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AFZH-PTM-R

SUBJECT: Land Rehabilitation and Maintenance (LRAM) Report for Field Season 1999

MEMORANDUM FOR SEE DISTRIBUTION

1. Enclosed you will find a report for the Integrated Training Area Program (ITAM) LRAM field season that ran from April to November 1999.
2. This document is a record of land management activities designed to support military training on the Fort Lewis Military Reservation.
3. The purpose of LRAM is to repair training land, minimize disturbance to sensitive areas, and expand usable training area to promote better land utilization and fewer training restrictions.
4. Questions are encouraged. The LRAM Coordinator is Ms. Lisa Randolph, telephone 967-1551. The ITAM Coordinator is Ms. Inger Schmidt, telephone 967-1549. Both Ms. Randolph and Ms. Schmidt are on the Fort Lewis global e-mail.

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**INTEGRATED TRAINING AREA MANAGEMENT, FORT LEWIS, WA
LAND REHABILITATION AND MAINTENANCE
ANNUAL REPORT FY 1999**

Prepared by Lisa Randolph, LRAM Coordinator

Land Rehabilitation and Maintenance (LRAM) is one of four components of the Integrated Training Area Management (ITAM) program. LRAM supports the training mission by expanding current training areas and opening new ones to enhance military field exercises, while maintaining the natural resources at Fort Lewis.

During Fiscal Year (FY) 1999, the Land Rehabilitation and Maintenance (LRAM) program accomplished many land improvement projects at Fort Lewis. Training Areas have been expanded and improved by removing Scotch broom and other unwanted vegetation to enhance training opportunities. Maneuver damaged areas were reseeded to maintain training realism and the installation natural environment. And degraded ford approaches in TA 14 were stabilized with Cable Concrete using troop construction labor. Coordination with the Land Condition Trend Analysis (LCTA) program, Environmental Awareness (EA) program, Training Requirements Integration (TRI) program, Installation directorates, outside contractors and military training units has been implemented; budgets are being tracked; and restoration efforts are being implemented and monitored.

ACKNOWLEDGEMENTS

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Birdie Davenport	DNR Natural Heritage Program
Daryl Day	PW Roads and Grounds Equipment Operator
Patrick Dunn	The Nature Conservancy
COL Fastabend	Commander, 555 th Engineer Group
MSG Dennis Flitter	Range Control Master Gunner
Frank Frati	Manta-Ray Anchor contractor
Ron Furman	Range Control Electrician
Bob Gasman	PW Roads and Grounds
Teresa Hansen	PW GIS Analyst
Rick Johnson	Thurston County Noxious Weed Coord.
Roselyn Knox	Range Control Scheduler
Steve Kruger	YTC DENR Director
Del Larson	Range Control Operations Officer
Pat Larsen	Chief, PW Budget
Virginia Lanoue	Range Control System Administrator
Olive Lenny	DOC Contracting Officer
Angel Lombardi	LCTA Coordinator
Sally McLean	PW Budget Account Manager
Pete Nissen	YTC DENR Land Mgmt. Director
LT Chris Porter	PW Civil Engineer
Doraine Robertson	DOL Contracting Officer
Carl Ramsey	Range Control Facilities Engineer
Joe Reasoner	PW ENRD Prescribe Burn Manager
Bill Richardson	Hydroseeding Inc.
SFC Dale Richter	Range Control Safety NCO
Inger Schmidt	ITAM Coordinator
LCT Toomey	Commander, 14 th Engineer Battalion
John Weller	Range Officer
Bill Wright	Wright's Logging and Tree Service

Scotch Broom Mow/Slash Contract

Extensive Scotch Broom (*Cytisus scoparius*) control and removal of unwanted brush was completed this season by both a private contractor and contracted personnel from The Nature Conservancy. The LRAM Coordinator identified sites to be cleared out using recommendations by Range Control Safety NCO SFC Richter and Range Officer Mr. Weller. The selected areas were prime candidates because they had received very little training due to brush overgrowth. The removal of brush accomplishes many goals: increasing usable land area and training opportunities on Fort Lewis while making the environment safer for training.

The LRAM Coordinator recorded project boundaries using a Global Position System (GPS) unit and developed Geographical Information System (GIS) maps, which formed the basis of the "Scotch Broom Mow/Slash" contract. The LRAM Coordinator developed project specifications, timelines, and standards for completion. After interested parties approved the Scope of Work (SOW), it was submitted to Directorate of Contracting (DOC). While the bidding process was in effect, the LRAM Coordinator conducted a tour of all sites with interested contractors. DOC then selected the contractor (Wright's Logging Company) that met all technical requirements and offered the lowest bid to complete the project. The contract specified up to 90 acres to be mowed/slashed at a cost of \$1000.00/acre. The contractor used mechanical control techniques to clear out approximately 100 acres of Scotch broom and brush, sometimes in very rough terrain (Fig. 1., pg. 7). Most of the work was accomplished using a tractor pulled mower and occasionally using chain saws. Wright's Logging Company began work at the beginning of August and finished by mid October.

Communicating frequently with the contractor proved to be the most valuable procedure for managing this contract. We meet frequently, at least once every two weeks to review progress and to identify work needed to complete the project site. As was expected, the contractor prematurely reported the completion of project sites. The LRAM Coordinator then had to conduct more frequent site visits to point out specific tasks, as spelled out in the contract, that need to be done for the site to be considered finished. SFC Richter accompanied the LRAM Coordinator on many of these site visits to ensure maximum benefits to military training. Once all project sites were considered complete, final approval was sought from the Range Officer. One of the major benefits derived from contracting this work out, as opposed to hiring a crew from CPO (as had been done in previous years) was the time and effort saved by the LRAM Coordinator. The nature of contracting motivates the contractor to finish quickly. The contractor was also completely responsible for personnel management and equipment maintenance and repairs.

General Maneuver Damage Repairs

Tracked and wheeled vehicle maneuvering is an essential component of training, yet has a tendency to disrupt pre-existing vegetation patterns. If left uncorrected, large areas of bare ground become susceptible to invasion by weedy noxious plants like Scotch broom. In order to support the military mission while enhancing the training environment, LRAM has begun rehabilitating maneuver damaged training lands through hydroseeding. Hydroseeding is one method of revegetating Fort Lewis prairies that is efficient, cost effective and provides good results if applied at the right time of year. Other methods of re-establishing ground cover such as broadcast seeding and hand planting propagated seedlings are usually much more costly, labor intensive, time consuming and the results questionable.

Based on training events in past years, LRAM anticipated repairing about 20-30 acres of land (usually around \$1500.00 per acre) and allocated budget dollars for this purpose. However, this FY a Brigade level EXEVAL training exercise named "Aragon Lightning" occurred throughout the post leaving behind large parcels of land devoid of ground cover. Aragon Lightning was an intensive training event executed on very short notice and during one of the wettest rainy seasons on record. By walking the perimeter of disturbed areas with a GPS unit, the LRAM Coordinator determined that approximately 55 acres of land were damaged, which exceeded ITAM's ability to fund. Once this data was provided to the Range Officer, he initiated discussion with I CORPS G-3 to contribute to funding the remainder. Understandably, G-3 wanted proof to back up this claim.

The LRAM Coordinator provided ArcView GIS maps to the Range Officer who then forwarded the information to the DPTMS Garrison Commander, unit commanders and I CORPS. While Range Control awaited G-3's response, the LRAM Coordinator developed a hydroseed SOW using the GIS maps and submitted DA form 3953 to DOC. Under this contract ITAM would fund 20 acres of hydroseeding (costing \$26,048.00) with the possibility of extending the contract to 55 acres should more funding become available. Just before the contract was awarded, G-3 approved funding the additional 35 acres (\$39,000.00), which was an unprecedented move for I CORP G-3 to support the mission of Fort Lewis' ITAM program.

The LRAM program promotes the use of native seed for rehabilitation projects because it helps achieve the goal of maintaining the natural environment of the installation. Native seed is higher in price than commercial varieties, but usually only half of the amount is required. LRAM developed a contract through DOC specifying to use 50% Red fescue (*Festuca rubra*), 30% June grass (*Koeleria kristata*), and 20% Sickled keeled lupine (*Lupinus albicaulus*), applied at a rate of 80 pounds per acre. Wood fiber mulch was incorporated into the seed mix to help retain moisture and was applied at 1000 pounds per acre. The contract specified for no fertilizer or lime, nor ground preparation.

Ford Approach Stabilization at Muck Creek Crossings

There are 8 authorized ford crossings along Muck Creek, many with concrete crossings. However, increased use by track vehicles coupled with periodic flooding and unstable soils, has led to severe deterioration of some ford approaches (ET 41690876 and ET 42100858). These ford approaches were in need of stabilization to prevent continued deterioration. During FY 98 the ITAM program purchased 100 Cable Concrete mats, geotextile fabric and all supplies needed to anchor the mats securely into place. At the outset of FY 99, the LRAM Coordinator developed a SOW for the project, placed a work order with PW requesting that it be forwarded to the Engineer and Construction Management Branch and made contact with representatives of that branch. This process had been initiated in the previous FY, but fell low on the troop construction list due to prior commitments. Now that the ITAM program had purchased and stocked all needed materials, the proposition became more appealing.

The construction project had been assigned to the Support Platoon, Charlie Company of the 14th Engineer Battalion (ENBN), part of the 555th Engineer Group (ENGP). Their assignment was to gather all data necessary to develop an engineering design and bill of materials, and execute all phases of preparation and construction. The LRAM Coordinator served as a liaison between the Cable Concrete distributor, Anchor contractor, the 555th ENGP, and 14th ENBN, relaying information and questions, and scheduling access. The LRAM Coordinator developed a SOW to contract Anchor installation, as this component would secure the integrity of the mat system. The LRAM Coordinator also submitted Form 3161 to the Directorate of Logistics (DOL) for the purchase and delivery of gravel and concrete. All purchase requirements were pre-approved by the Range Officer, ITAM Coordinator, PW Budget, DRM, and Deputy Director of DPTMS.

In order to compensate for an abrupt j-turn at the southern approach of ford ET 42100858 the Engineers decided to construct a more direct approach. Because minor construction and excavation was occurring so close to Muck creek, the LRAM Coordinator asked ENRD to approve a "Record of Environmental Consideration" (REC) to comply with environmental standards. The REC required that the project be completed before the onslaught of the rainy season; all construction equipment would remain above the creeks ordinary high water mark; and that the decommissioned portion of the ford approach be revegetated following project completion to prevent erosion. Coordination for this action was also required with ENRD's Cultural Resources program manager, as the area might contain historic artifacts (none were found).

The 14th ENBN transported the Cable Concrete mats and geotextiles from Range 17 complex to the ford sites on extended flatbed trucks. Ground breaking commenced on 7 September 1999. Using high-tech excavator and grader equipment they prepared both road surfaces and approaches for both ford crossings, compacted the soil, and spread gravel to prepare a solid sub-base. Using a large crane, the 14th ENBN skillfully lifted the 5000 lb. mats and placed them along the ford approach, laying each mat precisely next to the existing concrete ford and to each other. Once all mats were in place, 555 ENGP and 14th ENBN commanders, Range Control Facilities Engineer, and the Cable Concrete distributor inspected the final layout of the mats to ensure quality control. Before the mats could be anchored into the earth, they were secured via anchor bolts and

epoxy to the existing concrete ford. A contractor then anchored all mats deep into the earth and to adjacent mats creating a firmly connected mat system that is also pliable. The final phases of construction entailed pouring concrete at the junction of the mats and existing ford approach to ease vehicle transition and spreading a 4 inch layer of gravel over the top to reduce wear and tear on the mat system. Additional gravel may be required every few years to maintain the ford approaches.

The Fort Lewis community has and will continue to derive many benefits from this construction project. ITAM provided a training opportunity to military units during a time when Army fiscal resources were slim. Yet more important, the Support Platoon, Charlie Company, of the 14th ENBN gained valuable training experience while improving environmental quality. They drafted an engineering design, identified additional materials, gained leadership and project management skills, and executed virtually all phases of construction. The use of troop construction versus contracting saved the ITAM program an enormous amount of dollars, possibly up to \$150K, which translates to efficient use of Army/Government dollars. Stabilizing these ford approaches should improve water quality in Muck creek by preventing silt and sediment from entering, which in turn will improve habitat for downstream salmon. In the light of potential federal listing of South Puget Sound salmon, this preventative action demonstrates ITAM proactive commitment to sustaining environmental quality on Fort Lewis.