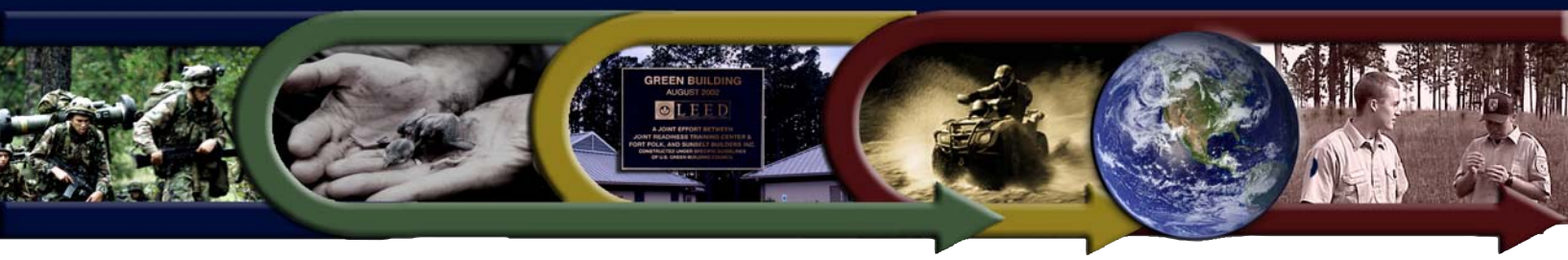
Joint Readiness Training Center and Fort Polk and Kisatchie National Forest

Sustainability and Environmental Monitoring Plan (SEMP)

Fiscal Year 2005
Annual Report

May 2006

Table of Contents



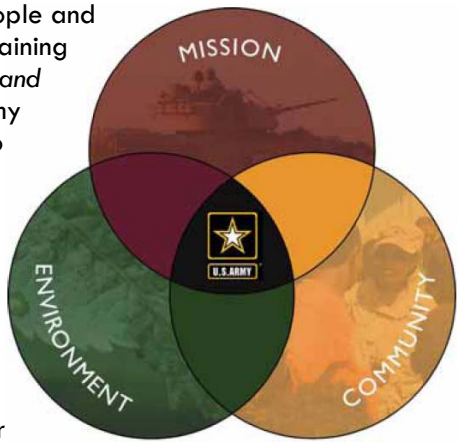
Message from Garrison Commander and Calcasieu District Ranger

This document—the first *Sustainability and Environmental Monitoring Plan Annual Report*—presents the results of mitigation and monitoring work conducted by the Joint Readiness Training Center (JRTC) and Fort Polk and the Calcasieu Ranger District, Kisatchie National Forest (KNF). We have undertaken this work to support the Army and Forest Service missions, to manage and sustain the lands and resources in our care, and to honor commitments made to the public. We our proud of our accomplishments toward these ends, and we look forward to continued progress.

Over the last decade, Fort Polk and the KNF have increasingly collaborated to achieve mutual goals and responsibilities for environmental compliance, natural and cultural resource management, and community and stakeholder outreach. This movement toward greater collaboration has been borne of necessity but also of a recognition that both agencies can accomplish more together than they can apart.

The air, land, water and biological components of the environment are inextricably connected. Numerous streams originate on Fort Polk and KNF permitted-use lands, including several that are listed by the state of Louisiana as Natural and Scenic Rivers. An integrated watershed management approach by Fort Polk and KNF can help sustain land and water resources. Fort Polk and KNF permitted-use lands are also important regional conservation lands for the endangered red-cockaded woodpecker (RCW), the Louisiana pine snake and other floral and faunal species native to the longleaf pine ecosystem. The RCW and other rare and sensitive species do not observe Army and Forest Service administrative boundaries, making inter-agency coordination of recovery and conservation efforts a necessity.

In addition, Fort Polk and KNF lands are interconnected with the people and communities that live within or near the Forest and installation training lands. While the Forest Service's motto *"Caring for the Land and Serving People"* explicitly acknowledges this connection, the Army also understands that the success of its mission is ultimately linked to its ability to safeguard the environment and quality of life for the citizens that it is entrusted to defend. In recognition of these relationships, Fort Polk embraces the "triple bottom line" of sustainability: mission, environment and community.



The *Sustainability and Environmental Monitoring Plan* is a tool to help Fort Polk, in partnership with the KNF, to evaluate and adapt our management to minimize adverse impacts of our activities on the natural and human environment and to achieve desired goals for sustainability. These are long-term goals, but together we are taking the first steps. We invite you to join us in the journey.

David G. Sage
Colonel, US Army
Commanding

Lisa Lewis
Calcasieu District Ranger
Kisatchie National Forest

Land Use and Ownership

Collectively, the Joint Readiness Training Center (JRTC) and Fort Polk and the Kisatchie National Forest (KNF) manage approximately 200,000 acres in west central Louisiana. Army lands at Fort Polk consist of the Main Post (northern portion) and Peason Ridge Training Area, which total about 100,009 acres (Figure 1). Fort Polk also uses 98,125 acres of the KNF through a Special Use Permit and Operating Plan. Forest Service lands used under the permit are located within the Vernon Unit, Calcasieu Ranger District, and the Kisatchie Ranger District and are divided into three management areas. Under the terms of the permit—and in accordance with the *Revised Land and Resource Management Plan* for the KNF (USDA Forest Service, 1999)—the Intensive Use Area (IUA) is managed primarily for military training and endangered species recovery, whereas the Limited Use Area (LUA) and Special Limited Use Area (SLUA, or "Horse's Head") lands are managed for multiple uses. The LUA and SLUA are interspersed with private lands and residences, and additional restrictions on military activities apply in these areas to protect public safety, quality of life for residents, and environmentally sensitive areas.

Transformation and Land Use EIS and Development of SEMP

In mid 2004, Fort Polk and the KNF completed the *Final Environmental Impact Statement (EIS) for 2nd Armored Cavalry Transformation, Installation Mission Support, Joint Readiness Training Center and Fort Polk, and Long-Term Military Training Use of Kisatchie National Forest Lands* (US Army, 2004). Fort Polk, as the lead agency, and KNF, as a cooperating agency, worked together to prepare the EIS beginning in late 2001, in accordance with the National Environmental Policy Act of 1969 (NEPA) and agency regulations.[1] Preparation of the EIS was guided by a joint Fort Polk-KNF Executive Steering Committee that met routinely throughout the process to develop the proposed action and alternatives, oversee public participation and identify issues of concern, consult with other federal and state agencies, review analyses, and develop mitigation and monitoring measures.

The Army's Record of Decision (ROD) for the EIS approved a range of actions at Fort Polk involving fielding of new military vehicles and equipment; construction of range and training facilities; land transactions; troop deployment operations; training for military units stationed at the installation and for visiting units participating in JRTC exercises; and environmental stewardship. The Forest Service issued a separate ROD that provided the basis for a 20-year reauthorization of Fort Polk's Special Use Permit for use of KNF lands, as well as for thinning of approximately 21,500 acres of overstocked upland pine stands in the IUA of the Vernon Unit to improve RCW habitat conditions and maneuver training capabilities.

As a part of the EIS, Fort Polk and the KNF developed a *Sustainability and Environmental Monitoring Plan* (SEMP, Appendix A). The SEMP is designed to track the implementation of mitigation measures described in the EIS and to evaluate their effectiveness. The SEMP also incorporates Army and Forest Service commitments for mitigation and monitoring contained in the *Final Environmental Assessment for Increased Military Training Use of the Vernon Unit, Calcasieu Ranger District, Kisatchie National Forest* (LUA EA), which was completed in September 2000 (US Army and USDA Forest Service, 2000).

[1] The Federal Aviation Administration also became a cooperating agency for preparation of the EIS due to proposed Army actions potentially triggering Airport Layout Plan modifications at Alexandria International Airport near Alexandria, Louisiana. The FAA issued its own Record of Decision subsequent to completion of the EIS.

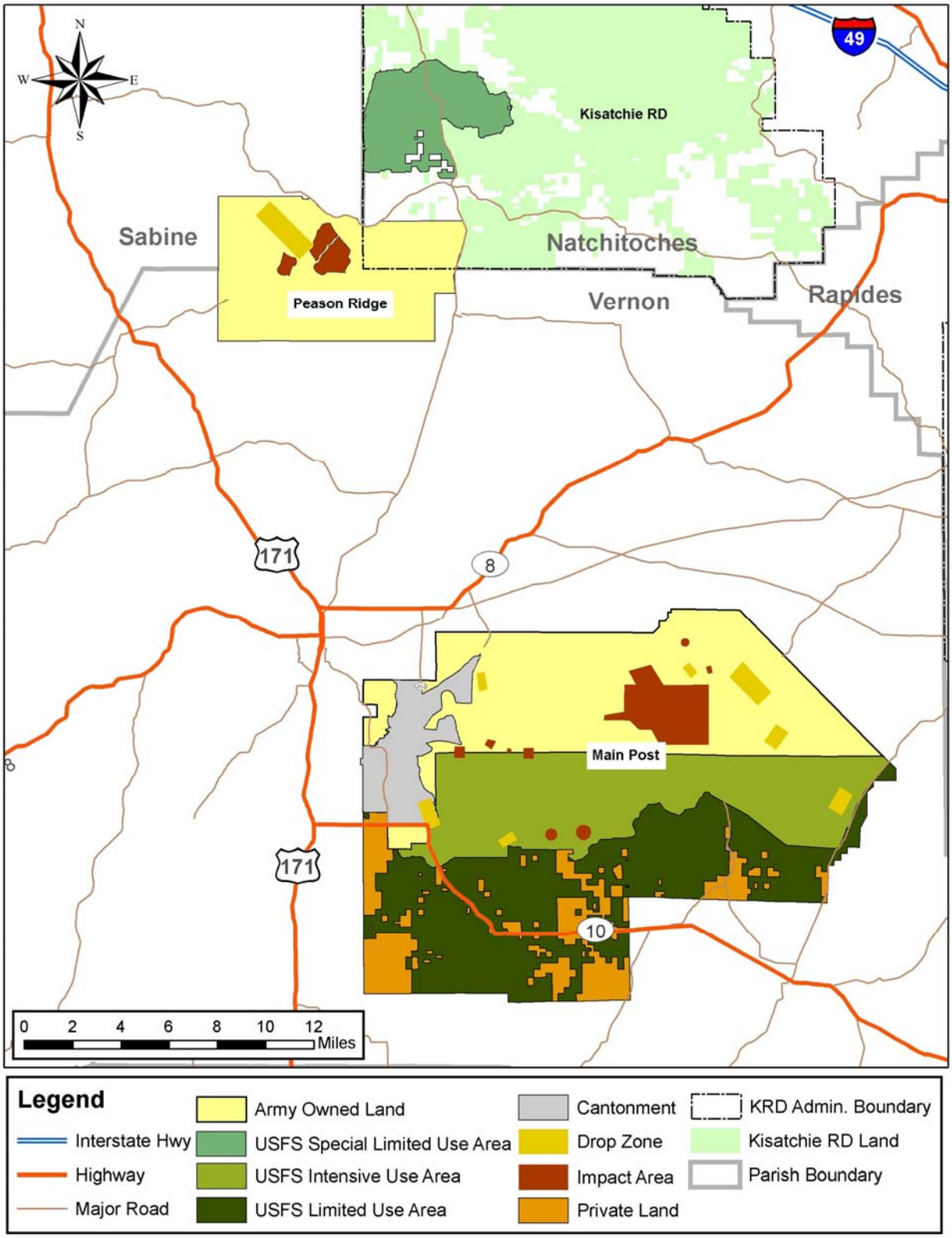


Figure 1. Army-owned and Forest Service-permitted use lands at Fort Polk.

SEMP Structure

The structure of the SEMP is shown in Figure 2. The SEMP identifies measurable goals and objectives for the continuation of sound environmental stewardship and compliance, and for achieving and maintaining sustainability with respect to training land conditions, biological and ecological resources, facilities, and relationships with neighboring residents and communities.

Through identification of monitoring questions, metrics and performance targets, the SEMP provides a framework for conducting monitoring and evaluation to determine whether mitigation measures, environmental stewardship and best management practices (BMPs) are meeting established goals and objectives.

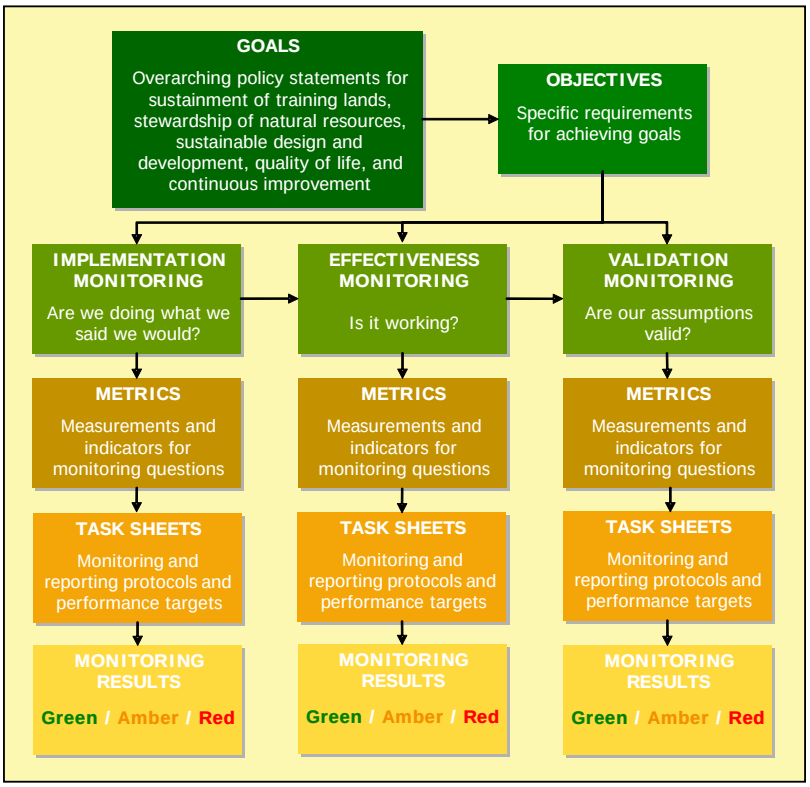


Figure 2. Structure of Sustainability and Environmental Monitoring Plan.

The SEMP includes three types of monitoring to be conducted by Fort Polk and the KNF:

- Implementation monitoring;
- Effectiveness monitoring; and
- Validation monitoring.

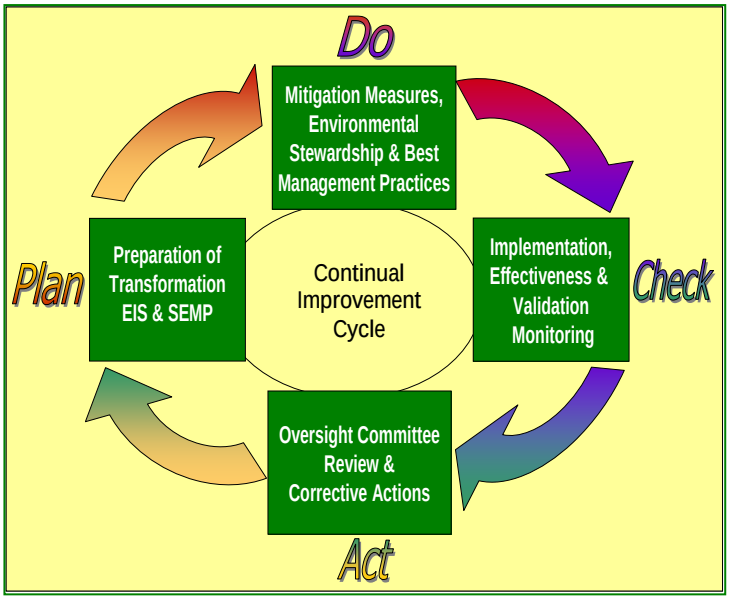
Implementation monitoring is meant to answer the question: Did we do what we said we would do? It determines if mitigation measures and related environmental stewardship and natural resource management practices are implemented as designed. Evaluation of implementation monitoring may lead to adjustment of installation- or organizational-level management practices, operating procedures, regulations, or other administrative adjustments.

Effectiveness monitoring is meant to answer the question: Did what we said we would do accomplish our goals and objectives – or, did it work? It determines whether mitigation measures and related environmental stewardship practices are effective in achieving established goals and objectives. Evaluation of the results of effectiveness monitoring is used to adjust SEMP objectives, targets, mitigation measures, environmental stewardship practices and BMPs, and could lead to changes to the Special Use Permit/Operating Plan or installation planning documents.

Validation monitoring is meant to answer the question: Are our assumptions valid or are there better ways of meeting our goals and objectives? It helps determine whether the initial assumptions used in developing the mitigation and monitoring plan are correct. Evaluation of results from this type of monitoring can also be used to adjust management practices or suggest changes to the Special Use Permit/Operating Plan or other planning documents.

Under the SEMP, monitoring and reporting protocols are documented in *task sheets*, which are jointly developed by Fort Polk and KNF. The task sheets also identify metrics and performance targets that respond to specific monitoring questions and indicate how well SEMP goals and objectives are being met. The performance targets establish criteria for classifying monitoring results as Green, Amber or Red to indicate "positive/on course", "needs improvement", and "negative/off-course", respectively.

SEMP and ISO 14001 EMS



The SEMP process incorporates the "Plan-Do-Check-Act" methodology and the commitment to continual improvement that is inherent to the internationally recognized ISO 14001 Environmental Management System (EMS) standard. The SEMP is linked to the installation-wide EMS established by Fort Polk. The installation's EMS provides a framework to develop, achieve and maintain its environmental policy and to manage the aspects of its activities that interact with the environment in a significant way.

Implementation of the SEMP is guided by a joint Fort Polk–KNF Oversight Committee co-chaired by the installation's Deputy Garrison Commander and the KNF Military Liaison Officer. Under the SEMP, monitoring and evaluation activities are conducted by both Fort Polk and KNF staff, and results are reported to the Oversight Committee at least quarterly, so that adjustments and corrective actions can be made in a timely manner. SEMP results are also presented to Fort Polk's Environmental Quality Control Committee (EQCC), which represents the "top management" organization for the installation's EMS. The EQCC is chaired by the Garrison Commander and is a decision-making body empowered to obtain and allocate resources and take other actions as needed to achieve the installation environmental policy and objectives.

The results of SEMP monitoring and evaluation are also made available to the public in an annual SEMP report. This document, which constitutes the first such report, describes SEMP accomplishments for fiscal year (FY) 2005 (October 2004 – September 2005).

For additional information or comments about the SEMP, contact the Fort Polk or the KNF Public Affairs Office (PAO):

Dan Nance
JRTC and Fort Polk PAO
7073 Radio Road
Fort Polk, LA 71459-5342
(337) 531-7203

Jim Caldwell
Kisatchie National Forest PAO
2500 Shreveport Highway
Pineville, LA 71360
(318) 473-7160

Implementation Status and Performance Results

Oversight Committee Actions

In January 2005, Fort Polk and the KNF entered into a Memorandum of Understanding (MOU) to establish policies and procedures for implementing and overseeing mitigation and monitoring measures adopted in Army and Forest Service RODs described above. The MOU outlined Army and Forest Service roles and responsibilities for executing the mitigation and monitoring measures and established a joint agency Oversight Committee.

Signature of the MOU and creation of the Oversight Committee were the first steps toward implementing the SEMP. Oversight Committee responsibilities under the SEMP include:

- Securing resources to conduct mitigation and monitoring measures;
- Establishing timelines and priorities for execution of mitigation and monitoring measures;
- Reviewing and approving monitoring metrics, performance targets and task sheets describing how monitoring will be conducted;
- Reviewing and evaluating SEMP monitoring results on a quarterly basis;
- Investigating causes for failure to fully meet performance targets and recommending corrective actions, when appropriate;
- Ensuring that SEMP monitoring results are made available in an annual report to the public; and
- Identifying additional significant aspects, impacts, objectives and targets for incorporation into the installation's EMS, when needed to achieve the goals and objectives expressed in the SEMP.

The Oversight Committee met five times in FY 2005. Key actions included creation of Committee operating procedures, setting of priorities, identification of working group team leaders/points of contact for SEMP goals and objectives, and approval of metrics and performance indicators for selected High Priority objectives.

Implementation Priorities and Status

In FY 2005, the Oversight Committee established priorities for development and implementation of SEMP monitoring and reporting protocols associated with each objective. Based on a risk/benefit analysis that considered both environmental and agency mission-related factors, the Committee identified the following five SEMP objectives as High Priority: Objectives 1-1, 1-3, 2-1, 2-2, and 3-2 (see Table 1). The remaining nine objectives were identified as Mid Priority. These classifications were used to set implementation priorities for FY 2005.

During this period, substantial progress was made toward developing and implementing monitoring and reporting requirements for two High Priority objectives, Objectives 1-1 and 2-1. The implementation status for High Priority Objectives is summarized in Table 1. No status information is currently presented for Mid Priority objectives. These objectives will be targeted for implementation in FY 2006 and beyond.

Full implementation of the SEMP is a multi-year process. This is because the process is intensive in terms of staff hours for development, coordination and review. Because many SEMP goals and objectives, mitigation measures, and associated monitoring and reporting requirements cut across both agency and installation lines of operation, the development of SEMP metrics, performance targets, and monitoring and reporting protocols calls for a cross-functional team approach. Although this approach can be more time consuming up front, the resulting procedures and products are strengthened and better meet the needs of both agencies.

Implementation Status and Performance Results

Table 1. Summary of SEMP implementation status and performance results, FY 2005.

Goal	Objective	Priority	Implementation Status	Performance Results
Goal 1 – Ensure that training lands are sustained for long-term use. Protect and conserve soil, water and land resources.	Objective 1-1: Minimize or avoid degradation of training lands and long-term damage to soils and natural resources through identification and correction of maneuver damages and soldier Sustainable Range Awareness (SRA) training.	High	Green	Green
	Objective 1-2: Sustain training land conditions and soil productivity through land rehabilitation and maintenance and watershed management practices.	Mid		
	Objective 1-3: Maintain high water quality and aquatic ecosystems through maintenance of stream and wetland crossing structures, roads and trails; maintenance of sediment basins; and restrictions on training activities within streams, wetlands and riparian areas	High	Amber	Not Available
Goal 2 – Manage for biological diversity and ecological integrity. Protect and conserve threatened, endangered and rare species, and restore and maintain ecosystems and ecological processes.	Objective 2-1: Promote recovery of the Vernon-Fort Polk Red-Cockaded Woodpecker (RCW) population through cooperative Fort Polk and KNF management and monitoring strategies and Soldier SRA training.	High	Green	Green
	Objective 2-2: Provide high-quality habitat for the RCW, Louisiana pine snake (LPS), and other rare species native to longleaf pine landscapes. Use prescribed fire forest thinning to achieve Desired Future Conditions.	High	Amber	Not Available
	Objective 2-3: Promote viability of the LPS through cooperative management strategies, Soldier SRA training, identification of probable LPS habitat, and construction project planning.	Mid		
	Objective 2-4: Protect rare plants and unique wetlands habitats through identification, marking and monitoring of hillside seeps and bogs.	Mid		
Goal 3 – Provide functional, healthy, low-impact and cost-effective facilities through sustainable design and development.	Objective 3-1: Avoid or minimize impacts to environmentally sensitive resources and promote installation sustainability through early integration of master planning and environmental concerns.	Mid		
	Objective 3-2: Ensure that new facilities are designed and built to comply with requirements under the Clean Water Act, Clean Air Act, Endangered Species Act, and National Environmental Policy Act through project planning and construction phase monitoring.	High	Amber	Not Available
Goal 4 – Act as "good neighbors" to residents and communities near Fort Polk and the KNF and serve as good stewards of public lands and resources.	Objective 4-1: Support public recreation and multiple uses on the Fort Polk and Peason Ridge Wildlife Management Areas, Limited Use Area (LUA) and Special Limited Use Area (SLUA) through public outreach, scheduling activities, and Soldier SRA training.	Mid		
	Objective 4-2: Protect the quality of life for residents near the installation boundaries through noise monitoring, boundary line marking, fire response and suppression, and road repairs and upgrades.	Mid		
	Objective 4-3: Avoid risks to public safety and conflicts with civilian activities and land uses in the LUA and SLUA.	Mid		
Goal 5 – Monitor progress toward goals and objectives and evaluate opportunities for continual improvement of environmental and natural resource management.	Objective 5-1: Jointly monitor implementation and effectiveness of mitigation measures in the EIS/Records of Decision for 2d ACR transformation, installation mission support, and long-term military use of KNF lands; and the EA/Decision Notice on increased military use of the LUA.	Mid		
	Objective 5-2. Jointly evaluate and report monitoring results, and adapt operations and management accordingly.	Mid		

Implementation Status and Performance Results

Implementation status ratings for High Priority SEMP objectives are determined as follows:

- **Green:** A majority of monitoring task sheets for the objective are fully implemented. Monitoring and reporting is ongoing.
- **Amber:** Task sheet development/implementation is in progress. There are no Oversight Committee or EQCC-level issues.
- **Red:** Task sheet development/implementation is stalled. Oversight Committee and/or EQCC action is required to proceed.

Summary of Performance

Objective-level performance results for FY 2005 are provided in Table 1 for tasks where monitoring and reporting has begun. The objective-level performance ratings are based on an average of the task-level performance ratings for that objective, i.e. an average of the monitoring results for specific monitoring questions. Each task-level monitoring result is classified as Green, Amber or Red and a point score is assigned (see below). The task-level points (TP) are then tallied and the sum is divided by the number of task sheets for which performance results are available (TS), as shown mathematically below (*Eq. 1*). The resulting percentage represents an average performance score for the objective. A Green, Amber or Red rating for the objective is determined based on the average score and the following thresholds:

Task-level Performance Ratings and Points	Objective Performance Rating Thresholds
Green: 1.0 point	**Green: objective score > 66.7%**
Amber: 0.5 points	**Amber: objective score ≤ 66.7% and ≥ 33.3%**
Red: 0.0 points	**Red: objective score < 33.3%**

$$\text{Objective score} = \Sigma_{TP} / TS \qquad (Eq.\ 1)$$

Status of Mitigation and Environmental Stewardship Measures

The goals and objectives identified in the SEMP are linked to mitigation and environmental stewardship measures adopted in the Army and Forest Service RODs for the EIS describe above, as well as to terms and conditions contained in the US Fish and Wildlife Service's (USFWS) Biological Opinion for the EIS and to mitigation measures contained in the LUA EA. Through these linkages, the performance results generated under the SEMP provide information to evaluate the implementation and effectiveness of the required mitigation and environmental stewardship measures and to validate underlying assumptions. However, because metrics, performance criteria and monitoring results are not currently available for all SEMP goals and objectives, the sections below provide information on the status of selected mitigation and environmental stewardship measures relating to each of the SEMP goals:

- Goal 1 – Sustainable Training Lands
- Goal 2 – Biodiversity and Sustainable Ecosystems
- Goal 3 – Sustainable Facilities
- Goal 4 – Be "Good Neighbors"
- Goal 5 – Continual Improvement

In addition, more detailed performance results for Objectives 1-1 and 2-1 are provided in the following sections.

GOAL 1

Ensure that training lands are sustained for long-term use and maintained in world-class conditions. Protect and conserve basic soil, water and land resources so that forest ecosystems endure for future generations.

Mitigation and Environmental Stewardship Measure Highlights

This section describes implementation accomplishments for three EIS mitigation measures relating to Goal 1 – Sustainable Training Lands. These measures are designed to promote training land sustainability and to minimize or avoid adverse impacts to soil and surface water resources that may result from training operations, construction of new facilities, or other installation activities.

- **Development of Watershed Management Plans (1B)[2].** The headwaters of numerous streams originate on Fort Polk and Peason Ridge (Figure 3). From 1998 to 2002, Fort Polk, with assistance from the U.S. Department of Agriculture (USDA), Natural Resource Conservation Service, completed resource management plans for the Whiskey Chitto Creek, Birds Creek, Brushy Creek, Tenmile Creek, Thompson Creek and Sixmile Creek watersheds on Fort Polk, and for the Kisatchie Creek and Comrade Creek watersheds on Peason Ridge (USDA, 1998, 1999, 2000, 2001a, 2001b, 2002). The plans recommend specific land treatments for erosion problem areas within each watershed to provide resource protection, including treatments to reduce sheet and rill erosion, reduce sediment movement and deposition, and improve water quality and wildlife habitat. In FY 2005, Fort Polk began working with the U.S. Geological Survey (USGS) to develop and update watershed management plans for the watersheds listed above, as well as for other watersheds on Fort Polk and Peason Ridge, based on the *Department of Defense's DoD Watershed Impact Assessment Protocol: Installation Assessment and Planning Guidance* (DoD, 2002). The DoD watershed assessment protocol will provide current baseline information on watershed conditions and provide a foundation for prioritizing surface water resource management activities across the installation.

- **Maintenance of Sediment Basins (1C)[2].** Since the mid-1980's, Fort Polk has constructed approximately 190 sediment basins on Army-owned and KNF permitted-use lands (Figure 3). The sediment basins are used to capture runoff from range construction sites as well as from intensively used training areas where areas of bare ground are frequently exposed. In FY 2005, Fort Polk began developing an inspection and maintenance plan to ensure that existing sediment basins are functioning properly. As a result of field inspections, the need was identified for additional sediment basins in the Big Brushy Creek watershed to protect downstream water quality and aquatic habitat. Fort Polk constructed three new sediment basins south of the Geronimo forward landing strip and drop zone, located within the Big Brushy Creek watershed. Observations indicate that sediment loading to Big Brushy Creek has diminished since the sediment basins were installed.

- **Sustainable Range Awareness (SRA) Training (4A)[2].** In June 2005, Fort Polk formalized an SRA training program to ensure that soldiers conducting training at Fort Polk are knowledge able of environmental regulations and guidelines, Special Use Permit/Operating Plan requirements, and restrictions on training to protect the environment. The SRA training is targeted at soldiers assigned to units at Fort Polk as well as visiting soldiers who will take part in JRTC exercises. The course includes an online component and a classroom component. Through the online modules, soldiers learn the basics of what constitutes a reportable spill, the categories of waste material, how to handle and properly dispose of wastes, levels of forest fire conditions, local endangered species and their habitats, what to do with waste water, and what types of training can be conducted in the LUA, SLUA and IUA. The classroom instruction reinforces the online modules and allows for questions and answers. All potential Range Safety Officers and Officers in Charge assigned to military units at Fort Polk must pass the course and receive a certificate prior to conducting their respective range duties.

---

[2] Note: Alpha-numeric codes in item headings refer to mitigation measures adopted in the *Final Environmental Impact Statement for 2nd Armored Cavalry Transformation, Installation Mission Support, Joint Readiness Training Center and Fort Polk, and Long-Term Military Training Use of Kisatchie National Forest Lands* (US Army, 2004). A complete description of EIS mitigation measures is available online at http://www.jrtc-polk.army.mil/nepa.htm.

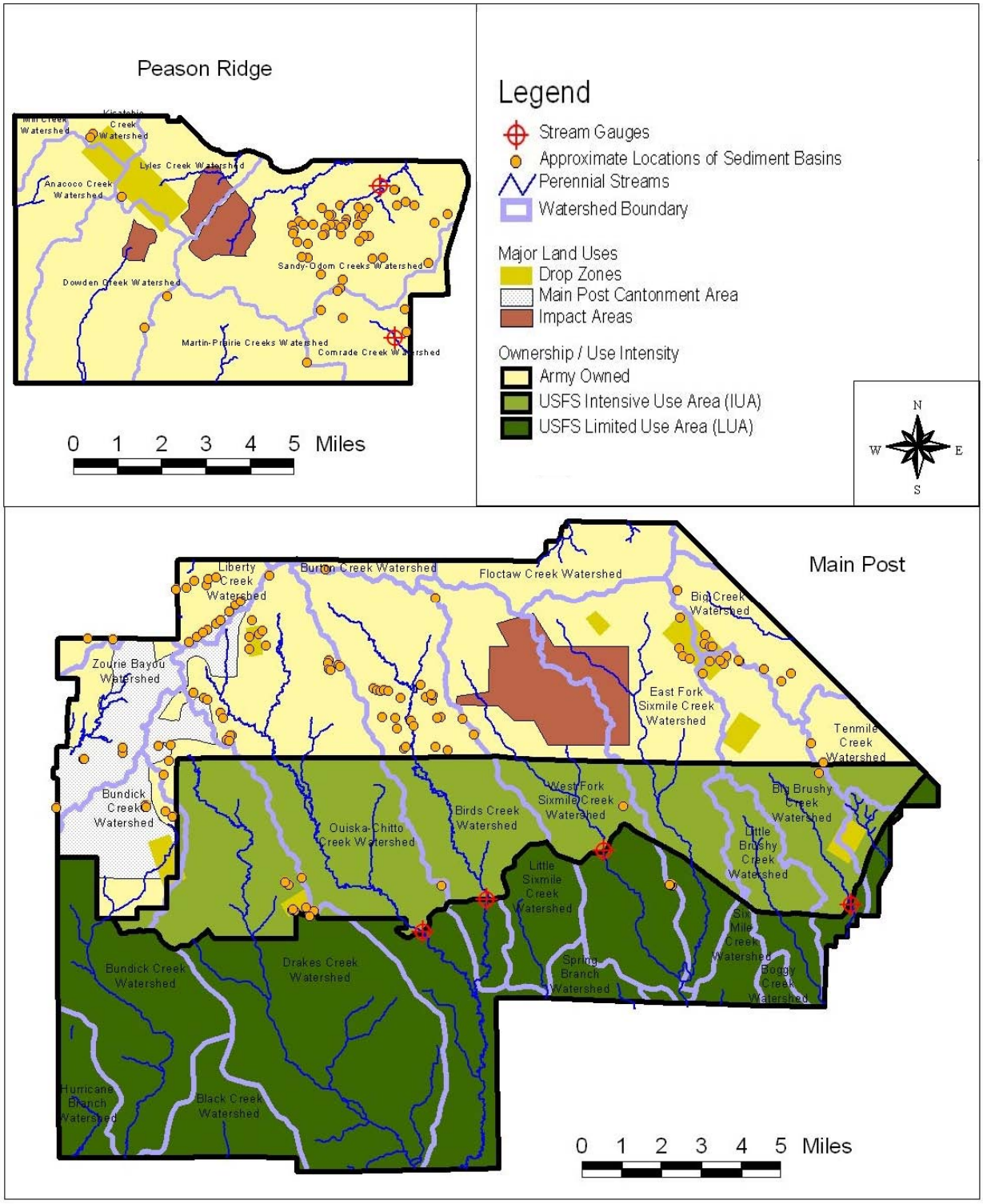


Figure 3. Watersheds associated with Fort Polk training lands.

- **Development of Stream Gauge Network (5A)[2].** Fort Polk worked with the USGS to establish stream gauging stations on six streams whose headwaters originate on Fort Polk training lands (see Figure 3). The gauging stations were installed in April through June 2004 and are being used to collect data on stream stage (i.e., water surface levels), discharge, suspended sediment and other water quality parameters. The data collected will be used to evaluate water quality and to generate baseline stage-discharge (rating) curves. Sediment transport curves will also be generated to show the relationship between water discharge and total sediment discharge. By comparing baseline and future sediment transport curves, potential changes in sediment loading to streams can be detected that could occur as a result of military training activities or land use changes.

Objective 1-1

Minimize or avoid degradation of training lands and long-term damage to soils, vegetation, streams and wetlands, and sensitive environmental resources through identification and correction of maneuver damages and soldier Sustainable Range Awareness education.

Photo: Fort Polk, LA

Status and Performance Results

Metrics and performance criteria, where appropriate, were developed for six of eight Objective 1-1 monitoring tasks (see Table 2 below), and monitoring was initiated during the fourth quarter of FY 2005 (July – September 2004).

- **Task 1-1.1.** This monitoring task examines the implementation of maneuver damage inspection requirements. A performance target was established to complete maneuver damage inspections for 100% of training exercises. Monitoring results for this task were not available during FY 2005 due to implementation of a new procedure for tracking the completion of maneuver damage inspections during the 4th quarter of the year. Results for this measure will be available beginning in FY 2006.
- **Task 1-1.2.** This monitoring task examines the implementation of corrective actions prescribed by Fort Polk and KNF inspectors for repair of maneuver damages. A performance target was established to complete greater than 75 percent of corrective actions in 30 days or less from the date that maneuver damages were identified. Monitoring results for this task were Green, based on a 100 percent completion rate for corrective actions within 30 days. A total of 3 corrective actions were prescribed, which consisted of earthwork, seeding and fertilization.
- **Task 1-1.3.** This task examines the implementation of a SRA training program. This program was officially implemented in June 2005 (see discussion on Page 9 above). However, metrics and performance criteria for evaluating the delivery of this training have not yet been developed.
- **Task 1-1.4.** This task collects information on maneuver damage trends to be used in evaluating the effectiveness of maneuver damage identification and repair programs, installation range regulations for environmental protection, and SRA training. Performance criteria were not established for this task because performance standards for trends in the number or types of maneuver damages are not appropriate; rather, these data aid in the interpretation of other monitoring results.

  Data on the frequency, type and severity of maneuver damages at Fort Polk are available beginning in FY 2002. Figure 4 below displays the median number of damages observed among JRTC rotational exercise, plotted by damage type and fiscal year. As shown in the figure, there is substantial variation in the number of observed maneuver damages among rotations for some years and some types of damage. For example, the number of sites where engineering work (ENG) was identified varied considerably among rotations in FY 2002. However, some caution must be applied in interpreting these data, because in several instances JRTC rotations that occurred back-to-back (typically during the same month) were assigned the same exercise identification number. As a result, some damages that occurred during two separate rotations may have been attributed to a single rotation.

Table 2. Monitoring questions, metrics, performance criteria and performance results for Objective 1-1, FY 2005.

Monitoring Question	Task No.	Metric	Reporting Frequency	Performance Target Criteria			Performance Results 4th Qtr FY05
				Green	Amber	Red	
Are maneuver damages identified following all home station and rotational training exercises? Are adequate opportunities for maneuver damage inspections provided on the training calendar?	1-1.1	Percent of training exercises for which maneuver damage inspections were accomplished; and percent of training exercises for which adequate time was allocated on the training calendar for maneuver damage inspections.	Quarterly	Inspections were fully completed for 100% of training exercises.	Inspections were fully completed for 80 - 99% of training exercises.	Inspections were fully completed for < 80% of training exercises.	Results available as of 1st quarter FY06.
Are maneuver damages corrected within reasonable time periods? Are adequate opportunities for maneuver damage repairs provided on the training calendar?	1-1.2	Percent of repairs/corrective actions completed within 30 days from the date that damages were identified; and percent of required repairs for which adequate time was allocated on the training calendar.	Quarterly	>75% of corrective actions are completed in 30 days or less.	50% - 75% of corrective actions are completed in 30 days or less.	< 50% of corrective actions are completed in 30 days or less.	Green
Are Soldiers with all units training at JRTC and Fort Polk provided Sustainable Range Awareness training on ways to protect soils, vegetation, streams and wetlands, and sensitive environmental resources during field operations?	1-1.3	To be developed by working group.	Annually	To be determined.	To be determined.	To be determined.	To be determined.
Are programs for identification and correction of maneuver damages, installation range regulations for environmental protection, and Soldier education programs minimizing or avoiding long-term damages to soils, vegetation, streams and wetlands, and sensitive environmental resources?	1-1.4	Trends for frequency, type and severity of maneuver damages.	Quarterly/ Annual	Not applicable.	Not applicable.	Not applicable.	N/A
	1-1.5	Percent of corrective actions that were determined to be effective based on site re-inspections.	Quarterly	> 90 % of repairs were effective.	75 - 90 % of repairs were effective.	< 75 % of repairs were effective.	Green
	1-1.6	Trends for violations of range regulations/permit conditions for environmental protection.	Quarterly/ Annual	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Is the maneuver damage inspection and repair program adequately identifying and repairing damages that need corrective action? Are maneuver damage and repair procedures adequate?	1-1.7	To be developed by working group.	Annually	To be determined.	To be determined.	To be determined.	To be determined.
	1-1.8	Number of new historic damage sites identified annually.	Annually	< 15 historic sites identified per year.	15-30 historic sites identified per year.	> 30 historic sites identified per year.	Amber

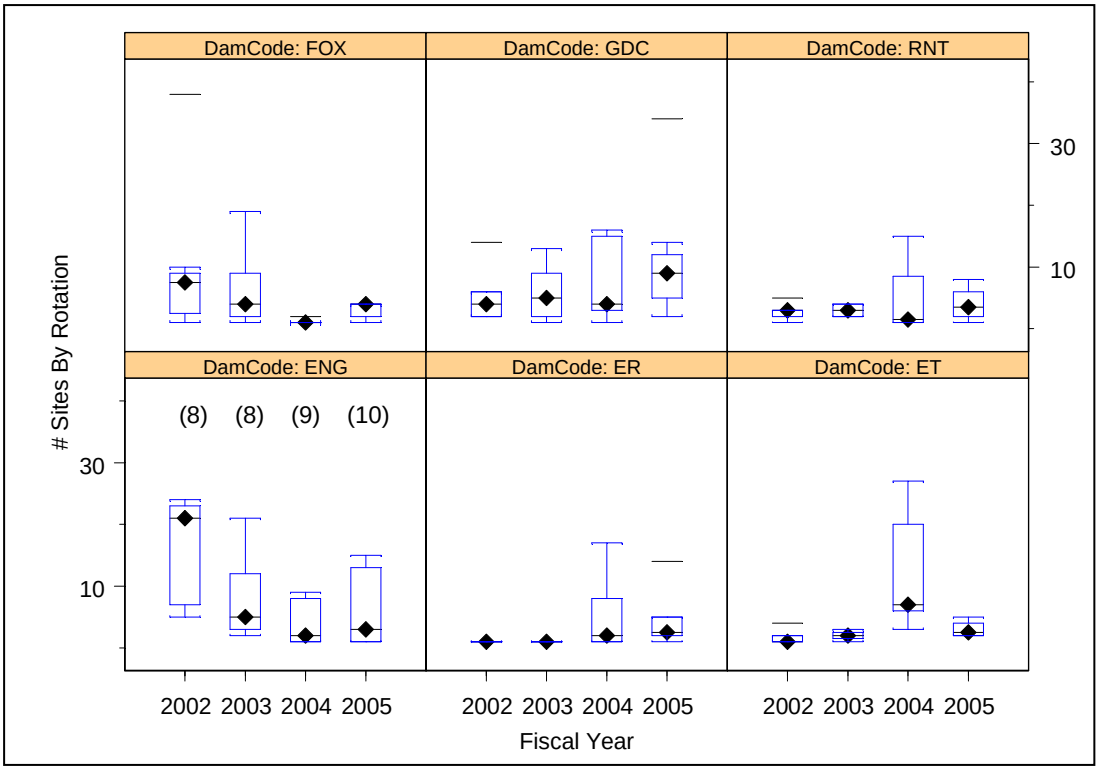


Figure 4. Median distribution among JRTC rotations of number of sites where foxholes/hasty positions (FOX), ground disturbance/cover loss (GDC), rutting/new trail (RNT), engineer work/deliberate defensive positions (ENG), existing road damage (ER), and existing trail damage (ET) were observed by fiscal year. Black diamonds represent the median number of damages observed following a JRTC rotation. The boxes represent the inner quartile range (25th to 75th percentiles), and upper and lower whiskers extending from the boxes represent the smallest and largest observations within one step (1.5 times inner quartile range). In some cases (e.g., Foxholes in 2002), the largest number recorded for a rotation within a fiscal year has been categorized as an extreme value and is represented by a single black line. Approximate number of rotations per year given as parenthetical in ENG pane.

In spite of this cautions, several general observations can be made regarding maneuver damage trends during the FY 2002 – 2005 period. There is an apparent decreasing trend in the number of sites where foxholes (FOX) and military engineering work (ENG) were identified, and an apparent increasing trend in the number of sites where ground disturbance/loss of ground cover (GDC), existing road (ER), and existing trail (ET) damages were identified. These ostensible trends are believed to be related to changes in military training scenarios and operational tactics that tend to increase the percentage of training activities that occur near existing roads, trails, operating bases and other fixed training facilities, and to decrease the amount of off-road vehicle movement and construction of deliberate defensive positions (e.g., engineering work). These changes are believed to be unrelated to Fort Polk and KNF mitigation and environmental stewardship measures.

- **Task 1-1.5.** This monitoring task examines the effectiveness of maneuver damage identification and repair programs based on the percent of corrective actions that were determined to be effective upon site re-inspections. A performance target of 90 percent effectiveness was established. Results for the 4th quarter of FY 2005 were Green, with 100 percent of corrective actions deemed effective. Repairs included earthwork, seeding and fertilization to re-establish ground cover and minimize soil loss.
- **Task 1-1.6.** This monitoring task provides information on trends in the number and type of detected violations of range regulations for environmental protection and Special Use Permit/Operating Plan conditions. These data can be used to evaluate the effectiveness of installation range regulations for

environmental protection and SRA training. Performance criteria were not established for this task because the number of detected violations per rotation is expected to be very small (less than 1) but may vary considerably from year to year due to factors unrelated to the effectiveness of installation regulations and SRA training. However, if a significant increase in the number of violations becomes apparent, this observation will trigger further analysis of potential underlying causes.

Monitoring for evidence of selected types of violations began in 2002 as a part of the maneuver damage inspection process, including tracking of violations relating to unauthorized training activities within RCW cluster buffer zones or within environmentally sensitive sites that are marked in the field as "no drive/no dig" areas. Monitoring for evidence of a more comprehensive list of potential violations began as of the 4th quarter FY 2005. During the FY 2002 - 2005 period, a total of 34 violations were identified, representing approximately 1 violation per JRTC rotation. No training violations were identified during the 4th quarter FY 2005.

- **Task 1-1.7.** This monitoring task assesses the validity of the assumption that the maneuver damage and repair program is adequate to minimize or avoid long-term degradation of training lands. This assessment will be based on landscape-scale sampling of vegetative communities and percent cover. A series of metrics and performance criteria are currently under development for this task.
- **Task 1-1.8.** This task assesses the validity of the assumption that the maneuver damage and repair program is adequately identifying maneuver damages that need corrective action, based on the number of "historic" damage sites identified. Historic damage sites are those that cannot be attributed to a certain military unit or training exercise. They represent damages that were not identified during previous maneuver damage inspections and are thus indicators of the completeness of prior inspections. A performance target of less than 15 historic maneuver damage sites (representing approximately two sites per JRTC rotation) was established. The performance results for FY 2005 were Amber. Historic damages were identified at a total of 26 sites, primarily in the Fullerton 4 training area. Fort Polk is reviewing these data to determine the cause of the elevated number of historic damages, including the possibility that some sites were double-counted.

Objective 1-2

Sustain training land conditions and long-term soil productivity. This is accomplished by implementing land rehabilitation and maintenance practices designed to minimize soil erosion and compaction, limit soil loss, restore or maintain vegetative cover, and restore disturbed or degraded areas to natural conditions. Develop and update watershed management plans for Fort Polk and KNF training lands and prioritize land rehabilitation and maintenance activities within and across watersheds based on watershed conditions and training area carrying capacity.

Photo: Fort Polk, LA

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

Objective 1-3

Protect and maintain high water quality and aquatic ecosystems by preventing excessive siltation to surface water resources due to training activities, conserving wetlands and streamside/riparian areas, providing for stream bank stability and natural flow regimes. This is achieved through maintenance of stream and wetland crossing structures, roads and trails; maintenance of sediment basins; and restrictions on training activities within streams, wetlands and riparian areas

Photo: US Forest Service

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

BIODIVERSITY AND SUSTAINABLE ECOSYSTEMS

GOAL 2

Manage for biological diversity and ecological integrity. Protect and conserve threatened, endangered and rare species, and maintain ecosystems and ecological processes at landscape and local scales.

Mitigation and Environmental Stewardship Measure Highlights

This section describes implementation accomplishments for three EIS mitigation measures relating to Goal 2 – Biodiversity and Sustainable Ecosystems. These measures are designed to help ensure that management and monitoring needs for sustaining biological diversity and ecosystem health are met on both Army-owned and KNF-permitted use lands at Fort Polk.

- **Scheduling of Non-Military Activities (2B, 2C) [2].** Because of the intensive pace of training at the JRTC and Fort Polk, Army and Forest Service land and natural resource management activities must be planned and scheduled to avoid conflicts with training exercises. Because of safety risks, resource management activities are precluded within range safety fans when ranges are "hot". Likewise, training activities cannot be conducted in areas scheduled for prescribed burning. However, some resource management such as forest thinning can be integrated with maneuver training scenarios. Close coordination between military and natural resource management personnel is essential to ensure that both training and resource management requirements are achieved.

  Prescribed Burning Targets and Accomplishments. One of the most important tools for restoration and maintenance of longleaf pine ecosystems is prescribed fire. Because longleaf pine forests are fire-climax systems, fire is needed to suppress invading hardwood trees and maintain diverse herbaceous ground cover. Fort Polk and KNF conduct prescribed burns on two to three year cycles to improve timber stands, remove unwanted understory vegetation, improve habitat for the endangered RCW and other wildlife, and reduce dangerous fuel buildup. Prescribed burning targets and accomplishments for FY 2005 for Fort Polk and the Vernon Unit, KNF are shown in Table 3below. Targets were largely met on both Army and Forest Service lands, although a combination of unsuitable weather conditions and limitations on access to training areas resulted in a minor reduction in burning accomplishments on the Fort Polk Main Post.

Table 3. Burning targets and accomplishments, Fort Polk Main Post, Peason Ridge and Vernon Unit, FY 2005.

Area & Ownership	Target Acres for Prescribed Burning	Actual Acres by Season (Dormant / Growing)	Percent of Target Accomplished
Fort Polk Main Post, Army	21,603	9,768 / 8,086	83
Peason Ridge, Army	5,799	4,380 / 1,111	95
Vernon Unit, Forest Service	31,670	22,879 / 6,291	92

Forest Thinning Targets and Accomplishments, IUA, Vernon Unit. The EIS described above considered the impacts of thinning of approximately 21,500 acres of overstocked upland pine stands in the Vernon Unit IUA to improve habitat for the RCW and improve the utility of the IUA for maneuver training. In order to accomplish the IUA forest thinning within the desired 10-year planning horizon, the KNF established annual targets to conduct site preparations and timber sales for approximately 2,000 acres each year, beginning in 2004. Sale preparation entails layout, physical marking of boundaries, digital mapping of boundaries, and cruising or marking stands for volume estimates. Sale packages are then prepared, advertised and awarded to the highest bidder. The sales may have time limits of up to three years, but purchasers often complete logging within the first year.

During FY 2004 and FY 2005, approximately 939 acres within the target IUA thinning area were prepared for sale, 798 acres were sold, and 434 acres were harvested. KNF and Fort Polk personnel successfully coordinated site preparation and timber harvesting to avoid conflicts with training activities. However, Forest Service budget reductions and staffing constraints limited KNF's ability to meeting the IUA thinning targets. Fort Polk and KNF are currently exploring cooperative approaches to accelerate the IUA thinning (see text box on Sustainability Workshop, page 20).

Sustainability Workshop, June 2005

Fort Polk hosted the second of several planned sustainability workshops during 28–30 June 2005. The workshop focused on endangered species recovery, ecosystem conservation and training land use. It was attended by military trainers and planners, environmental analysts, professional biologists, land managers and foresters representing the Army, Forest Service, USFWS, State agencies, conservation organizations, and major private landowners in the region. The workshop included presentations by subject matter experts and breakout sessions for development of goals, objectives and action plans.

The first breakout group was challenged to identify joint Army-Forest Service management strategies to expedite RCW recovery/longleaf pine eco-system conservation while at the same time meeting military training and land use needs. A second group was tasked with identifying private land use strategies to expedite RCW recovery/longleaf pine ecosystem conservation while supporting socio-economic needs within the region and relieving encroachment on military operations due to endangered species management requirements.

Fort Polk and KNF have undertaken several initiatives as a result of goals and objectives developed at the workshop. One such initiative is to accelerate thinning of overstocked upland pine stands in the IUA to improve RCW habitat conditions and enhance the utility of the area for maneuver training. The proposal would allow the thinning to be accomplished over a 5-year period rather than over 10 years as originally planned. The Army and Forest Service are currently working to identify mechanisms and secure funds to support the accelerated thinning effort.

In addition, Fort Polk has prepared a proposal under the Army Compatible Use Buffer (ACUB) program. Under the proposal, Fort Polk and The Nature Conservancy will partner to protect and restore longleaf pine habitat on private lands in the region. Protection of these habitats will support Fort Polk's mission by helping to reduce encroachment on training capabilities from endangered species management requirements and incompatible development near the installation's boundaries. More information about the ACUB program is available at www.sustainability.army.mil.

- **Bog Mapping and Monitoring (5B)[2].** Imbedded within the longleaf pine and other pine forests of Fort Polk and the Vernon Unit are many wetland plant communities such as hillside bogs, wooded seeps and bayhead swamps. These smaller communities contain numerous rare plant species. To help protect these unique habitats, Fort Polk and the KNF have digitally mapped and field marked high quality pitcher plant bogs occurring on the Vernon Unit as off-limits to military vehicles and other ground-disturbing military activities. In FY 2005, Fort Polk also initiated an intensive field survey of approximately 1,090 acres of Army lands in the Fullerton training area to identify and map pitcher plant bogs. The results of the survey will be used to generate a predictive model that can be applied to more cost-effectively identify potential bog locations at an installation-wide scale. The model output can then be field verified to produce a map of bogs occurring on Army-owned lands at Fort Polk. The map will facilitate future monitoring and management activities for bog communities.

- **Louisiana Pine Snake (LPS) Conservation Measures (5C) [2].** The LPS is a candidate species for listing under the Endangered Species Act that is known to occur on Fort Polk and the Vernon Unit. The LPS is a fossorial (burrowing) species that is generally associated with sandy, well-drained soils, open pine forests with moderate to sparse mid-story, and an herbaceous understory dominated by grasses. Baird's pocket gophers appear to be an essential component of LPS habitat, due to the snake's reliance on the gopher as a food source and on the gophers' burrow systems for shelter and hibernation sites. In order to minimize the loss of potentially suitable LPS habitat due to construction activities, Fort Polk conducts surveys for pocket gopher mounds during project siting and design phases. Pocket gopher mounds are avoided whenever feasible.

  The proposed site for a Combined Arms Collective Training Facility (CACTF), scheduled for construction on the Fort Polk Main Post in June 2006, was surveyed for pocket gopher mounds in the spring and fall of 2005. The surveys were conducted to evaluate potential impacts on the LPS and its habitat as part of an Environmental Assessment (EA) prepared under NEPA. Old (inactive) pocket gopher mounds were identified within the project area during the fall survey, and a small number of new mounds were identified during the spring survey, indicating the likely presence of pocket gophers. In addition, soils in the project area are considered suitable for the LPS, and several snakes have been located in the project vicinity in past years. However, the chosen project site was optimal from a training perspective and minimized impacts to RCW habitat. The EA concluded that the project would not significantly impact the LPS.

- **Cooperative RCW Management and Monitoring.** Fort Polk and the KNF cooperate extensively to manage the Vernon-Fort Polk RCW population, which is designated by the USFWS as a "primary core population" for recovery of the species. Because the population spans Army and Forest Service lands used for military training, it is critical that management and monitoring activities are coordinated between agencies and integrated with military training activities. Without such cooperation, it is less likely that either agency would reach its RCW recovery goals.

  In 1999, Fort Polk and KNF standardized their RCW monitoring practices under the *Joint Monitoring Plan for the Vernon-Fort Polk Red-Cockaded Woodpecker Population* (JMP; QES, 2000). The JMP was developed to insure consistent interagency methods for collection of quantitative data that can be used to assess trends in the Vernon-Fort Polk RCW population as a whole; whether the population is maintaining its viability through time; and whether military training is impacting the population. The JMP also ensures consistency among agency protocols through stipulations for periodic exchange of RCW monitoring personnel and data between agencies. The JMP annual report helps agency biologists better manage the population and provides information to the USFWS regarding the population status. In addition, Fort Polk provides support to KNF for RCW management on the Vernon Unit to protect clusters from potential damage or disturbance due to military training activities and to help achieve mutual population recovery goals. Fort Polk assists KNF with cluster resource management (see Task 2-1.3 below) and with monitoring activities to meet requirements of the JMP and the RCW Recovery Plan (USFWS, 2003). In FY 2005, Fort Polk biologists conducted pre-breeding season roost checks and breeding season activity status checks for RCW clusters located in the IUA, as well other assistance.

Objective 2-1

Promote recovery of the Vernon-Fort Polk Red-Cockaded Woodpecker (RCW) population through cooperative Fort Polk and KNF management and monitoring strategies. Conduct population monitoring in accordance with the Joint Monitoring Plan, educate soldiers on the RCW and its habitat, and maintain RCW cluster resources to minimize the occurrence of unauthorized training activities within cluster boundaries and reduce the threat of cavity tree loss due to military related wildfires.

Photo: Fort Polk, LA

Status and Performance Results

Metrics and performance criteria, where appropriate, were developed for four of five Objective 2-1 monitoring tasks (see Table 4 below). Monitoring was conducted throughout FY 2005 for most tasks.

- **Task 2-1.1.** This monitoring task tracks the implementation of activities under the RCW Recovery Plan (USFWS, 2003) and the Fort Polk and KNF JMP. A performance target was established for 100 percent completion of critical RCW Recovery Plan/JMP monitoring requirements, in accordance with prescribed time frames. The FY 2005 performance results for this task were Green, based on 100 percent Fort Polk and KNF completion of critical RCW Recovery Plan/JMP tasks.
- **Task 2-1.2.** This task examines implementation of soldier education on training restrictions within RCW clusters and other measures to protect the RCW. This training is provided through Fort Polk's SRA training program (see page 9 above), as well as other environmental awareness programs. However, metrics and performance criteria to evaluate delivery of this training have not yet been developed.
- **Task 2-1.3.** This monitoring task tracks the implementation of RCW cluster management practices to protect against potential loss or damage of cavity trees due to military activities and prescribed fire. Cluster management activities include painting and signing of cavity trees and removal of excess fuel within clusters. A performance target was established for greater than 90 percent accomplishment of required cluster maintenance tasks on Fort Polk and KNF lands. Performance results for FY 2005 were Green based on 100 percent completion of required maintenance activities.

  Task 2-1.4. This monitoring task provides information on trends in the number of violations of installation restrictions on training activities within RCW clusters. Evidence of any unauthorized training activities within RCW clusters (termed an "RCW violation") is recorded during maneuver damage inspections (see Task 1-1.6) and during RCW demographic monitoring activities. These data can be used to evaluate the effectiveness of installation regulations and troop educational programs for preventing damage or disturbance to RCW clusters. As for Task 1-1.6, no performance target was established for Task 2-1.4 because the number of detected RCW violations per rotation is expected to be very small (less than 1) but may vary considerably from year to year due to factors unrelated to the effectiveness of installation regulations and SRA training. However, if a significant increase in the number of RCW violations becomes apparent, an analysis of the potential causes will be conducted.

Table 4. Monitoring questions, metrics, performance criteria and performance results for Objective 2-1, FY 2005.

Monitoring Question	Task No.	Metric	Reporting Frequency	Performance Target Criteria			Performance Results FY05
				Green	Amber	Red	
Are Fort Polk and the KNF cooperating to promote recovery of the Vernon-Fort Polk RCW population? Is RCW population monitoring conducted in accordance with the Joint Monitoring Plan (JMP)?	2-1.1	Percentage of critical JMP activities completed within prescribed time frames.	Annual	100% completion of critical JMP requirements in accordance with prescribed time frames.	≥85% completion of critical JMP requirements in accordance with prescribed time frames.	<85% completion of critical JMP requirements in accordance with prescribed time frames.	Green
Are Soldiers with home station and rotational units provided instruction on the RCW, its habitat, and restricted activities within RCW clusters?	2-1.2	To be developed by working group.	To be determined.	To be determined.	To be determined.	To be determined.	To be determined.
Are RCW cavity trees and cluster boundaries painted and marked with signage so that they are identifiable during daytime and nighttime hours by troops in the field? Are excess fuels removed within RCW clusters to reduce the potential for loss of cavity tress due to military related wildfires?	2-1.3	Percent of RCW clusters requiring painting, signing and/or fuel removal that received those maintenance activities on Fort Polk and KNF lands utilized by the Army for training.	Annual	Maintenance was accomplished for ≥ 90 percent of clusters that required maintenance on Army and Forest Service lands (IUA and LUA).	Maintenance was accomplished for 70-89 percent of clusters that required maintenance on Army and Forest Service land (IUA and LUA).	Maintenance was accomplished for <70 percent of clusters that required maintenance on Army and Forest Service land (IUA and LUA).	Green
Are management practices, installation regulations, and troop educational programs preventing damage or disturbance to RCW clusters due to training activities?	2-2.4	Trends for violation of range regulations for protection of the RCW.	Annual	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Is the Vernon-Fort Polk RCW population growing? Are population recovery goals being met?	2-1.6	Change in number of groups within the Vernon-Fort Polk RCW population	Annual	Number of groups increased at a rate of ≥4.5% per year or over the past 5 years.	Number of groups changed at a rate of between <4.5% increase to <9.5 decrease per year and over the past 5 years.	Number of groups declined at a rate of ≥9.5 per year or over the past 5 years.	Amber

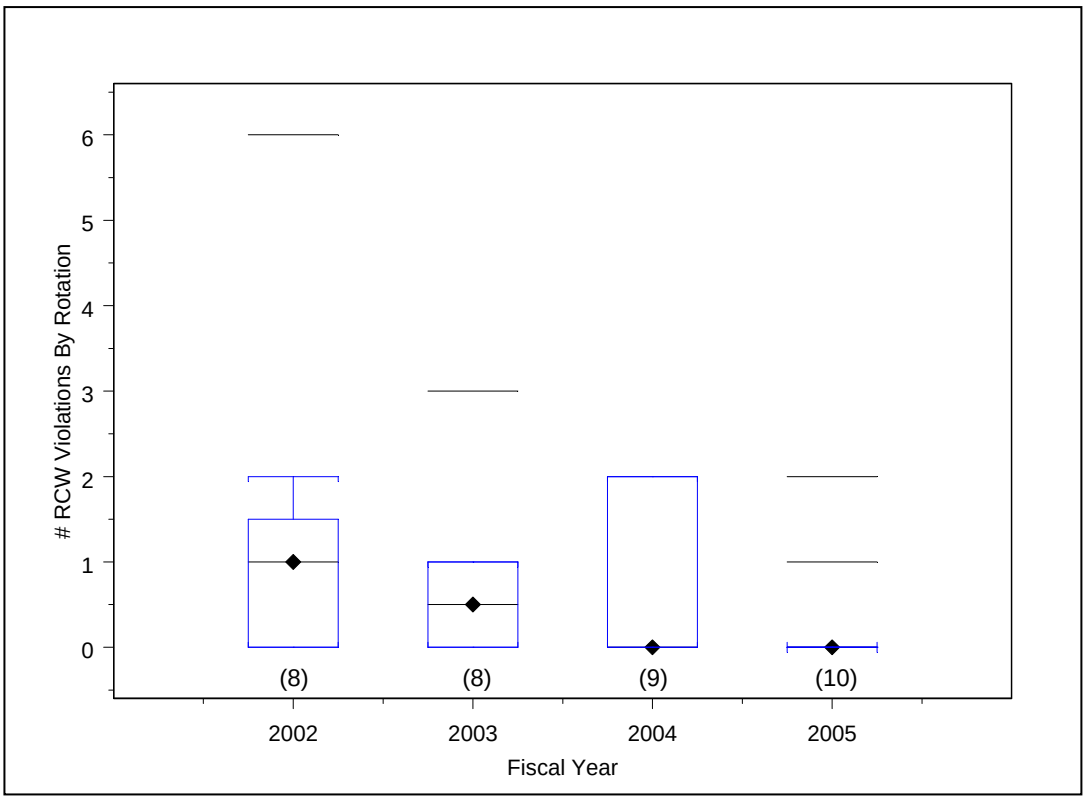


Figure 5. Median distribution among JRTC rotations of observed violations of installation restrictions on training activities within RCW clusters by fiscal year. Black diamonds represent the median number of violations observed following a JRTC rotation. The boxes represent the inner quartile range (25th to 75th percentiles), and upper and lower whiskers extending from the boxes represent the smallest and largest observations within one step (1.5 times inner quartile range). Some observations within a fiscal year (e.g., 6 violations for one rotation in 2002) have been categorized as extreme values and are represented by a single black line. Approximate number of rotations per year is given as parenthetical above the fiscal year.

The median number of RCW violations recorded per JRTC rotation from FY 2002 – 2005 is presented graphically in Figure 5. Although some caution must be applied in interpreting these data due to possible inaccuracies in assignment of violations to specific JRTC rotations (see also Task 1-1.4), the number of RCW violations appears to have declined from FY 2002 to FY 2005. It is also notable that during this period, a median of less than 1 violation per JRTC rotation was observed. The observed violations did not result in measurable disturbance to the RCW groups or cause damages to cavity trees or other resources.

- **Task 2-1.5.** This monitoring task is reserved.
- **Task2-1.6.** Task 2-1.6 assesses the validity of the assumption that cooperative Fort Polk and KNF management and monitoring strategies—including implementation of the JMP, Soldier education on the RCW, and cluster maintenance practices—are promoting recovery of the Vernon-Fort Polk RCW population, as measured by the change in the number of RCW groups in the population. The number of RCW groups is the monitoring measure of primary interest when assessing population trends. Trend in the number of groups is modeled in its simplest form as the constant rate of change over each unit of time. This constant rate of change is typically referred to as λ (lambda), or the finite rate of increase. Values of λ greater than 1.0 indicate an increasing population, λ equal to 1.0 indicates a stable population, and λ less than 1.0 indicates decline.

A performance target was established for an increase in the number of RCW groups of greater than or equal to 4.5 percent per year or over the past 5 years. This annual performance target is derived from the target population growth rate of 5 percent per year established in the USFWS 2003 Recovery Plan for the RCW. The 5-year performance target was developed based on the need to evaluate population trends over a longer time horizon, due to year-to-year variability. A five year period was selected as the appropriate interval for long-term evaluation based on the RCW Recovery Plan definition of a critical population decline, which evaluates population trends over both 1-year and 5-year periods. Annual RCW population growth rates for the prior calendar year (the most recent data available) will be used for reporting under this monitoring task, due to the annual sequence of RCW demographic monitoring events. RCW demographic monitoring activities are conducted on a calendar year rather than a fiscal year, and the data collected by Fort Polk and KNF must be assembled, reviewed and analyzed after the close of the calendar year.

For the Vernon-Fort Polk RCW population as a whole, annual λ for calendar year 2004 was 1.0, indicating stability in the number of groups from 2003 to 2004 (QES, 2005). Multi-year (5-year) λ for the population was 0.95, with upper and lower 90 percent confidence intervals of 1.03 and 0.87, respectively[3]. These data indicate that, considering year-to-year variability, the population as a whole was stable over the period 2000-2004. Based on these data, performance results for this monitoring task were Amber. The number of RCW groups and the annual change (λ) in the number of groups in the Vernon-Fort Polk population from 1999 through 2004 are shown in Figures 6 and 7 below.

[3] Confidence intervals measure the precision of an estimated value. The interval represents the range of values, consistent with the data, that is believed to encompass the "true" value with high probability (usually 90 or 95%). The confidence interval is expressed in the same units as the estimate. Wider intervals indicate lower precision; narrow intervals indicate greater precision. Thus, in the discussion above, the 90% upper and lower confidence intervals (1.03 and 0.87) indicate that given the observed data, there is a 90% probability that the true multi-year (5-year) rate of population change (λ) was between 1.03% and 0.87% per year.

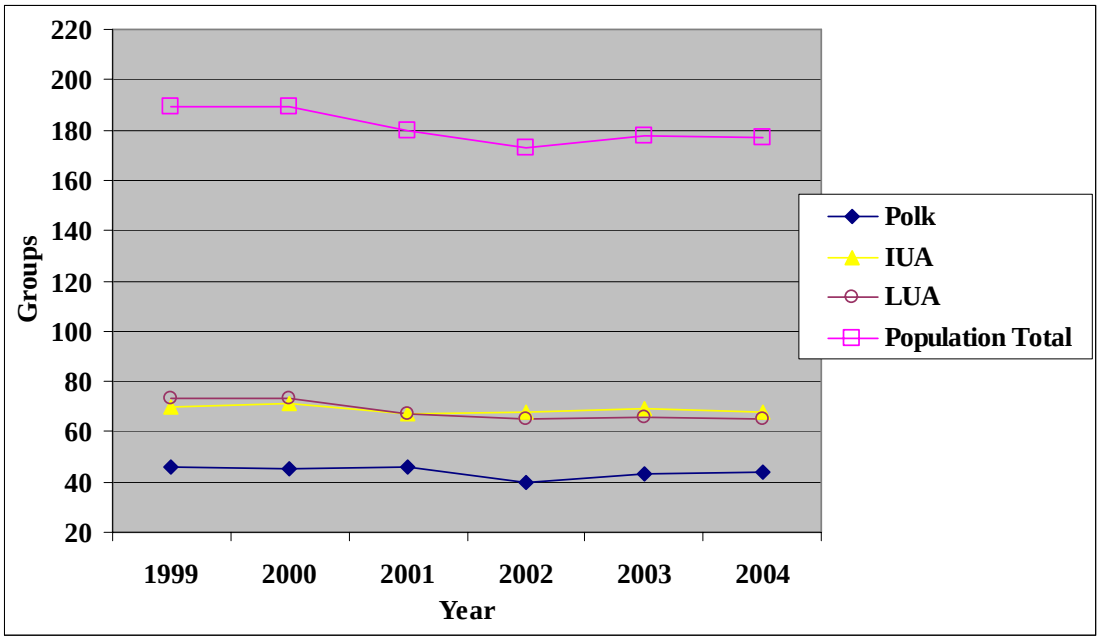


Figure 6. Number of groups (includes single bird clusters) in the Vernon-Fort Polk RCW population annually from 1999 through 2004 by administrative unit and for the population as a whole.

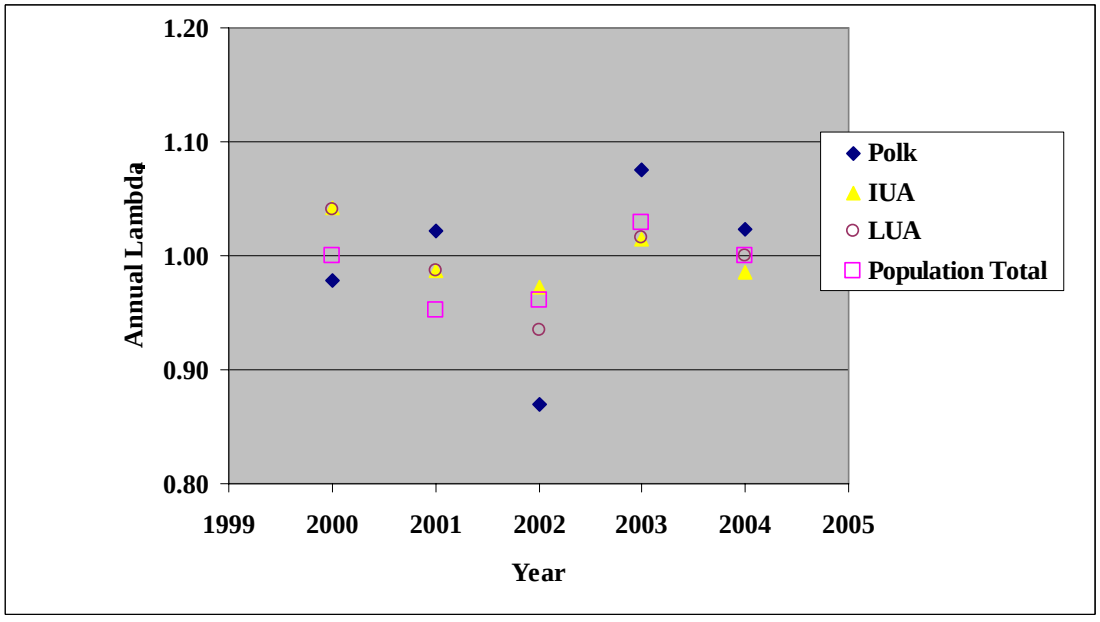


Figure 7. Annual rate of change, expressed as lambda (λ), in the number of groups in the Vernon-Fort Polk RCW population during 1999–2004 by administrative unit and for the population as a whole. A $\lambda > 1.0$ indicates an increase in the number of groups from the prior year, $\lambda < 1.0$ indicates a decline, and $\lambda = 1.0$ indicates no change.

Objective 2-2

Provide high-quality habitat for the red-cockaded woodpecker, Louisiana pine snake, and other rare species native to longleaf pine landscapes. Use prescribed fire to maintain open longleaf pine forest conditions and natural plant communities, with an emphasis on growing season burns, and conduct thinning as planned on approximately 21,500 acres of upland pine stands within the Intensive Use Area to achieve Desired Future Conditions. Maintain suitable RCW habitat at the appropriate scale and distribution as identified in the Fort Polk Endangered Species Management Plan and in the Revised Land and Resource Management Plan for the KNF.

Photo: Fort Polk, LA

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

Objective 2-3

Promote viability of the Louisiana pine snake through cooperative management strategies designed to minimize the potential for listing of the LPS as a threatened/endangered species. Minimize or avoid adverse impacts to the snake and its habitat through soldier education, identification of probable LPS habitat, and through integration of LPS habitat/pocket gopher mound survey and monitoring data with project planning.

Photo: Dan Saenz, US Forest Service.

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

Objective 2-4

Protect rare plants and unique wetlands habitats through identification, marking and monitoring of hillside seeps and bogs. Develop and maintain GIS locations and data on the condition of high quality seeps and bogs on Fort Polk and KNF training lands, and monitor annually for potential training

Photo: US Forest Service

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

GOAL 3

Provide for and maintain functional, healthy, low-impact and cost-effective facilities and infrastructure by integrating master planning, engineering and environmental concerns. Conserve natural resources and energy, and reduce generation of wastes and pollutants by fully incorporating the principles of sustainable design and development.


251

Mitigation and Environmental Stewardship Measure Highlights

This section describes implementation accomplishments for three EIS mitigation measures relating to Goal 3 – Sustainable Facilities. These measures are designed to help ensure that adverse impacts to sensitive environmental resources are minimized during construction activities, and that construction activities are conducted in accordance with applicable environmental regulations, NEPA decision documents and other requirements.

- **Monitoring of Construction Activities Within RCW Habitat Management Areas (HMA) and in Close Proximity to RCW Clusters (3B) [2].** Monitoring was conducted by Forest Service and Army natural resource specialists during construction of multiple projects evaluated in the Transformation and Land Use EIS (described above) that are located within the Vernon Unit RCW HMA. Projects under construction within the HMA during 2004 and 2005 included an Aviation Maintenance Hangar (located at Polk Army Airfield along the IUA boundary) and training roads designated BC-1, BC-2, and SMC-1 (located in the Big Creek and Sixmile Creek training areas in the IUA). Projects were monitored daily or weekly in accordance with the terms and conditions of the USFWS Biological Opinion dated December 13, 2003. Monitoring was conducted to evaluate potential disturbance to nearby RCW clusters due to construction activity, and to verify that project construction limits were within the expected footprints and that no excess RCW habitat was removed.

- **Monitoring of Construction Activities for Limited Use Area Stream Crossings (3B)[2].** The Transformation and Land Use EIS addressed the environmental impacts of constructing a total of 20 proposed crossing structures in the LUA. Permits have been obtained under Section 404 of the Clean Water Act to construct 17 of the 20 crossing structures. To minimize construction phase impacts on water quality, Fort Polk, KNF and U.S. Army Corps of Engineers personnel are sequencing installation of the LUA stream crossing structures so that construction activities are occurring at no more than two locations at a time. Timber at the crossing points and approaches to the crossings is marked in advance by KNF and then harvested for salvage under KNF oversight. Construction activities are monitored by both Fort Polk environmental and KNF personnel to help ensure adherence to environmental protection measures. Construction has now been completed for three crossing structures.

- **Design Adjustments to Intensive Use Area (IUA) Roads (3C)[2].** As a mitigation measure to reduce impacts to stream hydrology and aquatic life, Fort Polk redesigned selected stream crossing structures along several roads to be constructed in the Vernon Unit IUA in support of training requirements. The construction plans originally called for multiple box culverts to be installed where the roadways crossed larger perennial (third order) streams; however, studies have shown that such culverts can adversely impact stream flow, cause accumulation of debris, and result in erosion of stream channels. In place of the box culverts, arched spans were specified in five locations on training roads designated as ZH-1, ZH-2, ZH-3, BC-1, and SMC-1, which are located in the Zion Hills, Big Creek, and Sixmile Creek training areas (Whiskey Chitto Creek, Birds Creek, and Sixmile Creek watersheds, respectively). In addition, the centerlines of portions of training road segments designated a SMC-1 and ZH-3 were adjusted to minimize effects to RCW clusters located near the alignments. Construction has been completed on road BC-2 and is underway for roads BC-1 and SMC-1.

Objective 3-1

Avoid or minimize impacts to environmentally sensitive resources and promote installation sustainability through early integration of master planning and environmental concerns.

Photo: Fort Polk, LA

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

Objective 3-2

Ensure that new facilities are designed and constructed to comply with requirements under the Clean Water Act, Clean Air Act, Endangered Species Act, and National Environmental Policy Act. This is achieved by including limits of construction and clearing, Section 401/404 permit requirements, site-specific mitigation measures and other environmental conditions in construction design plans and specifications; ensuring that Storm water Pollution Prevention Plans are implemented for all construction sites one acre or more; and by monitoring during and after construction to ensure adherence to plans and specifications.

Photo: Fort Polk, LA

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

BE "GOOD NEIGHBORS"

GOAL 4

Act as "good neighbors" to residents and communities near Fort Polk and the KNF and serve as good stewards of public lands and resources. Manage training lands and resources for public safety and provide fair public access to training lands for recreation and other non-training uses.

Mitigation and Environmental Stewardship Measure Highlights

- **Limited Use Area (LUA) and Peason Ridge/Kisatchie Area Noise Monitoring.** In 2001 and 2002, Fort Polk installed seven noise monitors near private residences in the LUA to establish baseline noise data and to record potential noise from increased military use of the area. Since March 2002, the monitors have operated 24 hours per day, 365 days per year, to the maximum extent feasible. Data from each station is logged into memory and downloaded automatically by remote connection to the noise lab located at the Fort Polk environmental office. Noise data are stored in a database and periodically compiled and analyzed to identify trends. Because military training use of the LUA has been relatively low during this period, the noise data collected in the LUA from 2002 through 2005 provide a record of baseline ambient, or background, noise levels. These data can be used to evaluate potential changes in noise levels associated with future training activities.

  In FY 2005 and early FY 2006, five more noise monitors were installed north of the Peason Ridge training area, which borders the Kisatchie Ranger District and the SLUA (Horse's Head Training Area). Monitors were installed north of Peason Ridge to record noise levels associated with training operations at a new range facility known as a Digital Multi-purpose Battle Area Course (DMPBAC), which recently has been constructed in the northeast portion of the training area. Live fire operations are scheduled to begin at the DMPBAC in late FY 2006. Prior to the start of these new operations, Fort Polk plans to conduct tests to evaluate the potential noise levels associated with specific training scenarios. The results of the noise tests will be considered in establishing operational guidelines and parameters for the DMPBAC, as appropriate. Noise monitoring data collected on an ongoing basis can be used to verify and respond to potential complaints from the public regarding military activities.

- **Public Complaint Response.** To facilitate positive relationships with neighboring communities, Fort Polk has established a complaint hotline (337.531.1431) and has committed to responding to all public concerns or complaints regarding noise or other military activities within 24-hours of receipt. During FY 2005, only three complaints were received. Each of the complaints pertained to military aircraft noise, and in each case, a response was provided within 24-hours and appropriate action taken to resolve the complaint.

- **Public Information and Outreach.** In order to support public recreational opportunities in the LUA and SLUA and in the Fort Polk and Peason Ridge Wildlife Management Areas (WMAs), Polk adopted measures to regularly provide information to the public about military training use of these areas. The measures include: (1) daily or weekly posting of maps on information kiosks in the LUA, SLUA and WMAs denoting schedules for military training use and the availability of specific training areas for hunting or other non-military uses; and (2) operation of two public websites to provide similar information. The first website is to provide information during State hunting seasons on WMA site-specific area closures for military training exercises. The second website is to provide information on LUA and SLUA training area status (i.e., open, open-with training use, closed for training use) during months of the year when training is permitted in each area[4]. These measures are incorporated as conditions of Fort Polk's Special Use Permit/Operating Plan.

  During FY 2005, maps showing training schedules/training area status were routinely posted in the LUA, SLUA and WMAs, in accordance with Operating Plan requirements. However, the hunting information website and LUA/SLUA information website were operational for only a limited portion of the fiscal year. Due to changes in information technology requirements associated with new Army information security regulations and guidelines, both websites were deactivated in January 2005. A simplified hunting website was re-established in August 2005, but the LUA/SLUA website has not yet been reactivated due to software compatibility problems. A technical working group will be convened in mid-2006 to develop solutions for fully reestablishing both websites.

[4] In accordance with the Special Use Permit/Operating Plan, military training exercises are prohibited in the LUA and SLUA during April, November and December, and in portions of the LUA in January and November.

Did Someone Say "Fire"?!

That was the question on October 27, 2005, when personnel from Fort Polk, Kisatchie National Forest, the Louisiana Department of Agriculture and Forestry, Emergency 911, local volunteer fire departments, and the Vernon Parish Sheriff's Office responded to an emergency call from "Jetertown, USA". A fire had erupted and threatened to overtake homes in the Limited Use Area of the Vernon Unit, KNF, and firefighters were quickly called to the scene to contain the blaze.

Fortunately, the "fire" and the threat were both orchestrated as part of a multi-agency drill to test response capabilities in the event of a real wildfire in the LUA. In 2000, based on an Environmental Assessment, the KNF agreed to allow the JRTC and Fort Polk to conduct additional military training activities in the LUA, including the use of flares and other incendiary devices. These new training capabilities increased training realism but also increased the potential for forest fires in the LUA. Because of the presence of many scattered private lands and residences in the area, a multi-agency approach to fire response was needed.

In order to protect the safety of people and private property in the LUA, Fort Polk worked with KNF to develop a comprehensive fire prevention and response plan for the area. The plan outlines response protocols, points of contact, road and training area maps, and roles and responsibilities for all participants. Fire response drills are conducted each year to test the procedures, communication capabilities, and response times among responding agencies. To date, four drills have been conducted. Each drill has included successful establishment of an Incident Command Post and effective allocation of manpower and resources.

The drill conducted in October 2005 put interagency communications, command and control procedures to the test when the scenario called for vehicle and equipment breakdowns, delays and other problems that required even greater teamwork. The event also featured the use of two Army helicopters and 500-gallon "bambi buckets" for aerial water drops. The information gained during this and prior exercises is used to assess the strengths and weaknesses of the fire protection plan and how to improve it, if necessary.

Objective 4-1

Support opportunities for public recreation and other multiple use activities on the Fort Polk and Peason Ridge Wildlife Management Areas, the Limited Use Area and Special Limited Use Area. This is accomplished by providing up-to-date information on area closures, training schedules and activities on the WMAs, LUA and SLUA; maximizing opportunities for hunting on opening weekends/special hunts for deer, turkey and squirrel seasons; scheduling training activities to accommodate recreational events and other public activities on the LUA and SLUA; and by educating soldiers on training restrictions on the use of recreational facilities and maintained recreational trails.

Photo: US Forest Service

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

Objective 4-2

Protect the quality of life for residents and communities living in the Limited Use Area and near the installation boundaries. This is accomplished by monitoring of noise levels in the LUA and near the Peason Ridge Training Area boundary; maintaining land line markings, fire lines and wildfire response plans to avoid trespass and damage to private property; repairing military-related damages to public roads in the LUA in accordance with agreements width Vernon Parish Police Jury, and upgrading LUA roads as required to support military traffic; and responding expeditiously to public concerns and complaints regarding military activities.

Photo: Fort Polk, LA

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

Objective 4-3

Conduct military training activities in a manner to avoid risks to public safety or conflicts with other activities in the Limited Use Area approved under Forest Service Special Use Permits or other authorizations. This is achieved by scheduling military convoys to avoid school bus routes; conducting blackout driving in accordance with Special Use Permit/Operating Plan terms and conditions; identifying pipelines and utility lines on the ground and on training maps; scheduling training activities to provide access for other permitted uses; and by educating soldiers on other permitted uses and activities in the LUA and related training restrictions.

Photo: Fort Polk, LA

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

GOAL 5

Monitor to provide feedback regarding progress toward accomplishing mutual Fort Polk and KNF goals and objectives. Evaluate opportunities for continual improvement of environ-mental and natural resource management practices and procedures, and adapt management strategies according to new information.

The Monitoring and Evaluation Process

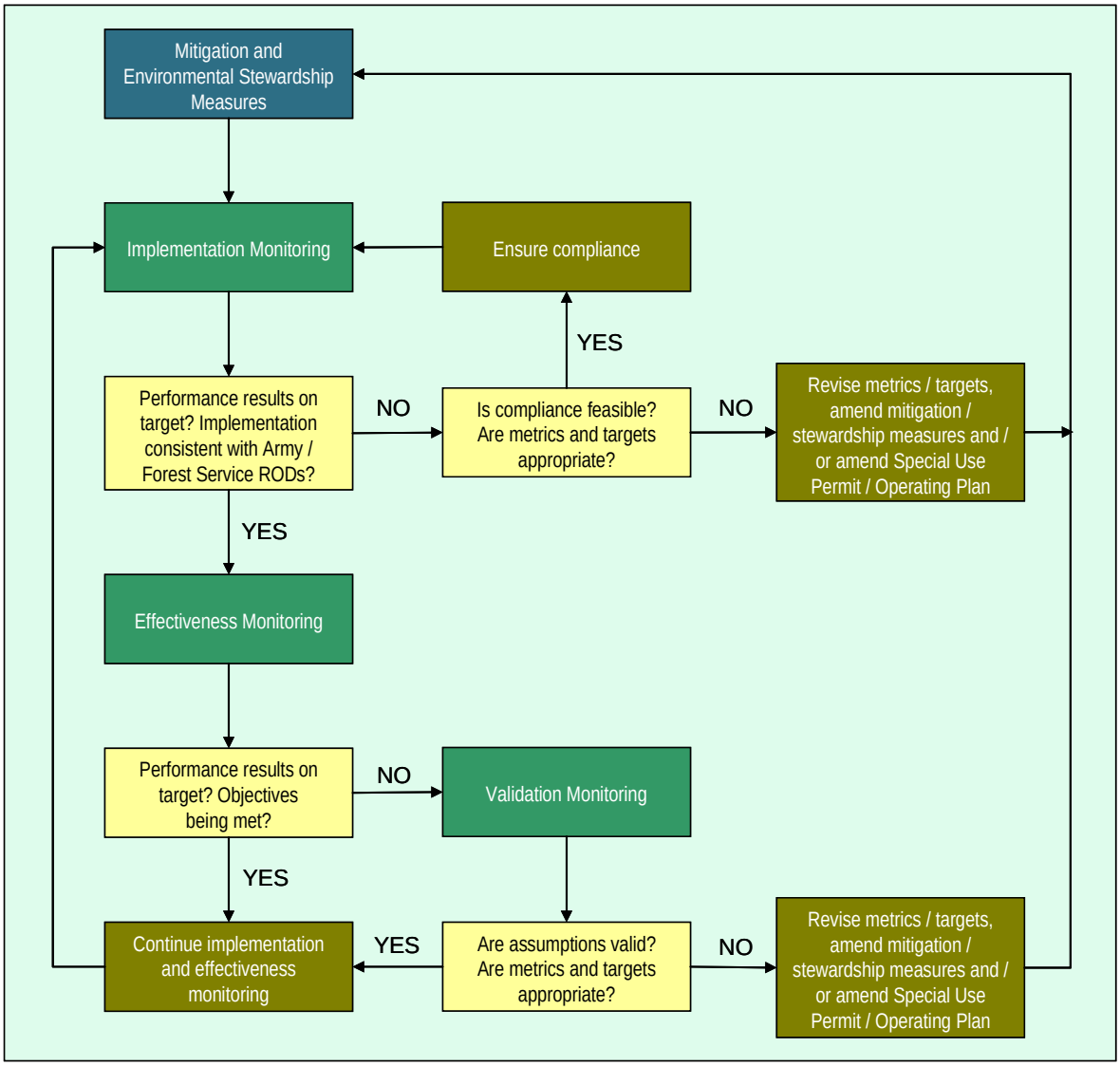


Figure 8. The SEMP monitoring and evaluation process.

Figure 8 shows the monitoring and evaluation process conducted under SEMP Goal 5. This process is conducted during each fiscal year to evaluate the implementation and effectiveness of mitigation and environmental stewardship measures adopted by Fort Polk and the KNF. The evaluation process is also used to determine whether or not there is a need to modify operations or management practices to achieve desired goals and objectives, or to revise SEMP metrics and performance targets. In some cases, the results of monitoring could indicate the need to modify the Special Use Permit/Operating Plan that governs Fort Polk's use of KNF lands or to undertake other actions.

The monitoring results presented in the preceding sections for Objectives 1-1 and 2-1 have been reviewed by Fort Polk and KNF. Based on these initial monitoring results, as well as ongoing mitigation and environmental stewardship activities, no corrective actions or changes in management direction are currently recommended. Key SEMP actions for FY 2006 will consist of ongoing monitoring under Objectives 1-1 and 2-1 and development of metrics, targets and monitoring task sheets for other High Priority objectives.

Objective 5-1

Jointly monitor to document annual progress for the implementation and effectiveness of mitigation measures identified in the Records of Decision for the Transformation and Land Use EIS, and the Decision Notice for the LUA EA.

Photo: Fort Polk, LA

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.

Objective 5-2

Jointly evaluate and report monitoring results, and adapt operations and management accordingly.

Photo: US Forest Service

SEMP monitoring tasks, metrics and performance criteria have not yet been developed/approved for this objective.


GREEN BUILDING
AUGUST 2002
LEED

References

DoD, 2002. *Department of Defense Installation Watershed Impact Assessment Protocol: Installation Assessment and Planning Guidance, December 2002.*

QES, 2000. *Joint Monitoring Plan for the Vernon-Fort Polk Red-cockaded Woodpecker Population.* Quantitative Ecological Services, Inc., Rosepine, Louisiana, Contract No. DACA63-99-P-1080, US Army Corps of Engineers, Fort Worth District. Submitted to Environmental & Natural Resources Management Division, Fort Polk, Louisiana; US Fish and Wildlife Service, Ecological Services, Lafayette, Louisiana; US Forest Service, Calcasieu Ranger District, Kisatchie National Forest, Louisiana; and US Army Corps of Engineers, Fort Worth, Texas.

QES, 2005. *2004 Joint Monitoring Plan Report for the Vernon-Fort Polk Red-cockaded Woodpecker Population.* Prepared by Quantitative Ecological Service, Inc., Rosepine, Louisiana, Contract No. DACA63-00-D-0012, US Army Corps of Engineers, Fort Worth District. Submitted to US Fish and Wildlife Service, Ecological Services, Lafayette, Louisiana.

US Army, 2004. *Final Environmental Impact Statement for 2nd Armored Cavalry Regiment Transformation and Installation Mission Support, Joint Readiness Training Center (JRTC) and Fort Polk, Louisiana, and Long-Term Military Training Use of Kisatchie National Forest Lands.* Prepared by Tetra Tech, Inc., 10306 Eaton Place, Fairfax, Virginia. Prepared for JRTC and Fort Polk, Louisiana, and US Army Corps of Engineers, Mobile District.

US Army and USDA Forest Service, 2000. *Decision Notice and Final Appendices to Environmental Assessment for Increased Military Training Use of the Vernon Unit, Calcasieu Ranger District, Kisatchie National Forest.* Headquarters, Joint Readiness Training Center and Fort Polk, Louisiana, and Kisatchie National Forest, Pineville, Louisiana.

USDA (US Department of Agriculture). 1998. *Resource Management Plan for the Whiskey Chitto and Birds Creek Watersheds.*

USDA. 1999. *Sixmile Creek Resource Management Plan.*

USDA. 2000. *Brushy and Ten Mile Creeks Resource Management Plan.*

USDA. 2001a. *Thompson Creek Watershed Resource Management Plan.*

USDA. 2001b. *Comrade Creek Watershed Resource Management Plan.*

USDA. 2002. *Kisatchie Creek Watershed Resource Management Plan.*

USDA Forest Service, 1999. *Revised Land and Resource Management Plan, Kisatchie National Forest Plan.* USDA Forest Service, Southern Region, Pineville, Louisiana.

USFWS, 2003. *Revised Recovery Plan for the Red-cockaded woodpecker* (Picoides borealis). US Fish and Wildlife Service, Southeast Region, Atlanta, Georgia.

APPENDIX A

Sustainability and Environmental Monitoring Plan

Goal and Objective	Monitoring Question	Monitoring Level
Goal 1: Ensure that training lands are sustained for long-term use and maintained in world-class conditions. Protect and conserve basic soil, water and land resources so that forest ecosystems endure for future generations.		
Objective 1-1: Minimize or avoid degradation of training lands and long-term damage to soils, vegetation, streams and wetlands, and sensitive environmental resources through identification and correction of maneuver damages and soldier Sustainable Range Awareness education.	Are maneuver damages identified following all home station and rotational training exercises? Are adequate opportunities for maneuver damage inspections and repairs provided on the training calendar?	Implementation
	Are maneuver damages corrected within reasonable time periods? Are adequate opportunities for maneuver damage inspections and repairs provided on the training calendar?	Implementation
	Are soldiers with all units training at JRTC and Fort Polk provided Sustainable Range Awareness instruction on ways to protect soils, vegetation, streams and wetlands, and sensitive environmental resources during field operations?	Implementation
	Are programs for identification and correction of maneuver damages, installation range regulations for environmental protection, and soldier education programs minimizing or avoiding long-term damage to soils, vegetation, streams and wetlands, and sensitive environmental resources?	Effectiveness
	Are programs for identification and correction of maneuver damages, installation range regulations for environmental protection, and soldier education programs minimizing or avoiding long-term damage to soils, vegetation, streams and wetlands, and sensitive environmental resources?	Effectiveness
	Are programs for identification and correction of maneuver damages, installation range regulations for environmental protection, and soldier education programs minimizing or avoiding long-term damage to soils, vegetation, streams and wetlands, and sensitive environmental resources?	Effectiveness
	Is the maneuver damage inspection and repair program adequately identifying and repairing damages that need corrective action?	Validation
	Are maneuver damage inspection and repair procedures adequate?	Validation
Objective 1-2: Sustain training land conditions and long-term soil productivity. This is accomplished by implementing land rehabilitation and maintenance practices designed to minimize soil erosion and compaction, limit soil loss, restore or maintain vegetative cover, and restore disturbed or degraded areas to natural conditions. Develop and update watershed management plans for Fort Polk and Kisatchie National Forest (KNF) training lands and prioritize land rehabilitation and maintenance activities within and across watersheds based on watershed conditions and training area carrying capacity.	Are land rehabilitation and maintenance (LRAM) practices being implemented to minimize erosion, compaction, and loss of soil productivity?	Implementation
	Are adequate opportunities for LRAM or other training land sustainment activities provided on the training calendar?	Implementation
	Are watershed management plans completed or in development for all training lands where ground disturbing activities are permitted? Are plans reviewed annually to evaluate the need for updates?	Implementation
	Are rehabilitation and maintenance activities prioritized and applied within and across watersheds based on watershed conditions and training area carrying capacity?	Implementation
	Are disturbed and degraded areas being restored and revegetated to a natural condition?	Effectiveness
	Are disturbed and degraded areas being restored and revegetated to a natural condition?	Effectiveness
	Are allowable soil loss rates being exceeded? Are bare or sparsely vegetated areas increasing within some or all training areas?	Effectiveness
	Are LRAM practices improving or maintaining conditions within training areas and watersheds?	Validation
	Are LRAM practices improving or maintaining conditions within training areas and watersheds?	Validation

Objective	Monitoring Question	Monitoring Level
Objective 1-3: Protect and maintain high water quality and aquatic ecosystems by preventing excessive siltation to surface water resources due to training activities, conserving wetlands and streamside/riparian areas, providing for stream bank stability and natural flow regimes. This is achieved through maintenance of stream and wetland crossing structures, roads and trails, and sediment basins; and restrictions on training activities within streams, wetlands and riparian areas	Are stream and wetland crossing structures, roads and trails on Fort Polk and KNF lands maintained to prevent siltation to streams and wetlands and to preserve natural flow regimes?	Implementation
	Are sediment basins inspected and maintained in a functional condition?	Implementation
	Are training aids kept current on designated stream/wetland crossing points for military vehicles?	Implementation
	Are maintenance practices for stream and wetland crossing structures, roads and trails preventing siltation to streams and wetlands and maintaining natural hydrology?	Effectiveness
	Are sediment basins protecting downstream water resources?	Effectiveness
	Are troops crossing stream/wetland areas at designated sites only?	Effectiveness
	Are management practices protecting and maintaining water quality and aquatic ecosystems?	Validation
Goal 2 – Manage for biological diversity and ecological integrity. Protect and conserve threatened, endangered and rare species, and restore and maintain ecosystems and ecological processes at landscape and local scales.		
Objective 2-1: Promote recovery of the Vernon-Fort Polk Red-Cockaded Woodpecker (RCW) population through cooperative Fort Polk and KNF management and monitoring strategies. Conduct population monitoring in accordance with the Joint Monitoring Plan, educate soldiers on the RCW and its habitat, and maintain RCW cluster resources to minimize the occurrence of unauthorized training activities within cluster boundaries and reduce the threat of cavity tree loss due to military related wildfires.	Are Fort Polk and the KNF cooperating to promote recovery of the Vernon-Fort Polk RCW population? Is RCW population monitoring conducted in accordance with the Joint Monitoring Plan?	Implementation
	Are soldiers with home station and rotational units provided instruction on the RCW, its habitat, and restricted activities within RCW clusters?	Implementation
	Are RCW cavity trees and cluster boundaries painted and marked with signage so that they are identifiable during daytime and nighttime hours by troops in the field? Are excess fuels removed within RCW clusters to reduce the potential for loss of cavity trees due to military related wildfires?	Implementation
	Are management practices, installation regulations, and troop educational programs preventing damage or disturbance to RCW clusters due to training activities?	Effectiveness
	Is the Vernon-Fort Polk RCW population growing? Are population recovery goals being met?	Validation
Objective 2-2: Provide high-quality habitat for the RCW, Louisiana pine snake, and other rare species native to longleaf pine landscapes. Use prescribed fire to maintain open longleaf pine forest conditions and natural plant communities, with an emphasis on growing season burns, and conduct thinning as planned on approximately 21,500 acres of upland pine stands within the Intensive Use Area to achieve Desired Future Conditions. Maintain suitable RCW habitat at the appropriate scale and distribution as identified in the Fort Polk Endangered Species Management Plan (2003) and the Revised Land and Resource Management Plan for the Kisatchie National Forest (1999).	Are open, frequently burned longleaf pine forest conditions being maintained to provide suitable habitat for the RCW and other native species?	Implementation
	Are both Fort Polk and the KNF meeting annual prescribed burning goals?	Effectiveness
	Are sufficient opportunities provided on the annual training calendar for prescribed burning, both inside and outside of designated Green Periods?	Effectiveness
	Are sufficient opportunities provided on the annual training calendar for prescribed burning, both inside and outside of designated Green Periods?	Effectiveness
	Is the KNF meeting annual goals for thinning of upland pine stands on the IUA?	Effectiveness
	Is suitable habitat for the RCW available at the scale and distribution designated in the Fort Polk ESMP and Revised KNF Plan?	Validation
	Is suitable habitat for the RCW available at the scale and distribution designated in the Fort Polk ESMP and Revised KNF Plan?	Validation

Objective	Monitoring Question	Monitoring Level
Objective 2-3: Promote viability of the Louisiana pine snake (LPS) through cooperative management strategies designed to minimize the potential for listing of the LPS as a threatened/endangered species. Minimize or avoid adverse impacts to the snake and its habitat through soldier education, identification of probable LPS habitat, and through integration of LPS habitat/pocket gopher mound survey and monitoring data with project planning.	Are Fort Polk and the KNF conducting management strategies designed to minimize the potential for listing of the LPS as a threatened/ endangered species, in accordance with the Candidate Conservation Agreement for the Louisiana Pine Snake on Federal Land in Louisiana and Texas?	Implementation
	Are soldiers training at the JRTC and Fort Polk provided instruction on the LPS and ways to identify and protect it and its habitat?	Implementation
	Are surveys for LPS and its habitat/pocket gopher mounds conducted at proposed facilities construction sites or sites proposed for other fixed operations or improvements (e.g., LRAM projects, log decks, firing points and assembly areas)?	Implementation
	Are Fort Polk and KNF management strategies minimizing or avoiding harm to the LPS and pocket gopher mounds or other areas identified as probable habitat?	Effectiveness
	Are Fort Polk and KNF management strategies minimizing or avoiding harm to the LPS and pocket gopher mounds or other areas identified as probable habitat?	Effectiveness
	Is the LPS population responding positively to Fort Polk and KNF management strategies?	Validation
Objective 2-4: Protect rare plants and unique wetlands habitats through identification, marking and monitoring of hillside seeps and bogs. Develop and maintain GIS locations and data on the condition of high quality seeps and bogs on Fort Polk and KNF training lands, and monitor annually for potential training impacts. Maintain signage marking high quality seeps and bogs "off-limits" to vehicle movement and digging in the LUA.	Are GIS locations and data maintained on the condition of high quality hillside seeps and bogs on Fort Polk and KNF lands? Are high quality seeps and bogs monitored annually for potential training impacts?	Implementation
	Are signs maintained around high quality hillside seeps and bogs in the LUA, including a buffer area, to identify them as off-limits to vehicle movement and digging?	Implementation
	Are management strategies adequately protecting high quality seeps and bogs from adverse impacts due to training?	Effectiveness
Goal 3 – Provide for and maintain functional, healthy, low-impact and cost-effective facilities and infrastructure by integrating master planning, engineering and environmental concerns. Conserve natural resources and energy, and reduce generation of wastes and pollutants by fully ncorporating the principles of sustainable design and development.		
Objective 3-1: Avoid or minimize impacts to environmentally sensitive resources and promote installation sustainability through early integration of master planning and environmental concerns.	Are screening/ alternatives analyses conducted as needed during the site selection process for new facilities?	Implementation
	Are screening/ alternatives analyses conducted as needed during the site selection process for new facilities?	Implementation
	Are new facilities sited to avoid or minimize impacts to sensitive environmental resources?	Effectiveness
	Are new facilities sited to avoid or minimize impacts to sensitive environmental resources?	Effectiveness
	Are master planning practices helping promote sustainable facilities and infrastructure in a cost effective manner?	Validation

Objective	Monitoring Question	Monitoring Level
Objective 3-2: Ensure that new facilities are designed and constructed to comply with requirements under the Clean Water Act (CWA), Clean Air Act (CAA), Endangered Species Act (ESA), and National Environmental Policy Act (NEPA). This is achieved by including limits of construction and clearing, Section 401/404 permit requirements, site-specific mitigation measures and other environmental conditions in construction design plans and specifications; ensuring that Storm water Pollution Prevention Plans (SWP3) are implemented for all construction sites one acre or more; and by monitoring during and after construction to ensure adherence to plans and specifications.	Do construction plans and specifications clearly identify environmental protection requirements under the CWA, CAA, ESA and NEPA, including Section 401/404 permit conditions, US Fish and Wildlife Service Biological Opinions, mitigation measures and other environmental requirements?	Implementation
	Is an SWP3 implemented for each construction site one acre or greater (cumulative acreage for project)?	Implementation
	Are construction sites monitored at appropriate intervals during and after construction to ensure compliance with construction plans and specifications and other applicable environmental requirements?	Implementation
	Are new facilities constructed in accordance with applicable requirements under the CWA, CAA, ESA and NEPA?	Effectiveness
	Are new facilities constructed in accordance with applicable requirements under the CWA?	Effectiveness
	Are new facilities constructed in accordance with applicable requirements under the CWA?	Effectiveness
	Are construction practices, including storm water management practices, preventing excessive discharge of pollutants to streams and wetlands?	Effectiveness
	Are facility design and construction programs/procedures adequate to ensure compliance with the CWA, CAA, ESA and NEPA?	Validation
Goal 4 – Act as "good neighbors" to residents and communities near Fort Polk and the KNF and serve as good stewards of public lands and resources. Manage training lands and resources for public safety and provide fair public access to training lands for recreation and other non-training uses.		
Objective 4-1: Support opportunities for public recreational and other multiple use activities on the Fort Polk and Peason Ridge Wildlife Management Areas (WMAs), the Limited Use Area (LUA) and Special Limited Use Area (SLUA). This is accomplished by providing up-to-date information on area closures, training schedules and activities on the WMAs, LUA, and SLUA; maximizing opportunities for hunting on opening weekends/ special hunts for deer (modern fire arms), turkey and squirrel seasons; scheduling training activities to accommodate recreational events and other public activities on the LUA and SLUA; and by educating soldiers on training restrictions for the use of recreational facilities and maintained recreational trails.	Is up-to-date information on training schedules/activities in the LUA and SLUA, and on areas open for hunting on the WMAs published on the internet, information kiosks and other media?	Implementation
	Are opportunities provided for hunting during opening weekends/special hunts for deer (modern fire arms), turkey and squirrel seasons?	Implementation
	Are recreational events or other public activities in the LUA and SLUA accommodated?	Implementation
	Are soldiers provided instruction on restrictions for use of recreational facilities and maintained recreational trails in the LUA/SLUA?	Implementation
	Are methods adequate for publicizing information on training schedules/activities in the LUA and SLUA, and on areas open for hunting on the WMAs?	Effectiveness
	Have opportunities for hunting on the Fort Polk or Peason WMAs, or in the LUA, been affected by military training activities? Are areas and time periods that are not used for training made available for hunting?	Effectiveness
	Are conflicts that arise between training activities and recreational events in the LUA/SLUA effectively resolved?	Effectiveness
	Are military activities resulting in damages to recreational facilities or maintained recreational trails in the LUA and SLUA?	Effectiveness
	Overall, are hunting and other approved recreational uses of the WMAs, LUA and SLUA adversely affected by military activities?	Validation

Objective	Monitoring Question	Monitoring Level
Objective 4-2: Protect the quality of life for residents and communities living in the LUA and near the installation boundaries. This is accomplished by monitoring of noise levels in the LUA and near the Peason Ridge Training Area boundary; maintaining land line markings, fire lines and wildfire fire response plans to avoid trespass and damage to private property; repairing military-related damages to public roads in the LUA in accordance with agreements with Vernon Parish Policy Jury, and upgrading LUA roads as required to support military traffic; and responding expeditiously to public concerns and complaints regarding military activities.	Are noise levels monitored continuously in the LUA and adjacent to the NE boundaries of Peason Ridge?	Implementation
	Unless otherwise requested by the property owner, are land lines between private property and KNF lands clearly marked on the ground as needed to alert soldiers to avoid private lands?	Implementation
	Are permanent fire lines maintained around private property in the LUA?	Implementation
	Is the use of incendiary devices suspended as needed on "high risk" days for forest fires?	Implementation
	Are plans in place to respond to military-related wildfires in the LUA?	Implementation
	Are maneuver damages to LUA roads repaired in a timely manner?	Implementation
	Are LUA roads upgraded when necessary to support increased military use?	Implementation
	Is the Fort Polk PAO complaint hotline operational? Is an initial response to public concerns/complaints regarding training activities in the LUA and SLUA provided within 24 hours of receipt?	Implementation
	Are Fort Polk guidelines for off-post noise levels exceeded?	Effectiveness
	Are land line markings and other mechanisms adequate to avoid trespass by troops on private lands?	Effectiveness
	Are fire control and response measures adequate to protect public safety, private property and natural resources in the LUA from training-related wildfires?	Effectiveness
	Is military traffic adversely affecting the condition of public roads in the LUA?	Effectiveness
	Are military activities causing disruption of civilian traffic in the LUA?	Effectiveness
	Overall, are military activities adversely affecting the quality of life for LUA residents and communities living near the installation?	Validation
	Is Fort Polk experiencing encroachment on its training mission from development or other uses or policies governing private lands?	Validation
Objective 4-3: Conduct military activities in a manner to avoid risks to public safety or conflicts with other activities in the LUA approved under Forest Service Special Use Permits (SUP) or other authorizations. This is achieved by scheduling military convoys to avoid school bus routes; conducting blackout driving in accordance with SUP/Operating Plan terms and conditions; identifying pipelines and utility lines on the ground and on training maps; scheduling/conducting training activities to provide access for other permitted uses; and by educating soldiers on other permitted uses and activities in the LUA and related training restrictions.	Are military convoys scheduled to avoid school bus routes in the LUA?	Implementation
	Is blackout driving in the LUA conducted in accordance with SUP/Operating Plan terms and conditions?	Implementation
	Are pipelines and utility lines identified on the ground and on training maps/overlays, as needed?	Implementation
	Are training activities scheduled and conducted to avoid conflicts with oil and gas operations or other permitted activities in the LUA?	Implementation
	Are soldiers provided instruction on cattle grazing allotments and other permitted activities in the LUA, and related training restrictions?	Implementation
	Are conflicts occurring between military convoys and school buses?	Effectiveness
	Have damages or conflicts occurred involving blackout driving in the LUA?	Effectiveness
	Have damages or conflicts occurred involving military activities and pipelines, utility lines, or other permitted uses in the LUA?	Effectiveness
	Are military activities resulting in conflicts between cattle grazing allotments or other permitted activities in the LUA?	Effectiveness
	Overall, are military activities compatible with civilian activities and land uses in the LUA?	Validation

Objective	Monitoring Question	Monitoring Level
Goal 5 – Monitor to provide feedback regarding progress toward accomplishing mutual Fort Polk and KNF goals and objectives. Evaluate opportunities for continuous improvement of environmental and natural resource management practices and procedures, and adapt management strategies according to new information..		
Objective 5-1: Jointly monitor to document annual progress for the implementation and effectiveness of mitigation measures identified in the Records of Decision for the EIS on 2d ACR transformation, installation mission support, and long-term military use of KNF lands; and the Decision Notice for the EA on increased military use of the LUA.	Are Fort Polk and the KNF preparing and distributing an annual Sustainability and Environmental Monitoring Report?	Implementation
	Are Fort Polk and the KNF jointly implementing and evaluating mitigation measures and monitoring results?	Implementation
Objective 5-2. Jointly evaluate and report monitoring results, and adapt operations and management accordingly.	Are operations and management practices adapted through time and identified in the annual Sustainability and Environmental Monitoring Report, and in the Special Use Permit/Operating Plan, as needed?	Implementation