumes of pollution. Tests and testing schedules are specific to the needs of each site.

Current Management: Continue the restriction on using white phosphorus munitions in wetlands.

Proposed Management: See Table 4-13.

Other Management Alternatives Considered and Eliminated: There may be many other alternatives to clean up potential contaminants. USARAK will continue to consider new ideas; however, most methods of cleanup are cost prohibitive and can damage the environment more than the potential contamination.

4.2.4.2 Erosion Control and Streambank Stabilization

Description and Justification: This project will control erosion and stabilize streambanks on Fort Wainwright. This project will correct active erosion sites near sensitive areas such as streams and wetlands. Projects are intended to complement the LRAM component of ITAM, not duplicate training area repair. A Fish Habitat Permit from the ADF&G Habitat Restoration Division may be required for work conducted in or along streams and streambanks. Erosion control is required to comply with the Clean Water Act and the Sikes Act, which requires “no net loss” in the capability to support the military mission of Fort Wainwright. Conducting erosion control and streambank stabilization is required by Public Law 106-65 (Military Land Withdrawal Act) as mitigation for the land withdrawal LEIS and by Public Law 86-797 (Sikes Act Improvement Act) to implement the INRMP.

Table 4-13. Surface and Groundwater Quality Management.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Evaluate moving targets away from open water.	USARAK DPTSM	High			x	x	x
Consider using green ammunition.	USARAK DPTSM	High					x
Evaluate the use of ammunition lot numbers that have a low dud rate.	USARAK DPTSM	High				x	

Management Areas: Management areas for erosion control are primarily associated with range roads and trails. These areas are shown in Figure 4-1.

Measures of Effectiveness:

- Repair a minimum of 20 acres of erosion sites per year on Fort Wainwright.
- Maintain or improve water quality.
- Land management operations are consistent with best management practices and ecosystem management.
- Wetlands inventories/planning-level surveys are used during the planning phase of all ground-disturbing projects.

Management History: Erosion control is included within the LRAM program to the degree that it is associated with the maintenance and rehabilitation of training lands. However, erosion control is also associated with water pollution (environmental compliance) and road maintenance. Most erosion control not associated with LRAM on Fort Wainwright involves road drainage correction or maintenance. Road drainage maintenance is important for controlling sedimentation. Road maintenance on training lands is generally a responsibility of DPW. However, the 864th Engineers, Special Troops Battalion also provide considerable road maintenance. In addition, the USAF maintains roads because of its need for access to its equipment on Army lands.

Current Management: Installation sources of dust, runoff, silt, and erosion debris are controlled to prevent damage to land, water and air resources, equipment, and facilities, including those on adjacent properties. A protective vegetative cover is maintained over all compatible areas. USARAK uses bioengineered erosion control practices when possible, including live plantings, root wads, coir logs, and spruce tree revetments, to provide erosion protection and habitat for fish and wildlife. Other materials that are used for erosion control include gravel, fabrics, mulch, riprap, and other materials that are environmentally safe and compatible with the site and approved by the ADF&G Habitat Restoration Division. When bare ground is required to

accomplish mission objectives, other soil conservation measures are used to control dust, erosion, and sedimentation.

Physically intensive, land-disturbing activities should be sited on the least erodible lands to minimize land maintenance expenditures and to help ensure environmental compliance. The potential erodibility of sites and locations into adjacent wetlands is identified and analyzed in all prepared plans for development, training, and other land uses.

Proposed Management: At Fort Wainwright, a rotational system of rest, rehabilitation, erosion control, and LRAM will be implemented as part of the proposed action. Each training area on Fort Wainwright will be taken out of rotation and placed off-limits to military and recreational vehicle once every 10 years for a period of two years. Maintenance actions for erosion control, LRAM, range maintenance, and roads and grounds maintenance will be scheduled during the first year each training area is scheduled for rest and repair, although emergency actions must take place anytime, anywhere. Proposed actions for 2002 - 2006 are shown in Table 4-14.

Other Management Alternatives Considered and Eliminated: There are many other potential sites for erosion control on Fort Wainwright. However, less than 10% of the total number of sites that are degraded can be fixed per year because of cost limitations. Repairing fewer than that number can lead to poor water quality and may result in non-compliance, NOV's, and fines.

4.2.5 Watershed Management Responsibilities

Watershed management on Fort Wainwright is the responsibility of USARAK. Within USARAK, DPW Environmental Department has primary responsibility to conduct watershed management. DPTSM also shares responsibilities to implement soil and water quality management through the LRAM program and through best management practices of the impact areas. The U.S. Army Corps of Engineers, under the Clean Water Act, is the primary regulator. The Environmental Protection Agency also has regulatory responsibility under

Table 4-14. Erosion Control and Streambank Stabilization Projects.

OBJECTIVE	RESPONSIBLE FOR IMPLEMENTATION	PRIORITY	IMPLEMENTATION				
			2002	2003	2004	2005	2006
Implement Training Area Rotation Rest and Rehabilitation Program.	USARAK DPTSM / Conservation	High	x	x	x	x	x
Repair Training Area 106.	USARAK Conservation	High		x			
Repair Training Area 108.	USARAK Conservation	High	x				
Repair Training Area 114.	USARAK Conservation	High		x			
Repair Training Area 1.	USARAK Conservation	High			x		
Repair Training Area 2.	USARAK Conservation	High				x	
Repair Training Area 3, 4, 5, 6, 7.	USARAK Conservation	High					x
Repair training area roads and trails.	USARAK Conservation	High	x	x	x	x	x
Prepare NEPA and Section 106 documentation.	USARAK Conservation	High	x	x	x	x	x
Apply for Section 404 permits.	USARAK Conservation	High	x	x	x	x	x
ADF&G review of all streambank stabilization projects.	USARAK Conservation	High	x	x	x	x	x
Produce annual report of project status.	USARAK Conservation	High	x	x	x	x	x

the Safe Drinking Water Act. The Alaska Department of Environmental Conservation (ADEC) also has responsibility for regulating soil and water quality.

USARAK recognizes that the release of contaminants into the environment and response actions to clean up those contaminants may result in adverse impacts to natural resources addressed in this INRMP. The Installation Restoration Program (IRP) is responsible for identifying such releases, considering risks and assessing impacts to the environment (including impacts to endangered species, migratory birds and biotic communities), and developing and selecting response actions when unacceptable risk to ecological receptors from the release is likely. The installation's natural resources management staff, in coordination with the USFWS and ADEC, will identify when required, the potential impacts to natural resources caused by the release of contaminants and communicate those impacts to the IRP. Installation natural resources staff will also participate, as appropriate, in the IRP decision-making process to communicate natural resources issues, review and comment on documents (e.g., Remedial Investigation, Ecological Risk Assessment), and ensure that response actions are undertaken in a manner consistent with

goals and objectives set forth in the INRMP to the maximum extent practicable.

The IRP will notify installation natural resources management staff of contaminant releases into the environment and invite such staff to participate in the decision-making process to ensure that impacts to natural resources are identified, considered and addressed in the response process.

4.3 Minerals Management

4.3.1 Minerals Management Program Goals and Objectives

Minerals management goals and objectives are listed below:

- Manage the mineral resources on Fort Wainwright in the best interest of the public within the framework of the military mission.
- Provide the military with a source of saleable construction materials for military construction purposes.



Fort Wainwright works together with the Bureau of Land Management to manage mineral resources.

4.3.2 Minerals Management Program Description

The BLM identifies three categories of mineral resources on federal lands:

Locatable minerals include most metals, metallic ores, and some non-metallic minerals. If the land is open to mineral location under the federal mining laws, private citizens may stake or “locate” a claim, perform assessment work, and develop the resources. Valid mining claims can result in private ownership of the mineral resources. The withdrawn areas have been closed to mineral location since the 1950s. There are no valid or existing claims within the withdrawals (Keill, personal com. 1998) (LEIS).

Leaseable minerals include oil, gas, coal, geothermal resources, oil, shale, gilsonite, phosphate, potassium, and sodium. These mineral resources are leased from the federal government for a period of time and do not become the developer’s property. The withdrawn areas have been closed to mineral leasing since the 1950s. There are no valid leases on withdrawn lands.

Saleable minerals consist basically of construction materials such as sand, gravel, riprap, cinders, pumice, clay, limestone, and dolomite. They are purchased outright from the federal government. Saleable materials on the withdrawals have been used locally by the Army and other authorized agencies, but have not been extracted commercially since the lands were first withdrawn in the 1950s.

4.3.3 Minerals Management Program Responsibilities

Mineral resources on public lands withdrawn for military purposes in Alaska are managed by BLM under federal regulations found in 45 CFR 3000. Sale and/or free use of mineral materials require NEPA review and USARAK concurrence. Unauthorized use of mineral materials is considered trespass and will be resolved jointly by the military and the BLM.