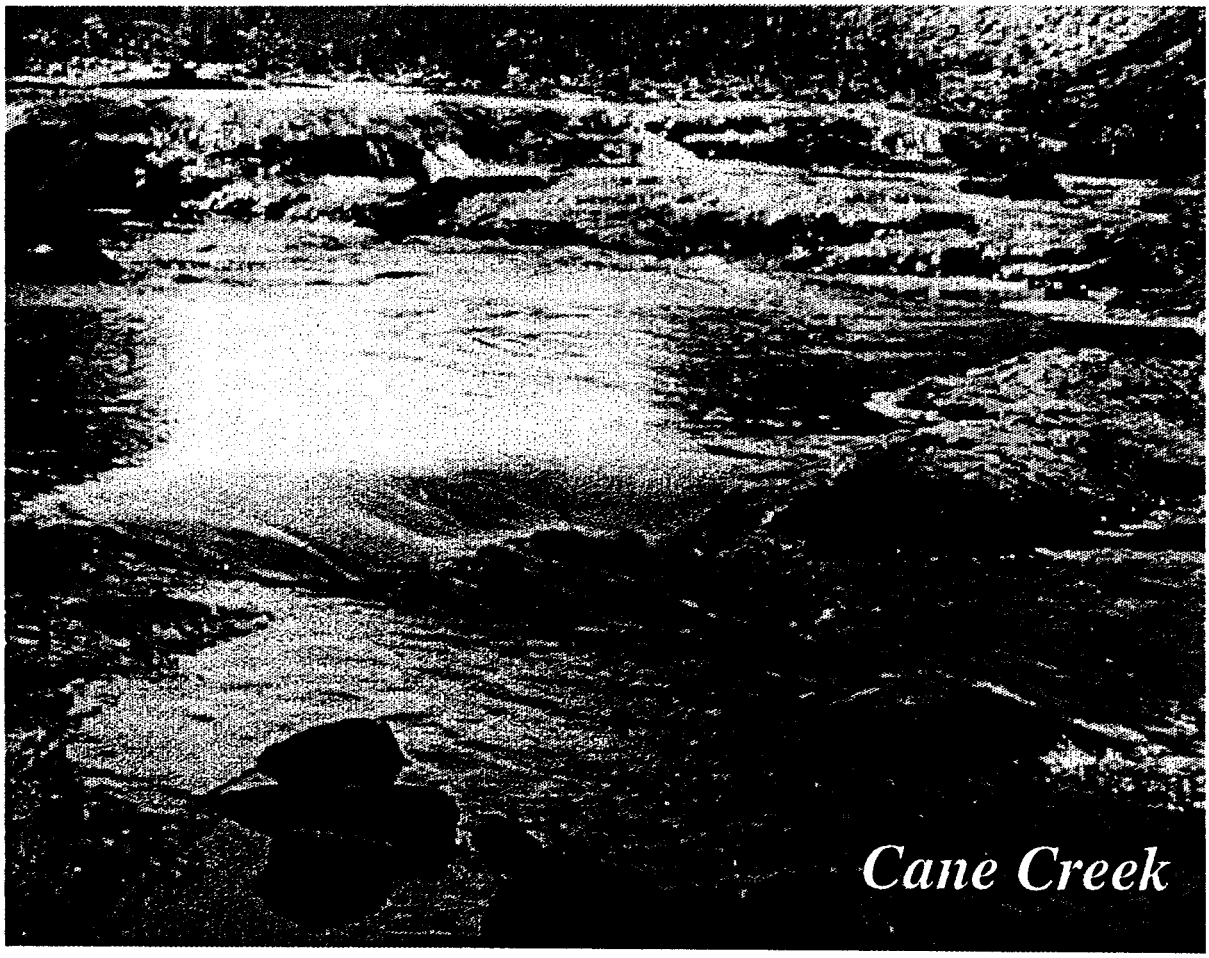
Integrated Natural Resource Management Plan



Directorate of Environment
Fort McClellan, Alabama
~~Summer~~ October **1998**

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

1998-2002

FORT MCCLELLAN, ALABAMA

DIRECTORATE OF ENVIRONMENT

OCTOBER 1, 1998

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN 1998-2002

FORT MCCLELLAN, ALABAMA

APPROVAL

This Integrated Natural Resources Management Plan meets the requirements of the Sikes Act (16 U.S.C. 670a *et. seq.*) as amended.

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INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN 1998-2002

FORT MCCLELLAN, ALABAMA

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PREFACE

Fort McClellan... the Military Showplace of the South

This Integrated Natural Resources Management Plan is Fort McClellan's plan of action for the conservation of the lands entrusted to the U.S. Army. The plan is for a five-year period that will witness the closure of Fort McClellan as an active component installation, but the philosophy of the plan looks beyond closure.

The mission of Fort McClellan has changed over the decades... from training infantry recruits during the world wars... to training Women's Army Corps in the 1950s... to serving as a center for chemical and military police training into the 1990s ... and finally to implementing recommendations of the Base Realignment and Closure Commission. Lands on Fort McClellan have been managed to serve this nation's defense for almost a century. The legacy of responsible natural resources management on Fort McClellan is not taken lightly, and this Integrated Natural Resources Management Plan will conserve biological diversity and make sound decisions regarding use of renewable natural resources for the benefit of future generations of users of these lands.

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

FORT MCCLELLAN, ALABAMA

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EXECUTIVE REPORT

"We do not own this land; we are caretakers of the land and the plant and animal species that inhabit it. The American people entrust the land to our care, and we shall fulfill their trust. We shall conserve and protect these resources for the future."[1]

Purpose

This Integrated Natural Resources Management Plan (INRMP) guides implementation of the natural resources program on Fort McClellan, Alabama from 1998 through 2002. The program conserves Fort McClellan's land and natural resources and helps ensure compliance with related environmental laws and regulations. The INRMP also helps ensure the maintenance of quality training lands to accomplish Fort McClellan's military training mission.

Environmental Compliance

Preparation and implementation of this INRMP is required by the Sikes Act (16 U.S.C. 670a *et seq.*), Department of Defense Instruction 4715.3 (*Environmental Conservation Program*), and Army Regulation 200-3 (*Natural Resources - Land, Forest, and Wildlife Management*). This INRMP helps Fort McClellan comply with other federal and state laws, most notably laws associated with environmental documentation, wetlands, endangered species, water quality, and wildlife management in general. This plan describes how Fort McClellan will implement provisions of AR 200-3 and local regulations, especially Fort McClellan Regulation 200-3, *Hunting and Fishing on Fort McClellan* (Fort McClellan, 1996) and Fort McClellan Regulation 350-2, *Range and Terrain* (Fort McClellan, 1995).

This INRMP has the signatory approval of the U.S. Fish and Wildlife Service. This signature approval includes agreement that the INRMP complies with the Endangered Species Act. Review of the INRMP is considered informal consultation with regard to the Endangered Species Act.

The Sikes Act, as amended in November 1997, requires that INRMPs include:

- fish and wildlife management, land management, forest management, and fish- and wildlife-oriented recreation;
- fish and wildlife habitat enhancement or modifications;
- wetland protection, enhancement, and restoration where necessary for support of fish, wildlife, or plants;
- integration of, and consistency among, the various activities conducted under the plan;
- establishment of specific natural resource management goals and objectives and time frames for proposed action;
- sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources;
- public access to the military installation that is necessary or appropriate for sustainable use by the

[1] Robert M. Walker, Assistant Secretary of the Army, Testimony before Congress, July 11, 1995.

public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources, subject to requirements necessary to ensure safety and military security;
- enforcement of applicable natural resource laws (including regulations);
- no net loss in the capability of military installation lands to support the military mission of the installation;
- regular review of this INRMP and its effects, not less often than every five years;
- provisions for spending hunting and fishing permit fees exclusively for the protection, conservation, and management of fish and wildlife, including habitat improvement, and related activities in accordance with the INRMP;
- exemption from procurement of services under Office of Management and Budget Circular A-76 and any of its successor circulars; and
- priority for contracts involving implementation of this INRMP to state and federal agencies having responsibility for conservation of fish and wildlife.

Scope

This plan applies to organizations internal and external to Fort McClellan that are involved with, or interested in, the management or use of Fort McClellan lands and natural resources. INRMP application includes active duty units, National Guard and Reserve Components, directorates, private groups, and individuals.

Base Realignment and Closure

In 1995 the Base Realignment and Closure Commission (BRAC) targeted Fort McClellan for closure by recommending the following actions:

- relocation of the Fort McClellan training mission to Fort Leonard Wood, Missouri;
- licensing of Pelham Range to the Alabama Army National Guard; and
- disposal of remaining Fort McClellan property.

Transfer of Pelham Range to the Alabama Army National Guard is scheduled to occur by 1999. Closure of Fort McClellan is required not later than 12 July 2001 but is currently scheduled for 30 September 1999. This INRMP will guide the natural resources management program through BRAC implementation or into 2002 in the event of a delay in closure.

Relationship to the Military Mission

The primary military mission of Fort McClellan is operation of the U.S. Army Chemical School (USACMLS) and U.S. Army Military Police School (USAMPS). During 1998-2002 Fort McClellan will ensure that the training mission is relocated to Fort Leonard Wood without mission degradation.

This INRMP supports the military mission by protecting and enhancing training lands and supporting BRAC implementation. The INRMP also describes natural resources recreational opportunities available to the Fort McClellan community, thereby supporting both Quality of Life and Communities of Excellence programs. The INRMP describes impacts of the military mission upon natural resources and means to mitigate these impacts. However, it does not evaluate the military mission, nor does it replace the

requirement for environmental documentation of the military mission at Fort McClellan.

Partnerships

This INRMP cannot be implemented by Fort McClellan alone. In accordance with ecosystem management philosophy, Fort McClellan is forging partnerships with various agencies to manage its natural resources. Major partners in the implementation of this INRMP are the U.S. Fish and Wildlife Service, the Alabama Department of Conservation and Natural Resources, and the Alabama Army National Guard. Other partners in this effort include universities, other federal and state agencies, contractors, and private citizens.

Planned Major Initiatives

This INRMP includes a description of ongoing natural resources programs and projects. Most of these will either be continued or completed. Major initiatives within this INRMP include the following:

- Implement an ecosystem management philosophy.
- Integrate natural resources management with BRAC implementation and decisions regarding disposal and future management of Fort McClellan lands.
- Implement a forest management program to support the military mission and meet natural resources goals.
- Develop and implement a restoration/management plan for longleaf pine forests.
- Inventory, monitor, and protect threatened and endangered species.
- Implement the *Fort McClellan Soil Erosion Management Plan.*
- Protect Special Interest Natural Areas that harbor sensitive species and/or unique habitats.
- Implement an allow-burn policy for wildfires and a prescribed burn program to sustain longleaf pine forests, benefit sensitive species, and enhance biodiversity.
- Enhance inventory and monitoring of flora and fauna.
- Continue to improve and more effectively use the geographic information system to allow better decisions regarding future use and management of Fort McClellan natural resources.
- Implement special projects and research to support natural resources management.

There are unresolved issues within this INRMP. These include:

- Alabama Army National Guard management of Pelham Range and its consistency with this INRMP.
- Disposal of Main Post and its effects on ecosystem function and biodiversity.

Costs and Benefits

- **Military Mission Benefits:** Implementation of this INRMP will improve the quality of training land. It will support BRAC implementation and improve the ability for long range planning.
- **Environmental Benefits:** This INRMP provides the basis for the conservation and protection of natural resources. It will help reduce vegetation loss and soil erosion due to military activities. It will reduce the potential for environmental pollution. It will provide biodiversity conservation. INRMP implementation will increase overall knowledge of the operation of Fort McClellan ecosystems through surveys and research.

- **Other Benefits:** Troop environmental awareness will be enhanced while training at Fort McClellan. Both community relations and Fort McClellan's environmental image will be enhanced. Quality of life for the Fort McClellan community and its neighbors will be improved. INRMP implementation will decrease long term environmental costs and reduce personal and installation liabilities from environmental noncompliance.
- **Costs:** This INRMP will cost about **$266,000** - for the FY 98 - FY 02 period to implement. Funding will be primarily from forestry and environmental funds.

Summary

This INRMP will comply with environmental laws, conserve and protect Fort McClellan's natural resources, improve Fort McClellan's relationship with the public, enhance the military mission, and support BRAC implementation. This INRMP will not resolve all existing and/or future environmental issues. It does, however, provide the guiding strategy, personnel, and means to effectively manage natural resources through closure of Fort McClellan. It also provides the basis for future land management decisions on Fort McClellan lands.

1.0 GOALS AND POLICIES

Army Environmental Vision Statement[2]

The Army will be a national leader in environmental and natural resource stewardship for present and future generations as an integral part of our mission.

The Army's commitment to natural resources management is reflected in the U.S. Army Environmental Strategy into the 21st Century. The Army environmental strategy is depicted as a building established on a solid foundation with four pillars supporting the environmental stewardship vision and the Army mission. The four pillars symbolize the Army environmental program and represent the four major activity areas, which include conservation. The conservation pillar focuses on responsibly managing Army lands to ensure long-term natural resource productivity so the Army can achieve its mission. This Army commitment to natural resources management is emphasized in Army Regulation 200-3 (*Natural Resources - Land, Forest, and Wildlife Management*), which requires that Integrated Natural Resources Management Plans (INRMP) be developed and maintained for Army installations.

It is important to understand the relationship between the natural resources program and Fort McClellan as a whole. A comparison of installation goals and goals of the natural resources program helps identify this relationship.

1.1 Fort McClellan Command Vision

The Command Vision of Fort McClellan is to enhance the Nation's force projection strategy through training, doctrine, and leader development while ensuring quality of life for the Fort McClellan community and completing Fort McClellan's transition and closure (Fort McClellan, 1997).

1.2 Natural Resources Goals

Below are general goals and policies for management of natural resources on Fort McClellan.

1.2.1 Military Mission/ BRAC Implementation

Provide quality natural resources as a critical training asset upon which to accomplish the military mission of Fort McClellan.

- Ensure no net loss in the capability of installation lands to support existing and projected military training and operations on Fort McClellan.
- Maintain quality training lands through range monitoring and damage minimization, mitigation, and rehabilitation.
- Ensure disposal of Fort McClellan property is conducted in a manner consistent with

[2] Army Environmental Policy Institute. 1992. *U.S. Army Environmental Strategy into the 21st Century*. U.S. Government Printing Office 1993-747-677, 38 p.

environmental stewardship and ecosystem protection.

1.2.2 Stewardship

Manage natural resources on Fort McClellan to assure good stewardship of public lands entrusted to the care of the Army.

- Monitor and manage soils, water, vegetation, and wildlife on Fort McClellan with a consideration for all biological communities and human values associated with these resources.
- Provide economic and other human-valued products of renewable natural resources when such products can be produced in a sustainable fashion without significant negative impacts on the military training mission or other natural resources.
- Provide professional enforcement of natural resources related laws.
- Involve the surrounding community in the Fort McClellan natural resources program.
- Ensure the Fort McClellan natural resources program is coordinated with other agencies and conservation organizations with similar interests.

1.2.3 Quality of Life

Improve the quality of life of the Fort McClellan community and general public through high quality natural resources-based recreational opportunities.

- Provide high quality opportunities for hunting and fishing within biological and recreational carrying capacities of the resources.
- Provide high quality natural resources-based opportunities for other outdoor recreation, such as wildlife watching, camping, etc.
- Provide conservation education opportunities.

1.2.4 Compliance

Comply with laws and regulations that pertain to management of Fort McClellan natural resources.

- Manage natural resources within the spirit and letter of environmental laws, particularly the Sikes Act upon which this INRMP is predicated.
- Protect, restore, and manage sensitive species and wetlands.
- Use procedures within the National Environmental Policy Act (NEPA) to make informed decisions that include natural resources considerations and mitigation.
- Ensure Fort McClellan's natural resources program is consistent with the protection of cultural and historic resources.
- Implement this INRMP within the framework of Army policies and regulations.

1.2.5 Integration

Integrate elements of natural resources management into a single program which, in turn, is integrated into Fort McClellan environmental and military training programs.

- Ensure the integration of, and consistency among, various activities identified within this INRMP.

- Ensure natural resources management is consistent with principles of Integrated Pest Management at Fort McClellan.
- Coordinate implementation of natural resources management with the overall Fort McClellan environmental program.
- Coordinate implementation of this INRMP with military trainers.
- Provide command elements with information needed to make decisions that include natural resources related values.

1.2.6 Ecosystem Management and Biodiversity Protection

Use ecosystem management philosophies to protect, conserve, and enhance native fauna and flora and to emphasize protection and enhancement of biodiversity on Fort McClellan.

- Maintain and improve the sustainability and native diversity of Fort McClellan ecosystems.
- Administer with consideration of ecological units and time frames.
- Characterize ecosystem health on Fort McClellan.
- Develop management priorities and reconcile conflicts.
- Develop coordinated approaches using Fort McClellan programs to work toward ecosystem health.
- Rely on the best science and data available.
- Use benchmarks to monitor and evaluate outcomes.
- Use adaptive management.

1.2.6.1 Ecosystem Management

The Department of Defense (DoD Instruction 4715.3, *Environmental Conservation Program*) describes ecosystem management as, "*a process that considers the environment as a complex system functioning as a whole, not a collection of parts, and recognizes that people and their social and economic needs are a part of the whole*". Ecosystem management is not articulated formally in law, but its basic concepts have strong legal compliance aspects, especially within the Endangered Species Act, Sikes Act, and other laws such as the Clean Water Act and NEPA.

The Department of Defense[3] goal with regard to ecosystem management is, "*To ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic (including marine) ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations.*"

Fort McClellan will use ecosystem management to guide its program in the next five years. Ecosystem management will provide a means for Fort McClellan to conserve biodiversity and continue to provide high quality military readiness. It will enable the installation to conduct military training while conserving natural resources upon which the quality of training depends. Concurrently, ecosystem management helps ensure compliance with environmental laws and production of renewable natural resource products.

[3] Department of Defense Instruction Number 4715.3, *Environmental Conservation Program*, May 3, 1996, specifically Enclosure 6.

1.2.6.2 Biodiversity

Biological diversity (biodiversity) refers to the variety and variability among living organisms and the environment in which they occur. Biodiversity has meaning at various levels including ecosystem diversity, species diversity, and genetic diversity. The Department of Defense has developed *A Department of Defense (DoD) Biodiversity Management Strategy* (The Keystone Center, 1996). This Strategy identifies five reasons to conserve biodiversity on military lands:

(1) ***sustain natural landscapes*** required for the training and testing necessary to maintain military readiness;
(2) ***provide the greatest return on the Defense investment*** to preserve and protect the environment;
(3) ***expedite the compliance process*** and help avoid conflicts;
(4) ***engender public support*** for the military mission; and
(5) ***improve the quality of life*** for military personnel.

The Keystone Center report (1996) notes that the challenge is "*to manage for biodiversity in a way that supports the military mission*". This Strategy identifies the INRMP as the primary vehicle to implement biodiversity protection on military installations. The model process developed within the Strategy includes the following principles:

- support the military mission;
- use joint planning between natural resources managers and military operations personnel;
- integrate biodiversity conservation into INRMP and other planning protocols;
- involve internal and external stakeholders up front;
- emphasize the regional (ecosystem) context; and
- concentrate on results.

1.3 Support of Installation Goals

Implementation of this INRMP will support the goals of Fort McClellan, as reflected in the Command Vision (Section 1.1). Implementation of this INRMP will help sustain lands needed to accomplish the military mission and will aid planning with regard to disposal and closure of Fort McClellan. The openness of the Fort McClellan's natural resources program to the general public is a major aspect of the installation's commitment to being a "valued neighbor."

2.0 LOCATION AND ACREAGE

2.1 Location

Fort McClellan consists of three tracts of federal and leased state land among the foothills of the Appalachian Mountains of northeastern Alabama in the heart of Calhoun County (Map 2.1).

Main Post	18,946 acres
Pelham Range	22,245 acres

Choccolocco Corridor (leased)	4,488 acres
Total	45,679 acres

Main Post is located along U. S. Highway 21 directly northeast of the City of Anniston, Alabama. Pelham Range is five miles west of Main Post and extends to within three miles of the Coosa River. U. S. Highway 431 is the main highway artery to Pelham Range. Choccolocco Corridor is east of Main Post and provides access from Main Post to Talladega National Forest (Pittman *et al.*, 1991).

2.2 Satellite Installations

Fort McClellan has no satellite installations.

2.3 Neighbors

Anniston (Map 2.1) borders Fort McClellan's Main Post to the west and south. Fort McClellan's Pellham Range is approximately two miles west of Anniston along U.S. Highway 431. A moderate size municipality, Anniston contains commercial, residential, and some industrial lands. The City of Oxford (Map 2.1) lies just south of Anniston along U.S. Interstate 20. Two major metropolitan areas, Atlanta, Georgia (100 miles to the east) and Birmingham, Alabama (60 miles to the west), are within a two hour drive of Main Post. Gadsden, Alabama, another major municipality, is located 28 miles to the north.

Anniston Army Depot (Map 2.1), an Army Material Command installation, borders Pelham Range to the south. The U.S. Forest Service's Talladega National Forest lies east of Main Post and is connected to Fort McClellan via the Choccolocco Corridor.

2.4 Acreage and Acquisition

2.4.1 Main Post

Main Post was acquired by the U.S. Government on March 17, 1917. On that date Major Charles P. Summerall, head of the Artillery Bureau of the War College; John B. Carrington, Anniston Chamber of Commerce President; and L. C. Watson, Chamber Secretary, signed the contract for the purchase of land which was to become Camp McClellan, Alabama.

2.4.2 Pelham Range

Pelham Range is in a rural setting five miles west of Main Post and one-half mile west of U.S. Highway 431. Pelham Range was purchased in 1941 for $675,000. Land acquisition entailed the relocation of 200 families from the town of Peaceburg (Reed *et al.*, 1997).

2.4.3 Choccolocco Corridor

Choccolocco Corridor is leased for one dollar a year from the Alabama Forestry Commission. The lease was initiated in 1945 to provide access from Fort McClellan to the Talladega National Forest, formerly

used for training (Reed *et al.*, 1997). Choccolocco Corridor will be returned to the Alabama Forestry Commission in the early stages of the BRAC process. Natural resources management will then be the responsibility of the Alabama Forestry Commission.

2.5 Installation History

Fort McClellan was named in honor of Major General George B. McClellan, General-in-Chief of the Union Army from 1861 to 1862 and Governor of New Jersey from 1878 to 1881. McClellan was a controversial soldier, statesman, and presidential nominee. Today, Fort McClellan is the only southern army post that bears a Union general's name.

Following acquisition of Main Post, the newly activated 29th National Guard Division from the Mid-Atlantic states, commanded by Major General Charles B. Morton, arrived in August 1917. Two months later, there were 27,753 men training at the camp. One of the first World War I camps completed, Camp McClellan had 750 structures finished and 210 only lacking hardware piping in just two months.

The 29th went to France in June 1918. After suffering 5,570 casualties in the Meuse-Argonne offensive, it was returned to the U.S. and inactivated. Among the units at Camp McClellan following the 29th's departure were the 6th Division, 157th Depot Brigade, 11th and 12th Training Battalions, and the 1st, 2nd, and 3rd Development Regiments.

After the war the camp was used by troops of the 4th Corps as a training center. In 1920 the first Reserve Officer Training Corps encampment was held, and in 1921 the installation was designated an encampment area for the Citizens Military Training Camps for the 4th Corps area.

Camp McClellan was redesignated Fort McClellan, a permanent post, on July 1, 1929. New construction proceeded rapidly. From 1929 to 1935, the 69th Coast Artillery (Anti-Aircraft) and the 4th Tank Company were stationed at the post. With the transfer of the 69th to Texas, two battalions of the 22nd Infantry Regiment were brought in as post garrison where they remained until 1941 when the 22nd transferred to Fort Benning, Georgia.

The 27th National Guard Division arrived from New York in October 1940. One of the first units to depart for combat in World War II, the 27th reported overseas just 12 days after the Japanese attack on Pearl Harbor. To enable the 27th to train properly, an additional tract of land was purchased for use as an artillery range. This range, called Morrisville Maneuver Area, was later named Pelham Range. The installation was further enlarged by the lease of the Choccolocco Corridor, containing 4,488 acres of land.

During 1943 the Infantry Replacement Training Center was established to train recruits in basic soldiering skills. When the war ended, the Center trained soldiers for occupation duty. In November 1946 Fort McClellan became a Recruit Training Center. On June 30, 1947 the Recruit Training Center was inactivated, and the installation was placed on inactive status.

Plans were made during 1950 to use the post for National Guard training. In January 1951 the installation was reactivated for operation of the Chemical Corps School. In 1957 the name of the Chemical Corps School was changed to the U.S. Army Chemical Corps School. As part of the Army's reorganization in 1963, it was redesignated the U.S. Army Chemical Center and School.

The Women's Army Corps School was founded at Fort McClellan on September 25, 1952. Two years later, official ceremonies were conducted to establish the post as the first permanent home of the U.S. Women's Army Corps (WAC) Center.

The U.S. Army Combat Developments Command Chemical-Biological-Radiological Agency moved to Fort McClellan in 1962. It was later closed along with the Chemical School during 1977.

To meet the requirements of the Vietnam War, an Advanced Individual Training Infantry Brigade was activated in July 1966 along with the Third U.S. Army Noncommissioned Officers Academy. With the mission change, Fort McClellan was renamed U.S. Army School/ Training Center and Fort McClellan. The brigade was deactivated in April 1970 after training more than 30,000 men. On July 11, 1975 official ceremonies marked the move of the U.S. Army Military Police School from Fort Gordon, Georgia to Fort McClellan.

A major reorganization of the post was completed on May 13, 1977 when the colors of the WAC Center and School were retired during ceremonies on Marshall Parade Ground. After re-establishment in December 1979, the U.S. Army Chemical School relocated from Aberdeen, Maryland and joined with the U.S. Army Military Police School and the Training Brigade to make Fort McClellan the only military installation in the United States with three major missions.

In 1995 the Base Realignment and Closure (BRAC) Commission identified Fort McClellan for closure. Relocation of the U.S. Army Chemical School and the U.S. Army Military Police School to Fort Leonard Wood, Missouri is scheduled for 1999. Disposal of Pelham Range and transfer to the Alabama Army National Guard is scheduled for 1999. Disposal and reallocation of Main Post will occur following 2000.

3. MILITARY MISSION

3.1 Overview

The military mission, goals, and objectives of Fort McClellan, Alabama are summarized in the *Strategic Plan, 1997: Fort McClellan, Alabama* (Fort McClellan, 1997). The military mission of the installation is to:

- serve as a training base for the U.S. Army Chemical School (USACMLS) and the U.S. Army Military Police School (USAMPS);
- operate the USACMLS and USAMPS to develop doctrine and enhance the professional development of officers, noncommissioned officers, and enlisted personnel of the U.S. Army, Navy, Marine Corps, Air Force, and allied governments;
- ensure combat readiness of assigned and attached units meets demands of America's projection Army;
- support power projection through mobilization planning and installation support;
- provide training, administrative, logistical, and facility support to Army National Guard, reserve units, and individuals within our assigned area of responsibility;
- implement 1995 Base Realignment and Closure Commission recommendations to: relocate USAMPS and USACMLS to Fort Leonard Wood; relocate Department of Defense Polygraph

Institute (DODPI) to Fort Jackson; license Pelham Range and designated facilities to the Alabama Army National Guard; and close Fort McClellan; and

- operate and maintain installation facilities and systems necessary to support the training mission until relocations is complete.

Because Fort McClellan is in the process of closure, implementation of the mission will occur in three phases.

In the near term (1997) Fort McClellan will (Fort McClellan, 1997):

- prepare for relocation of USACMLS, USAMPS, DODPI and designated units;
- prepare for closure of Fort McClellan;
- maintain quality of training;
- work closely with Fort Leonard Wood on the design and activation of the Maneuver Support Center;
- maintain close community relationships while working with the Fort McClellan Reuse and Redevelopment Authority on the redevelopment of Fort McClellan;
- implement the Civilian Transition and Readjustment Program; and
- plan for reorganization of the Training Brigade into Chemical and Military Police training brigades.

In the mid term (1998-2000) Fort McClellan will (Fort McClellan, 1997):

- relocate USACMLS, USAMPS, DODPI, and tenant units;
- minimize impact of relocation and closure actions on training and installation operations;
- inactivate units and activities when no longer needed;
- assist in formation of the Reserve Component Enclave and ensure the transfer of required properties and support requirements;
- transfer the maximum number of civilian employees to Fort Leonard Wood;
- provide transition assistance services to the remaining civilian work force;
- prepare for caretaker operations; and
- activate Chemical and Military Police training brigades at Fort Leonard Wood.

In the long term (2000 and beyond) Fort McClellan will (Fort McClellan, 1997):

- continue caretaker operations until final reuse, revitalization, and disposal of Fort McClellan property; and
- close Fort McClellan as an Active Component Installation.

3.1.1 Mission of the U.S. Army Chemical School

The vision of the U.S. Army Chemical School (USACMLS) is to maintain an Army capable of employing smoke, obscurants, and non-lethal means to protect the force, shape the battlefield, and disrupt enemy operations. USACMLS has the following military mission (Fort McClellan, 1997):

- develop technically and tactically proficient soldiers and leaders;

- provide education and training of selected U.S. and foreign military and civilian personnel in NBC defense, smoke, obscurants, and flame;
- exercise overall responsibility within America's Army for developing and defining Chemical Corps doctrine, training, leader development, force structure, and material requirements to support joint and combined environmental management; and
- support National security assistance objectives in NBC defense, treaty verification, chemical weapons demilitarization, and environmental management.

Over the next five years, the mission will be implemented in three phases.

In the near term (1997) USACMLS will (Fort McClellan, 1997):

- provide a USACMLS Commandant's vision of the Chemical Corps for the 21st Century to synchronize branch efforts in support of joint force readiness and Force XXI;
- plan to move to Fort Leonard Wood while continuing to conduct the military mission;
- provide the doctrine, training, leader development products, material requirements, and organizations to support future joint and combined arms operations;
- develop concepts and strategy for the passive defense pillar of theater missile defense; and
- support implementation of the Defense Counterproliferation Initiative with joint doctrine, training and simulation/modeling.

In the mid term (1998-2000) USACMLS will (Fort McClellan, 1997):

- prepare, coordinate, and complete USACMLS's transition to Fort Leonard Wood while continuing to perform our mission and caring for our people;
- develop a fully integrated joint service NBC defense program with synchronized and synergistic doctrine, training, and material development programs; and
- provide a seamless system of scenarios, models, simulations, and battle management tools that allow researchers, combat material developers, and war fighters to experience the full challenge of NBC warfare.

In the long term (2000 and beyond) USACMLS will (Fort McClellan, 1997):

- establish a world-class operation at Fort Leonard Wood and
- prepare the joint force for 21st Century challenges in NBC defense, smoke, and obscuration.

3.1.2 Mission of the U.S. Army Military Police School

The vision of the U.S. Army Military Police School (USAMPS) is to achieve transformational change in doctrine, training leader development, organizations, material, and soldiers to provide military police and Force XXI commanders with increased capability and flexibility across all operational environments in support of joint, multinational, and interagency operations (Fort McClellan, 1997).

USAMPS has the following military mission:

- develop competent and confident military police leaders and soldiers,
- prepare the Military Police Corps for the future, and

- foster the rich history and traditions of the Military Police Corps Regiment.

Over the next five years, this mission will be implemented in three phases.

In the near term (1997) USAMPS will (Fort McClellan, 1997):

- develop modular, tailored, deployable force structures to maximize the capability of military police units in all environments;
- improve training with advanced technology;
- effectively manage material distribution to enhance military police mobility, survivability, and lethality across the spectrum of conflict;
- develop and improve less-than-lethal options for America's Army;
- communicate the Commandant's vision to the Military Police Corps through electronic means, field visits, published journals, and war fighter symposiums;
- maintain training mission while preparing for the move to Fort Leonard Wood; and
- ensure transfer of Military Police Corps history and tradition to Fort Leonard Wood.

In the mid term (1998-2000) USAMPS will (Fort McClellan, 1997):

- transition the USAMPS and Military Police Corps Regiment to Fort Leonard Wood;
- fully implement Army Training XXI for military police;
- leverage technology to create living doctrine based on operational lessons learned and war fighting experimentation;
- develop a strategy to implement advanced war fighting experiments;
- implement the Army concept for military police units in the Force XXI Army; and
- continue to develop the USAMPS as a National Law Enforcement Center of Excellence.

In the long term (2000 and beyond) USAMPS will (Fort McClellan, 1997):

- prepare the Military Police Corps for the Army After Next.

3.2 Natural Resources Needed to Support the Military Mission

The training mission of USACMLS, USAMPS, and Fort McClellan does not require intensive use of natural resources. Primary natural resources requirements involve areas for maneuver and military firing impacts. The most intensive use of land is from Army National Guard training on Pelham Range.

3.3 Effects of the Military Mission on Natural Resources

The conservation of natural resources and the military mission will not be mutually exclusive.[4]

The *Unit Leader's Handbook for Environmental Stewardship* (Department of Army, 1994) lists six

[4] AR 200-3, *Natural Resources - Land, Forest and Wildlife Management*, para 2-11.

primary consequences of intensive and continuous use of Army training lands:

- The loss of historical sites, vegetation, water resources, and wildlife.
- Diminished quality of available realistic training areas.
- Diminished operational security.
- Ineffective tactical operations.
- The creation of safety hazards to personnel and equipment.
- An increase in training, maintenance costs, and litigation.

On Fort McClellan, none of these have been significant in the long-term or on an installation-wide basis.

The loss of native ecosystems due to construction and land clearing associated with the cantonment area and various outlying areas is the primary historic effect of the military mission. Localized contamination has occurred in areas on Main Post and Pelham Range used for training in chemical agents prior to 1973. These off-limits areas are the focus of clean-up operations. In addition, impact areas have been affected by the proliferation of duds. The Explosives Ordnance Disposal Area on Pelham Range has been closed for clean-up by the Directorate of the Environment.

Native mountain longleaf pine forests on Main Post have benefitted from the military mission. These forests were extensively logged prior to military acquisition. Persistent wildfires resulting from military operations have favored the formation of a more natural, fire-maintained forest system on Fort McClellan (Garland, 1996).

The present mission of Fort McClellan has locally significant impact on natural resources. Wildfires are often caused by projectile impact. Within impact areas projectile impacts damage soil, vegetation, and wildlife. Vehicle maneuver damages soil and vegetation via equipment moving across the landscape. The extent of this damage is determined by many factors, including vehicle weight and its distribution, soil type, soil wetness, vegetation, terrain, and the type of training mission involved.

The Battle Drill Area on Pelham Range and to a more limited degree, the Graham Drop Zone are the only places on Fort McClellan where tracked maneuver is permitted. This area is used for armor (tanks), mechanized infantry (Bradleys, etc.), and smoke obscurant training.

The U.S. Army Military Police School primarily conducts the following types of training on installation ranges: HumVee driving course, evasive driving course, small arms fire, land navigation course, and convoy movements. The U.S. Army Chemical School primarily conducts training in smoke obscurant operations, decontamination operations, and chemical weapons demolition/disposal.

Artillery/mortar training is conducted on Pelham Range and Main Post by the Alabama Army National Guard and the U.S. Marine Corps. Armor training is conducted on Pelham Range by Alabama Army National Guard. Numerous military units and law enforcement agencies use Fort McClellan firing ranges for small arms training, including local police forces and the Bureau of Alcohol, Tobacco, and Firearms (BATF) Special Reaction Team. Law enforcement agencies also use USAMPS driving courses. Aviation units of the Alabama Air National Guard and U.S. Air Force occasionally train at the Drop Zone on Pelham Range and landing zones on Main Post and Pelham Range.

There are numerous positive effects of the military mission on natural resources. Fort McClellan's

commitment to natural resources management, including minimizing and mitigation of military mission damage, is beneficial for natural resources in general and people who use natural resource products. Natural resources considerations and safety zones associated with the training mission limit the extent of other potentially damaging land uses. The success of Fort McClellan's conservation efforts is attested to by its diverse, self-sustaining natural resources.

3.4 Effects of Natural Resources or Their Management on the Military Mission

Natural resources and their management have limited effects on military operations. Primary impacts result from restrictions placed upon areas of environmental concern, including wetlands, archeological sites, Special Interest Natural Areas, and endangered species locations. Locations are identified on the *Natural Resource and Environmental Constraints Map* issued to all trainers.

Scheduling natural resources projects can affect military operations in certain areas. Military use of the EOD Area is constrained by environmental clean-up activities. Training may be adjusted to allow for timber harvest, prescribed burning, or other natural resources management activities. Scheduling for hunting and fishing requires advance notice of training operations by the Directorate of Plans, Training, Mobilization, Security, and Reserve Component Support..

Environmental constraints promote awareness on the part of soldiers. Learning to plan around environmental restrictions helps develop a disciplined mindset that is a valuable asset to today's soldier. However, this must be balanced to avoid "negative training" from excessive constraints.

3.5 Future Military Mission Impacts on Natural Resources

3.5.1 Main Post

Over the next five years military activity will decline dramatically on Main Post as USACMLS and USAMPS relocate to Fort Leonard Wood and disposal of Main Post commences. Primary mission impact on natural resources during disposal will be environmental restoration carried out by the Directorate of the Environment. A Reserve Component Enclave will remain on the former Main Post following closure of Fort McClellan as an active component installation. However, future use of natural resources is unknown.

3.5.2 Pelham Range

Pelham Range will be licensed to the Alabama Army National Guard (ALARNG) in 1999. Types of training conducted by ALARNG on Pelham Range will likely remain consistent, although use will intensify. New firing points will be required to accommodate the 120 mm mortar being introduced by ALARNG. Facilities, such as firing ranges, will need to be upgraded. An additional maneuver area for tracked vehicles has been proposed. ALARNG will likely initiate an Integrated Training Area Management (ITAM) program in 1999 to limit effects of military operations on natural resources. In general, however, it is difficult to quantify future effects of the ALARNG military mission on natural resources of Pelham Range.

3.5.3 Choccolocco Corridor

Fort McClellan's lease with the Alabama Forestry Commission for the Choccolocco Corridor is scheduled to expire in 1999. The lease likely will not be renewed, and the Corridor will revert to the State of Alabama. Military mission activities on the leased land prior to 1999 will be minimal.

4.0 FACILITIES

4.1 Overview

4.1.1 Cantonment

Fort McClellan's 2,500 acre cantonment area accounts for just over five percent of the total land area. The cantonment area contains approximately 330 acres of administration and other military facilities, 162 acres of troop housing, 425 acres of community and commercial facilities, and 955 acres of open space. In addition, there are 577 family housing units covering approximately 175 acres. In 1996 cantonment facilities supported approximately 6,400 military personnel, 1,571 appropriated and non-appropriated fund personnel, 640 contractor employees, and 80,000 military retirees and dependents (Foster Wheeler Environmental Corporation, 1996).

4.1.2 Firing Ranges

Fort McClellan contains 24 active firing ranges. Fifteen are on Main Post, and nine are on Pelham Range. On Fort McClellan a firing range is defined as a location where ordnance is expended. Ranges are grouped into five general categories on the basis of ordnance:

- ***ball ammunition*** from direct fire weapons such as rifles, pistols, and machine guns;
- ***direct fire explosive ordnance*** from 40mm grenades, M-72 LAW, and AT-4s;
- ***detonated explosive ordnance*** such as C-4/TNT, detonation cord, and M-4 bursters; and
- ***tactical ordnance*** for generation of smokes and obscurants.

Firing ranges are listed in Appendix 4.1.2. Indirect firing points for artillery (Section 4.1.4) are not included as ranges.

4.1.3 Bivouac Sites

Fort McClellan has 20 established bivouac sites. Half are on Main Post, and half are on Pelham Range (Foster Wheeler Environmental Corporation, 1996).

4.1.4 Firing Points

Fort McClellan has 15 firing points for use by artillery and mortars. All are located on Pelham Range. Firing points target one of two impact areas on Pelham Range (Section 7.1.1).

4.1.5 Landing Zones

There are 10 authorized landing zones on Fort McClellan. Four are on Main Post: Center Pad FN116310, Noble Army Community Hospital Pad FN 122232, Alabama National Guard Pad FN 125327, and Reilly Army Airfield FN 129344. Six are on Pelham Range: Landing Strip (UTES) FN 020322, Landing Strip FN 976339, Loran Site FN 984341, Artillery Firing Point No. 10 FN 987337, Landing Strip FN 933324, and Red Op FN 958322 (Foster Wheeler Environmental Corporation, 1996: 52).

4.2 Transportation System

4.2.1 Roadways

Main Post is bordered on the west by Alabama State Highway 21. U.S. Highway 431 is also in the vicinity and provides access to Pelham Range. These highways have all-weather surfaces and contain two or more lanes.

Five gates provide access to the cantonment area. Summerall Gate, Baltzell Gate, Baker Gate, and Galloway Gate enter from Alabama Highway 21. Baltzell Gate is most heavily used. Main post can also be accessed through Bain Gap Gate from the east. Pelham Range has 14 gates providing access in all directions to and from the maneuver area. Gates 3 and 5, accessing from Highway 431, are the only gates routinely open.

There are 198 miles of roads on the installation. The major street system serving the cantonment area of Main Post is configured in an irregular radial pattern with major elements consisting of Baltzell Gate Road, Summerall Gate Road, and Galloway Gate Road. The street system is constrained by hilly, wooded terrain in portions of the installation. Connector streets link major activity areas. Major connector streets are 15th Street, 20th Street, 16th Street, 6th Avenue, 4th Avenue, 5th Avenue, Nielsen Street, 10th Avenue, 8th Avenue, and 21st Street. This configuration provides good access to and from the various activities within the cantonment area. A number of hard surface roadways provide access to outlying range and training areas north, east, and south of the cantonment area. These roadways include Rock Hollow Road, Bains Gap Road, and 10th Street. Other unnamed gravel roads provide access to range and training areas removed from the cantonment area.

Transportation problems in the cantonment area are primarily related to congestion. Peak hour vehicle stacking is quite common in Baltzell Gate and Summerall Gate, the two most heavily used gates. This is due to reduced carrying capacity of the two-lane Baltzell Gate and Summerall Gate roads and 10th Avenue. Prior to base closure, there were plans to improve several roads in the cantonment area (Foster Wheeler Environmental Corporation, 42).

4.2.2 Railways

Fort McClellan's rail network consists of 17 track sections totaling 3.4 miles of usable track, generally running east and west through the cantonment area on Main Post. The rail network is served by nine spurs and seven sidings off the Norfolk Southern Railroad lead track that connects to the branch line between Anniston and Spring Garden, Alabama. All track is maintained to safety standards required for a Federal Railroad Administration Class 2 categorization (Foster Wheeler Environmental Corporation, 1996: 50).

4.2.3 Air Transportation

Anniston-Calhoun County Airport is four miles south of Anniston. The airport has a 7,000-foot lighted runway capable of accommodating jet aircraft up to the Boeing 737. Military aircraft up to the C-130 can also operate from the runway. Two smaller airports, McMinn and Jacksonville, are within a 12-mile radius of the installation. These airports are used for general aviation and chartered aircraft (Foster Wheeler Environmental Corporation, 1996: 52).

Atlanta International Airport is approximately 100 miles east of Fort McClellan in Atlanta, Georgia. The airport offers a full range domestic and international flight from most major commercial carriers.

Fort McClellan's Reilly Army Airfield, located north of the cantonment area on Main Post, is no longer in operation. It has been converted into a defensive driving course. A single landing zone for helicopters is still designated at the facility (Foster Wheeler Environmental Corporation, 1996: 53).

4.3 Water Supply

Fort McClellan obtains potable water from the City of Anniston Water Works and Sewer Board. Source water for this system is primarily Coldwater Spring (24 - 36 million gallons per day (MGD) estimated flow), seven miles southwest of Anniston. Hillabee Creek Reservoir, located approximately three miles southwest of Anniston, also supplies some of this water. Although water from both sources undergoes chlorination and flouridation, only water from Hillabee Creek Reservoir must undergo filtration.

The Calhoun Water and Fire Protection Authority Office, which gets its source water from Seven Springs and Read's Mill, supplies water to one faucet in area B-44. This area is located in the leased Choccolocco Corridor area which is being returned to the Alabama Forestry Commission as part of the closure process.

Potable water is supplied to Main Post through double mains from the city's distribution system to government-owned booster pump stations at Summerall and Baltzell Gates. Under normal operating conditions, Main Post's water demands are met solely by the Summerall Gate pumping station; the Baltzell Gate pumping station is used only for peak demand days and in case of fire. Summerall Gate and Baltzell Gate pumps were replaced within the last 15 years with 1,500 gallons-per-minute (GPM) pumps.

Pelham Range receives water through mains at Gate 3 and the Mark 19 Range. Pelham Range also receives water by truck.

There are two water storage tanks on Fort McClellan. An underground concrete storage reservoir with a one million gallon capacity is no longer in use due to a degraded liner. Currently in use is an aboveground steel tank with a 1.5 million gallon capacity which was refurbished in 1990. The steel tank is a permitted water supply under the Department of Environmental Management.

There are six secondary potable water wells on the installation: two on Main Post and four on Pelham Range. On Main Post one well is located at Reilly Lake and another at Range B-44. The B-44 Range well, permitted by ADEM in 1987, was disconnected and taken off permit status in 1988 when the range received water from the county water supply. On Pelham Range there are wells at Range 57, Rideout Hall (Bldg. 8802), the Security Operations Training Site (SOTS) Administrative Area (Bldg. 8203), and the SOTS (Bldg. 8605). The wells at Range 57 and the SOTS Administrative Area are permitted by ADEM.

Water from wells undergoes chlorine treatment (Foster Wheeler Environmental Corporation, 1996).

Fort McClellan is currently in compliance with Safe Drinking Water Standards. The water distribution system was inspected by ADEM in July, 1997. In December, 1993 Fort McClellan began annual sampling of the three permitted wells on Pelham Range for nitrates in accordance with ADEM requirements. Levels of nitrates above the regulatory level of 10 mg/l were found at the SOTS Administrative Area (Bldg. 8203) and Rideout Hall (Bldg. 8802). In December 1994, increased sampling was undertaken at the sites in accordance with ADEM regulations and continued through 1995. No other incidences of elevated nitrates were reported during the sampling period. Annual monitoring is ongoing.

In 1994 Fort McClellan had an average daily demand for water of 1.17 MGD. Under the existing contract with the City of Anniston's Water and Sewer Board, Fort McClellan's water limit is 3.5 MGD. In August 1993 the maximum water usage was 1.51 MGD. Under fire fighting conditions, a maximum of 5,800 gallons per minute would be available from approximately 485 fire hydrants within the cantonments area.

4.4 Projected Changes to Facilities

4.4.1 Main Post

Facilities of Main Post will undergo reallocation and disposal through the Fort McClellan Reuse and Redevelopment Authority as part of closure. The military mission prior to closure, consisting of caretaker operations for the most part, will likely not require additional facilities.

4.4.2 Pelham Range

All facilities on Pelham Range will become the property of the Alabama Army National Guard when the range is licensed to ALARNG, projected in 1999.

5.0 RESPONSIBLE AND INTERESTED PARTIES

5.1 Fort McClellan

5.1.1 Commanding General

The Commanding General commands the U.S. Army Chemical School (USACMLS), U.S. Army Military Police School (USAMPS), and Fort McClellan, implementing policies and directives of the Department of the Army (DA) and the U.S. Army Training and Doctrine Command (TRADOC). The Commanding General bears ultimate responsibility for management of natural resources on Fort McClellan, including its land, forests, and wildlife (Department of the Army 1995).

Acting through the Command Group, Personal and Special Staff, Directors, and separate Commandants, the Commanding General is responsible for (Department of Army Regulation 200-3, 1995):

- providing for funding and staffing of natural resource management professionals and other

resources required to effectively manage natural resources on the installation;

- planning land utilization to avoid or minimize adverse effects on environmental quality and provide for sustained accomplishment of the mission;
- entering into appropriate Cooperative Plans (16 USC 670a), with State and Federal conservation agencies for the conservation and development of fish and wildlife, soil, outdoor recreation, and other resources;
- ensuring the functioning of an Installation Environmental Quality Control Committee;
- ensuring ongoing and timely coordination of current and planned land uses between mission, natural resources, environmental, legal, and master planning;
- inspecting and reviewing mitigation measures that have been implemented or recommended for protection of natural resources as prescribed in environmental documentation in accordance with AR 200-2;
- ensuring all installation land users are aware of and comply with procedures and requirements necessary to accomplish objectives of this INRMP together with laws, regulations, and other measures designed to comply with environmental quality objectives; and
- appointing a natural resources management professional as the Installation Natural Resources Coordinator.

5.1.2 Chief of Staff

The Chief of Staff serves as principal assistant to the Commanding General/Commandant in matters pertaining to plans, training, mobilization, and security.

5.1.3 Garrison Commander

The Garrison Commander serves as major assistant to the Commanding General/ Commandant and Chief of Staff in matters pertaining to information management, logistics, contracting, public safety, human resources, community and family activities, and public works. As such, the Garrison Commander is responsible for most implementation of this INRMP.

5.1.4 Director of Environment

The Director of Environment, acting through the Natural Resources Specialist, Forester, Environmental Specialist, and Archeologist is responsible for (Department of Army Regulation 200-3, 1995; Fort McClellan Regulation 200-3, 1996):

- managing all phases of Fort McClellan's Natural Resources Program with appropriate natural resources management professionals;
- developing and implementing programs to ensure the inventory, delineation, classification, and management of all applicable natural resources to include: wetlands, scenic areas, endangered and threatened species, sensitive and critical habitats, and other natural resource areas of special interest;
- providing for the training of natural resources personnel;
- establishing and operating the Game Management Office;
- implementing this INRMP;
- reviewing all environmental documents (e.g. environmental impact assessments and statements and remedial action plans) and construction designs and proposals to ensure adequate protection of

natural resources, ensuring that technical guidance as presented in this INRMP is adequately considered;

- coordinating with local, State, and federal governmental and civilian conservation organizations relative to Fort McClellan's natural resources management program; and
- implementing and executing Army Regulation 200-2.

Programs administered and/or supported by the Natural Resources Specialist include wetlands management (Section 8.6), land management (Section 8.8), habitat management (Section 8.4), fish and wildlife population management (Section 8.5), endangered species management (Section 8.5.2), pest management (Section 8.11), and National Environmental Policy Act (NEPA) compliance (Chapter 15.0).

Programs administered and/or supported by the Forester include forest management (Section 8.2), fire management (Section 8.12), endangered species management (Section 8.5.2), wetlands management (Section 8.6), land management (Section 8.8), and National Environmental Policy Act compliance (Chapter 15.0).

The Archeologist is responsible for identification and protection of cultural resources on Fort McClellan (Chapter 11) and for management of the GIS in support of the Directorate of Environment and other installation directorates (Section 9.5.2). The Environmental Specialist is responsible for environmental compliance involving water quality and CERCLA issues.

5.1.5 Director of Engineering and Housing

The Director of Engineering and Housing is responsible for facilities maintenance including maintenance of improved and unimproved roads outside the cantonment area on Main Post and Pelham Range. The Directorate of Engineering and Housing uses private contractors for most operations.

5.1.6 Director of Plans, Training, Mobilization, Security, and Reserve Component Support

The Director of Plans, Training, Mobilization, Security, and Reserve Component Support (DPTMSEC&RCS) is the principal assistant to the Chief of Staff for planning, estimating, coordinating, integrating, and supervising: military training, mission and mobilization planning, security, and troop movements. The DPTMSEC&RCS oversees and coordinates with the Range Control Officer.

DPTMSEC&RCS is directly responsible for implementation and/or support of portions of this INRMP which directly affect or interact with training responsibilities including:

- operating and maintaining training facilities, field training sites, and range equipment;
- preparing, maintaining, and enforcing Fort McClellan Regulation 350-2 and related regulations;
- coordinating with Range Control (ALARNG) regarding range use;
- providing a daily range and training area utilization schedule to the Game Management Office for control of hunters and anglers;
- coordinating with the Directorate of Environment on training activities that may affect fish and wildlife, forestry, wetlands, or cultural resources; and
- coordinating implementation of the mid and long-term range development plans with forest management by scheduling forestry activities.

ALARNG maintains a Range Control Officer on Fort McClellan who works under DPTMSEC&RCS. DPTMSEC&RCS will continue to oversee Range Control operations until closure.

5.1.7 Director of Community Safety/ Provost Marshall

The Director of Community Safety/Provost Marshall is responsible for providing military police and enforcing natural resources related laws and regulations on Fort McClellan. Natural resources functions within the Provost Marshall's Office (PMO) are conducted by full-time military and civilian game wardens. Military police responsibilities of PMO include enforcing laws and regulations on Fort McClellan including those pertaining to hunting, fishing, and other natural resources recreation.

Specific responsibilities of PMO include:

- enforcing Federal, State, and Installation laws and regulations pertaining to fish and wildlife;
- executing warrants pertaining to the violation of laws and regulation regarding fish, wildlife, hunting, fishing, or boating;
- recommending and enforcing suspension of access privileges for specified infractions of laws and regulations pertaining to fish, wildlife, hunting, or fishing;
- providing data to the Game Management Office on violations and standing penalties;
- coordinating with other State and Federal law enforcement agencies for completion of wildlife law enforcement duties and responsibilities; and
- providing sufficient equipment to support the wildlife law enforcement program for completion of program responsibilities.

5.1.8 Director of Community Activities

The Director of Community Activities (DCA) establishes procedures and governs various aspects of installation morale, welfare and recreation activities. Responsibilities of DCA include:

- supervising and maintaining outdoor recreation activities and establishing recreation policy;
- coordinating with the Game Management Office with regard to outdoor recreation and equipment rental;
- collecting fees and charges for equipment rental; and
- coordinating special events, including outdoor recreation and hunting and fishing events.

5.1.9 Public Affairs Office

The Public Affairs Office (PAO) is responsible for promoting an understanding of USACMLS, USAMPS, and Fort McClellan among their various publics and for providing professional public affairs advice and support to installation leaders and activities. The PAO is an important component of Fort McClellan's natural resources program.

5.1.10 Director of Information Management

The Directorate of Information Management supports the hunting and fishing program by maintaining emergency telephone and/or radio service at Gate 3 (Pelham Range), the Checkout Station, and Building 8401. The telephone system is intended to ensure safety and security and provide direct access to

ambulance service.

5.1.11 Staff Judge Advocate

The Staff Judge Advocate (SJA) provides legal advice and counsel and services to Command, Staff, and subordinate elements of Fort McClellan. Specific SJA responsibilities with regard to integrated natural resource management include:

- conducting legal research and preparing legal opinions pertaining to interpretation and application of laws, regulations, statutes, and other directives affecting the administration of personnel, business, property, or financial operations on the installation;
- coordinating with the Department of Justice, Litigation Division of the Office of the Judge Advocate General, and other Governmental agencies on all matters pertaining to litigation for the Federal Government; and
- providing legal advice and guidance on legal aspects of procurement, policies, sanctions, and other documents.

5.1.12 Other Installation Organizations

Implementation of this INRMP will require assistance from other directorates and organizations. Such organizations include the Directorate of Logistics (supply and transportation) and the Directorate of Resource Management (budget, personnel, and equipment authorizations).

5.2 Other Defense Organizations

5.2.1 U.S. Army Training and Doctrine Command

The U.S. Army Training and Doctrine Command (TRADOC), located at Fort Monroe, Virginia, is responsible for providing command and technical supervision of Fort McClellan's natural resources program by (AR 200-3):

- assisting with program implementation and conducting staff visits to Fort McClellan,
- reviewing and approving timber harvests,
- reviewing outdoor recreation plans for compatibility with the Installation Master Plan and natural resources management plans and programs, and
- ensuring that effective natural resources stewardship is an identifiable and accountable function of management.

5.2.2 Alabama Army National Guard

Along with USACMLS and USAMPS, the Alabama Army National Guard (ALARNG), with headquarters in Montgomery, Alabama, is a primary source of military training on Fort McClellan, particularly on Pelham Range. As part of the installation's closure, Pelham Range is scheduled to be transferred to ALARNG in 1999.

5.2.3 U.S. Army Material Command, Anniston Army Depot

Anniston Army Depot, located adjacent to Pellham Range, occasionally cooperates with Fort McClellan on natural resources-related issues. For instance, the two installations have participated in a cooperative tree planting program on Pelham Range and the Depot.

5.2.4 Army Environmental Center

The Army Environmental Center, located at Aberdeen Proving Ground, Maryland, provides oversight, centralized management, and execution of Army environmental programs and projects. It has support capabilities in most areas of natural resources management.

5.2.5 U.S. Army Corps of Engineers, Mobile District

The U.S. Army Corps of Engineers, Mobile District, assists Fort McClellan by administering contracts for outside or other agency support. It also is responsible for issuing wetland permits in accordance with Section 404 of the Clean Water Act and administering timber sales.

5.3 Other Federal Agencies

5.3.1 U.S. Department of Interior

5.3.1.1 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) has a field office at Daphne, Alabama which provides technical advice to Fort McClellan for management of its natural resources, particularly endangered and threatened species. Department of Army Regulation 200-3, Chapter 11, provides guidance to be followed by Fort McClellan when dealing with the USFWS for endangered species management.

The USFWS is a signatory cooperator in implementation of this INRMP in accordance with the Sikes Act. This INRMP supersedes the *Cooperative Plan (Agreement) for Conservation and Development of Fish and Wildlife Resources on Fort McClellan Military Reservation* (Pittman *et al.*, 1991). Appendix 5.3.1 contains specific items of agreement among the USFWS, Alabama Department of Conservation and Natural Resources, and Fort McClellan, as required by the Sikes Act.

5.3.1.2 U.S. Geological Survey

Under a recent federal organizational change, the U.S. Geological Survey (USGS) operates a Cooperative Fisheries and Wildlife Unit at Auburn University which can provide natural resource management assistance to Fort McClellan. USGS has also supported Fort McClellan through water quality monitoring and soils and geochemical surveys.

5.3.2 U.S. Department of Agriculture

5.3.2.1 Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) is available to assist with erosion control and ITAM projects. NRCS has conducted soils surveys for Calhoun County, including Fort McClellan.

5.3.2.2 U. S. Forest Service

The U.S. Forest Service (USFS) has a mutual aid agreement for wildfire suppression with Fort McClellan. USFS also cooperates with Fort McClellan on other aspect of fire management, such as the training of fire fighters. USFS's Talladega National Forest, located adjacent to the Choccolocco Corridor, has cooperated with Fort McClellan by allowing land to be used for military training exercises.

5.4 State Agencies

5.4.1 Alabama Department of Conservation and Natural Resources

The State of Alabama, functioning through the Director, Alabama Department of Conservation and Natural Resources (ADCNR), provides technical advice and assistance for programs relating to natural resources, or more specifically, fish and wildlife, if funds are available and priority warrants.

The Game and Fish Division provides support to Fort McClellan's natural resources management program in the areas of fisheries, game, and law enforcement. ADCNR, through the Commissioner of its Game and Fish Division, is a signatory cooperator in implementation of this INRMP (16 USC 670a). This INRMP supersedes the *Cooperative Plan (Agreement) for Conservation and Development of Fish and Wildlife Resources on Fort McClellan Military Reservation* (Pittman *et al.*, 1991). Appendix 5.3.1 contains specific items of agreement among the ADCNR, USFWS, and Fort McClellan, as required by the Sikes Act.

5.4.2 Alabama Forestry Commission

The Alabama Forestry Commission provides policy clarification and assistance in forest management, including the implementation of Best Management Practices. Specific areas of support include permits for prescribed burning and aerial surveillance for wildfires. The Alabama Forestry Commission administers the lease of Choccolocco Corridor and establishes policies for its use.

5.4.3 Alabama Department of Environmental Management

The Alabama Department of Environmental Management provides policy clarification and limited technical assistance in the areas of water quality, environmental protection, and pollution control on Fort McClellan.

5.4.4 Alabama Natural Heritage Program

The Alabama Natural Heritage Program, funded by the Nature Conservancy, provides support in the areas of natural resources inventory, endangered and sensitive species management, and neotropical migratory bird monitoring.

5.5 Surrounding Municipalities

Communities that are either directly adjacent to or in proximity to Fort McClellan are positively affected by natural resources management on Fort McClellan. The installation provides excellent opportunities for general public hunting and fishing. There are no significant conflicts between natural resources management on Fort McClellan and its surrounding community.

5.6 Universities

Regional universities have provided specialized expertise to help manage natural resources on Fort McClellan. Auburn University's School of Forestry (Auburn, Alabama) has used Fort McClellan as a study site for graduate research on the mountain longleaf pine community. The School of Forestry is currently developing a management plan for longleaf pine on Fort McClellan. Faculty from Auburn University and Jacksonville State University have conducted monitoring of neotropical migratory birds. Jacksonville State University and the University of Alabama, Birmingham have provided support for cultural resources management. Recently, Jacksonville State University received a grant for research into development of Department of Defense natural resource management programs. The university may provide assistance to Fort McClellan as part of this research project.

5.7 Contractors

Fort McClellan uses contractors for many programs associated with natural resources, including INRMP preparation, collection of biological data, NEPA documentation, and cultural and archaeological surveys. This source of expertise will continue during 1998-2002 as needed.

5.8 Other Interested Parties

Organizations, such as the Longleaf Pine Alliance and the Army's red-cockaded woodpecker group, based on management issues of concern on Fort McClellan are the primary interested parties. Other interested parties include: Alabama Environmental Council; Alabama Natural Heritage Program; a local environmental consulting firm, ECG, Inc.; Jacksonville State University; Natural Resources Conservation Council; Alabama Department of Conservation and Natural Resources; Alabama Forestry Commission; Alabama Department of Environmental Management; and Alabama State Parks. These organizations had a particular interest in the scoping process for the installation's BRAC EIS.

6.0 NATURAL RESOURCES AND CLIMATE

6.1 Topography

Fort McClellan lies almost entirely in the Valley and Ridge physiographic province of the Appalachian Highlands. A narrow strip along the eastern boundary, locally known as the Talladega Mountains, lies in the Blue Ridge Province.

Main Post is characterized by a series of mountainous ridges on the south and east which are known as Choccolocco Mountain. Lateral ridges extend from the main range in a westerly direction. Elevations range from 700 to 2,063 feet above sea level. Eastern and southern parts of the installation, which comprise approximately one-half of the Main Post, are primarily steep slopes with thin, rocky soils. The remainder of Main Post is gently rolling and contains the cantonment area.

In contrast, Pelham Range is characterized by moderately rolling hills with numerous valleys. Elevations vary from 480 feet to 945 feet above sea level.

The Choccolocco Corridor is bordered by Choccolocco Mountain on the west and the Talladega Mountains on the east. The valley between these two mountain ranges consists of flat to gently rolling lands (Foster Wheeler Environmental Corporation, 1996: 30).

6.2 Geology

Throughout the Valley and Ridge Province consolidated rocks ranging in age from Precambrian to Pennsylvanian are sharply folded into northeastward-trending synclines and anticlines complicated by thrust faults that have a general northeastward-trending strike and southeasterly dip. These thrust faults are the predominating structural features of Fort McClellan.

The Jacksonville fault is a major, but not regional, thrust fault within the fold and thrust belt of the Appalachian Highlands in Alabama. Changes in structural style of the fault along the strike suggest a complex history of deformation. Considerable stratigraphic separation on the fault decreases toward Bynum, Alabama, where the fault dies out on the foreland side of an apparently imbricated, southwest plunging anticlinal fold at Coldwater Mountain and the southwestern end of Choccolocco Mountain. Mapping indicates that the Jacksonville fault bounds a large thrust slice within the more regional Pell City thrust sheet. Stratigraphic and structural relationships at Fort McClellan and Whites Gap windows suggest that the Jacksonville fault-Pell City fault splay is preserved at the windows and that subsequent folding of the splay may be related to the Anniston cross-strike structural discontinuity (Foster Wheeler Environmental Corporation, 1996: 30).

Hydrologic conditions in areas adjacent to the fault are controlled in part by stratigraphy and in part by structure. The permeability of rock units in the area is the result of secondary openings. Rock types with the greatest permeability are the highly fractured quartzite beds. All the other rock units have very low primary and secondary porosity and permeability. The greatest porosity and permeability occurs in a wide zone of fracturing where quartzite and dolomite are juxtaposed along the Jacksonville fault. This wide fracture zone is most prominent southwest of Fort McClellan on the northwestern sides of Choccolocco and Coldwater mountains. Hydrogeologic interpretations indicate that the Jacksonville fault and several fault splays beneath Coldwater Mountain are conduit systems for groundwater issuing from Coldwater Spring (Foster Wheeler Environmental Corporation, 1996: 30).

The U.S. Geological Survey has identified eight geologic types on Main Post (Tucker *et al.*, 1995).

- ***Chilhowee Group***: The Chilhowee Group is from the Lower Cambrian period and is over 560 million years old. The group is coarse to fine-grained clastic sandstones with conglomeratic lenses. Rocks are predominantly fine grained vitreous quartzite and friable orthoquartztic

sandstones. This rock group makes up the bulk of highlands on Main Post.

- ***Shady Dolomite***: Rocks of the Chilhowee Group are overlain by 500 feet of poorly exposed carbonate rocks assigned to the Shady Dolomite. The Shady Dolomite is from the Lower Cambrian period and is approximately 560 million years old. These rocks crop out in the northern portion of Main Post. Best exposures are northeast of Reservoir Ridge.
- ***Rome Formation***: Overlying the Shady Dolomite is approximately 1,000 feet of predominantly clastic rocks assigned to the Rome Formation. The formation is from the Lower Cambrian period and is approximately 540 million years old. It is characterized by grayish-red-purple and pale-olive interbedded mudstone, siltstone, and sandstone. It occurs in a small band 300 yards wide along the western boundary of Main Post.
- ***Conasauga Formation***: The Rome Formation is overlain by the 510 million year-old Conasauga Formation dating to the Middle Cambrian period. This formation is primarily very thin-bedded, pale-olive mudstone, and shale with local interbeds of limestone. It occurs in a small band about 300 yards wide just to the east of the Rome Formation.
- ***Knox Group***: The Conasauga Formation is overlain by the Knox Group. The group is from the Upper Cambrian period and is between 510 and 470 million years old. It consists of a thick sequence of light to medium gray siliceous dolomite occurring along a fairly wide band in the southern portion of Main Post.
- ***Newala and Little Oak Limestones***: Newala and Little Oak Limestones overlie the Knox group. The limestones are approximately 470 million years old and date to the Middle to Upper Ordovician period. They occur throughout central portions of Main Post. Best exposures of these limestones are just to the south of the south branch of Cane Creek.
- ***Athens Shale***: The Athens Shale dates to the Middle to Upper Ordovician period and overlies Newala and Little Oak Limestones. The shale is a thick sequence of dark gray to black shale and shaly mudstone. It occurs throughout central portion of Main Post.
- ***Quaternary Alluvium***: Stream beds contain Quaternary alluvial gravels and sands associated with recent erosion. The rocks are generally rounded Chilhowee Group rocks.

A great mass of undifferentiated dolomites dating from the Cambrian and Ordovician periods underlies large areas in Calhoun County, characterized by rolling surfaces of moderate relief. This system is prevalent on Pelham Range. Three dolomite formations, Cheputepec, Copper Ridge, and Ketona, occur to a 2,000-foot depth. In the northwest part of Pelham Range (Brook Mountain), dolomites contact plunging anticlines and synclines of underlying Conasauga Formation. The abundance of chert in these dolomite formations is the result of weathering of the bedrock, and chert extends to great depths in places (Foster Wheeler Environmental Corporation, 1996: 30).

6.3 Petroleum and Minerals

No minerals are mined on Fort McClellan. No petroleum deposits are known. In the 19th Century small-scale iron mining occurred on both Main Post and Pelham Range.

6.4 Soils

There are five major soil associations on Fort McClellan (Map 6.4) (Foster Wheeler Environmental Corporation, 1996).

Altavista-Masada-Tate association is composed of well-drained and moderately well-drained silty loams on level to moderately steep terraces and foot slopes. It is suited to a wide range of vegetation. At specific places, this soil group is associated with problems in erosion and flooding of roads and dwellings. The series is located within the Choccolocco Corridor.

Anniston-Allen-Decatur-Cumberland association is composed of deep, well-drained, level to moderately steep soils in valleys underlain by limestone and shale. It is suited to many farm crops. Steeper slopes should be kept permanently in vegetation. Erosion can become a problem. Natural vegetation consists mostly of pine, oak, and hickory. The association is found in the northern and west-central portion of Pelham Range and in the northern and west-central parts of Main Post. The site index for loblolly pine on this soil association ranges from 66 to 85 feet at 50 years. Most of these soils underlay the cantonment area where scattered forest stands are managed for aesthetic and training objectives, as well as for timber production (Pittman *et al.*, 1991).

Clarksville-Fullerton series is characterized by well-drained to moderately well-drained, stoney or cherty soils on ridge tops and steep slopes and in local alluvium on foot slopes or in draws. Erosion can be a problem on these soils. On steep slopes, lands should be kept in forest. Natural vegetation is mostly shortleaf and loblolly pine, white and blackjack oaks, and hickory. Soil limitations for roads and dwellings without basins are moderate to slight. This soil series encompasses over half of Pelham Range.

Rarden-Montevallo-Lehew association is comprised of moderately deep or shallow soils on ridge tops and steep slopes and in local alluvium in draws. The association is suited to only a few crops, such as hay and forage, and it should remain in permanent vegetation. The present forest cover usually consists of pine, oak, hickory, and gum. Soil limitations for roads and dwellings are severe. This soil association is found in the northwestern part of Main Post and along the western boundary and west-central portion of Pelham Range. The site index for loblolly pine on this soil association ranges from 66 to 85 feet at 50 years. Most of these soils underlay the cantonment area where scattered forest stands are managed for aesthetic and training objectives, as well as for timber production (Pittman *et al.*, 1991).

Stony Rough Land is composed of shallow, steep, and stony soils underlain by sandstone, limestone, and Talladega slate and occurs on most of Main Post. Water runoff is high; natural fertility is low to moderate. Slopes are generally over 25 percent. Erosion, once started, is difficult to control. There are severe problems for constructing roads and dwellings. These areas are typically covered by xeric hardwoods, such as chestnut, blackjack, and post oaks. Longleaf, shortleaf, and Virginia pines occur at scattered locations. Because of steep slopes, low site index, and presence of poor quality hardwoods, these areas are primarily managed for wildlife habitat and watershed protection. They are also utilized for Fort McClellan's fuelwood program.

6.5 Hyrdrology

6.5.1 Surface Water

Fort McClellan's watershed is served by two major drainages, Cane Creek and Cave Creek. These two streams combine to create one of six major Calhoun County watersheds. Cane Creek bisects Main Post, flowing east to west between such facilities as the Directorate of Operations and Logistics and Directorate of Engineering and Housing, through the golf course, and eventually through the entire length of Pelham Range. Major tributaries to Cane Creek include Ingram Creek, the south branch of Cane Creek, and Remount Creek. Cave Creek drains the northern half of Main Post, flowing southwest to north from the ammunition storage bunkers (1400 Area), past the Reception Center and National Guard facilities, and exiting the post north of the WAC Museum.

Dothard Creek, located in the northwestern corner of Main Post, is another primary stream. Its headwaters are both on and off-post, serving the area around Reilly Lake. Another major watershed, Choccolocco Creek, occurs to the east of the Choccolocco Mountains, passing in a northerly to southerly direction through the Choccolocco Corridor. All of these stream systems originate in the Choccolocco Mountains on the eastern boundary of the installation and are fed by springs originating from underlying limestone strata.

Fort McClellan contains just over 23 acres of managed impoundments and numerous areas where beaver dams create temporary ponds. Managed impoundments are listed below (Pittman *et al.*, 1991).

Impoundment	Location	Size
Reilly Lake	Main Post	8.5 acres
Yahou Lake	Main Post	13.5 acres
Duck Pond	Main Post	.45 acres
Willett Springs	Pelham Range	.75 acres

Although surface water quality is generally good (Foster Wheeler Environmental Corporation, 1996), the U.S. Geological Survey has identified unusually high concentrations of heavy metals in Fort McClellan streams (Tucker *et al.*, 1995). The significant impact of this study is the identification of natural sources for heavy metals. Although there is suspected anthropogenic contributions to the overall metal load, by far the greatest contributor is the natural environment.

6.5.2 Groundwater

Large groundwater storage reservoirs formed by thrust fault zones exist in Calhoun County. Groundwater generally moves southward along the east of the Choccolocco Mountains and then southwest from the southern end of the mountains. Under Main Post and Pelham Range the movement is in a west-northwest direction toward the Coosa River. Although groundwater quality is generally good (Foster Wheeler Environmental Corporation, 1996), monitoring of groundwater wells on Fort McClellan by the U.S. Geological Survey has revealed high concentrations of heavy metals (Tucker, *et al.*, 1995).

Much of the local water supply comes from Coldwater Spring, one of many local springs in use since pioneer days. This spring, with a flow of 24 to 36 million gallons per day, serves nearly 60 percent of Calhoun County residents, including Anniston, Oxford, Blue Mountain, Hobson City, the Anniston Army

Depot, and Fort McClellan.

6.6 Climate

Fort McClellan has a temperate, humid climate characterized by hot, long summers and short, mild to moderately cold winters. The average annual temperature is 63 degrees fahrenheit (F). Summer temperatures reach 90 degrees F or higher about 70 days per year; however, temperatures of 100 degrees F or higher are relatively rare. Freezing temperatures are common but of short duration. The first frost usually occurs in late October which provides a growing season of 221 days. Snow is rare and averages one-half to one inch. The annual rainfall average is 53 inches and is fairly well distributed as indicated below.

Average Annual Precipitation

Month	Inches	Month	Inches
January	4.95	July	5.45
February	5.36	August	4.17
March	5.77	September	3.16
April	4.93	October	2.80
May	3.83	November	3.30
June	4.02	December	5.44

Severe droughts are rare, and more intense rains usually occur during warmer months. Winds in the Fort McClellan area are seldom strong and frequently blow down the valley from the northeast. However, there is no persistent wind direction. Light breezes or calm prevails; although during passages of cyclonic disturbances, destructive local windstorms develop, some into tornadoes with winds of 100 miles per hour or more (Pittman *et al.*, 1991).

6.7 Flora

Calhoun County, of the Valley and Ridge Province, is within the Oak-Pine Forest Region. The region is transitional between the north central deciduous forest and the southern evergreen forest. The Oak-Pine Forest Region is characterized by the absence of virgin forest and by the abundance of oaks and hickories. Pines persist in areas less suitable for deciduous species.

Loblolly pine is abundant, and longleaf pine is localized. Mountainous areas are forested with longleaf pine, chestnut oak, mountain oak, and chestnut and pignut hickory up to 1,800 feet in elevation. Typically, upland slopes and hills are covered by pines (loblolly, longleaf, shortleaf), oaks (southern red, post, black, blackjack), pignut hickory, and dogwood. In ravines, beech, tuliptree, white ash, maple, white oak, holly, and redbud are present. The lowland forest includes oaks (white, post, chestnut, black, red, willow, water), hickories, beech, tuliptree, sourgum, sweetgum, dogwood, sour wood, red and sugar maple, elm, holly, hornbeam, river birch, yellow poplar, and a few pines (Pittman *et al.*, 1991).

6.7.1 Floral Inventory

A floral inventory of Fort McClellan was completed in 1996 (Whetstone *et al.*). The inventory focused on vascular flora and identified vegetation communities and sensitive species. Communities are described in Section 6.7.2.

6.7.2 Vegetation Communities

Vegetation communities occur under three broad forest systems: Terrestrial Broadleaf, Terrestrial Needleleaf, and Wetland Broadleaf. Following community descriptions are taken from Whetstone *et al.* (1996).

Wetland Broadleaf System

- *Sweetgum Bottomland Forests* - Sweetgum *(Liquidambar styraciflua)* occurs with nearly equal likelihood in uplands and wetlands. On Fort McClellan sweetgum is more abundant in lowland forests. It is a rapidly colonizing species and may dominate highly disturbed lower terraces. Sweetgum is more common when pH is not low. This is not a climax community type, so it will likely succeed to a more mixed hardwood composition (hardwood bottomland). A shrub stratum is generally absent if the canopy approaches domination by sweetgum; however, when other taxa co-dominate, then alder *(Alnus serrulata)*, swamp dogwood *(Cornus foemina)*, buttonbush *(Cephalanthus occidentalis)*, and privet *(Ligustrum sinense)* increase in cover value. Privet is a noxious pest along many lower terraces. Lianas include catbriar (particularly *Smilax bona-nox, S. glauca,* and *S. rotundifolia)*, poison-ivy *(Toxicodendron radicans)*, and Japanese honeysuckle *(Lonicera japonica)*

- *Hardwood Seep Forests* - Seeps are common in the Valley and Ridge Province of Alabama. They are generally located along upland slopes in shallow, acidic soils, and along headwaters or peripheries of streams. Most are contiguous with upland oak and hickory-dominated community types so they are often overlooked, especially using aerial photography. The canopy of some seeps located near Truitt Hill is comprised of mostly white oak *(Quercus alba)*, a dry-mesic species. In other areas, common canopy taxa include green ash *(Fraxinus pensylvanica)*, and yellow poplar *(Liriodendron tulipifera)*. Red maple *(Acer rubrum)* is frequently a sub-canopy dominant along with sweet bay *(Magnolia virginiana)*. Shrubs are variable, but swamp dogwood *(Cornus foemina)*, possum-haw *(Viburnum nudum)*, and tag alder *(Alnus serrulata)* are characteristic.

  The herb stratum is characteristically species rich. Gentian *(Gentiana villosa)*, an uncommon herb in northeastern Alabama, is common in these habitats on post. Sphagnum frequently is a ground-cover obscuring underlying silty soils. As sphagnum increases in cover value, species diversity of herbs tends to decrease. Most areas appear to be jurisdictional wetlands in addition to being important for the maintenance of biodiversity on the reservation.

  Seeps occur along slopes on Main Post, some along upper slopes not contiguous with streams. Most frequently, seeps are found in association with stream headwaters. Several extensive seeps occur along western slopes of Choccolocco Mountain on Main Post. Larger wooded seeps lacking disturbance have a closed canopy.

- ***Hardwood Bottomland Forests*** - This community type is well-represented along the Coosa River and its tributaries. Most Coosa lowlands were submerged by impoundments along the main channel for hydroelectric power generation. Extensive forests along the two primary drainages of the post, Choccolocco and Cane creeks, were mostly harvested, drained, cleared for agriculture, or otherwise severely altered. Alien taxa, such as Japanese honeysuckle and privet sometimes approximate monocultures within a stratum.

  Main Post has an extensive hardwood bottomland stand along an unnamed tributary to Cave Creek just north of Galloway Gate. The most extensive stands of hardwood bottomland forest are along Cane Creek on Pelham Range. These stands are often mosaics of uplands and wetlands, thus offering a myriad of habitats. Species composition is particularly rich.

  Hardwood bottomlands comprise a mixed canopy of water oak *(Quercus nigra)*, swamp chestnut oak *(Q. michauxii)*, sycamore *(Platanus occidentalis)*, sweetgum, box-elder *(Acer negundo)*, red maple, green ash, black willow *(Salix nigra)*, loblolly pine *(Pinus taeda)*, tulip-poplar, and river birch *(Betula nigra)*. Lianas are an evident feature with a bevy of species including, but not restricted to, peppervine, catbriar, Japanese honeysuckle, cross-vine *(Anisostichus capreolata)*, and poison-ivy.

Terrestrial Broadleaf System

- ***Mixed Mesophytic Forests*** - Mixed mesophytic forests are located along lower slopes, sheltered ravines, or low terraces and are co-dominated by a number of species of broadleaf taxa. Oaks and hickories are usually present though they share dominance with tulip-poplars, beech *(Fagus grandifolia)*, basswood *(Tilia americanus)*, chalk maples *(Acer leucoderme)*, etc. Mixed mesophytic forests are frequently contiguous with hardwood bottomlands but have an upland hydrology, *i.e.*, mesic, not wet-mesic or hydric

  Though hornbeam (*Carpinus caroliniana)* and hophornbeam *(Ostrya virginiana)* are present in bottomland hardwoods, their occurrence appears to increase with a decrease in hydroperiod. Woody taxa are common to both communities. Generally, the shrub stratum is variable with regard to species composition; however, shrub cover is usually not great. The herb stratum is much better developed in terms of species richness than is the case with hardwood bottomlands with a longer hydroperiod. A disturbed fragment is located on Main Post below the dam at Reilly Lake along the terrace. A better example is located near Gate 9 on Pelham Range.

- ***Hardwood-Pine Terraces*** - Oaks, tulip-poplars, and hickories dominate; however, pines are found in large numbers. This community type is found along streams where terraces are perched and soil moisture tends more to a dry-mesic regime. These terraces are generally more disturbed than mixed mesophytic forests. Species richness within each stratum tends to be less than in mixed mesophytic forests, and soil pH along high terraces is somewhat lower. The shrub stratum frequently includes mapleleaf viburnum *(Viburnum acerifolium)*, deer berry *(Vaccinium stamineum)*, strawberry-bush *(Euonymus americanus)*, and Elliott's-bush blueberry (*Vaccinium elliottii*).

- ***Oak and Hickory Dominated Communities*** - A number of dry-mesic upland oaks and hickories either dominate or co-dominate in this type. Oak and Hickory Dominated Communities are found

on well-drained slopes, and sheltered ridges underlain by acidic rocks. Common understory taxa are black cherry *(Prunus serotina;* lower elevations), Alabama black cherry *(P. alabamensis,* higher elevations), hornbeam, red maple, flowering dogwood *(Cornus florida),* blackgum *(Nyssa sylvatica),* and persimmon *(Diospyros virginiana).* Low-bush blueberry *(Vaccinium pallidum)* is the most common component of this stratum in oak and hickory dominated forests. Other taxa of importance are azaleas (particularly *Rhododendron canescens),* sparkleberry *(Vaccinium arboreum),* deerberry *(V. stamineum),* and hydrangeas *(Hydrangea arborescens* and *H. quercifolia). A* distinct herb stratum is lacking, however, pipsissewa *(Chimaphila maculata),* beggar-lice *(Desmodium* spp.), and arrow-leaf ginger *(Hexastylis arifolia)* are common.

Terrestrial Needleleaf System

- ***Pine Dominated Communities*** - Pines that commonly dominate include scrub or Virginia pine, longleaf pine, shortleaf pine *(Pinus echinata),* and loblolly pine. Pines are not shade tolerant species. Most dominate in early and middle stages of ecologic succession, are not climax communities, and are short-lived. The preponderance of pines may be attributed to their important role in community succession and their value for fiber. Large tracts of pine plantations are found on Main Post and Pelham Range.

  Scrub pine *(Pinus virginiana)* communities are generally located in dry-mesic, rocky to clayey ridges and noses. Longleaf pine mostly dominates on southwestern slopes where the fire cycle is frequent. Shortleaf pine also is a dry-mesic species; however, it is not as abundant on drier sites as scrub pine.

  Loblolly is common in oak-hickory forests and along low terraces; occasionally, it occurs in wetlands. The understory is generally low in diversity with dry-mesic upland hardwood species. Many loblolly stands are intensively managed through silviculture. An aggressive planting program has been pursued on Fort McClellan for over 35 years, artificially establishing nearly 5,000 acres of loblolly pine (Pittman *et al.,* 1991).

  Longleaf communities on Fort McClellan are of particular interest as they represent a remnant of the interior extension of longleaf pine forests into the Appalachians. The installation's unique mountain longleaf community is described in Section 6.7.3.

6.7.3 Mountain Longleaf Community

Fort McClellan contains the finest remaining example of a naturally maintained, mountain longleaf pine ecosystem (Garland, 1997; Maceina, 1997; Garland, 1996). Longleaf pine is usually associated with the Atlantic and Gulf Coastal plains where vast forests formerly dominated the landscape. Most remnant communities of this disappearing ecosystem (Noss *et al.,* 1995) therefore occur in the Coastal Plain. Historic and contemporary accounts of longleaf pine distribution, however, describe an extension of this forest type into the mountains of northeastern Alabama and northwestern Georgia (Southern Appalachian Man and Biosphere Cooperative, 1996). These montane sites significantly differ from the deep, sandy soil environments encountered on the Coastal Plain. In the mountains longleaf pine has become well adapted to shallow, rocky soils along steep mountain slopes and ridges (Garland, 1997: 73).

Approximately 12,000 acres of Fort McClellan's Main Post is covered by this forest community. This area

of rugged topography includes steep ridges that occasionally exceed 2,000 feet in elevation. Most accessible areas within these mountains were timbered in the late 1800s to produce charcoal for the local iron industry. After purchase by the Army in the early 1900s, timber harvesting no doubt continued in some areas. Steep slopes and isolated ridges, however, contain relict trees and isolated old growth stands of longleaf pine. Recent studies by Auburn University have recorded isolated stands that average 180 years in ages. Individual relict trees have been recorded that are 250 years old (Garland, 1997: 73).

Fort McClellan's longleaf forests contain a highly diverse assemblage of species and biological communities due to both geographic and physiographic factors. The Ridge and Valley Physiographic Province and a southern disjunct of the Blue Ridge Physiographic Province introduce a decidedly Appalachian influence into the region. A large number of species reach the southern terminus of their range on these lands. At the same time, the region is influenced by proximity to the Piedmont and Coastal Plain. Widespread longleaf pine and, in particular, a northern disjunct population of turkey oak (*Quercus laevis*) are particularly significant (Garland, 1997: 74).

Steep, inaccessible slopes along the mountain ridges provide a good example of multi-aged longleaf pine forests. Lightning, insects, and weather have eliminated old-growth trees at scattered locations. The forest contains numerous dead and dying trees that eventually fall and create openings within the forest. The loss of individual old-growth trees appears to be the primary process of renewal within this forest system. Small openings provide the seedbed for regenerating new longleaf pine stands. The resulting forest is composed of many isolated small stands of varying ages. Some larger stands in the forest may owe their origin to devastating wildfires that have occurred on steep slopes in the past (Garland, 1997: 74).

Montane forests have been exposed to frequent and recurring wildfires for almost the past 100 years as a result of military training with pyrotechnic and explosive devices. While suppression and public education decreased wildfires in the surrounding region, military training assured that this fire regime was maintained on Fort McClellan. Wildfires have allowed the formation of a more natural, fire-maintained forest system than is encountered on surrounding lands. Slope, aspect, and elevation appear to be significant factors influencing fire intensity and the distribution of longleaf pine in the mountainous regions. The forest is typically composed of a mosaic of forest types, with longleaf pine dominating southern and western slopes (Garland, 1997: 74; Maceina, 1997).

As with coastal plain longleaf communities, the federally listed red-cockaded woodpecker *(Picoides borealis)* may utilize mature stands with an open understory for nesting and foraging. Stands of longleaf occurring on Main Post are a few miles from a recovery population of red-cockaded woodpeckers within the Talladega National Forest and may be part of its foraging range (Pittman *et al.*, 1991).

6.7.4 Threatened, Endangered, or Special Concern Plants

Two federally-listed plant species are located on Pelham Range, Tennessee yellow-eyed-grass (endangered) and Mohr's Barbara's buttons (threatened). Other plant species of concern include Fraser's loosestrife and the white fringeless orchid, former C2 candidate species, and the southern rein orchid, a former C3 candidate species.

Pinesap and single flowered cancer-root are globally secure. However, they are imperiled in Alabama due to rarity within the State. Sky blue aster is globally scarce and critically imperilled within the State. Three--flowered-hawthorn is undergoing a status survey. However, it is little known within the State, skeptically

considered imperilled globally and imperilled within the State. Horsetail is known from two localities in Alabama, although it is well distributed to the north. The species is globally imperilled in the State. Yellow honeysuckle is demonstrably globally secure. However, it is rare or uncommon in the State and known to occur in at least six Alabama counties (including Calhoun).

Rose-pink is imperilled within the State. It is documented in at least nine Alabama counties. Alabama skullcap is imperilled in the State, documented from at least two counties. Narrow-leafed trillium is very rare or extremely restricted globally and is rare or uncommon in the State. Crow-poison is not confirmed for Main Post. The species is apparently secure globally. In the State the species is critically imperilled (Whetstone *et al.*, 1996)

Sensitive Flora on Fort McClellan, Alabama*

Scientific Name	Common Name	Federal Listing	State Ranking	Global Ranking
Aster azureus	sky blue aster		S1	G5
Crataegus triflora	three-flowered hawthorn		S2	G2
Cypridium acaule	pine lady's-slipper		S3	G5
Echinacea pallida	pale coneflower		S2	G4, G5
Echinacea purpurea	purple coneflower		S2	G4, G5
Equisetum arvense	horsetail		S2	G5
Gentiana saponaria	soapwort gentian		S3	G5
Juniperus communis	ground juniper		S1	G5
Lonicera flava	yellow honeysuckle		S3	G5
Lysimachia fraseri	Fraser's loosestrife	former C2	S1	G3
Monotropa hypopithys	pinesap		S2	G5
Orobanche uniflora	single flowered cancer-root		S2	G5
Marchillia mohrii	Mohr's Barbara's button	threatened	S3	G3
Platanthera flava	southern rein orchid	former C3	S3	G4
Platanthera integrilabia	white fringeless orchid	former C2	S1	G2
Sabatia capitata	rose-pink		S2	G2
Scutellaria alabamensis	Alabama skullcap		S2	
Trillium lancifolium	narrow-leafed trillium		S3	G3

Scientific Name	Common Name	Federal Listing	State Ranking	Global Ranking
Xyris tennesseensis	Tennessee yellow-eyed-grass	endangered	S1	G1
Zigadenus leimanthoides	crow-poison		S1	G4

* Source: *Vascular Flora of Fort McClellan, Calhoun County, Alabama* (Whetstone *et al.*, 1996).

6.7.5 Forest Inventory

A forest cover map of Main Post and Pelham Range was completed in 1984. Forest stands were typed and mapped on as little as three acres. Nontimbered land was not included within the mapping program. Although changes, such as expansion of the Small Arms Impact Area and range construction, have eliminated some stands, this map still provides a good overview of forest types on Fort McClellan.

Pine, pine-hardwoods, and upland hardwoods predominate within Calhoun County. While these cover types constitute the majority of forests on Fort McClellan, a variety of other forest types can also be found on the installation. Forest types on Fort McClellan are closely associated with successional stage, topography, and soils.

The highly variable topography of Main Post is responsible for the variety in forest cover types. The steep terrain on the eastern and southern portion of Main Post is dominated by upland hardwoods. Typical trees of these forests include blackjack, post and chestnut oaks, and hickories. Within this area isolated stands of pine can be found in mixtures with hardwoods. Virginia pine is encountered along ridges, while longleaf pine occurs along lower slopes of many hills and ridges. Because of the more gentle terrain on the western and northern portion of Main Post, much of the area has been cleared to form the cantonment area, or is used as firing ranges and training areas. While upland hardwoods are also common in this area, loblolly and/or shortleaf pine often occur as prominent species of the forest. Loblolly pine has been planted in strips and small plantations within the cantonment area. Because Main Post is located within the headwaters of Cane Creek, bottomland hardwoods are isolated to narrow strips along tributary streams (Pittman *et al.*, 1991).

More gentle terrain and wider floodplains of Pelham Range has allowed the development and establishment of more mesic forest types. Ridges and hills are dominated by upland hardwood communities, and pines and lowland hardwoods are found on slopes and stream valleys. The more xeric pine stands on the eastern portion of Pelham Range contain longleaf pine. Because of difficulties in regenerating this species, some stands have deteriorated over the years and are poorly stocked. More mesic lands are covered by stands of loblolly pine, shortleaf pine, and hardwoods. Due to timber markets over the years, planting programs have favored loblolly pine. Bottomland hardwoods are along many streams on Pelham Range, with the majority located along the wide floodplain of Cane Creek. Because much of the area was cleared for agriculture prior to acquisition by the Army in 1940, timber stands in excess of 50 years in age are relatively uncommon. Most existing mature stands were planted or naturally developed through succession during the 1950s and 1960s (Pittman *et al.*, 1991).

According to Pittman *et al.* (1991), Fort McClellan has the following breakdown of forested areas:

	Pine		Pine-Hardwood		Hardwood-Pine		Hardwood		Reproduction		Total	
Location	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Main Post	2,042	13	3,289	21	706	5	9,457	61	35	<1	15,529	100
Pelham Range	9,453	51	2,100	11	2,774	15	2,172	11	2,207	12	18,706	100
Total	11,495	34	5,389	16	3,480	10	11,629	34	2,242	6	34,235	100

6.7.5.1 Commercial Forest Land

Commercial forest land includes those areas that are currently producing commercial timber or may be used for this purpose in the future. The post has 26,018 acres of commercial forest land in the following classifications:

Classification*	Main Post Acres	Pelham Range Acres	Total Acres
Regulated	1,967	10,001	11,968
Modified	1,845	242	2,087
Restricted	2,173	9,790	11,963
Totals	5,985	20,033	26,018

* Regulated - Lands available for timber production with few restrictions that affect the marketability of standing timber

Modified - Lands where timber production is secondary (bivouac, cantonment, etc.)

Restricted - Lands reserved for military purposes or are inaccessible during the plan period (impact areas, ranges, maneuver areas, drop zones, fire fans, etc.)

There are various restrictions on timber harvest on Fort McClellan. Restrictions are placed on timber harvesting activities in areas having unique characteristics or other limiting factors such as the cantonment area, range/bivouac areas, impact areas, drop zone, range safety fans, etc. Restrictions vary in their effects on timber harvest from a no harvest policy to normal harvest practices. For example, a firing fan may affect an area almost daily if located on a heavily used range or it may affect an area only for a few days per month if the range is used on a limited basis. Likewise, many portions of the dud impact areas are totally off-limits, but some portions may be open to certain forest management practices, dependent upon the type and amount of unexploded ordinance in the area.

6.7.5.2 Noncommercial Land

Noncommercial land is comprised of improved grounds and/or lands covered by low productivity soils and/or slopes >25%. Other site characteristics of noncommercial land include rock outcrops, loose rock fragments, high surface water runoff, low infiltration rates, and shallow soil material over bedrock. Fort McClellan has 15,173 acres of noncommercial lands in the following classifications:

Classification	Main Post Acres	Pelham Range Acres	Total Acres
Nonproductive	10,682	2,182	12,864
Other Acreage	2,279	30	2,309
Totals	12,961	2,212	15,173

6.7.5.3 Timber Inventory

The 1990 inventory of Pelham Range by Resource Consulting International, Starkville, MS and of Main Post by inhouse personnel is the best estimate of timber available on Fort McClellan (Pittman *et al.*, 1991). Both regulated and modified acreages were included.

Pine Sawtimber	39,914 million board feet (MBF)
Pine Pulpwood	41,248 cords
Hardwood Pulpwood	26,729 cords

6.7.6 Wetlands

The U.S. Congress enacted the Clean Water Act in 1972 to *"restore and maintain the chemical, physical, and biological integrity of the Nation's waters."* Section 404 of the Clean Water Act delegates jurisdictional authority over wetlands to the Corps of Engineers (Corps) and the EPA. "Waters of the United States" protected by the Clean Water Act include rivers, streams, estuaries, and most ponds, lakes, and wetlands. The Corps and the EPA jointly define wetlands as, *"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."* Wetlands on Fort McClellan are under Corps jurisdiction.

Fort McClellan has 3,424 acres of delineated wetlands. Wetland communities on the installation were originally characterized and mapped in 1984. The wetlands survey identified 11 distinct wetland communities that could be classified as palustrine forested, shrub/scrub, or emergent (Foster Wheeler Environmental Corporation, 1996). However, regulatory criteria for identifying wetlands have significantly changed since this study was performed (Pittman *et al.*, 1991). Therefore, in 1992 further mapping and evaluation was conducted by the U.S. Army Corps of Engineers to identify larger wetland complexes that could be more effectively managed (Foster Wheeler Environmental Corporation, 1996).

Major wetland communities include the following (Foster Wheeler Environmental Corporation, 1996).

- ***Bottomland Hardwoods*** - Floodplain hardwood communities occurring on first and second floodplain levels and wetland transitional terraces (palustrine, forested-deciduous seasonally and temporarily flooded).
- ***Depressions*** - Hardwood depressions in upland communities (palustrine, forested-deciduous, temporarily flooded).
- ***Mixed Shrub Communities*** - Shrub-dominated wetlands along stream floodplains, impoundment shorelines, and streamheads (palustrine, scrub/shrub-deciduous, temporarily and seasonally

flooded).

- ***Shrub Depression*** - Depressions in upland communities (palustrine, scrub/shrub-deciduous, temporarily and seasonally flooded).
- ***Herbaceous Wetlands*** - Herbaceous vegetation-dominated wetland communities along floodplains and in impoundments either man-made or created by beavers (palustrine, emergent persistent, temporarily and seasonally flooded).

Depending on the duration of inundation and location along the wetland/upland transition zone, dominant canopy hardwood species include green ash *(Fraxinus pennsylvanica)*, hackberry (*Celtis* sp.), red maple, American elm *(Ulmus americans)*, water oak *(Quercus niger)*, and sweetgum. Dominant creekbank canopy vegetation includes sycamore *(Platanus occidentalis)*, river birch *(Betula nigra)*, and black willow *(Salix nigra)*. Small or uncommon forested wetlands on Fort McClellan include water oak flats dominated by water oak and sweet gum, sweet gum bulrush community, and sweet gum depressions (Foster Wheeler Environmental Corporation, 1996).

Shrub layer species often include cane *(Arundinaria gigantea)* and strawberry bush *(Lindera benzoin)*. The herbaceous layer includes sedges (*Carex* sp.), false nettle *(Boehmeria cylindrical)*, snakeroot *(Sanicula canadensis)*, green dragon *(Arisaema dracontium)*, spotted jewelweed *(Impatiens capensis)*, purple bluets *(Houstonia putpurea)*, sensitive fern *(Onclea sensibilis)*, Virginia dayflower *(Commeiina virginica)*, river oats *(Chasmanthium latifolium)*, sphagnum *(Sphagnum* spp.), nut rush *(Scleria triglomerata)*, and woolgrass bulrush (*Scirpus cyperinus*).

Wetland shrub communities often contain swamp dogwood, alder, buttonbush, and small individuals of river birch, sycamore, sweet gum, and black willow. Herbaceous layer vegetation often contains woolgrass bulrush and soft needlerush (*Juncus effusus*). Herbaceous wetlands contain species such as woolgrass bulrush, soft needlerush, cattail, seedboxes, panic grasses, and sedges (Foster Wheeler Environmental Corporation, 1996).

6.8 Fauna

Fort McClellan ecosystems support a diversity of natural fauna. The Alabama Natural Heritage Program identified 12 ecosystem community types on Main Post and seven community types on Pelham Range.

6.8.1 Game Fish and Wildlife Species

The following species designated as game within the State of Alabama occur on Fort McClellan. However, not all are actively managed as game as part of the Fort McClellan hunting or fishing program:

Common Name	**Scientific Name**
Birds	
wood duck	*Aix sponsa*
eastern wild turkey	*Meleagris gallopavo*
bobwhite quail	*Colinus virginianus*
mourning dove	*Zenaida macroura*

Mammals	
white-tailed deer	*Odocoileus virginianus*
eastern gray squirrel	*Sciurus carolinensis*
eastern fox squirrel	*Sciurus niger*
eastern cottontail rabbit	*Sylvilagus floridanus*
swamp rabbit	*Sylvilagus aquaticus*
raccoon	*Procyon lotor*
Fish	
largemouth bass	*Micropterus salmoides*
bluegill	*Lepomis macrochirus*
sunfish (red-ear, longear, dollar, spotted)	
channel catfish	*Ictalurus punctatus*

6.8.2 Nongame Birds and Mammals

Thirty-five mammal species and 240 avian species have been identified on Fort McClellan. Species are listed in Appendix 6.8.

6.8.3 Fish

Lakes and streams of Fort McClellan support numerous species of fish. Game species include largemouth bass, bluegill, and catfish. Nongame species include the blacknose dace (*Rhinichthys atratulus*), creek chub (*Semotilus atromaculatus*), and stoneroller (*Campostoma anomalum*). A comprehensive list of confirmed species is provided in Appendix 6.8.

6.8.4 Reptiles and Amphibians

Fort McClellan does not support a large diversity of amphibians. However, numerous species of reptile occur on the installation. A list of confirmed reptiles and amphibians is provided in Appendix 6.8.

6.8.5 Threatened, Endangered, or Special Concern Fauna

6.8.5.1 Federally Protected Species

Two species of fauna listed as endangered or threatened by the U.S. Fish and Wildlife Service have been recorded on Fort McClellan. An additional endangered species, the red-cockaded woodpecker (Section 7.8.5.1.3) historically occurred on the installation.

Federally Endangered or Threatened Species, Fort McClellan, Alabama

Species	Common Name	Federal Status	Location (Special Interest Natural Area*)
Myotis grisescens	gray bat	endangered	Crane Creek Corridor
Cyprinella caerulea	blue shiner	threatened	Choccolocco Creek - leased (no SINA designated)

* See Section 8.13.1 for description of Special Interest Natural Areas.

6.8.5.1.1 Gray Bat

The gray bat is the largest member of the genus *Myotis* in the eastern United States. The gray bat is easily distinguished from other bats by unicolored dorsal fur. All other eastern bats have distinctly bi- or tri-colored fur on the back. The wing membrane connects to the foot at the ankle rather than at the base of the first toe, as in other species. The bat is a monotypic species that occupies a limited geographic range in limestone karst areas of southeastern United States. Populations are found mainly in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee (Garland, 1996: 40).

The gray bat was officially listed as endangered by USFWS in 1976. A recovery plan with the objective of delisting was prepared and approved in July, 1982. The gray bat was recorded on Fort McClellan in 1995 as a result of mist net surveys. Gray bats comprised 36% of the total sample on Main Post and 41% of the total sample on Pelham Range (Garland, 1996: 41).

The gray bat is almost entirely restricted to cave habitats and typically roosts in caves year-round. Gray bats congregate in larger numbers and in fewer hibernating caves than any other North American bat. Approximately 95% of the entire known population hibernates in only nine caves each winter. Most gray bats migrate seasonally between winter hibernating caves and summer maternity and bachelor caves. No roosts have been identified on Fort McClellan (Garland, 1996: 41). Larger streams on Main Post and Pelham Range provide foraging habitat for this species.

6.8.5.1.2 Blue Shiner

The blue shiner is a medium-sized minnow that can attain four inches in length. It often appears to be dusky blue with pale yellow fins. Its scales are strongly diamond-shaped and outlined with melanophores. The lateral line is distinct. Mature males develop nuptial tubercles, a lemon yellow coloration in the fins and a metallic blue sheen on the body during breeding season. Females do not develop tubercles or breeding colors.

Populations of blue shiners have been fragmented and isolated rangewide and are, therefore, vulnerable to adverse impacts. Historically, the blue shiner inhabited the Cahaba and Coosa River systems of the Mobile River drainage in Alabama, Georgia, and Tennessee. The fish has since been extirpated from the Cahaba River system. Within Alabama the blue shiner is restricted to Weogugka and Choccolocco creeks and the lower reaches of the Little River (Garland, 1996: 45).

Within Choccolocco Creek, the blue shiner is limited to about 15 miles of main channel and lower reaches

of Shoal Creek. Approximately two miles of Choccolocco Creek flows in a southerly direction across the Army-leased Choccolocco Corridor. The entire length of the stream within the Corridor is optimal habitat for blue shiner (Garland, 1996: 46).

6.8.5.1.3 Red-cockaded Woodpecker (Historical Population)

The red-cockaded woodpecker is a ladder-backed woodpecker endemic to longleaf pine forests of the southeastern United States. It is approximately 7.25 inches in length. The species is group forming, cavity-nesting, and nonmigratory. The woodpeckers roost and nest in cavities excavated in mature pines. Red-cockaded woodpeckers are cooperative breeders with auxiliary or helper birds aiding a mated pair in rearing of offspring. Clan size is usually two to six birds. Helpers that aid in rearing young are usually male offspring of one or both of the breeders from the previous year. The aggregation of cavity trees used by a group of birds is termed a *cluster* (Garland, 1996: 61).

Clusters are usually found in open, park-like stands of longleaf pine. Typically, a territory from 100 acres to over 250 acres is defended against all other red-cockaded woodpeckers. The birds primarily forage on live pines 30 years of age or older (Garland, 1996: 61).

Forestry practices have resulted in population declines and a contraction in the woodpecker's range across the southern United States. The last remaining active red-cockaded woodpecker cluster on Fort McClellan was recorded in 1968. Subsequent surveys for the woodpecker during the 1970s, 1980s, and 1990s did not record any birds or evidence of suitable habitat (Gardland, 1996).

Although the red-cockaded woodpecker no longer inhabits the installation, active clusters are known from the Talladega National Forest to the east. Four active clusters are located five to seven miles from Main Post (Garland, 1996: 61)

6.8.5.2 Other Species of Concern

In addition to federally-listed endangered and threatened species, Fort McClellan has 22 sensitive species of fauna that are listed with the Alabama Natural Heritage Program. Many of these species either are protected in the State of Alabama or are former candidates for federal listing. Many of these species can be considered barometers for identifying biotic communities that are regionally uncommon or at risk. Although Fort McClellan manages from an ecosystem/ community approach, the installation recognized the importance of individual species in conserving and maintaining biological diversity (Garland, 1996: 65).

Sensitive Species Not Receiving Federal Protection, Fort McClellan, Alabama

Species	Common Name	Location	SINA+	ANHP Status
Sylvilagus obscurus	Appalachian cottontail	Main Post	Mountain Longleaf Community Complex	G4S1*
Etheostoma ditrema	coldwater darter	Pelham Range	Cabin Club Spring	G2S1*^

Species	Common Name	Location	SINA+	ANHP Status
Elimia gerhardti	coldwater elimia	Main Post Pelham Range	Cane Creek Corridor	G?S?*
Speyeria diana	Diana butterfly	Main Post	Marcheta Hill Orchid Seep	G3S?*
Cheumatopsyche harwoodi	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Heteroplectron americanum	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Hydroptila consimilis	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2S3
H. setigera	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G1S1
H. talladega	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S1
Ironoquia punctatissima	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Molanna blenda	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Ochrotrichia confusa	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Polycentropus carlsoni	Carlson's polycentropus caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G1G3S1*
Protoptilla maculate	caddisfly	Pelham Range		G?S2
Psilotreta frontalis	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Pycnopsych gentilis	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S1
P. lepida	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
P. luculenta	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Rhyacophila glaberrima	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2

Species	Common Name	Location	SINA+	ANHP Status
R. nigrita	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
R. torva	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2
Triaenodes taenia	caddisfly	Main Post	Bain's Gap Seep Cave Creek Seep	G?S2

* Former candidate species.
^ Protected in the State of Alabama.
\+ Special Interest Natural Areas (SINA) are defined in Section ??.

6.8.5.2.1 Appalachian Cottontail

The New England cottontail ranges from the boreal forests of New England to the southern Appalachian Mountains. Recently, two morphological distinct taxa were described from what was formerly considered to be a single species. The southern taxa is now referred to as the Appalachian cottontail.

This rabbit occurs within the Talladega Mountains west of the installation and higher elevations of Main Post. Because it is usually associated with higher elevation forests and rhododendron thickets, this species is protected through conservation of the Mountain Longleaf Community Complex SINA (Section 8.13.1.1.1) (Garland, 1996: 69).

6.8.5.2.2 Coldwater Darter

The coldwater darter can be found in the Coosa River system from Shelby and Coosa counties northeastward into Georgia and Tennessee. During the late 1970s two specimens were recorded from an unnamed tributary on Pelham Range. More recent sampling, however, has failed to locate this species on the installation.

Recent evaluations have indicated poor to marginal habitat available for the darter. However, the potential remains for the fish to persist at some unknown locality within the Cabin Club Spring SINA (Section 8.13.1.2.4). The darter is protected in the State of Alabama (Garland, 1996: 69).

6.8.5.2.3 Coldwater Elimia

The coldwater elimia, a freshwater snail, has been reported from northern Georgia to the lower tributaries of the Coosa River in Alabama. The snail occurs along most of Cane Creek. This distribution includes both Main Post and Pelham Range. The snail is managed on Fort McClellan as part of the Cane Creek Stream Corridor SINA (Garland, 1996: 69). The snail was recently determined to be more common than previously believed and was placed in Candidate 3C status.

6.8.5.2.4 Diana Butterfly

The Diana butterfly occurs within wet, rich forested valleys and mountainsides in relatively undisturbed forests. The butterfly has been found in the Marcheta Hill Orchid Seep SINA on Main Post. Marcheta Hill Orchid Seep is actually an inclusion within the larger Mountain Longleaf Pine Complex SINA. The presence of this species tends to support the ecological importance of spring seep communities within this large, intact forest community (Garland, 1996: 69).

6.8.5.2.5 Carlson's Polycentropus Caddisfly

The entire known distribution of the Carlson's polycentropus caddisfly is confined to Alabama and South Carolina, where it is also considered rare. Alabama records are limited to two sites, which are located on the Main Post portion of Fort McClellan. The presence of this caddisfly was instrumental in delineating two SINAs: Bain's Gap Seep (Section 8.13.1.1.3) and South Branch Cane Creek (Section 8.13.1.1.5) (Garland, 1996: 70).

6.8.5.2.6 Other Caddisflies

The significance of the Bain's Gap Seep and South Branch Cane Creek SINAs is enhanced by the documentation of 17 additional rare caddisflies, including a single site endemic *Hydroptila setigera*. Both SINAs are located within the Mountain Longleaf Pine Complex SINA and add further support to the ecological importance of streams and springs within this large forested tract (Garland, 1996: 70).

7.0 LAND MANAGEMENT AREAS

7.1 Impact and Training Areas

7.1.1 Impact Area

Fort McClellan has approximately 13,400 acres of impact area (including ranges) (Foster Wheeler Environmental Corporation, 1996: 7). The impact area consists of land which serves as a cantonment area for fired or launched projectiles, hand thrown ordnance, or set explosives (Fort McClellan Regulation 350-2). Approximately 4,969 acres of impact area on Fort McClellan are dud impact known to contain unexploded, live ammunition (Pittman *et al.*, 1991). Two major impact areas are on Pelham Range, and one is on Main Post.

7.1.2 Training Areas

Fort McClellan has 27 training areas. Twenty are located on Main Post (Map 7.1.2.1), and seven are located on Pelham Range (Map 7.1.2.2). These training area encompass 38,576 acres. Training areas are used to control ground training and operations involving the conduct of the military mission.

7.2 Cantonment Area

The 2,500-acre cantonment area is located in the north and west-central portions of Main Post. Cantonment area facilities are briefly described in Section 4.1.

7.3 Natural Resources Management Units

7.3.1 Forest Compartments and Cutting Units

Fort McClellan has been divided into eight management compartments and the cantonment area (Map 7.3). Compartment boundaries are fixed by roads, streams, or other permanent features readily identifiable on the ground. Some compartment areas are much larger than others because they contain greater amounts of impact and other non-productive areas. Because of training restrictions, harvesting is not limited to a specific compartment during any one year of the cutting cycle. Compartments are used in scheduling prescribed burning and firelane maintenance. Compartments containing a pine component are generally burned on a three year cycle.

The below table indicates acreages of each compartment and the cantonment area (Pittman *et al.*, 1991). Land Management Units (LMU) (see Section 7.3.3) are for reference only as forest management does not directly use LMUs.

		Acres		
Compartment	**LMU**	**Managed Forest**	**Non-managed Forest***	**Total**
A	3	3,113	316	3,429
B	3	2,012	36	2,048
C	3	2,847	0	2,847
D	3	2,676	2,263	4,939
E	3	3,058	585	3,643
F	3	3,385	1,954	5,339
G	2	3,838	187	4,025
H	2	9,969	977	10,946
Cantonment	1	1,696	2,279	3,975
Totals		32,594	8,597	41,191

*Includes impact areas, ranges, training areas, drop zone, Battle Drill Area, and improved grounds.

Fort McClellan formerly used 84 cutting units on Main Post and Pelham Range as primary forest treatment areas (Pittman *et al.*, 1991). These units are no longer used, and forest stands are primary timber stand

improvement and harvest units which will be used during 1998-2002. Stands have been delineated from the forest cover map.

7.3.2 Land Management Units

Fort McClellan owned and leased property is divided into four land management units (LMU). LMUs are the primary natural resources management units on Fort McClellan.

7.3.2.1 LMU 1

LMU 1 consists of the cantonment area of Main Post, which includes administrative/barracks buildings, recreational areas, and wooded areas. LMU 1 provides limited timber resources and minimal implications for natural resources management (Pittman *et al.*, 1991).

7.3.2.2 LMU 2

LMU 2 consists of all government-owned land east and south of the cantonment area on Main Post. Training in LMU 2 is limited to small arms, smoke, and tactical training. Although much of this area is forested, minimal timber production is accomplished due to the steep slopes and thin rocky soils. Wildlife species are abundant, and hunting is allowed as well as other recreational activities (Pittman *et al.*, 1991).

7.3.2.3 LMU 3

LMU 3 consists of Pelham Range. This LMU supports small arms, mortar, artillery, tactical, smoke, and tracked vehicle training. The area is heavily forested and produces an abundance of wood products. Pelham Range also contains an abundance of wildlife species, providing excellent hunting as well as other recreational activities (Pittman *et al.*, 1991).

7.3.2.4 LMU 4

LMU 4 consists of the Choccolocco Corridor leased from the State of Alabama Forestry Commission. It is used on a limited basis for wheeled vehicle and foot training. Under the current lease agreement the Forestry Commission has retained all natural resource management responsibilities, and recreational use is in accordance with Alabama regulations (Pittman *et al.*, 1991).

7.3.3 Fish and Wildlife Management Units

Approximately 36,222 acres on Fort McClellan are available for fish and wildlife management. For the purposes of management (particularly for the hunting program), the installation's four LMUs (Section 7.3.2) are split into 78 training areas, or hunting compartments. The cantonment area contains approximately 250 acres open for hunting. However, wildlife management practices within this compartment are restricted to nongame targeted species.

8.0 NATURAL RESOURCES MANAGEMENT

This chapter includes management practices which directly affect soil, water, vegetation, and fauna. It includes forest management, habitat management, training land management, erosion control, and direct manipulations of wildlife. Other programs include fire management, special interest natural area protection, endangered species management, wetlands protection, water quality programs, game harvest, and pest management.

8.1 Objectives

- Conduct natural resources management consistent with the needs of the military training mission.
- Manage the forest ecosystem at Fort McClellan to support military training, maintain ecosystem integrity, and produce forest products on a sustainable basis.
- Protect water quality on Fort McClellan watersheds and on watersheds which drain from the installation.
- Protect soil integrity and enhance soil productivity.
- Manage wetlands to ensure "no net loss".
- Improve the quality of habitat for game and nongame species.
- Produce game on a sustainable, carrying capacity basis to support hunting and fishing programs.
- Manage wildlife to ensure sustainability and native diversity of ecosystems.
- Maintain an aesthetically pleasing cantonment area landscape that maintains natural ecosystem functions as much as possible.
- Control noxious plants and pest animals in a manner that promotes sustained ecosystem functionality, favors native species, and adds to the quality of life of the Fort McClellan and surrounding communities.
- Provide protection for lands from wildfires.
- Use fire to manage natural resources.
- Provide protection for special interest natural areas.

8.2 Forest Management

Professional forest management has occurred on Fort McClellan for almost one-half century. The decades have witnessed dramatic change in the forest program at Fort McClellan. Management objectives have changed from World War I, early 1930s, and World War II-era clearing to provide open areas for military construction and ranges, to harvest-oriented use, to improvement of the commercial forest, to multiple-use objectives.

Undoubtedly, future years will bring about more change, particularly with the embracing of ecosystem management by the Department of Defense. It is important to maintain options to implement changing society views on the management of our nation's forests, such as found on Fort McClellan.

8.2.1 History of Forest Management on Fort McClellan

Sketchy records of timber cutting are available for forest management on Fort McClellan prior to 1952. Timber was likely cleared during the construction eras of World War I, the facilities buildup following

"Fort" designation in 1929, and during World War II. During the tumultuous 1940s the post had a planing mill and sawmill and cut its own timber. It is estimated (Pittman *et al.*, 1991) that two million board feet of sawtimber were harvested during 1942-44, and during 1949 1.25 million board feet of timber were harvested in the procurement program of the Army Navy Lumber Agency.

Much of Pelham Range had been cleared for agriculture prior to acquisition by the Army in 1940. Forest management on this range during the 1950s and 1960s largely consisted of development of loblolly plantations either by planting or natural succession.

The first forestry management plan was implemented in 1952 by facilities personnel, guided by an advisory professional forester. During the 1950s most forest management consisted of timber harvest, wildfire suppression and firebreak maintenance, and pine planting.

In 1961, under direction of a professional forester assigned to the forestry program, the forest management plan was revised. This plan was based on a rudimentary timber inventory, primarily consisting of timber volume estimates and locations of mature timber. The 1961 inventory also indicated a need for additional access trails; infection of a large volume of shortleaf pine with littleleaf disease; a considerable acreage of pulpwood and pole-sized timber that needed thinning; and several million board feet of overmature longleaf pine on Main Post was available for harvest. Forest management during 1961-69 mostly consisted of harvest of infected shortleaf pine, overmature longleaf pine, and contaminated timber from present and abandoned range areas and thinning of pulpwood stands.

In 1968 the post contracted a more comprehensive forest inventory, to determine silvicultural needs, cutting priorities, and volume distribution. The annual growth rate determined from this inventory was used to calculate an allowable annual harvest .

In 1979 a continuous forest inventory was established to include pulpwood and sawtimber growth and natural mortality. This inventory was not completed by 1988; thus, during 1989-90 a new inventory was contracted for Pelham Range while installation personnel completed an inventory of merchantable stands on Main Post.

Annual income from timber sales reached an all-time high in FY 80 due to a salvage operation of timber affected by a southern pine beetle epidemic. During that year $342,291 was brought from timber sales.

The 1990s has been a period of considerable change in forest management strategies. Management has switched from even-aged management to uneven-aged management, a more ecosystem management-oriented process. Harvest has shifted from clearcutting to selective harvest. Clearcutting is reserved for special purposes such as removing disease spots, salvage operations, and stands too small for uneven management. Site preparation has been minimized, and hand planting has largely replaced machine planting.

8.2.2 Forest Management Strategy

On a very broad scale, there are three forested communities on Fort McClellan: upland hardwood, pine, and pine-hardwood. In addition there are about 5,000 acres of loblolly pine plantations. Section 6.7.2 describes vegetation communities on Fort McClellan, and Section 6.7.5 describes the forest inventory. Due to the influence of pre-acquisition clearing of Pelham Range, few acres there are old enough to be

considered climax. Woodlands at Fort McClellan consists of stands that vary considerably in species, types, condition class, site indices, stocking levels, and operating conditions.

Fort McClellan forests have traditionally been managed on a multiple-use, sustained-yield basis (Pittman *et al.*, 1991). Multiple uses have included military land use, timber production, recreation, and wildlife management. Department of Defense commitments to ecosystem management and biodiversity conservation (Section 1.2.6) have added the over-riding objective of maintaining natural functionality of forest ecosystems as well as the associated protection of biodiversity to management of Fort McClellan forests. A significant change in forest management is a program to re-establish longleaf pine on historic longleaf sites.

Commercial timber production occurs primarily on upland sites, where pine does best. Fort McClellan has traditionally protected hardwood bottoms due to their high wildlife values, and this will continue during 1998-2002. Further conversion of hardwood-dominated stands to pine will not occur, consistent with ecosystem management principles. Clearcuts will be limited to specific requirements, such as disease/insect damage control, construction clearing, and salvage operations.

The primary commercial timber crop will continue to be pine sawtimber with pulpwood and chip and saw as byproducts of this type of management. Pulpwood will be marketed during thinnings and overstory removal.

Natural regeneration (seedtree and shelterwood) will be used when there is adequate stocking of high quality seed trees and optimal site characteristics. When these conditions are not present, which is often the case, subsequent artificial reforestation will be prescribed. Precommercial and commercial thinning will be used to ensure adequate stocking levels and to maintain healthy, vigorous stands of timber.

8.2.3 Management Units

Section 7.3.2 describes forest compartments and cutting units.

8.2.4 Commercial Forest Products

Fort McClellan produces a number of commercial forest products:

- Pine and hardwood sawtimber - Minimum merchantability is 12 inches diameter outside the bark at breast height (dbh) (4 ½ feet above the ground) with one 18 foot log.
- Pine and hardwood pulpwood - Minimum merchantability is five inches dbh, and maximum size used is nine inches dbh.
- Chip and saw - Dbh is in the 9-11 inch range.

8.2.5 Income/Cost Projections

Section 6.7.5.3 indicates estimates of board feet of sawtimber and cords of pulpwood available on Fort McClellan. Annual allowable harvest during the next five years will not exceed the following:

- 800,000 board feet of pine sawtimber,
- 1,000 cords of pine pulpwood,

- 1,000 cords of hardwood pulpwood, and
- 100,000 board feet of chip and saw.

The hardwood pulpwood allowable harvest includes fuelwood harvested from noncommercial forest lands (@ $6 per ½ cord), construction site clearing, and selective thinning. These allowable cuts are affected by many variables and constraints, including market prices, environmental constraints (erosion, cultural resources sites, etc.), and military activities.

If the entire allowable harvest were sold annually, the following average annual income would be generated during 1998-2002 assuming current prices:

Product	Volume	Value*
Pine Sawtimber	800 MBF @ $250	$200,000
Chip and Saw	100 MBF @ $180	$18,000
Pine Pulpwood	1,000 cords @ $25	$25,000
Hardwood Pulpwood	1,000 cords @ $20	$20,000

* These figures represent optimum returns; however, actual product values may vary due to market conditions. Limited control over harvesting schedules may cause fluctuations in annual revenues. Salvage sales from insect infestations and weather damage significantly reduce timber price.

The maximum estimated annual value of Fort McClellan timber products is $263,000. This compares with an average of $206,000 annually over the past five years. Actual income over the next five years likely will be less than above maximum values, unless timber prices rise faster than harvest rates fall.

The operating budget for 1998-2002 is expected to be as follows:

1998	$165,000
1999	$170,000
2000	$175,000
2001	$180,000
2002	$185,000

Total projected operating costs are $875,000.

Above costs do not include costs by the Mobile District, U.S. Army Corps of Engineers for contracting services (about 20% of timber sales value). These costs will reduce actual excess income (profit), of which 40% is distributed to Calhoun County. Under federal law, county entitlements must be used by local governments for the benefit of schools and roads.

8.2.6 Emphasized Species

The below description of tree species emphasized in the forest management program on Fort McClellan is taken from Pittman *et al.* (1991). Fort McClellan has primarily been concerned with pine species. However, where sites and soils are favorable for hardwood growth, such as low-lying areas, branch

bottoms, swags, hollows, mountainous north slopes, and coves, hardwood growth is encouraged and upgraded through thinnings, selective harvesting, and selective stand improvement. Hardwoods constitute a minor portion of the timber harvest, but hardwoods are expected to yield more volume with proper long-range management. In general, pine growth will be emphasized on ridge tops and slopes facing west, southwest, south, and southeast.

Longleaf pine is the predominate pine species on portions of eastern Pelham Range and the middle slopes of the mountain ranges on Main Post. With its deep tap root reaching down long distances to ground moisture, longleaf is well adapted to dry chert ridges and middle mountain slopes. Longleaf sites are usually mixed with low grade hardwoods. Longleaf has inherently superior form, a cleaner, straighter bole than other pines, and resists fire damage and disease. It will be favored where it can be regenerated naturally following prescribed burning, and it will be replanted onto historic longleaf sites which have been converted to other species. Longleaf is a prolific seeder on the average of every two to five years. Periodic harvest cuts appear to increase the frequency of good seed crops. A more intense prescribed burn program and selective allow-burn policies will be implemented to encourage longleaf development.

Loblolly pine is found in mixture with both longleaf and shortleaf pine, with hardwoods, and in pure stands on lower slopes, old field sites, and lowlands throughout the installation. Loblolly is a good, consistent seeder and has become established in thick stands on many areas, especially on abandoned old fields. Loblolly pine will be managed on lower moist sites between higher land and stream branches. It will be favored on lower sites, but where mixed with longleaf pine on sites favorable to longleaf, loblolly will be generally removed in thinnings and improvement cuttings. In most situations where loblolly and longleaf occur together, the presence of loblolly is the result of a lack of fire.

Virginia pine grows on shallow, rocky soils at higher elevations, particularly on mountainous ridges of Main Post. Virginia pine tends to be scrubby and short of bole. Historically, most treatments have involved clearcutting for pulpwood. However, because of its value in protecting and maintaining watersheds, it will be favored for continued growth. Increased frequency of fire can be expected to limit the distribution of this species.

Most merchantable hardwoods are found on well-drained sites above stream drainages. Commercial species that are encouraged include yellow poplar, blackgum, white oak, northern red oak, and black walnut. A holistic management approach, however, considers biological as well as economic importance.

Eastern red cedar primarily occurs in old fields and calcareous areas having shallow top soils. Management objectives include maintenance as a wildlife winter cover and occasional harvest of Christmas trees and posts.

8.2.7 Cutting Cycle

An 8-10 year cutting cycle is used to optimize the number of intermediate silvicultural treatments during any one pine rotation period. Each stand, however, is individually evaluated to determine silvicultural objectives. In some instances stands may be heavily thinned to enhance wildlife values, subsequently increasing the cutting cycle length. In other situations, the merchantability or size of the stand may necessitate lengthening the cutting cycle.

8.2.8 Rotation Length

Rotation period is defined as that point at which commercially valuable timber has reached physiological maturity and complete harvesting of the stand is the appropriate silvicultural treatment. Although generalization on rotation length can be made according to species, each stand will be individually evaluated to determine if trees are physiologically mature and have reached an age where a decline in vigor is measurably evident. Stands which have been adversely affected by environmental factors (*i.e.* insect, disease or storm damage) may require salvage treatments prior to the end of a rotation period.

Some mountainous areas of Main Post have longleaf pine older than 250 years, indicating the old-growth potential for this species. Longleaf pine formerly had a rotation length of 60-80 years on Fort McClellan (Pittman *et al.*, 1991). As part of the effort to return this species to its historic ecosystem role, longleaf will not be final harvested until it is obviously deteriorated or damaged by insects.

Loblolly pine is usually found on better sites with more available moisture and can be grown to sawtimber in a shorter rotation period. The desirable rotation length on some elevated sites ranges between 40 to 55 years, whereas 50 to 75 years appears to be a more desirable rotation on more moist sites, due to soil types and fertility.

Shortleaf pine is usually found on old fields and drier upland sites and appears to reach maximum vitality at 40 to 50 years. Older timber in some areas has succumbed to littleleaf disease, necessitating clearcutting. Where natural reproduction has been adequate, shortleaf pine is being encouraged.

Slash pine grows well in this part of Alabama and has been planted in mixture with loblolly pine on Fort McClellan. Although this species is subject to ice and snow damage during winter, slash pine will be managed as long as stands remain healthy. The desired rotation of slash pine is between 40 and 70 years.

Virginia pine is valuable as a watershed tree on certain areas of the Main Post. In most instances, this tree is of little commercial value. Virginia pine will primarily be managed as a soil stabilizer and as wildlife habitat.

Hardwoods on favorable and desirable sites will be managed selectively to maturity, except for sanitation cutting. High quality products should be produced on more favorable sites. Many acres of upland and mountainous hardwoods on Main Post will be valuable only for watershed purposes. Such areas include steep and rocky slopes and rock beds, and mountain-top areas subject to almost yearly ice and snow damage. This latter condition prevents future use for timber production. The better oaks, yellow popular and black walnut, that are favored on suitable sites may be selectively harvested between 70 to 100 years of age, depending on each area's value to wildlife. Mature bottomland hardwoods primarily will be managed for wildlife habitat.

8.2.9 Timber Stand Improvement

Timber stand improvement (TSI) is that phase of forest management where the object is to improve the quality of timber. TSI may include intermediate harvests of timber, either commercial (timber sold) or noncommercial (timber not sold).

8.2.9.1 Thinning

A thinning is a cutting in an immature stand or group of trees to increase the rate of growth of residual timber, to foster higher quality timber, to improve spacing, and to promote sanitation. The least promising dominants and co-dominants competing with the most promising individuals of these classes are removed. Trees 6-16 inches dbh will be thinned, when necessary, to give growing space to better trees. Larger trees are selected individually for removal. Thinning guides will be applied using criteria described in Section 8.2.10.2.

8.2.9.2 Chemical Treatments

Chemical treatment has not been used in recent years, but Fort McClellan keeps the option to use this forest management tool in the future. Chemicals may be used for site preparation or for stand improvement projects. Velpar® and Roundup® have been used for the control of hardwoods and herbaceous growth. Oust® has been the primary herbicide for controlling kudzu within forested lands. New herbicides that are shown to be effective and environmentally safe will be considered in future uses.

All herbicides would be applied by a certified applicator or in the presence of a certified applicator. Herbicides are stored at the Forestry Compound on Pelham Range. The storage building is in compliance with federal regulations for the storage of herbicides and pesticides.

8.2.9.3 Prescribed Burning

Prescribed burning is accomplished on impact areas, ranges, and training areas as a wildfire prevention measure. Burning reduces fuels that would otherwise be a source of wildfires that could spread to surrounding forest land. Prescribed burning outside of forest management lands is generally restricted to training areas where pyrotechnic devices and tracers are used. Prescribed burning is also used as a silvicultural management tool and a fuel reduction measure within managed pine and pine-dominated forest stands.

Prescribed burns, more specifically growing season prescribed burns, are important to the establishment and maintenance of the longleaf pine ecosystem. Fort McClellan is committed to re-establishing longleaf pine on historic longleaf sites. Growing season burns are an important aspect of this project. Fort McClellan will experiment with growing season burns during the next five years.

Growing season burns are not without controversy. Wild turkeys nest during the early growing season; some important neotropical bird nesting can be adversely affected by growing season burns; and late growing season burns are difficult to control.

Fort McClellan has a "let burn" policy in the more mountainous portions of Main Post. Each wildfire is evaluated prior to making the "let burn" or suppress decision. Details of fire management are provided in Section 8.12.

Normal burning is on a three-year rotation. When a compartment is scheduled for burning, areas within the compartment are reviewed for their fire needs, and prescriptions are conducted as needed. The burning rotation during 1998-2002 is shown below:

Compartment	Calendar Burn Years
A,F Pelham Range	1998, 2001
C,E,G Pelham Range/Main Post	1999, 2002
B,D,H Pelham Range/Main Post	2000

8.2.10 Harvest

Harvest strategies have changed considerably in recent years on Fort McClellan. The former process of scheduling harvest by compartments and cutting units has been changed to a postwide system. Needs and capabilities of the entire forest are considered prior to decisions on each year's timber harvest. This system also provides the flexibility needed to meet changing needs.

For example, large areas, including entire compartments, are excluded from harvesting due to range firing fans. It is important that harvests can be scheduled at opportune times and years to take advantage of accessibility. If changes in the training mission result in access to these lands, harvest operations will be able to be added as opportunities arise. Salvage operations are generally unpredictable, and a postwide annual harvest strategy is more suitable to meeting salvage requirements.

Site condition and overall strategy for managing a particular type of stand are considered prior to determining the type of harvest. Harvest may vary from single-tree selection in hardwood stands to shelterwood or seedtree cuts in pine or pine/hardwood stands to clearcuts for special purposes. Storm damage or insect/disease may require salvage or sanitation cuts.

8.2.10.1 Timber Sale Volumes

A rapid transition from small operators to large mechanized harvesting operations is changing the marketability of timber in Alabama. Optimum returns can be expected from large sales with unlimited access. To take advantage of changing conditions, attempts are made to provide the Mobile District, Corps of Engineers with a single Fort McClellan timber availability at the beginning of each fiscal year. This allows the Corps to group individual sales to take advantage of good market conditions. Emergency timber availabilities are provided to the Corps on an individual basis and are generally related to salvage operations.

8.2.10.2 Timber Marking Training

Personnel are trained to recognize and select trees for harvest. Within areas designated for harvest, timber is selected in accordance with guidelines established in TM 5-631, para 2-5.

- ***Sanitation trees:*** Trees in which wood-destroying fungi are unmistakably evident. Trees infected with fusiform rust are removed when multiple infections will result in timber which will not reach sawtimber class. Trees heavily infested with bark beetles are marked for removal.
- ***Poor risk trees:*** Included are those in which the loss of marketable wood exceeds the annual growth of new wood; those which are overmature and suppressed, unthrifty due to insect or fungus attack, or weakened mechanically and subject to wind throw; and those damaged by fire, lightening, logging, or insects.

- *Pine wolf tree:* Pine trees with large heavy limbs or spreading crowns which occupy a large area and suppress thrifty young trees around them.
- *Poorly formed trees:* Trees not suitable for sawtimber because of form.
- *Mature trees:* Trees which have passed the peak of annual growth and natural vigor.

8.2.10.3 Field Procedures

Depending on the forestry workload, timber marking crews usually consist of three persons. Trees tallied by markers are reported at the end of each day to the senior technician or forester. The senior technician is then responsible for establishing check plots and determining volumes of marked timber.

Nelson tree marking guns are used for marking timber. Trees are marked at the stump-ground line and on the tree trunk at shoulder height. Yellow, blue, or red paint is used for marking sawtimber and pulpwood. White paint is usually used to mark seed trees or wildlife leave trees. Marks are placed on trees to be evident to harvesters as they move deeper into uncut timber. This minimizes the inadvertent leaving of marked timber.

A sawtimber tree should contain a minimum of one butt log of adequate length, in a tree 12 inches dbh or larger. Where such a tree is cut in a saw-log sale, full utilization of the tree to a 10-inch minimum top diameter will be required as long as the logs are merchantable. A pulpwood tree should be at least 5 inches dbh and yield a 16-inch length to a top diameter of 4 inches inside bark. Because of a decline in the shortwood market, most pulpwood is harvested in tree length operations. Trees needing removal which do not meet these minimum requirements may be designated by one paint spot on the stump for optional removal. Areas from which the minimum volume cannot be removed are declared inoperable.

Pulpwood and sawtimber volumes are calculated from tables developed by the U.S. Forest Service, Southeastern Area, Atlanta, Georgia. Sawtimber is estimated using the Scribner Decimal C log rule.

8.2.10.4 Timber Cruising and Seedtree Marking

Timber is cruised with a 10 factor prism utilizing cruise base lines across terrain features. This procedure ensures that a representative sample is taken. An alternative is a 10 percent cruise using 0.1 acre plots. Areas unsuitable for prism cruising or plot sampling will be marked and tallied with a 100 percent cruise.

Seedtree regeneration is an economical method of establishing new stands, depending on site soils and stand characteristics. The number of trees left per acre depends on tree species and diameter. In the case of loblolly pine, 6-12 trees per acre are left for seed production. Once reproduction is established, seedtrees are usually harvested.

8.2.11 Site Preparation

Mechanical site preparation has been minimized in recent years with the virtual elimination of clearcutting. It has been used in portions of the cantonment area where reforestation was accomplished on unimproved grounds.

8.2.12 Regeneration

Replanting of pine is accomplished by hand planting, machine planting, seeding, natural regeneration, and seedtree regeneration. Machine and hand planting are the selected method when an adequate seed source is unavailable. Because of manpower requirements in hand planting, these projects are usually accomplished via contract. Contract costs including seedlings average about $75 per acre. Most machine planting is done by inhouse forestry personnel. Spacing of seedlings during planting is 6 x 10 feet (726 trees/acre). This spacing permits trucks to pass between rows in subsequent thinning operations.

In recent years machine planting has been largely replaced by hand planting due to the reduction of mechanical site preparation. Most sites are prepared using prescribed burning to minimize soil disturbance. Machine planting is still accomplished in the cantonment area and on relatively level lands, such as on old ranges.

Longleaf restoration is being accomplished using hand planting of containerized seedlings. This project will be coordinated with similar efforts on the Anniston Army Depot to facilitate contracting for this specialized type of planting. Sites where this restoration will be emphasized are historic longleaf sites.

Seedlings are usually purchased from the Kimberly-Clark nursery at Childersburg, Alabama. Recent costs were $32 per 1,000. Seedlings are usually picked up at the nursery in increments of 10,000 - 40,000. Because of the lack of refrigerated storage on Fort McClellan, this has been important to the survival of planting stock. Planting is usually accomplished from December 1 through March 15.

Since 1954 over four million seedlings have been planted on Fort McClellan by the Forestry Branch. Most seedlings have been loblolly pine. A list by fiscal year of species, number of trees, and acres planted is shown in the below table. This table does not include acres reforested through seeding or natural regeneration.

Reforestation Record

Fiscal Year	Number Trees Planted	Acres Planted	Species Planted
1954	500,000	416	Loblolly
1955	250,000	210	Loblolly
1956	250,000	210	Loblolly
1958	100,000	85	Loblolly
1959	100,000	85	Loblolly
1960	100,000	85	Loblolly
1961	100,000	110	Loblolly
1962	100,000	110	Loblolly
1963	100,000	142	Loblolly
1964	50,000	-	Loblolly
1964	50,000	-	Slash
1964	10,000	-	Longleaf
1964	4,000	187	Yellow poplar
1965	60,000	-	Loblolly
1965	60,000	133	Slash
1966	250,000	275	Loblolly

1966	4,000	7	White & cherrybark oak
1967	500,000	555	Loblolly
1968	224,000	311	Loblolly
1969	260,000	370	Loblolly
1970	30,000	50	Loblolly
1972	54,000	120	Loblolly
1974	60,000	132	Loblolly
1979	65,000	94	Loblolly
1980	154,050	237	Loblolly
1981	No data		
1982	250,000	342	Loblolly
1983	90,000	120	Loblolly
1984	70,000	98	Loblolly
1985	60,000	81	Loblolly
1986	36,000	50	Loblolly
1987	55,000	78	Loblolly
1988	33,000	45	Loblolly
1989	30,000	40	Loblolly
1990	15,000	20	Loblolly
1991	137,000	196	Loblolly
1992	40,000	47	Loblolly
1993	20,000	30	Loblolly
1994	15,000	20	Loblolly
1995	40,000	36.5	Loblolly
1996		0	

8.2.13 Timber Sales

8.2.13.1 Markets

Georgia Pacific Corporation operates a plywood mill 25 miles southwest of Anniston in Talladega, Alabama. The Coosa River Newsprint Division of Kimberly-Clark corporation has a paper mill 45 miles southwest of Anniston near Childersburg, Alabama. Inland Rome Corporation manufactures dimension lumber and paper about 50 miles northeast of Anniston at Coosa, Georgia. Pulpwood loading yards serving these and other pulp mills are located in Eastaboga, Ashville, Ragland, Lineville, DeArmanville, Heflin, Alexandria, Lincoln. Delta, and Talladega, Alabama. Several small sawmills are located in the Anniston area (Pittman *et al.*, 1991).

Markets are good for pine sawtimber and pulpwood in the region. During 1994 prices for pine sawtimber averaged $250 MBF. Pine pulpwood sold for about $25 per cord. A less stable market is available for hardwoods, especially poorer quality hardwood commonly found on Fort McClellan. There was no significant market for hardwood during the past several years, and hardwood pulpwood averaged $20 per cord. Most hardwood pulpwood is processed at the Kimberly Clark mill near Childersburg and the Champion International mill at Courtland, Alabama. A new chip and saw market has recently developed for pine that is sized between pulpwood and sawtimber. It has been paying $180 per MBF.

8.2.13.2 Planning

An annual work plan detailing forestry expenditures for the forthcoming fiscal year is prepared in March. TRADOC Form 780-R is used to detail proposed expenses for labor, materials, equipment rental, training, and contracts. Forestry tasks are broken down into 25 categories, and individual cost estimates are provided for each task. This form is sent to TRADOC for approval.

Close coordination is maintained between the Post Forester and Mobile District Forester (Resident Forester) in planning timber harvests. The Resident Forester is informed of any metal-contaminated timber, and harvest areas are assessed by both foresters and the Range Control Officer to ensure safe and orderly conduct of harvesting operations. Harvesting within range fans must be with permission of the Range Control Officer on a daily basis. Coordination is also maintained, as necessary, with Range Control to avoid conflict with training exercises and other activities occurring in proposed timber sale areas.

8.2.13.3 Contracting

8.2.13.3.1 Coordination of Timber Harvesting

Annual coordination of proposed timber harvesting activities is conducted with the Range Branch of the DPTMSEC. Significant adjustments to this proposal due to the military mission are agreed upon before preparation of sales are initiated. Once individual sales have been awarded, further coordination is the responsibility of the Mobile District, Corps of Engineers.

8.2.13.3.2 Reports of Timber Availability

At the beginning of each fiscal year, Fort McClellan submits a declaration of availability to TRADOC for timber planned to be harvested during the fiscal year. After notice of approval, individual reports of availability are provided to the Mobile District Engineer for each sale area. Information copies of letters to the District Engineer are provided to TRADOC. Recently, attempts have been made to provide annual availabilities to Mobile District to maximize returns through timing of sales and aggregating treatment areas.

8.2.13.3.3 Inspection of Sales in Progress

The Resident Forester (COE) has primary responsibility for timber sale inspections. Inspections are made as often as possible and as time permits. The Installation Forester, or his representative, will also make inspections of sale areas. Inspections by the Resident Forester and the Installation Forester are coordinated on an informal basis, ensuring that harvest operations on each timber sale are conducted in an orderly manner and that compliance with contract specifications is maintained. Areas of concern in contract specifications include roads along haul routes, loading points, skid trails, areas which are aesthetically sensitive, and areas in close proximity to military training facilities.

Monthly reports are furnished by the COE to the Installation Forester that include the volume and value of products removed by each contract during the fiscal year. A final report containing the volume and value of products removed is furnished for each contract following its completion, as well as an annual report at the close of the fiscal year.

8.2.13.3.4 Contract Clearance Reports

The Resident Forester notifies the Installation Forester when the cutting of a sale is complete. The Installation Forester, or his representative, then makes a final inspection of the sale area. The Resident Forester is informed of any discrepancies which would warrant withholding a clearance report for the sale until the discrepancies are corrected. Emphasis on contract inspection include the following factors:

- maximum utilization of wood products;
- cutting timber not included in the contract or outside designated sale area boundaries;
- removal of slash from roads, firebreaks, and streams;
- maximum stump heights; and
- trash left by the contractor.

If discrepancies are excessive, the Resident Forester contacts the contractor to correct the situation or imposes a penalty for the discrepancy. No contract is cleared by the Installation Forester until all contract provisions have been met.

8.2.14 Management Records

The following permanent forestry records are maintained at Fort McClellan:

- timber harvest reports,
- reforestation projects,
- cover types,
- timber stand improvement projects,
- disease and insect infestations,
- wildlife food plots, and
- fire information, including the firebreak system, wildfires, and prescribed burning plan.

Contracts for timber sales are located in the Forestry files. Files are maintained according to timber availability and include information such as sales contracts, release reports, and field data and maps used in establishing boundaries and determining volumes. Records of income, costs, and volumes harvested in the forestry program have been documented since 1951 (Appendix 8.2.14).

8.2.15 Special Considerations

Outside environmental influences (i.e. economic, social, or political) may alter various aspects of this plan. Additionally, upon completion of a forest inventory, best information available may necessitate a revision of elements of this plan. Harvesting and forest management strategies will be altered as needed to accommodate these changes.

8.2.15.1 Timber for Installation Use

Timber harvested for installation use as training course material, parking lot borders, posts, range materials, etc., will be marked, tallied and recorded for inclusion in end of year reports. Troops training in the field are permitted to use trees for training activities, provided such use is very small scale.

8.2.15.2 Wildlife Considerations

Forestry management is one of the primary activities that impacts on wildlife habitat. Many forestry management practices are beneficial to wildlife habitat. Harvest and timber stand improvement can be beneficial to many wildlife species. Location, shape, size, type, and distribution of timber cuts are analyzed from the standpoint of wildlife habitat management, to provide a series of vegetative stages that are beneficial to both forestry and wildlife.

8.2.15.2.1 Clearcuts

Clearcuts can offer temporary improvements in wildlife habitat for deer, rabbits, and other species that benefit from early stages in forest succession. Clearcuts are most productive the first several years following cuttings. As stands mature and thicken, many valuable understory species grow above a usable height. Grasses and legumes are shaded out by the maturing forest. Mechanical thinning in sapling and pole stage clearcuts increases the productive period by encouraging re-sprouting, disturbing the soil, and allowing light to again penetrate to the ground. To be effective for wildlife management, new clearcuts should be irregular in shape, average less than 25 acres, and not adjoin recent cuts or non-productive habitat.

8.2.15.2.2 Thinnings

Dense pine stands provide poor habitat for most wildlife species, except for some shelter and escape cover. Thinning of pine stands is primarily a forest management tool, which also improves game habitat. Soil is disturbed by logging operations, and germination of desirable plants is stimulated. Removal of trees creates openings in the forest canopy which allows light to penetrate to the forest floor and encourage growth of desirable vegetation.

8.2.15.2.3 Integrated Wildlife/Forestry Plan

The following actions have been agreed to by both Forestry and Fish and Wildlife branches:

- Decrease the individual size and increase the number and distribution of clearcuts.
- Use prescribed fire on young, fire-tolerant longleaf plantations when herbaceous vegetation becomes rank and impenetrable (2-6 years).
- Use prescribed fire on a three-year cycle on thinned pine stands. Regular burning of these areas increases the quality and quantity of food available to wildlife species on Fort McClellan.
- Drop maintenance on secondary firebreaks.
- Stabilize erodible exposed soils on completion of timber harvests.
- Manage hardwood bottomlands primarily for wildlife with timber harvest directed at the release of mast-producing trees.
- Do not convert hardwood stands to pine plantations.
- Re-establish longleaf pine on its historic sites and manage them using thinning, growing season burns, and old-age rotations.

8.2.15.3 Best Management Practices

Alabama's Best Management Practices for Forestry (Alabama Forestry Commission, 1993) (BMPs) are included within Corps of Engineers contracts for forest harvest on Fort McClellan. BMPs include recommendations for streamside management zones, stream crossings, access roads, timber harvest, site preparation, reforestation, prescribed burning, wildfire suppression, chemical treatments, and wetland management.

8.2.15.4 NEPA

The NEPA process is used annually to evaluate all proposed timber sales on Fort McClellan. This process uses an Environmental Assessment, which includes provisions to ensure that cultural resources sites listed or eligible for the National Register of Historic Places are protected during harvest operations. Chapters 14 and 15 more fully describe these provisions.

8.2.16 Forest Diseases and Pests

Fort McClellan forests are monitored for forest disease and insect problems. The greatest economic damage is caused by bark beetles, primarily Ips (*Ips avulsus*, *I. grandicollis*, and *I. calligraphus*) and the southern pine beetle (*Dendroctonus frontalis* Zimm.). Ips damage is very localized, but the southern pine beetle has the potential to affect very large acreages and is a serious economic threat to the Fort McClellan forest ecosystem.

Disease losses are subtle, but occasionally significant. Fusiform rust (*Cronartium fusiforme*) affects slash and loblolly pines. Fusiform rust causes stem swellings in which a canker forms with a sunken area of rotten wood surrounded by a callus. This increases the chances of damage due to winds. This latter disease is especially prevalent in pine plantations where tree density is higher than natural. Genetically-resistant pines are being planted to reduce effects of fusiform rust.

Longleaf pine, in general, is less susceptible to diseases and pests than are loblolly or slash pine. Loblolly pine is more susceptible to southern pine beetle than are slash or longleaf.

8.3 Agricultural Outleases

Fort McClellan does not currently have any areas leased for agricultural purposes. However, the installation will continue to explore possible options for land leases.

8.4 Habitat Management

"The central thesis of game management is this: game can be restored by the creative use of the same tools which have heretoforth destroyed it- axe, plow, cow, fire, and gun."
Aldo Leopold, 1933, *Game Management*

It is difficult to address habitat management separately from forest management, and erosion control as all four complement each other. However, the following sections describe vegetation management programs specifically to benefit wildlife. Wildlife habitat management is used to produce sustained populations of

game and non-game species.

Wildlife is a product of the land. Food, water, and cover must exist at the right time and in the right place to meet the needs of each species. Limiting factors can be adjusted through habitat management to increase wildlife populations.

8.4.1 History of Fish and Wildlife Management

Early records are lacking, but interests in wildlife conservation at Fort McClellan apparently began in 1949 when the Post Commander, Brigadier General Theodore F. Wessels, appointed a civilian game warden, Mr. William E. .Bain, to protect wildlife on the installation. The installation was subsequently deactivated, and no regulations or permits were required for hunting or fishing on the reservation, although these activities did occur. According to Mr. Bain, a few farmers planted *Lespedeza bicolor* on what is now Pelham Range prior to purchase by the Army in 1942. Mr. Bain, in an effort to improve the habitat for quail, continued to plant bicolor in what might be viewed as one of the first management practices applied on Fort McClellan (Pittman *et al.*, 1991).

In 1952 Mr. Lawrence S. Givens of the U. S. Fish and Wildlife Services outlined game management practices for Fort McClellan in a paper entitled *Recommendations in Wildlife Management Work for Fort McClellan, Alabama.* The paper emphasized quail management, although brief recommendations were given for general management practices.

In 1962 a Department of the Army Directive Regulation 210-221 prescribed general policies and procedures for the management and harvesting of fish and game resources on Army installations. This prompted action by the Provost Marshal, COL Thomas H. Becton, to investigate the fish and game potential on Fort McClellan and to establish a conservation committee to formulate conservation activities.

One outgrowth of this renewed emphasis on wildlife management was an investigation of game populations on the installation. This was achieved through the cooperation of Mr. William F. Kelley, game biologist with the Alabama Department of Conservation, and Mr. Alex B. Montgomery and Mr. Hugh D. Keely, state fisheries' management biologist. Recommendations by these men were included in a cooperative plan for the conservation and development of fish and wildlife. The plan was jointly approved January 17, 1964 by the Commanding Officer, Fort McClellan; the Acting Regional Director, U.S. Bureau of Fisheries and Wildlife; and the Director, Fish and Game Division, Alabama Department of Conservation (Pittman *et al.*, 1991).

This plan, although general and nonspecific in scope, was the first coordinated effort toward an organized wildlife management program for Fort McClellan. More importantly, it was a cooperative agreement between state and federal conservation agencies to assist in the development of a wildlife program at Fort McClellan. In return, the Land Management Office at Fort McClellan agreed to work closely with these agencies and inform them of progress being made in the program and of any significant changes in management practices or regulations.

In 1964 the original civilian game warden, Mr. William E. Bain, who had served under five post commanders, was replaced by the first of a succession of military wardens. In October, 1965 the installation commander, Col. Macon A. Hipp, transferred responsibilities for fish and game management from the Provost Marshal to the Post Engineer. In November of that same year the Post Forester, Mr.

Kelton W. Huxford, under orders from the Post Engineer, drew up a rough draft entitled *Estimated Requirements Necessary to Implement the Projected Fish and Wildlife Program.* Encouraged by Col. Hipp, management operations in the field were initiated in the spring of 1966.

Charles W. Summerour, a biologist from nearby Jacksonville State University, was employed to draw up a wildlife management plan which would outline specific management practices and recommend guidelines for a long range, progressive game management program. Dr. Summerour's work continued full time during the summers of 1966 and 1967 and concluded with a three-year wildlife management plan for all areas of the installation. Mr. William Boone, a graduate in biology from Jacksonville State University, was employed during the summer of 1969 to help carry out the program.

In the fall of 1966, a new regulation, AR 420-74, broadened the functions of the Conservation Committee established in 1962 and necessitated its redesignation to the Conservation and Beautification Committee. Responsibilities of this new committee included planning the natural resources program and beautification of the installation.

As a result of studies made in wildlife management and combined efforts of the overall conservation program, Fort McClellan was awarded the Department of Defense Natural Resources Meritorious Achievement Award in 1967, 1968, and 1969.

In 1970 the Fish and Wildlife Management Plan was rewritten by Mr. Boone and Mr. Jack Hudson of the Land Management Office. This plan was essentially the same as the one proposed by Dr. Summerour but accounted for adjustments and changes made in the program since 1967. In 1973 Dr. Summerour was rehired to review the wildlife activities on Fort McClellan and to make recommendations for improvements to the program. Management practices recommended by Dr. Summerour continued until 1982.

In 1982 the Facilities Engineer added a full-time Wildlife Biologist in an effort to improve Fort McClellan's wildlife management program. A major revision of the Wildlife Management Plan was completed in April, 1983, in accordance with AR 420-74 and TM 5-633, outlining specific management practices for a long range and progressive fish and wildlife program.

The Cooperative Plan established in 1964 was revised in 1980, 1987, and 1991. The only major change was the addition of Fort McClellan as a participant in Alabama's Deer Management Program (DMP). The DMP was established to improve deer management throughout the State of Alabama, and Fort McClellan sends deer harvest data for review by game biologists with the Alabama Game and Fish Division.

Need more recent history for next draft

8.4.2 Terrestrial Habitat Management

8.4.2.1 Hardwood Tree Management

Forest mast is an important source of food for deer, turkeys, quail, squirrels, and other wildlife species. Acorns are considered by many to be the most important game food in the South, and cavity or den trees are vital to support squirrel populations as well as many nesting birds.

Forest management practices include leaving good mast producing trees (white oaks, water oaks, hickory,

etc.) for wildlife to utilize. Den trees are also important nesting areas for various wildlife species and, where possible, are left for these species to utilize. It is desirable to leave at least five mast producing trees and one den tree per acre.

Methods of timber management and harvesting have a dramatic and large scale impact on wildlife habitat. Practices, such as clear cutting, thinning, and prescribed burning, determine the characteristics of a valuable habitat. Timber management and wildlife management are coordinated to provide optimum benefits for both programs.

8.4.2.2 Nest Boxes

On Fort McClellan nesting boxes are constructed and erected for bluebirds. Volunteer labor, particularly from Scouts (Section 12.7), is used to construct and maintain the boxes.

8.4.2.3 Supplemental Plantings

Wildlife food plots provide supplemental natural food sources, maintain open areas, and aid harvest of game species. These plots are a source of food for wildlife, but they are not considered essential to support existing populations an the installation.

Plots provide open areas used by many wildlife species for nesting and rearing of young. Food plots attract game when natural food sources are not abundant, thereby allowing better harvest. Food plots are planted with special considerations given to the biological requirements of specific species, size of the opening, surrounding habitat, soil, and type and amount of food to be planted. Plots are established so that adequate cover is available. A buffer zone is maintained around plots that border openings, such as public roads, firebreaks, and cultivated fields. These buffer zones provide important cover and preserve the natural appearance of the surrounding habitat in addition to preventing food plots from being seen from roads.

Food plots are established predominantly for two wildlife species, white-tailed deer and mourning dove. From 180 to 200 acres are planted annually during September and early October for white-tailed deer. Plots range from one acre to two acres. Wheat, oats, rye, and arrow leaf clover are the primary crops. Approximately 15 acres are planted annually for mourning dove. Milo, sunflower, and corn are primary crops.

8.4.2.4 Salt Blocks

Mineralized salt blocks are beneficial as a dietary supplement for deer on Fort McClellan. About 150 salt blocks are distributed annually on the installation, half on Main Post, and half on Pelham Range.

8.4.2.5 Strip Disking

Strip disking is a relatively inexpensive and easy method for stimulating plant growth. Certain plant species (partridge peas and bicolor lespedeza) respond well to disking. Fertilizer and/or lime is applied as necessary to increase growth. Use of strip disking is minimal (Pittman *et al.*, 1991).

8.4.2.6 Water Facilities

Fort McClellan has four managed impoundments, numerous beaver ponds, and over 11 miles of creeks and streams well distributed throughout the installation. These water sources, when combined with an average annual rainfall of 57 inches, eliminate the need for wildlife water facilities on the installation.

8.4.2.7 Prescribed Burning

Prescribed burning is conducted on Fort McClellan as part of the forest management program (Section 8.2.9.3). The forest management program uses a three-year burn rotation. Benefits to wildlife derived from prescribed burning include:

- increased forage by keeping hardwood sprouts short, tender, palatable, and abundant;
- reduced competing undesirable species;
- stimulated growth of herbaceous plants, especially legumes;
- improved soil fertility;
- disease control;
- insect control; and
- increased aesthetic quality and accessibility of the land.

Burning is conducted in accordance with the State of Alabama burning ordinances and good forest management practices. Over the next five years, a significant portion of prescribed burning will be accomplished during the growing season.

8.4.2.8 Brush Pile Construction

Brush cutting to create brushpiles is not utilized on Fort McClellan at this time.

8.4.3 Aquatic Habitat Management

8.4.3.1 Lake and Pond Management

8.4.3.1.1 Fish Habitat

Fort McClellan manages four impoundments for fisheries: Reilly Lake, Yahou Lake, Duck Pond, and Willett Springs. The impoundments support the following game species: largemouth bass, bluegill, channel catfish, and sunfish.

8.4.3.1.2 Lake and Pond Fertilization

Lakes and ponds are fertilized once every two weeks starting in mid-February for six weeks, then once every month until the end of summer.

8.4.3.1.3 Pond Maintenance

Shoreline clearing and deepening of shallow edges are utilized where needed on impoundments. Dams are kept free of vegetation that could weaken the structure. Most of the shoreline, however, is left in a

natural state (Pittman *et al.*, 1991). Maintenance and repair of water control structures and spillways is accomplished as needed.

8.4.3.1.4 Aquatic Weed Control

Most underwater plants in the lakes on Fort McClellan are adequately controlled by fertilization (Section 8.4.3.1.2). Some aquatic plants whose leaves extend above the water surface may require control. As necessary, Fort McClellan may implement chemical control using aquatic herbicide or biological control using grass carp. However, aquatic weeds are rarely a problem (Pittman *et al.*, 1991).

8.4.3.1.5 Pollution Control

Fort McClellan is committed to controlling pollution of surface water. Oil and grease separators located at vehicle washracks are regularly inspected to ensure that discharged water is free of oil and grease. Trash containers are located at all recreational areas to reduce the littering problem (Pittman *et al.*, 1991). Implementation of the *Soil Erosion Management Plan* (Nakata Planning Group, 1994) has reduced the amount of silt being deposited in lakes and ponds. Water quality management is further discussed in sections 8.7 and 9.4.

8.4.3.2 Stream Management

Management of streams on Fort McClellan consists primarily of protecting the integrity of stream banks through good forest, land, and wetlands management. Stream crossings are maintained in good condition. Vehicular use of undesignated crossings is prohibited. Protection of the Cane Creek corridor and numerous springs and seeps is discussed in Section 8.4.4.

8.5 Fish and Wildlife Population Management

8.5.1 Game Management

Game management is considerably different from management of other fish and wildlife species in that production of harvestable surpluses on a sustained basis is the major objective. Other objectives include "fair chase" and quality recreational opportunities. Chapter 13.0, *Outdoor Recreation*, includes recreational aspects of game management.

Fort McClellan does not establish a quota on game species to maintain a balance between game and available food. All populations of game species are at a level below the carrying capacity of the habitat. The only quota set is on the number of antlerless deer taken each season (Pittman *et al.*, 1991).

Fort McClellan regulates hunting and fishing seasons in accordance with Alabama hunting and fishing regulations. These regulations include opening and closing dates for hunting each game species and bag limits. Fishing is open year-round, and creel limits are set on each game species. There are periods during the hunting and fishing season when areas are closed due to training (Pittman *et al.*, 1991).

8.5.1.1 White-tailed Deer

The white-tailed deer heard on Fort McClellan is in excellent condition. An antlerless season was begun in 1980 to control a rapid increase in population. The antlerless quota is 250 deer per season. Harvest data indicates that deer are below the carrying capacity due primarily to habitat manipulation and antlerless harvest. Between 1963 and 1991, overall weights increased 15 to 20 percent with the average live weight of yearling bucks in excess of 100 lbs on both Main Post and Pelham Range (Pittman *et al.*, 1991).

Gun deer season typically is from late-November through the end of January. Archery deer season usually begins in mid-October and runs through the end of January. The bag limit is one deer per day. Deer hunting on Fort McClellan is well patronized.

8.5.1.2 Eastern Wild Turkey

Eastern wild turkey is the most elusive, and most challenging game bird in North America. Many factors affect the success of the wild turkey population, such as habitat requirements, hatching success, weather conditions during nesting season, availability of suitable habitat, and winter conditions. Main Post has most of Fort McClellan's excellent turkey population. The population continues to increase as a result of habitat management (e.g.,. prescribed burning and maintaining openings) (Pittman *et al.*, 1991). The turkey season is from mid-March through April with a bag limit of five toms per season.

8.5.1.3 Raccoon

The raccoon is a common nocturnal animal found on most of the installation, especially along hardwood bottoms adjacent to creeks. The raccoon benefits from management practices for other species; therefore, no active management program has been established for this animal. Consideration is given to areas where timber harvesting threatens elimination of adequate den trees. Den trees are left in areas of timber harvesting to provide sufficient nesting sites (Pittman *et al.*, 1991).

The raccoon season is from mid-October through February. The daily bag limit is five animals. Demand from hunters is low.

8.5.1.4 Bobwhite Quail

The success of the bobwhite quail is dependent on the extent of open land, quality and quantity of food producing plants, and success of nesting. Fort McClellan has had a good quail population for a number of years. Bobwhite quail benefit from prescribed burning, timber stand thinnings, and food plots planted for other species. Due to the mountainous topography and relative absence of open fields, intensive management for quail is impractical (Pittman *et al.*, 1991).

Quail season is from mid-November through February. The daily bag limit is 12 birds. Demand from hunters is not high.

8.5.1.5 Mourning Dove

Although mourning doves are permanent residents over much of the South, their number is greatly swollen in the fall and winter by migrating doves from the North. Therefore, management practices are centered

mainly around plantings of grain crops for dove shoots. Dove populations on the installation are generally good. Doves also benefit from prescribed burning and timber stand thinnings (Pittman *et al.*, 1991).

The season for doves is split, typically from mid-September through October and from mid-December through mid-January. Hunting is restricted to afternoons, and the bag limit is 12 birds daily. Interest from hunters is low, primarily due to more favorable dove habitat in areas outlying Fort McClellan.

8.5.1.6 Waterfowl

There is no waterfowl season on Fort McClellan. Waterfowl areas on the installation are primarily confined to Cane Creek, sloughs adjacent to Cane Creek, and a small number of beaver ponds. Beaver ponds are poorly suited for waterfowl unless proper management techniques are followed to convert those areas into productive waterfowl areas. The wood duck is the only permanent resident, but many other species of waterfowl winter in northern Alabama. Waterfowl benefit from aquatic habitat and wetlands management on Fort McClellan (Pittman *et al.*, 1991).

8.5.1.7 Squirrels

Populations are good to excellent for both eastern gray and eastern fox squirrels. Three primary factors contribute to success of these species:

- the availability of desirable hardwood mast trees,
- a well distributed water supply, and
- sufficient nesting cavities (Pittman *et al.*, 1991).

Management practices are centered around these three requirements. Long rotations for timber harvest are desirable to ensure mast-producing trees. One to two den trees per acre and five mast-producing trees per acre are recommended in areas where timber is being harvested (Pittman *et al.*, 1991).

Squirrel season runs from October through February. The daily bag limit is eight. Hunter interest is low.

8.5.1.8 Eastern Cottontail/Swamp Rabbit

Populations are good for both eastern cottontail and swamp rabbits. Rabbits benefit from management practices for deer and other species; therefore, no special management is accomplished. One area of concern is cover. Cover is essential to rabbit survival, and care is taken when burning or disking to leave sufficient hiding places. Brush piles are an option for providing shelter (Pittman *et al.*, 1991).

Rabbit season is from mid-October through February. The daily bag limit is eight. Hunter interest is low.

8.5.1.9 Other Species

Opossums are found on all areas of the installation, and the population is excellent. This species is not important as a game species or furbearer. Due to its population level, management is not necessary.

Beaver population studies have not been conducted, and no harvest data are available since trapping is prohibited on Fort McClellan. Management practices currently undertaken for this species consists of

trapping and/or shooting for damage control purposes.

Gray fox, red fox, and bobcat receive little or no hunting pressure. Therefore, management practices are not being implemented.

8.5.1.10 Fish

Each body of water is an entity in itself and may experience fluctuations in fish populations over the short and long term. Fluctuations may stem from fish harvest, enforced regulations, stocking, fish kills, pond productivity, aquatic weed infestation, etc. Primary species emphasized in the Fort McClellan fisheries program are largemouth bass, channel catfish, and panfish (bluegill and sunfish).With the assistance of the Alabama Department of Conservation and Natural Resources, seining (Section 9.3.1.2) is used to update fish population data annually.

8.5.1.10.1 Fish Harvest Management

Managed impoundments and streams are available for recreational fishing, provided they are not closed due to military training, natural resources management, or other activity. Fish harvest for each body of water is designated by creel, possession, and length limits for each game species. Limits are identical to State limits.

8.5.1.10.2 Fish Population Control

There has been little need for direct control of undesirable species in Fort McClellan lakes and ponds. If necessary Rotenone® will be used to remove undesirable species.

8.5.1.10.3 Fish Stocking

Stocking is initiated on Fort McClellan when necessary and only after coordination with the Alabama Department of Conservation and Natural Resources. Duck Pond, located in the cantonment area, is stocked annually with 1,500 lbs of channel catfish on a put-and-take basis for children under 16 years of age (Pittman *et al.*, 1991). Fort McClellan will consider stocking largemouth bass and bluegill in Duck Pond.

8.5.2 Endangered, Threatened, and Other Species of Special Concern

8.5.2.1 Compliance Process

Protection and management of threatened and endangered species will be conducted in accordance with the Endangered Species Act (ESA), the National Environmental Policy Act (NEPA), AR 200-3, DoD Directive 4715.3, USFWS regulations and agreements, and other applicable laws or guidance from higher headquarters. Management and protection of listed species will be given priority in natural resource management. In cases where endangered species management in accordance with the appropriate guidance would conflict with other mission activities, consultation with the USFWS/ADCNR will be initiated to avoid jeopardizing any listed species or its critical habitat. Formal consultations with the USFWS will be coordinated with the installation Staff Judge Advocate (SJA). Proposals to enter into formal consultation will be coordinated through the installation SJA and referred to Department of the Army Headquarters.

AR 200-3 states (Section 11-2(a-e)) that the Army has five primary requirements under the Endangered Species Act:

- to conserve listed species,
- not to "jeopardize" listed species,
- to "consult" and "confer",
- to conduct a biological assessment, and
- not to "take" listed fish and wildlife species or to remove or destroy listed plant species.

Fort McClellan is committed to these five primary requirements.

The *Endangered Species Management Plan for Fort McClellan* (ESMP) (Garland, 1996) details Fort McClellan's plan of action for fulfilling endangered species management requirements. The ESMP is a crucial component of this INRMP and addresses management of both federal and state-listed species. Through initiatives, such as Special Interest Natural Areas (Section 8.13.1), Fort McClellan aims to manage listed species by ensuring the integrity and health of entire ecological communities.

Fort McClellan maintains a computer log of listed species observations. This Endangered Species Monitoring Log records the status of populations as well as significant events within ecological communities. A camcorder is also used to maintain a visual record of populations (Garland, 1996: 38). Following sections on management of sensitive fauna and flora are taken from the ESMP.

8.5.2.2 Fauna

A list of confirmed threatened, endangered, and special concern species of fauna is provided in Section 6.8.5. Two federal-listed species are known to occur on Fort McClellan, the endangered gray bat and the threatened blue shiner. An additional 22 species of fauna are listed as sensitive by the Alabama Natural Heritage Program. Management of federal-listed species will be given priority. State-listed will be protected and managed by Fort McClellan as funding permits. However, it will be difficult to obtain high priority funding for these species. The establishment and protection of Special Interest Natural Areas on Fort McClellan will be the primary management tool for state-listed species (Section 8.4.4).

8.5.2.2.1 Gray Bat

According to the recovery plan for the gray bat developed by USFWS in 1982, actions to recover gray bat populations should include acquisition and protection of caves, prevention of habitat destruction, public education, and further research on gray bat habitat. A number of federal and state agencies have been active in protection and management of gray bat caves (Garland, 1996: 42).

Gray bats were discovered to forage on Pelham Range as a result of net captures conducted in 1995 (Section 6.8.5.1.1). Although a follow-up survey of gray bats on Fort McClellan was completed in 1996 (Harland Bartholomew and Associates, Inc., 1996), additional research was recommended for Main Post. A radiotelemetry study to assess habitat use on Main Post was begun in 1996. On completion of this study, the need for a monitoring program will be evaluated as discussed in Section 9.3.2.1.1.

Existing data indicate that larger stream corridors, such as Cane Creek, lakes, and ponds provide foraging habitat for the bat. Management will therefore focus on maintaining forested corridors along the most

suitable gray bat foraging and travel corridors particularly Cane Creek on Pelham Range . This will be accomplished through the designation of Cane Creek and the adjacent floodplain forest as a Special Interest Natural Area (SINA) (Section 8.13.1.2.5).

Forestry and land clearing/development are the primary threats to the corridor. Although these activities are restricted within the SINA, any new proposed activity will consider potential effects on the gray bat and proximity of proposed actions to high and moderate quality foraging habitat as part of the NEPA process. Section 7 consultation will be initiated for those actions suspected of impacting gray bats especially actions requiring tree clearing within 50 feet of streams designated as high or moderate quality gray bat foraging habitat.

The formulation of a comprehensive management plan will follow the study. A Biological Assessment (BA) on the gray bat has been prepared for the training mission at Fort Leonard Wood, Missouri. The BA is in response to the Base Realignment and Closure Commission's decision to move training missions from Fort McClellan to Fort Leonard Wood. It includes a detailed assessment of the training mission on Fort McClellan and should prove useful in determining needed management prescriptions (Garland, 1996: 45).

8.5.2.2.2 Blue Shiner

The blue shiner occurs within Choccolocco Creek which flows through the Choccolocco Corridor, leased by the Army from the Alabama Forestry Commission. The blue shiner appears intolerant to high turbidity and is particularly susceptible to changes in water quality. It is probably a mid-depth feeder dependant on high visibility. Spawning occurs from early May through late August.

Fort McClellan is prohibited by the Alabama Forestry Commission from performing natural resources management within Choccolocco Corridor. Nevertheless, the Army recognized a responsibility to ensure protection of the creek during military training. Therefore, conservation goals involve educational programs for military trainers. Briefings provided to military personnel designated Choccolocco Creek as a sensitive area. The creek is also identified on the Natural Resource and Environmental Constraints Map.

8.5.2.3 Flora

A list of confirmed threatened, endangered, and special concern species of flora is provided in Section 6.7.4. Two federal-listed species are known to occur on Fort McClellan, the endangered Tennessee yellow-eyed grass and the threatened Mohr's Barbara's buttons. An additional 20 species of flora are listed as sensitive by the Alabama Natural Heritage Program. Management of federal-listed species will be given priority. State-listed will be protected and managed by Fort McClellan as funding permits. However, it will be difficult to obtain high priority funding for these species. The establishment and protection of Special Interest Natural Areas on Fort McClellan will be the primary management tool for state-listed species (Section 8.4.4).

8.5.2.3.1 Tennessee Yellow-eyed Grass

Tennessee yellow-eyed grass was officially listed as endangered by the USFWS in 1991. A recovery plan was subsequently prepared and approved in 1994. Fort McClellan is considered a responsible party within the implementation schedule for recovering this species.

Fourteen populations of Tennessee yellow-eyed grass are known, including eight sites in Alabama, two in Georgia, and four in Tennessee. Two separate populations of the plant have been located on Pelham Range. One population near Willett Springs (Section 8.13.1.2.1) and the other near Lloyd's Chapel Swale (Section 8.13.1.2.2). The recovery plan recognizes these populations as distinct because they are separated by physical barriers such as roads and forests. Recent inventories on Anniston Army Depot have located an additional population directly south of Pelham Range (Garland, 1996: 52).

The *Recovery Plan Implementation Schedule* calls for Fort McClellan to accomplish three tasks:

- enforce protective legislation,
- develop a management plan, and
- search for new populations (Garland, 1996: 57).

As outlined in the *Endangered Species Management Plan for Fort McClellan, Alabama* (Garland, 1996), protection of the plant primarily will be accomplished through designation of Willett Springs and Lloyd's Chapel Swale as Special Interest Natural Areas. Protection measures for these areas are described in sections 8.13.2.1 and 8.13.1.2.2. Kudzu is a threat to Tennessee yellow-eyed grass around the pool at Willett Springs. Mechanical control measures were implemented in 1995 and 1996 and will be repeated as required.

Fort McClellan has implemented an educational and enforcement program to promote protection. The Provost Marshal has been briefed on the Army's legal responsibility for protecting the plant. Enforcement personnel have been provided tours of the areas and photographs suitable for framing. Sites are well posted, and briefings are provided to maintenance crews and trainers on prohibited activities. Areas are also identified on the Natural Resource and Environmental Constraints Map (Garland, 1996).

Environmental personnel routinely search for the plant during the course of daily activities. Monitoring of the plant is discussed in Section 9.2.5.1.

8.5.2.3.2 Mohr's Barbara's Buttons

Mohr's Barbara's buttons was listed as threatened by the USFWS in 1988. A recovery plan was approved in 1991. The discovery of the plant on Fort McClellan occurred in 1993. The population is located within the Large Impact Area on Pelham Range and contains about 3,000 individuals. It is one of the largest populations on record. The high frequency wildfires within the impact area is the primary factor behind the success of the plant.

The location of the population within an explosives impact area has prevented implementation of a comprehensive monitoring and management program. Fort McClellan Regulation 350-2 forbids entry into the impact area without approval of Range Control and only when escorted by Explosives Ordnance Detachment personnel. Restrictions limit monitoring to relatively short visits. Nevertheless, monitoring is accomplished as discussed Section 9.2.5.2.

Continuation of the existing fire regime is critical to the long term survival of the population. Wildfires in the area will be monitored and recorded in the Endangered Species Monitoring Log. After each fire, the area will be visited and the extent of the burn recorded. If fire has not annually occurred by March 15, a prescribed burn will be conducted. The area is also designated as a Special Interest Natural Area. The

Impact Area Barren SINA is described in Section 8.13.1.2.3.

8.5.3 Predator Management

8.5.3.1 Predator Control

Research has shown that predation is normally beneficial to animal populations by eliminating weak or diseased individuals and by holding populations below the carrying capacity. Main predators on the installation are hawks, bobcats, coyotes, foxes, stray dogs, and feral cats. No research has been conducted on the installation to determine populations; however, predation does not appear to be a problem at this time (Pittman *et al.*, 1991).

No control methods are being taken on the installation. Predator control is economically impractical and ecologically unwise without further research in this area. Only in the event of a rabies problem, or if research provides evidence that predator control is necessary, will predator control be initiated. Prior to implementation, coordination will be established with the Alabama, Department of Conservation and Natural Resources, USFWS, and the proper authorities at Fort McClellan (Pittman *et al.*, 1991).

8.5.3.2 Trapping

Trapping is prohibited on Fort McClellan, except for fish and wildlife management. Currently, trapping is used for damage control.

8.5.4 Other Nongame Species Management

The taking of birds, except for house sparrows, crows, and starlings, is prohibited by State law except during prescribed hunting seasons for game species. Other nongame species are protected by nongame species regulations under the Migratory Bird Treaty Act. Enforcement of these protective measures for nongame is the primary management tool for most nongame species on Fort McClellan.

8.6 Wetlands Management

Wetlands protection is required by Executive Order 11990, *Protection of Wetlands*. As described in Section 6.7.6, Fort McClellan has 3,424 acres of wetlands.

Wetlands are among the most productive and ecologically important natural communities on Fort McClellan. Fort McClellan has long recognized stewardship of wetlands as an important responsibility. Protection and maintenance of existing habitat are the primary thrust of wetlands management on Fort McClellan. The primary threat to wetlands on Fort McClellan is siltation associated with erosion from a variety of military and nonmilitary activities.

Fort McClellan will implement the following management practices to ensure protection of wetlands (Garland, 1996: 11-12):

- locations of larger wetland complexes are identified on the Fort McClellan Environmental Constraints Map, which is distributed by Range Control to trainers and other land users;
- signs prohibiting vehicle access are maintained around wetlands that are experiencing training

encroachment;

- both vehicular and pedestrian maneuver are prohibited near springs (Fort McClellan, 1995: 6);
- fording of streams with tracked or wheeled vehicles is prohibited except at designated crossings identified on the Environmental Constraints Map (Fort McClellan, 1995: 4);
- written guidance for wetlands protection is provided to training units in the pamphlet, *Protecting Natural Resources in the Field*;
- briefings on the status of wetland management/protection are provided to command and organization leaders through quarterly Environmental Quality Control Committee meetings;
- digitized maps of wetlands are included on Fort McClellan's Geographic Information System (Section 9.5.2); and
- NEPA review is used to identify wetland conflicts with planned actions and projects. If necessary, projects with potential impacts are referred to the Corps of Engineers to determine if jurisdictional wetlands are implicated and to establish mitigation procedures.

Section 8.13.1, *Special Interest Natural Areas*, includes additional provisions that protect quality of particular wetlands at Fort McClellan. Other sections of this INRMP have provisions to protect water quality and, therefore, wetlands. Provisions are found within *Water Quality Management* (8.7) and *Erosion Control* (8.8).

8.6.1 Corps of Engineers Permit Process

A permit issued by the Corps of Engineers is required before construction or other activities can take place in a certified or suspected jurisdictional wetland. Activities in wetlands which require federal permits include, but are not limited to: placement of fill material, ditching activities when the excavated material is sidecast, mechanized land clearing, land leveling, and most road construction. The Corps permit process requires coordination with the USFWS and the State Historic Preservation Office (SHPO) to allow for the assessment of potential impacts to protected species and cultural resources.

8.6.2 Best Management Practices

Best Management Practices for forestry are intended to protect, maintain, and improve various wetland functions and potential uses. *Alabama's Best Management Practices for Forestry* (Alabama Forestry Commission, 1993) are being implemented as part of the forest management (Section 8.2.15.3).

8.7 Water Quality

Water quality reflects environmental pollution, including sedimentation. Maintenance of high water quality is an important goal of this INRMP. Fort McClellan has a drinking and other-use water supply system and reasonably high quality surface and ground water (sections 4.3 and 6.5), and it intends to preserve that quality. Section 9.4 describes water quality monitoring.

AR 200-1 establishes the following objectives for water resources on Army lands:

- Conserve all water resources.
- Control or eliminate sources of pollution to surface or ground waters through conventional or innovative treatment systems.
- Demonstrate leadership in attaining the national goal of zero discharge of water pollutants.

- Provide drinking water that meets applicable standards.
- Cooperate with federal, state, and local regulatory authorities in forming and implementing water pollution control plans.
- Control or eliminate runoff and erosion through sound vegetative and land management practices.
- Consider nonpoint source pollution abatement in all construction, installation operations, and land management plans and activities.

Attainment of most of the above objectives is not the responsibility of Army installation natural resources programs, but some of them, especially the last two, are clearly natural resources management concerns. Below sections specifically deal with actions taken by Natural Resources personnel with regard to water quality. The Environmental Directorate is responsible for monitoring pollution levels and pollution control. Erosion control is the responsibility of the Natural Resources Specialist.

Use of Fort McClellan waters include human consumption, military training, and recreation. Laws and regulations associated with pollution control and abatement in U.S. waters include:

a. Clean Water Act of 1972, 1977, and 1987
b. U.S. Fish and Wildlife Coordination Act
c. National Environmental Policy Act of 1969
d. Executive Order 11990, Protection of Wetlands
e. Executive Order 11752, Prevention, Control, and Abatement of Environmental Pollution
f. Executive Order 12088, Federal Compliance with Pollution
g. AR 200-1, U.S. Army Environmental Protection and Enhancement
h. TB 55-1900-206-14, Control and Abatement of Pollution by Army Watercraft

Most of these laws and regulations are applicable at Fort McClellan, but many are not the responsibility of the natural resources program, and are thus not within this INRMP. Groundwater management consists of restoration projects associated with individual sources of pollution. These projects are not considered natural resources management.

Erosion is not a significant threat to overall water quality, but it does produce locally significant impacts. In addition, Alabama water quality standards specifically forbid elevation of surface water turbidity more than 50 NTC. The implementation of the erosion control program (Section 8.8.1) and planned initiation of LRAM on Pelham Range by ALARNG (Section 8.8.2) will enhance ability to protect water quality. There are other provisions within this INRMP which will specifically reduce negative impacts to water quality or mitigate such damage. These are found in sections 8.14 - *Training Restrictions*, 8.2.15.3 - *Best Management Practices*, 8.6 - *Wetlands Management*, 8.12 - *Pest Management*, 12.0 - *Environmental Awareness*, and 15.0 - *NEPA*.

8.8 Erosion Control

Soil erosion has been a major concern on Fort McClellan due to the highly erodible soils found on the installation. Not only is erosion detrimental to military training, but as described in Section 8.7, Alabama's water quality standards prohibit actions which elevate water turbidity significantly. This section specifically deals with management of erosion and soil conservation on Fort McClellan.

8.8.1 Soil Erosion Management Plan

The *Fort McClellan Soil Erosion Management Plan* (Nakata Planning Group, 1994) was developed and approved in 1994. Goals of the plan were to:

- comply with water quality and other environmental laws by limiting discharges;
- prevent erosion through education of personnel, design of new facilities, and natural resources management;
- rehabilitate eroded areas through establishment of vegetation, use of anchored mulch or erosion control mats, establishment of stable training surfaces, restrictions to access, site monitoring, and borrow site management; and
- provide for sustainable land use (Nakata Planning Group, 1994).

The Erosion Management Plan is an integral component of this INRMP, and its implementation will be the primary land management task during 1998-2002.

The Erosion Management Plan was accompanied by an erosion inventory that identified problem sites for erosion. Inventory information was entered into a soil erosion database linked to site mapping. The inventory identified 60 problem sites, 27 on Main Post and 33 on Pelham Range (Nakata Planning Group, 1994).

Problem sites are from one to one and one-half acre in size. Erosion at each site potentially threatens water quality, land stewardship goals, or infrastructure. The Erosion Management Plan provides a rehabilitation/management plan for each site. Individual site plans will be implemented during 1998-2002 as funding permits.

8.8.2 Road and Firebreak Maintenance

The Directorate of Engineering and Housing is responsible for maintenance of roads while the Directorate of Environment (Forestry Section) is responsible for firebreaks. Maintenance is conducted through contract. Roads and firebreaks are important to natural resources management in that they are needed for natural resources management, wildfire suppression/prevention, and recreational access. Maintenance of range roads and firebreaks is a significant soils management issue since drainage associated with roads often significantly affects erosion.

The following guidelines will be used in 1998-2002 for construction and maintenance of roads and firebreaks.

- Whenever possible, existing roads and firebreaks will be used, minimizing new construction.
- Best management practices will be followed in construction and maintenance projects.
- Whenever possible, roads will be constructed at natural ground level, which is less likely to restrict natural water flow.

Contractor maintenance personnel will be included in awareness briefings (Section 12.2.2).

8.9 Integrated Training Area Management

Integrated Training Area Management (ITAM) was developed as an Army-wide program to provide quality training environments to support the military mission. ITAM was fielded due to the realization that Army training lands were being degraded to the point where their capabilities to sustain military missions were in jeopardy.

ITAM Mission

Integrate all land management activities to ensure compatibility of critical combat skills training and natural resources management.

ITAM Strategy

Provide optimum training area management by integrating training and other mission requirements for land use with sound natural resource management of land. Achieve sustained use of training lands by implementing a program which includes:

- Inventorying and monitoring land conditions (Land Condition Trend Analysis, LCTA),
- Integrating training requirements with land capacity (Training Requirements Integration, TRI),
- Educating land users (Environmental Awareness, EA), and
- Rehabilitating and maintaining training land (Land Rehabilitation and Maintenance, LRAM).

ITAM was developed as an environmental program. However, due to its primary goal of providing for sustainable training lands and the requirement for ITAM to be closely coordinated with training activities, proponency for this program was transferred to the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) in 1995.

Currently, ITAM is not implemented on Fort McClellan. However, following the BRAC transfer of Pelham Range to Alabama Army National Guard (ALARNG), projected for 1999, ITAM may be initiated by the Guard.

8.9.1 Land Rehabilitation and Maintenance

Land Rehabilitation and Maintenance (LRAM), a component of ITAM, involves repair of training-damaged lands and use of land construction technology to avoid future damage to training lands. LRAM uses technologies such as revegetation and erosion control techniques to prevent site degradation, soil erosion, and water/wetlands pollution. Projects are specifically designed to maintain quality military training lands, minimize long-term costs associated with land rehabilitation or additional land purchase, ensure compliance with environmental laws and regulations, and reduce erosion.

LRAM projects may be planned and conducted in-house or through contract. The LRAM process begins with identification of potential LRAM projects. LCTA data (Section 9.2.1) and GIS technology (Section 9.5.2) are typically used to help identify projects. In the case of Pelham Range, erosion problem sites identified by the Erosion Management Plan (Section 8.8) may qualify. However, LRAM projects must be directly related to training impacts; LRAM cannot be used to correct erosion when an area is out of compliance, as this is an environmental funding arena.

Two common types of LRAM projects are training area rehabilitation and hardened sites. Training area rehabilitation involves a wide-array of techniques to correct erosion features, minimize disturbance, and revegetate denuded areas. Rehabilitation may occur within large training areas or more localized sites used for training. Rehabilitation areas may also be temporarily place "off-limits" or protected through other restrictions. Revegetation is the critical stage of training area rehabilitation. Commonly used techniques for erosion control and establishment of vegetation include seedbed preparation, seeding, mulching, fertilizer application, and protection from runoff until vegetation is established. Techniques will be specific to each project. The use of native species will be emphasized in accordance with the Presidential memo on the subject (Office of the President, 1994).

Hardened sites are areas which have been resurfaced with good base material, often overlaid with gravel. Sensitive areas within hardened sites may also be protected using barriers. Hardened sites are created in areas that receive repetitive training within a small area to the point where vegetation is damaged and "realism" is already drastically compromised. Potential locations include bivouac sites, firing points, and troop assembly areas.

LRAM provides a carefully managed, intensive program to accomplish repair of damaged training lands. LRAM will likely be the most intensive component of ALARNG's ITAM program.

8.9.2 Land Condition Trend Analysis

Land Condition Trend Analysis (LCTA), a component of ITAM, is described in Section 9.2.1.

8.9.3 Training Requirements Integration

Training Requirements Integration (TRI) is the direct interface between training requirements for land use and the capability of the land and its natural resources to support that training. TRI relies on LCTA and other monitoring programs to determine land capabilities. TRI likely will be initiated on Pelham Range in 1999 as part of ALARNG implementation of ITAM.

8.9.3.1 Identification of Training Needs

It is important to identify means in which training can be sustained or improved via land management activities on Pelham Range. As the TRI program develops, an important objective will be to make this process inclusive of all military users on the installation.

8.9.3.2 Mission Siting

It is important to site missions where natural resources can support them on a sustained basis. This saves rehabilitation money and provides higher quality training for troops. New mission siting may be aided via the NEPA process. The coordination aspect of NEPA is conducive to obtaining necessary input to site missions on lands best suited for supporting them. See Chapter 15 for more information. The GIS will become a valuable tool for selecting sites for virtually any combination of desired conditions.

8.9.3.3 Training Restrictions

Restrictions on training are sometimes necessary for long-term sustainment of training and ecosystem protection. Fort McClellan has already established many restrictions and protection measures (Section 8.14) consistent with TRI.

8.9.3.4 Environmental Awareness

Environmental Awareness, a component of ITAM, is described in Section 12.2.3.

8.10 Cantonment Area Management

Grounds maintenance on Fort McClellan is accomplished by the Directorate of Engineering and Housing through contract. Fort McClellan is implementing a "no-mow" program to reduce grounds maintenance by returning some mowed areas to natural forest cover. "No-mow" means just what it says... the dropping of an area from the grass mowing cycle. These areas are most accepted by the public when they are natural extensions of already wild lands.

Since 1994 approximately 200 acres have been removed from the mowing cycle. To improve appearance, some areas have been planted in loblolly pine or other vegetation to aid natural succession. During 1998-2002 Fort McClellan will continue to reduce mowed areas, as appropriate.

Fort McClellan will also implement natural landscaping practices during 1998-2002, per requirements issued by the Office of the President (1994). Bare ground grading and the use of chemicals will be minimized whenever possible. Landscaping will be natural and water efficient, per AR Regulation 200-3, Chapter 4, *Grounds Maintenance*. Emphasis will be placed on water conservation using measures such as reducing irrigation.

8.11 Pest Management

Responsibility for pest management on Fort McClellan is with the Natural Resources Specialist who is the Installation Pest Management Coordinator. However, Forestry and the Golf Course also are involved in pest management. Pest management is also discussed in sections 8.2.16, *Forest Diseases and Pests;* 8.4.3.1.4, *Aquatic Weed Control*; and 8.5.3.1, *Predator Control.*

8.11.1 Integrated Pest Management

Integrated pest management (IPM) is the use of multiple techniques in a compatible manner to avoid damage and minimize adverse environmental affects while obtaining control of target pests. The goal of IPM is to utilize nonchemical procedures to control pests. IPM is used at Fort McClellan, and typically a combination of the below IPM techniques is required to resolve a problem on a sustained basis (Owen, 1997):

- ***mechanical control***, which alters environments in which pests live, traps or removes pests (*i.e.* glue boards and live-traps) from where they are not wanted, or excludes pests from where they are not wanted (*i.e.* screening);

- ***cultural control***, which manipulates environmental conditions to suppress or eliminate pests (*i.e.* removal of food scraps or spreading manure on fields);
- ***biological control***, which uses predators, parasites, or disease organisms to control pests (*i.e.* *Gambusia* fish to eat mosquitos or grass carp to remove aquatic weeds); and
- ***chemical control***, which relies on pesticides and/or herbicides to kill pest and/or undesirable species of plants.

The Office of the President (1994) called upon heads of federal agencies to reduce the amount of pesticide use by using IPM practices. Fort McClellan has a policy of only using chemical control as a last resort or in combination with other control methods.

In 1994 the Army approved three Measures of Merit that defined the course of Pest Management programs through the year 2000. These measures are to have a current pest management plan by the end of FY 97, reduce pesticide use by 50% over a seven-year period (1994-2000), and have pesticide applicators certified within two years of employment by end of FY 98.

8.11.1.1 Integrated Pest Management Plan

Fort McClellan has developed the *Pest Management Plan for Fort McClellan, Alabama* (Draft) (Owen, 1997), which is a revision of a previous plan (Owen, 1992). The revised plan details implementation of IPM on Fort McClellan.

8.11.1.2 Chemical Use

Due largely to Base Realignment and Closure implementation, which began in 1995, pesticide use on Fort McClellan has fallen drastically. Annual use of pesticides is approximately 70 percent below the 1994 level.

Continued reduction of chemical use remains a goal of the pest management program. The installation understands both obvious and long term threats to both humans and ecosystem functions from chemical abuses. All chemicals used on Fort McClellan are EPA-approved.

8.11.1.3 Pesticide Certification

All installation personnel who apply or oversee the application of pesticides on Fort McClellan are certified pest controllers. Military or Department of Army civilian personnel, such as the Installation Pest Management Coordinator and the Golf Course Superintendent, are DoD certified. Contractor employees are certified through the State of Alabama. Pest management personnel will be re-certified every three years (Owen, 1997).

8.11.2 Environmental Considerations

During 1998-2002 the following environmental/natural resources issues on Fort McClellan will receive special consideration (Owen, 1997).

- ***Protection of the Public***: Precautions will be taken during pesticide application to avoid effects to human populations on and off Fort McClellan.

- *Endangered Species Protection*: Implementation of pest management will be consistent with the Endangered Species Management Plan and this INRMP.
- *NEPA Documentation*: An environmental assessment will be prepared to document the integrated pest management program.
- *Hazardous Waste Spills*: A pesticide spill cleanup kit will be maintained in the pesticide storage area, and all pesticide spills will be reported to the installation hazardous waste manager.
- *Pollution Prevention*: The integrated pest management program will comply with Executive Order 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*.
- *Prohibited Activities*: At no time will pesticides be used in any manner inconsistent with Fort McClellan regulations, printed pesticide labels, or related restrictions.

8.12 Fire Management

The *Natural Resources Fire Protection Plan* was approved in 1989 to ensure an effective program of controlling and suppressing wildfires on Fort McClellan, Alabama. The plan was prepared according to regulations and guidance provided in AR 200-3, TM 5-630, and TM 5-631.

The primary objective of the forest fire control program is fire suppression with minimum use of personnel and equipment. Forest and range fire suppression is the responsibility of the Forester, Directorate of Environment. Forestry and other fire-response personnel are trained in wildfire suppression techniques and fire behavior. They are equipped with specialized tools, vehicles, and heavy equipment for rapid response to wildfires. Close liaison is maintained with the Fort McClellan Fire Department, the Anniston Army Depot Fire Department, and the Directorate of Engineering and Housing (DEH) contractor. Forestry personnel are qualified to respond to wildfires in the absence of the Installation Forester or during after-duty hours, holidays, and weekends.

8.12.1 Firebreaks

Most wildfires on Fort McClellan result from the use of pyrotechnic devices and tracer fire. In an effort to confine fires to the smallest area possible, active impact areas and ranges where tracers are utilized are surrounded by firebreaks. These established firebreaks form the primary defense perimeter for areas that experience recurring fires. Firebreaks are also maintained around numerous boundaries of Main Post and Pelham Range. Roads on Fort McClellan comprise part of the firebreak system.

Roads and firebreaks are maintained by the DEH contractor and forestry section, DOE. Firebreaks are classified as either primary or secondary. Primary firebreaks are graded on a three-year rotation. Secondary firebreaks were constructed in the past but are no longer maintained. They can be cleared rapidly if the need arises for a specific fire (Pittman *et al.*, 1991).

8.12.2 Prescribed Fire

A systematic prescribed burning program is utilized to minimize the potential danger of wildfires by reducing the quantity of fuels on the forest floor. Areas highly susceptible to fires are burned on an annual basis. The prescribed burning program is restricted to winter and is only accomplished during acceptable weather conditions. Prescribed burns for natural resources management purposes, often occurring during the growing season, are discussed in sections 8.2.9.3 and 8.4.2.7.

All prescribed burns are conducted in conformance with State of Alabama burning ordinances, good forest management practices, and Range Control guidance. Smoke management has become an important factor in scheduling prescribed burns. Weather conditions and the proximity of the burn to roads and built-up areas are evaluated prior to each burn. An annual prescribed burning plan is submitted for approval to TRADOC Headquarters as required by TRADOC Supplement 1 to AR 420-74 (Pittman *et al.*, 1991).

8.12.3 Prevention

8.12.3.1 Coordination

Close coordination among Range Control, the Fire Department, the Directorate of Environment, and troops in the field is essential to an effective wildfire suppression program. Liaison with commanding officers in the field is maintained. Forestry personnel in red forestry trucks make a conscious effort to be seen in areas occupied by troops on firing ranges or on field maneuvers.

8.12.3.2 Education

During periods of dry weather, fire prevention notices are posted in the Installation Daily Bulletin, in the McClellan News, and with Range Control. The potential danger of wildfires is disseminated through the use of fire danger classes. This information is obtained by Range Control personnel on a daily basis from the Alabama Forestry Commission (AFC). Troops are regularly verbally reminded to adhere to all range regulations and guidance regarding fire, including those pertaining to reporting and taking action on fires outside of dud impact areas (Pittman *et al.*, 1991).

8.12.3.3 Detection

The most frequently used detection system, other than troops reporting fires to the Fire Department and Range Control, is a sporadic spot check by forestry personnel from key pinnacle elevations on the installation. AFC provides aerial flights at least once a day when fire danger is high. The number of flights per day is increased as the fire danger becomes more serious (Pittman *et al.*, 1991).

8.12.4 Allow-Burn Policy

In many areas of Main Post and Pelham Range where a regular fire regime is necessary for management of sensitive species or unique natural habitats, e.g. the longleaf pine forest system, an allow-burn will be implemented for wildfires. This policy is described in Section 8.13.1.1.1. Wildfire will only be allowed to burn if it can be effectively contained within firebreaks.

8.12.5 Suppression

An objective of wildfire suppression on Fort McClellan is to construct or select firebreaks as control lines around the fire. Once the control line has been completed, unburned areas between the fire and line will usually be backfired to affect a burnout. Mop-up proceeds once the fire is considered controlled. Where potential for the fire to spread is significant, procedures will be implemented to minimize fire danger. Burning or smoldering stumps near the control line will be cut up or covered with mineral soil. Burning or smoldering snags that could fall across firebreaks will be cut down. The entire length of the control line will be inspected before crews abandon the burned-over area (Pittman *et al.*, 1991).

8.12.6 Fire Reports

Fires that result in economic loss of forest resources and/or degradation of ecological values are reported on DoD Fire Incident Reports (DD Form 2324). Reports are prepared by the Forester and submitted through the Fort McClellan Fire Department for signature by the Chief of Staff. When fires are confined to ranges and impact areas, they are not considered economically or ecologically damaging. However, the location, time, and size of these fires is maintained in a logbook by the Forester.

The table provided below indicates the combined forest fire (wildfire) record on Fort McClellan since 1952. It does not include fires within the impact area unless they required suppression response (which is rare) (Pittman *et al.*, 1991).

Fiscal Year	# Fires	Acres Burned*	Dollar Loss
1952	2	268.00	$3,804.00
1953	2	550.00	$2,200.00
1954	10	970.00	$2,606.00
1955	11	1,764.00	$6,340.00
1956	1	78.00	$180.00
1957	4	204.00	$1,210.40
1958	10	591.50	$1,457.00
1959	7	405.00	$1,774.20
1960	2	110.00	$100.00
1961	12	427.00	$2,444.00
1962	20	188.00	$1,828.00
1963	15	154.35	$1,200.50
1964	13	259.15	$1,066.54
1965	14	109.80	$546.10
1966	8	90.30	$492.80
1967	31	119.40	$3,606.71
1968	24	130.80	$593.60
1969	63	464.80	$3,011.20
1970	29	192.20	$1,916.40

Fiscal Year	# Fires	Acres Burned*	Dollar Loss
1971	11	488.20	$640.00
1972	8	46.80	-
1973	4	40.00	-
1974	6	38.20	-
1975	3	27.00	-
1976	3	218.00	$2,200.80
1976T**	2	0.75	-
1977	10	89.10	$1,040.76
1978	12	63.10	-
1979	5	86.00	$40.00
1980	28	1,322.00	$50.00
1981	no data	no data	no data
1982	45	1,597.25	$9,602.20
1983	39	939.50	$3,339.80
1984	23	895.50	-
1985	35	2,553.00	$500.00
1986	74	4,482.00	$42,290.00
1987	60	882.00	$3,562.00
1988	85	1,145.00	$38,935.00
1989	43	444.00	$1,980.00
1990	64	968.00	$10,657.00
1991	37	335.00	$15,286.00
1992	83	815.00	$14,067.00
1993	38	300.00	$2,778.00
1994	43	190.00	$9,421.00
1995	52	1,294.00	$36,063.00

Fiscal Year	# Fires	Acres Burned*	Dollar Loss
1996	29	1,447.00	$2,541.00
Totals	1120	27,782.70	$231,371.01

* Acres shown prior to 1995 do not include "no loss fires".
** Change in fiscal year which added three months (Jul-Sep).

No loss fires are not depicted in the table above for years prior to 1995. No loss fires do not result in timber loss but do require personnel and equipment for suppression. Number of acres shown for 1995 and 1996 include 483 and 800 acres respectively of no loss fires. Fire suppression procedures are instrumental in controlling fires to the extent that they become no loss fires.

8.13 Special Area Protection

8.13.1 Special Interest Natural Areas

Designation of Special Interest Natural Area (SINA) status for important or fragile areas is an important management tool on Fort McClellan. It is often easier and more cost effective to put use restrictions on special areas to minimize damage or disturbance than to mitigate damage or disturbance.

Sixteen SINAs have been designated on the installation, 11 on Main Post and five on Pelham Range. SINAs typically encompass diverse biological communities harboring federal or state-listed species. Management is directed at ensuring the health and vitality of the entire community. The presence of a rare or declining species may indicate that the community is under stress. Through proactive management, the need to recover species under legal mandate in the future may be avoided. Fort McClellan also contributes to conserving regional biodiversity by protecting unusual and unique biological communities as SINAs (Garland, 1996: 13).

Commercial forestry on Fort McClellan has been suspended within all SINAs. However, situations may develop in which forestry practices may be used to accomplish management objectives, e.g. prescribed burning. The goal of forestry operations within SINAs is to ensure ecological integrity (Garland, 1996: 13).

Potential impacts to SINAs from installation projects are identified as part of the NEPA process. Natural Resources reviews all proposed projects to identify environmental concerns and recommend measures to minimize damage. NEPA is discussed in greater detail in Chapter 15.

SINAs were defined in the *Endangered Species Management Plan for Fort McClellan, Alabama* (Garland, 1996). SINAs and their associated management practices are summarized below.

8.13.1.1 Main Post

On Main Post 11 SINAs have been identified at both regional and community levels. The Mountain Longleaf Community Complex SINA, containing a mosaic of differing forest types, is defined from a regional context. The remaining 10 SINAs are defined on the basis of local communities that harbor unique or unusual species. These SINAs are mostly inclusive within the Longleaf Community SINA and

form part of the mosaic that enhances the ecological significance of the longleaf forest complex. An overall management policy with broad-based management goals has been established for the Longleaf Community SINA. For the smaller community-based SINAs, more specific guidance has been established (Garland, 1996: 22).

8.13.1.1.1 Mountain Longleaf Community Complex

The Mountain Longleaf Community Complex SINA consists of 12,000 acres of longleaf-dominated forests on steeper slopes and higher elevations of Main Post. Fort McClellan's mountain longleaf community type is described in Section 6.7.3. Although much of the SINA has been disturbed through historic logging and forest fire control, exceptional examples of mature longleaf pine forests occur in many areas.

An important management goal for the SINA is maintaining a continuous forest system, contiguous with forests to the north, south, and east of Main Post. Of particular significance is connecting with more expansive forests of the Talladega National Forest through the forested pathway provided by the Choccolocco Corridor.

Management of longleaf pine forests in a contiguous tract is an important contribution to conserving regional biodiversity. Large tracts of contiguous unfragmented forests are less common as Alabama continues to develop. The interior of large unfragmented forests on Main Post provides habitat for many species that are unable to adapt and survive in early successional or disturbed cover types. For example, studies of neotropical migratory birds on Fort McClellan during 1994 and 1995 indicated that fragmented forests supported significantly fewer species (Webb *et al.*, 1997).

Because this SINA comprises such a large portion of Main Post, it is important to implement a management approach compatible with multiple types of military training and other uses. Therefore, unlike other SINAs, sweeping use-restrictions are avoided.

Active fire suppression has been a primary factor in the decline of this fire adapted forest type. Until recently, policy has been based on minimizing the use of fire control funds on noncommercial forest land. Fires have been actively suppressed to minimize expenditures, and lands have been excluded from the prescribed burning program. New policy within the Longleaf Community SINA will be to ensure an adequate fire regime. Wildfires will be evaluated on an individual basis by responding fire control officers. If a wildfire can be safely contained within existing roads, it will be allowed to burn to all firebreaks. In areas that do not experience wildfires, an additional effort will be made to schedule prescribed burns. Some prescribed burns may be scheduled during the growing season to take advantage of better hardwood control. Environmental funds will be programmed through the Environmental Program Requirements process to support prescribed burning (Garland, 1996: 24).

Besides the establishment of a fire regime, other management initiatives for the SINA will be detailed in the *Longleaf Pine Management/Restoration Plan for Fort McClellan*, being prepared Auburn University's School of Forestry. The plan, to be completed in 1998, will establish specific procedures for reforestation and management (Garland, 1996: 24).

8.13.1.1.2 Marcheta Hill Orchid Seep

The spring seep to the west of Marcheta Hill is one of the more important SINAs on Main Post. This wetland is the largest forested seepage on Fort McClellan and contains two former federal candidate species, white fringeless orchid and Diana butterfly. The population of white fringeless orchid is particularly significant with over 250 individuals recorded. Additional plants listed by the Alabama Natural Heritage Program in this seep include rose-pink and soapwort gentian.

The wetland is located directly behind Range 21 along Bain's Gap Road. *Do Not Disturb Endangered Species Area* signs are posted around the SINA, which is unfenced. The SINA is identified on the *Natural Resource and Environmental Constraints Map* issued to all training personnel. The SINA is part of the larger Mountain Longleaf Community SINA (Garland, 1996: 25). Protection measures for the Mountain Longleaf Community SINA are discussed in Section 8.13.1.1.1.

Continuation of the existing fire regime is the most critical management requirement. Typically, the area experiences a wildfire at least once every two years. To ensure this frequency, a prescribed burn will be conducted if the area has not experienced a fire by March 1 of the second year.

8.13.1.1.3 Bains Gap Seep

Bains Gap Seep SINA, located on the slope of Choccolocco Mountain, consists of a stream paralleling Bains Gap Road and a second ephemeral drainage that flows into the stream. Small spring seeps occur along portions of the stream. Typic mosophytic forests occur on slopes above the drainages.

The significance of this SINA is based on the presence of rare plant and caddisfly species. An isolated population of former federal candidate (C2) Fraser's loosestrife occurs in a small seep adjacent to the stream. A former candidate (C2) caddisfly (*Polycentropus carlsoni*) has also been collected along the stream. Six other caddisflies listed by the Alabama Natural Heritage Program have been documented within the SINA.

The location of the SINA (within 15 feet of Bains Gap Road) makes protection critical. *Do Not Disturb Endangered Species Area* signs are posted around the area, which is unfenced. The SINA is identified on the *Natural Resource and Environmental Constraints Map* issued to all training personnel. Briefings concerning the proximity of the road to sensitive species are provided to land managers and military units. Briefings are conducted on an as needed basis, particularly in response to proposed maintenance along the road. The SINA is also part of the larger Mountain Longleaf Community SINA (Garland, 1996: 26). Protection measures for this SINA are discussed in Section 8.4.4.1.1.

Although fire is generally not considered critical to the survival of Fraser's loosestrife, there may be benefits in eliminating some of the competing hardwood shrubs. Wildfires will, therefore, be evaluated on an individual basis and allowed to occur if security of off-post areas can be assured (Garland, 1996: 26).

8.13.1.1.4 Cave Creek Seep

Cave Creek Seep SINA consists of a wetland in the headwaters of Cave Creek north and northwest of Caffey Hill. The SINA includes a large seepage with xeric slopes to the northeast and southwest. A small population of the former federal candidate (C2) white fringeless orchid was recorded at the site in 1994.

Additional plants listed by the Alabama Natural Heritage Program include pink lady's slipper and soapwort gentian.

Potential threats to the SINA include sediment from vehicle maneuver and timber harvest. Two unimproved roads cross the SINA, but only one significantly contributes to sediment. The latter bisects the seep from the northeast to the southwest. It fords the drainage and immediately climbs a very steep grade to the ridge above. Because this road segment can be closed with little impact on the overall road and firebreak system, it will be placed off-limits to vehicular traffic.

Timber harvest is not planned within this watershed. However, Auburn University is preparing a longleaf pine management plan that will focus on lands surrounding the SINA. If timber harvest is recommended, then special consideration will be given to potential impacts (Garland, 1996: 26). The SINA is within the Mountain Longleaf Community Complex and benefits from fire management initiates associated with the longleaf community (Section 8.4.4.1.1).

8.13.1.1.5 South Branch Cane Creek

South Branch Cane Creek SINA is at the headwaters of the south branch of Cane Creek and consists of stream, mountain seep, and typic mesophytic forest communities. Surrounding forested mountain slopes are critical to the integrity of the aquatic and wetland communities. Much of the watershed includes the forested slopes of the Stanley Hill SINA (Section 8.4.4.1.7).

The former federal candidate (C2) caddisfly, *Polycentropus carlsoni*, and an even rarer single-site endemic caddisfly, *Hydroptila setigera*, have been collected from the stream. Thirteen other caddisfly species listed by the Alabama Natural Heritage Program occur within the SINA.

Much of the SINA was formerly a chemical munitions disposal training area. Until 1973 training with Mustard and Sarin agents reportedly took place at the site. It is currently under investigation through the Department of Defense Installation Restoration Program. The only current training facility near the SINA is a 10-acre smoke generation range (Range 24-A).

The primary management goal of this SINA is to ensure the maintenance of water quality within the creek and minimize the influx of sediments from surrounding upland areas. Forested slopes of this SINA provide a stable cover that minimize erosion and sedimentation (Garland, 1996: 29).

Since the SINA is not included in the commercial forest program, Range 24-A operations constitute the primary source of possible degradation. Portions of the range have eroded, resulting in sedimentation of lower areas. In an effort to minimize erosion, the range will be revegetated and a streamside vegetation boundary will be designated. Signs restricting vehicles will be placed around the buffer zone (Garland, 1996: 29).

There is also potential for sedimentation from firebreaks that cross the creek at several locations. Firebreak maintenance at fording locations will be minimized to reduce soil disturbance. An allow-burn policy will be applied to all wildfires unless range facilities are threatened.

8.13.1.1.6 Moorman Hill Mountain Juniper

Moorman Hill Mountain Juniper SINA encompasses the westerly ridge of Moorman hill at an elevation of about 1,800 feet. The local habitat is dry Virginia pine-oak forest grading into mountain longleaf pine forest below the ridge. The site is very stoney with a number of broad rockfaces (Garland, 1996: 30).

The significance of this area derives from the common juniper within protected rock faces along the ridge. This is the first known occurrence of common juniper in Alabama. The ridge is rather isolated and protected from most activities on Fort McClellan. Historical fires have been rather severe along this ridge, eliminating many larger trees on steep slopes. While juniper may be sensitive to fires, these events may well have benefited the plant by opening up the forest and allowing this plant to survive within protected rockfaces.

The isolation of this area provides adequate protection from routine training and management activities. The continued occurrence of low intensity fires is considered important to the survival of the juniper. This area is contiguous with the Mountain Longleaf Community Complex SINA, and the prescribed burning program will be expanded to include this ridge. Fires will likely be conducted at three-year intervals (Garland, 1996: 30).

8.13.1.1.7 Stanley Hill Chestnut Oak Forest

Stanley Hill Chestnut Oak Forest SINA encompasses the largest tract of mesic woodlands on Main Post. The site, located on steep northern and western slopes of Kings and Stanley hills, is within the extensive Mountain Longleaf Community Complex SINA. The area is identified separately because of its potential importance for breeding neotropical migratory birds.

As a component of the Mountain Longleaf Community Complex, the site will be managed in accordance with objectives and prescriptions established for the larger SINA. In particular, an allow-burn policy will be implemented for wildfires. However, because these woodlands are valuable to breeding birds, active suppression will be the preferred option from April to June. Capable of supporting multiple uses, this area does not require more restrictive management initiatives (Garland, 1996: 31).

8.13.1.1.8 Reynolds Hill Turkey Oak

Reynolds Hill Turkey Oak SINA is on the upper slopes of Reynolds and Cable hills near the southwestern boundary of Main Post. The significance of the SINA is based on the occurrence of a small population of turkey oak, which represents a major disjunction from known populations of turkey oak in Alabama. The SINA, however, is dominated by longleaf pine and is included in the Mountain Longleaf Community Complex SINA.

As a component of the Mountain Longleaf Community Complex, the site will be managed in accordance with objectives and prescriptions established for the larger SINA. Timber harvesting has opened the understory to sunlight, and fire is a critical requirement for controlling shrubs. This SINA will be given priority in scheduling growing season burns. The allow-burn policy established for the Mountain Longleaf Community Complex will also benefit this SINA. However, due to the close proximity of Anniston to the west, smoke could create problems (Garland, 1996: 31).

8.13.1.1.9 Davis Hill Honeysuckle

Davis Hill Honeysuckle SINA is on the upper slopes of Davis hill above 1300 feet in elevation. Vegetation types of the SINA include dry Virginia pine forest and Piedmont monadock forest. The significance of this SINA is based on the presence of yellow honeysuckle, a plant included in the Alabama Natural Heritage Program's list of sensitive species. The SINA is part of the larger Mountain Longleaf Community Complex SINA.

The site will be managed in accordance with objectives and prescriptions established for the Mountain Longleaf Community Complex SINA. Because honeysuckle is not a fire dependent species, fire is not considered critical to management. Nevertheless, an allow-burn policy will be implemented as in the rest of the Mountain Longleaf Community Complex. The area will be evaluated annually to ensure that the canopy remains open to allow adequate light to reach the understory. A limited overstory removal effort will be implemented should canopy closure threaten the yellow honeysuckle (Garland, 1996: 32).

8.13.1.1.10 Marcheta Hill Crow-Poison Seep

Marcheta Hill Crow-Poison Seep SINA is another area within the Mountain Longleaf Community Complex SINA. The smaller SINA consists of typic mesophytic forest located along a small headwater seep on the east side of Marcheta Hill. The significance of this SINA is based on the occurrence of crow-poison, a plant included in the Alabama Natural Heritage Program's list of sensitive species.

This small headwater seep is relatively undisturbed, although lower reaches of the seep have been altered and degraded from construction and use of Ranges 21 and 24. The seep is closely associated with the Marcheta Hill Orchid Seep SINA (Section 8.4.4.1.2) located on the other side of the hill.

As a component of the Mountain Longleaf Community Complex, the site will be managed in accordance with objectives and prescriptions established for the larger SINA. Fire will not be prescribed for this site, but wildfire will be allowed to burn when conditions permit (Garland, 1996: 32).

8.13.1.1.11 Frederick Hill Aster Site

Frederick Hill Aster Site SINA is located on exposures along steep western slopes of Choccolocco Mountain north of Bain's Gap. The SINA contains the only documented population of sky-blue aster in Alabama. The occurrence of this plant is limited to a very dry section of Piedmont monadock forest. The SINA is part of the large Mountain Longleaf Community Complex SINA.

Because exact distribution of the aster is unknown, no specific SINA boundaries have been established. Further surveys are needed to accurately inventory and study the plant. Fire is critical to the maintenance of open areas required by the aster. An allow-burn policy will be implemented as part of management for the Mountain Longleaf Community Complex SINA. Once distribution is more fully known, specific prescribed burn policies can be implemented (Garland, 1996: 33).

8.13.1.2 Pelham Range

Pelham Range has five SINAs, four of which were delineated by the Alabama Natural Heritage Program (ANHP) in 1994. ANHP defined the SINAs as any biological community harboring at least one federally-

listed or former candidate species (species of concern).

8.13.1.2.1 Willett Springs

Willett Springs SINA is in the central portion of Pelham Range adjacent to Cane Creek. The area includes a perennial spring, a two-acre pool (impoundment), and a 150-foot spring run. Willett Springs is directly adjacent to an operational military training site. The site has been maintained and used by military trainers for many years. The border of the spring pool has been cleared of woody vegetation and planted in grass. The grass is mowed as part of normal maintenance requirements.

A large population of the federal-endangered Tennessee yellow-eyed grass occurs along the wetland border of the pool. The spring is also potential habitat for the federal-threatened pygmy sculpin. The SINA is being considered as a site for reintroduction of this species along the Coosa River watershed as part of the recovery plan. Field horsetail, a sensitive species listed by the ANHP, also occurs along the spring's pool and run. The cool microclimate created by the spring is responsible for the presence of this species on the southern periphery of its range.

Detailed management initiatives for Tennessee yellow-eyed grass are discussed in Section 8.5.2.3.1. While endangered species management will benefit the entire SINA, an additional study is being conducted to determine how to more fully manage the SINA under a broader ecosystem approach. This comprehensive ecological inventory will provide a baseline for future management.

Because of the spring's proximity to an operational training area, additional efforts are being implemented to avoid adverse impacts from training. *Do Not Disturb Endangered Species Area* signs have bee placed around the spring pool, and trainers have been briefed on the significance of this wetland complex. The Directorate of Environment conducts all maintenance around the spring (Garland, 1996: 34).

8.13.1.2.2 Lloyd's Chapel Swale

Lloyd's Chapel Swale SINA is along the southeastern boundary of Pelham Range. The SINA consists of an ephemeral spring flowing from Pelham Range onto adjacent property owned by the Alabama Department of Transportation (ADOT). The significance of the SINA derives from the occurrence of the federally-listed endangered Tennessee yellow-eyed grass.

The SINA has been severely altered by human activities. A boundary road has been constructed across the seepage area. The ADOT portion of the spring drainage has been planted in grass and is periodically mowed.

Disturbance to the wetland appears to be critical to the survival of Tennessee yellow-eyed grass by disturbing soil and exposing areas to sunlight. Management of the SINA will ensure limited disturbance. Detailed management initiatives for Tennessee yellow-eyed grass are discussed in Section 8.5.2.3.1 and will benefit the broader SINA (Garland, 1996: 34).

8.13.1.2.3 Impact Area Barren

Impact Area Barren SINA is located on the western portion of Pelham Range's largest impact area within a "dud" area containing unexploded ordnance. The SINA consists of an open xeric hardpan savanna with an

open tree canopy. The herb layer is dominated by grasses, sedges, and rushes. The virtual absence of invasive exotics suggests that the area has never been disturbed by plowing. Shallow ephemeral streams overlying a shale bedrock occur throughout the area.

The significance of the SINA is based on the occurrence of the federally-listed threatened Mohr's Barbara's buttons. The plant is found along ephemeral streams that flow through the site.

A management program for Mohr's Barbara's buttons is described in Section 8.5.2.3.2. Recurring wildfires have resulted in an open savanna condition. The continuation of this fire regime will be critical to long term maintenance of the SINA. The SINA is off-limits to all personnel except as authorized by the Explosive Ordnance Detachment and Range Control (Garland, 1996: 35).

8.13.1.2.4 Cabin Club Spring

Cabin Club Spring SINA is in the southwestern corner of Pelham Range near the installation boundary. It is comprised for the most part of a calcareous pool approximately 100 feet in diameter and three feet in depth. The spring run enters a tributary to Cane Creek a short distance from the pool. This tributary system is also part of the SINA.

The SINA is significant as potential habitat for two sensitive species, the federally-listed (threatened) pygmy sculpin and the former candidate coldwater darter. The spring is being considered as a site for reintroduction of the pygmy sculpin as part of a species recovery plan.

The spring pool does not appear to be impacted by training activities. However, the watershed immediately above the spring includes sections of the Anniston Army Depot. Construction and other activities on the Depot have contributed to silt and sediments in the stream and may affect the suitability of habitat for the coldwater darter. In addition, the installation boundary has not been surveyed in this area, and a clear boundary line is absent. Portions of the SINA, including the spring, are used by local civilians. A recreational cabin has been constructed with direct access to the pool.

In 1998 three initiatives will be implemented to protect and monitor the SINA;

- the installation boundary will be surveyed and marked, and
- water quality of the pool will be monitored.

More active management is not necessary at this time (Garland, 1996: 36).

8.13.1.2.5 Cane Creek Corridor

Cane Creek Corridor SINA consists of the entire seven-mile corridor of Cane Creek on Pelham Range. The creek is about 18 feet wide with two year low flows averaging 15 cubic feet per second. Two basic community types occur along the Cane Creek floodplain, sweetgum-mixed bottomland oak forest and sycamore-sweetgum-American elm bottomland forest. The creek corridor is forested with exception of a single training area on the western edge of Pelham Range.

The designation of the Cane Creek Corridor as a SINA is based on mist net captures of the federally-listed (endangered) gray bat during August 1995. Mist nets were set up at two locations along Cane Creek with

gray bats comprising 41 percent of total captures. Cane Creek provides foraging habitat for the bat. Cave roosts are not known from Pelham Range. The nearest known roost is over 40 miles away.

Management practices involve the protection and maintenance of the Cane Creek forest corridor. Removal of the forest canopy can lead to increased predation upon and avoidance by gray bats. Protection of the canopy is the primary management goal (Garland, 1996: 37). Management of gray bats is discussed in greater detail in Section 8.5.2.2.1.

8.13.2 Cultural Resource Areas

Fort McClellan takes special measures to protect cultural resources. Chapter 14 discusses means that Fort McClellan will use to protect cultural resources while implementing this INRMP.

8.14 Training Restrictions

Training restrictions are an important component of integrating natural resource conservation with military training requirements. Restrictions incorporating natural resource and environmental concerns are established in Fort McClellan Regulation 350-2, *Training, Range, and Terrain*. This regulation applies to all personnel using Fort McClellan lands. It was last revised in 1995. Awareness programs to communicate restrictions to military trainers are discussed in Section 12.2.

9.0 INVENTORY AND MONITORING

Current, quantitative data are the bedrock of resource management programs. Inventory, as used here, can be thought of as the "what's there?" aspect of managing ecosystems. Some idea of "how many of what's there?" is also useful for comparison purposes. Chapter 6 summarizes many inventory results. With BRAC implementation on Fort McClellan, inventory is particularly crucial for determining suitable disposal of property.

Monitoring, a periodic "re-inventory," provides information on trends in the status of natural resources. Monitoring is generally done on a regular basis. Monitoring often targets species with high economic or human use values and indicator species of overall ecosystem health.

9.1 Objectives

- Inventory Fort McClellan's natural resources in preparation for disposal of Main Post and transfer of Pelham Range to ALARNG.
- Regularly monitor resources that are important indicators of overall ecosystem integrity, capability of lands to support military missions, renewable product surpluses, status of sensitive species or communities, and other special interests.
- Provide inventory and monitoring data analyses to implement an adaptive management strategy, a critical component of ecosystem management.

9.2 Flora Inventory and Monitoring

9.2.1 Land Condition Trend Analysis

Land Condition Trend Analysis (LCTA), a component of ITAM (Section 8.8.2), uses a wide array of natural resources data, such as soils, ground cover, above-ground vegetation/stem density, disturbance types, etc. to determine condition of land and trends in that condition with regard to the military mission. LCTA will likely be initiated on Pelham Range in 1999 as part of ALARNG implementation of ITAM.

Tazik *et al.* (1992) describe procedures for the standard LCTA plot inventory. Data collected and factors assessed include topographic features, soil characteristics, climatic variables, botanical composition, vegetative cover, wildlife species, and surface disturbance. Data are collected from permanent plots established either randomly or at locations of special interest. Changes or trends that occur on plots represent changes on the land as a whole. Data can be used to estimate soil erosion status, sustainable use potential of the land, renewability of vegetative cover for erosion control and tactical concealment, and the success of land rehabilitation programs.

LCTA will provide land managers and trainers with long-term assessments of changes in vegetative cover and botanical and wildlife composition as well as estimates of associated soil loss on land under varying levels and types of use. The application of this trend monitoring system will:

- better distribute training loads on the land,
- reduce the need for expensive land restoration programs,
- reduce some subjectivity from land management decisions,
- serve as a basis of use/non-use decisions for parcels of land,
- help ensure the sustained availability and productivity of Army lands, and
- provide input for implementing this INRMP and preparing NEPA documents.

LCTA plots should be intensively monitored on a periodic basis (typically every five years) with short-term monitoring occurring at regular intervals (annually) between intensive monitoring efforts. The frequency of intensive monitoring will depend on management objectives and the amount of change occurring annually on the plots. Short-term monitoring requires one field crew (typically 3 persons) for the late spring-early summer season while intensive monitoring requires two field crews (typically 6 persons).

Monitoring intensity and frequency for special use plots will depend upon objectives. If areas being monitored are high use areas, they may need frequent monitoring. LCTA monitoring may be accompanied by additional inventory of neotropical migratory birds, small mammals, reptiles, etc. Plant specimens collected and laminated as part of normal LCTA monitoring are also useful in updating floral inventories.

LCTA will be particularly useful to ALARNG in siting mission activities, planning for natural resources management, determining locations for LRAM projects, and monitoring success of management programs. If ALARNG implements ITAM on Pelham Range, it will review LCTA options and use those most suited to its needs.

9.2.2 Forest Inventory

Existing forest inventory data are sufficient to manage Fort McClellan's forest resources until completion of the BRAC process. However, management of these resources in the future will require an updated forest inventory with considerably more information than in the typical commercial forest inventory. Ecosystem management requires knowledge of the forest ecosystem, including both commercial and noncommercial components.

It is recommended that an inventory of Fort McClellan's forest ecosystem be conducted toward the end of this next five year period, and that this inventory include understory and other "nontraditional" components. Since this type of inventory is not normally conducted by forestry contractors, it may require university assistance to develop procedures and perhaps implementation. Such an inventory of longleaf pine forests on Main Post is being conducted by Auburn University's School of Forestry as part of its development of a longleaf pine restoration plan for Fort McClellan. When completed, the project will provide guidance for future inventory.

9.2.3 Flora Surveys

The existing floral survey (Whetstone *et al.*, 1996) is adequate for the needs of Fort McClellan and ALARNG during the next five years. The inventory of plants and plant communities associated with this study will be updated as new species are found during other projects.

9.2.4 Wetlands

The wetlands inventory of Fort McClellan (U.S. Army Corps of Engineers, 1992) identifies larger jurisdictional wetlands and includes an analysis of wetland attributes. The inventory is being supplemented by a more detailed survey of wetland seeps, often associated with sensitive flora and fauna on Fort McClellan. National Wetland Inventory maps are also available for consultation. Additional wetlands surveys, except those specific to project sites that may affect wetlands, are not planned during the next five years.,

9.2.5 Threatened and Endangered Species

Monitoring of federal-listed flora species on Fort McClellan concentrates on the endangered Tennessee yellow-eyed grass and the threatened Mohr's Barbara's buttons.

9.2.5.1 Tennessee Yellow-eyed Grass

Annual monitoring of Tennessee yellow-eyed grass is conducted between the 1st and 15th of August. These dates are selected to allow consistent comparisons. Field surveys involve a plant inventory and a qualitative assessment of habitat. The habitat assessment identifies impacts that may benefit or adversely affect the populations. The populations will also be visited on a routine basis throughout the year (Garland, 1996).

In addition, environmental personnel are familiar with the grass and routinely search for it during the course of daily activities. To date there have been no additional populations located on the installation.

9.2.5.2 Mohr's Barbara's Buttons

Fort McClellan's population of Mohr's Barbara's buttons is entirely within the large impact area of Pelham Range. Access to the impact area for natural resources management is limited to brief visits and must be coordinated with Range Control and Explosives Ordnance Disposal personnel. Nevertheless, monitoring occurs regularly during summer, particularly following major wildfires. Due to time restrictions detailed inventory of the population is not possible. Qualitative estimates are made, and a camcorder is used to maintain an annual visual record (Garland, 1996).

In addition, environmental personnel routinely search for the plant during the course of daily activities. To date there have been no additional populations located on Fort McClellan.

9.2.5.3 Other Sensitive Species

Regular monitoring of other plants listed as sensitive by the Alabama Natural Heritage Program occurs through management of Special Interest Natural Areas (Section 8.13.1).

9.2.6 Remote Imagery

Aerial photographs, by themselves, are not inventory items. However, they are a very useful survey tool to persons interested in managing relatively large pieces of land or analyzing long term vegetation changes.

The oldest aerial known photographs of Fort McClellan date to 1947. Aerial photographs have been taken at intervals of every five to ten years since the 1950s. The latest aerial photographs were taken in 1992 in black and white at a 1:20,000 resolution. A series is being taken again in 1997 at the same resolution. Decisions on color and other features, such as infrared, have not been made.

9.3 Fauna Inventory and Monitoring

Fauna surveys on Fort McClellan involve game and nongame species. For purposes of this plan, nongame is defined as species not hunted or fished. Both inventory and monitoring (or census) are important to the Fort McClellan fish and wildlife management program.

9.3.1 Game Species

9.3.1.1 Wildlife

Fort McClellan does not conduct census of game species. Rather harvest data are used to monitor size and health of game populations. All game harvested must be reported. Harvest numbers provide an inexpensive and effective means to monitor game populations.

All legally harvested deer are evaluated at check stations. Biologists collect data on area harvested, age (jawbones), and body weights. Biologists determine antler development for bucks and collect pregnancy data from does. Unique physical characteristics are also noted, and biological samples may be sent to the Disease Research Unit at the University of Georgia for analysis. Collected data are compared with data from previous years to obtain a trend of the herd's overall condition.

Legally harvest turkeys are evaluated at check stations. Data is collected on area harvested, weight, spur length, and beard length. Harvest data is the primary source of information on the status and trend of the turkey population.

9.3.1.2 Fish

Creel boxes are located at impoundments to record records of take and to determine the amount of fishing pressure exerted on each lake. These data are an essential tool used to determine specific management practices, which may vary from lake to lake (Pittman *et al.*, 1991).

Annual seine surveys will be conducted in managed impoundments as funding permits. Seining will be done with the assistance of the Alabama Department of Conservation and Natural Resources. Fish population data will be used as appropriate to make decisions regarding stocking, population control, and harvest management.

9.3.2 Nongame Species

9.3.2.1 Threatened or Endangered Species

Monitoring of federal-listed threatened and endangered species primarily concentrates on the endangered gray bat, although regular surveys for the red-cockaded woodpecker are also conducted. Monitoring the threatened blue shiner within the Choccolocco Corridor is the responsibility of the Alabama Forestry Commission.

9.3.2.1.1 Gray Bat

An inventory of gray bats on Fort McClellan was completed in 1996 (Harland Bartholomew and Associates, Inc., 1996). In 1997 a radiotelemetry survey was initiated to assess habitat use on Main Post. Following completion of the survey, the need for a comprehensive gray bat monitoring program will be determined.

9.3.2.1.2 Red-cockaded Woodpecker (Historic Population)

Survey for nesting colonies of red-cockaded woodpeckers within longleaf pine forests of Fort McClellan is conducted about every five years. The last survey was completed in 1997. To date, no colonies have been identified. Active colonies are known to exist on the Talladega National Forest at locations approximately six miles east of the Main Post. The possibility exists for birds to pioneer suitable habitat on the Main Post.

9.3.2.1.3 Other Sensitive Species

A survey to determine distribution of the state-listed Appalachian cottontail within mountainous portions of Main Post is ongoing. The survey is focusing on the association of the rabbit with longleaf pine habitat. Regular monitoring of other species listed as sensitive by the Alabama Natural Heritage Program occurs as a result of management of Special Interest Natural Areas (Section 8.13.1)

9.3.2.2 Neotropical Birds

There is considerable continental-wide concern over declining numbers of many neotropical migratory bird species. Fort McClellan is committed not only to monitoring neotropical migrants but also to studying habitat suitability for these species. Recently, two studies of neotropical migrants on Fort McClellan have been completed. One addressed the effects of forest fragmentation on neotropical populations (Webb, 1996), and the other examined relationships between forest fragmentation and nest predation (Hill *et al.*, 1996). The former study monitored birds from 1994 to 1996.

The monitoring program established by Webb (1996) will be continued by Fort McClellan as funding permits. Monitoring will occur annually in May and utilize 70 permanent census points located along 17 transects throughout Fort McClellan. Census points will be identified using a Global Positioning System. Census will be conducted once at each point and will consist of song and/or visual identification (Webb, 1996: 1-6).

9.3.2.3 Reptiles and Amphibians

A project to inventory the reptiles and amphibians of Fort McClellan was begun in 1997 and should be completed by 1998. Additional surveys are not planned.

9.3.2.4 Aquatic Species

A survey for mollusks and other aquatic species on Fort McClellan was begin in 1997 and should be completed by 1998. Additional surveys are not planned.

9.4 Water Quality Monitoring

Water quality monitoring is important to measuring ecosystem health at Fort McClellan. Land-based environmental degradation eventually affects water quality and aquatic ecosystems dependent upon good water quality.

Ground and surface waters are generally of good quality. . However, as discussed in Section 6.5, Fort McClellan ground and surface waters have unusually high concentrations of heavy metals. Although there is suspected human-use contributions to the overall metal load, by far the greatest contributor is the natural environment (Tucker *et al.*, 1995: 59). The metal load is not a human health concern.

9.4.1 Surface Water

An investigation of the environmental effects of heavy metals in the surface waters of Main Post was initiated in 1997. This study involves short-term monitoring and should isolate sources of the overall metal load. In addition, the Directorate of Environment regularly monitors storm water discharged from over 10 industrial sites on Fort McClellan. As the quality of surface waters does not pose any human health concerns, there is no need to more intensively monitor surface waters.

9.4.2 Groundwater

Groundwater is one of Fort McClellan's most valuable natural resources. Groundwater quality is good and meets all State water quality standards. The only potential quality issue is the high level of heavy metals. The Directorate of Environment regularly monitors groundwater at monitoring wells established at landfills and Remedial Investigation sites across Fort McClellan. As discussed in Section 4.3, Fort McClellan obtains potable water from off-post but maintains a number of wells as a secondary potable water source. Groundwater from these wells is periodically tested by the Alabama Department of Environmental Management and complies with Safe Drinking Water Standards.

9.5 Data Storage, Retrieval, and Analysis

Collection of natural resources data is virtually useless without the capability to store, retrieve, and analyze these data. In all too many cases, biological data are collected and stored without being used. Often this is due to inefficient data storage, retrieval, and analysis systems.

9.5.1 Personal Computers

Personal computers (PCS) are essential to the routine operation of efficient natural resources management programs. The volume of incoming data is too substantial to handle without computers, and routine administrative tasks are accomplished considerably more efficiently with computers.

The Directorate of Environment has recently upgraded most of PCS, including those of the Natural Resources Specialist and Forester, to Gateway P5-166 and P5-120 systems. Further upgrades to PCS are unlikely due to BRAC implementation on Fort McClellan.

9.5.2 Geographic Information System

A GIS allows users to store and manipulate spatial data (e.g. maps, aerial photos, satellite images). A GIS deals with data in vector (lines), points, and raster (areas) formats. Data can be analyzed or simply used to create maps.

Fort McClellan's GIS was installed in 1984 and updated in 1990 with the assistance of the Construction Engineering Research Lab (U.S. Army Corps of Engineers). The GIS is managed by the Cultural Resource Manager in support of the Directorate of Environment; the Directorate of Plans, Training, Mobilization, Security, and Reserve Component Support; Range Control; and other installation organizations.

9.5.2.1 GIS Components

The system utilizes Grass and ArcView® GIS software and can operate within numerous operating systems, including Windows 95® and Solaris 2.5. Hardware is listed in Appendix 9.5.2.1.

9.5.2.2 Databases and Applications

Approximately 188 raster files and 114 vector files have been developed for Fort McClellan. Major files are listed in Appendix 9.5.2.2. Although GIS databases are extensive, database development is continuing. Fort McClellan's two Global Positioning Systems (GPS) are a useful tool for this purpose. GPSs are

currently being used to locate archeological sites and nesting sites of neotropical migratory birds on Fort McClellan.

Spatial data analysis and map presentation will be primary tasks of the GIS. GIS has become an integral part of many natural resources programs, including endangered species management and forest management. Another GIS use that is expected to emerge is the synchronization of natural resources management and troop training.

Military operations planning could become more important as Fort McClellan nears completion of BRAC implementation. GIS could be useful in evaluating potential effects of disposal actions on Main Post and will likely be integral to ALARNG's management of Pelham Range.

9.6 1998-2002 Inventory and Monitoring Summary

- Initiate an LCTA monitoring program on Pelham Range as part of ALARNG implementation of ITAM.
- Update forest inventory to include understory and "nontraditional" components.
- Inventory longleaf pine forests.
- Annually update the floristic survey using data from other projects.
- Inventory wetland seeps.
- Annually monitor the endangered Tennessee yellow-eyed grass.
- Monitor the threatened Mohr's Barbara's buttons as the military mission permits.
- Maintain reports of all harvested game species.
- Collect data on all deer harvested on Fort McClellan.
- Maintain creel boxes at managed impoundments.
- Conduct seine surveys of impoundments.
- Develop a monitoring program for the endangered gray bat, if appropriate.
- Survey for nesting red-cockaded woodpeckers every five years.
- Annually monitor neotropical migratory birds.
- Complete inventory of reptiles and amphibians.
- Complete inventory of aquatic species.
- Monitor environmental effects of heavy metals in surface water.
- Continue groundwater monitoring.
- Develop and maintain GIS databases.
- Use GIS data analyses to support training, natural resources, other environmental programs, and BRAC implementation.

10.0 EXTERNAL ASSISTANCE PROJECTS

Natural resources professions are developing so rapidly that research or special projects using outside expertise are often the only way to identify, or choose from, management options to meet particular objectives. These projects may be used to determine baselines with regard to status of ecosystems (for future comparisons) or to directly evaluate management programs in terms of meeting management objectives. Surveys, ecosystem studies, and population evaluations are an important part of the adaptive management process which is essential to ecosystem management.

10.1 Objectives

- Use external assistance to provide research and management support for the Fort McClellan natural resources management program.

10.2 Support Mechanisms

10.2.1 Other Agency Personnel and Project Assistance

The Oak Ridge Institute of Science and Education (ORISE) is a management and operating contractor for the U.S. Department of Energy, maintaining a pool of college and university professionals for personnel support to government organizations. The program offers students, post graduates, and associate degree graduates opportunities to gain experience in their respective fields by working on military installations (and other areas). Stipends are equivalent to salaries for employees hired with similar educational backgrounds, and a 30% overhead is added. The normal limit on the use of ORISE personnel is 3 years. Installations may assist in the selection of ORISE personnel.

ORISE support is used successfully on Fort McClellan to implement GIS and cultural resources management. Fort McClellan's Archeologist, who also serves as the GIS operator, is an ORISE professional in the third and final year of his term. If permitted, Fort McClellan will retain the ORISE Archeologist for another three-year term. ORISE will continue to be an important option for personnel assistance during 1998-2002.

Another "borrowed personnel" option is through the Intergovernmental Personnel Act of 1972 (IPA) which provides a means to conduct research or obtain other personnel assistance. Any state or federal agency is authorized to participate. IPA is a system whereby a federal (or state) agency borrows other federal or state agency personnel for a limited time period to do a specific job. The installation pays the borrowed employee's salary and administrative overhead. There are two advantages: personnel would be directly supervised by Fort McClellan, and no manpower authorizations are required. In 1998-2002 Fort McClellan may consider using IPA agreements as a source of assistance for projects.

Fort McClellan recognizes the importance of cooperating with Federal and State agencies in addition to private organizations. Sections 5.2, 5.3, and 5.4 identify other agencies with whom Fort McClellan has cooperatively worked in recent years. Other agencies will assist with implementation of special projects and research within this INRMP. Most of this support is listed in Chapter 5.0.

10.2.2 University Assistance

Universities are an excellent source of research assistance. Fort McClellan has used several universities in recent years to help with specialized needs. Auburn University, Jacksonville State University, and the University of Alabama, Birmingham are the most likely sources of assistance with implementation of this INRMP (Section 5.6) during 1998-2002.

10.2.3 Contractor Support

Fort McClellan may also turn to outside contractors for studies and projects. Contractors give the installation access to a wide variety of specialties and fields. Contractors are often involved in projects such as plan preparation, surveys, grounds maintenance, NEPA documentation, aerial photography, and similar activities.

10.3 External Assistance Projects

The below table outlines needed external assistance projects in order of priority. In 1998-2002 many of these projects will be determined by funding availability.

1998-2002 External Assistance Projects

Project	Priority*	Agency	Completion	Comments
Longleaf Pine Management/Restoration Plan	1	Auburn University	1998	To be developed following Phase II inventory
Longleaf Pine Inventory (Phase II)	1	Auburn University	1998	Begun in 1997
Wetland Seep Survey	1	Jacksonville State University	1998	Begun in 1997
Effects of Surface Water Quality on Main Post	1	USGS	1998	Begun in 1997
Willett Springs Ecological Survey	1	Contractor	1998	Associated with management of Tennessee yellow-eyed grass
Monitor Tennessee Yellow-eyed Grass	1	Inhouse/ Contractor	Ongoing	
Develop GIS Databases	1	Inhouse/ Contractor	Ongoing	
Monitor Neotropical Migratory Birds	2	Contractor	Ongoing	
Gray Bat Radiotelemetry Survey (Main Post)	2	Contractor	1997/1998	May lead to monitoring program
Implement LCTA	2	ALARNG	Indefinite	Will likely begin in 1999

Red-cockaded Woodpecker Survey	2	Contractor	2002	
Appalachian Cottontail Survey	2	Contractor	1998	May be completed in 1997.
Seine Survey	2	ADCNR	Ongoing	
Aquatic/Mollusk Survey	3	Contractor	1998	Begun in 1997
Reptile and Amphibian Survey	3	Contractor	1998	Begun in 1997
Caddisfly Survey	3	Contractor	Uncertain	

*1 Needed as soon as possible for immediate management application.
2 Useful for improving management to a significant degree over a long period.
3 Has good potential to improve long-term management.

11.0 ENFORCEMENT

Many aspects of natural resources management require effective enforcement if they are to be successful. Programs such as harvest controls, protection of sensitive species, hunting and fishing recreation, nongame protection, and others are very dependent upon law enforcement.

11.1 Objectives

- Enforce laws and regulations pertaining to implementation of the natural resources program at Fort McClellan.
- Use natural resources enforcement as an integral part of the overall natural resources program.

11.2 History, Authority, and Operations

Natural and cultural resources law enforcement is the responsibility of the Provost Marshall's Office (PMO)/ Directorate of Community Safety. PMO currently has three dedicated game wardens, one civilian and two Military Police. Game wardens devote approximately 90 percent of their time to natural resources law enforcement. In the mid-1980s two positions for civilian game wardens were established within PMO. In 1997 one of the civilian slots was eliminated, leaving one civilian in the roster.

Game wardens primarily are responsible for the following duties:

- patrol and surveillance of Main Post and Pelham Range;
- inspection of hunter/angler licenses, post permits, and vehicles; and
- investigation and citation of violations of Fort McClellan regulations 200-2 and 350-2, state and federal natural resources laws, and the Archeological Resources Protection Act.

PMO keeps records of natural resources violations and provides copies to the Game Management Office. Penalties for common hunting and fishing violations are established in Fort McClellan Regulation 200-3. In addition, PMO has the authority to revoke hunting and fishing privileges and impose individual penalties. Individuals having privileges suspended or revoked may appeal to the Commander. Appeals are processed through the Directorate of Environment (DOE), and if DOE determines the penalty to be correct, to the Staff Judge Advocate (SJA). SJA provides a legal opinion to the Commander. The decision rendered by the Commander is final and represents the end of the appellate process. More serious violations of state and federal laws as adjudicated as discussed in Section 11.3.

Fort McClellan has a cooperative agreement with the U.S. Department of the Interior, Fish and Wildlife Service (USFWS) that includes natural resources law enforcement support. USFWS will assist with enforcement of federal laws on Fort McClellan as requested by the Provost Marshal and the Natural Resources Specialist.

11.3 Jurisdiction

Exclusive Federal jurisdiction exists on all areas of Fort McClellan. The laws of the State of Alabama are operable on Fort McClellan only as Federal laws (18 U.S.C. Section 13, *Assimilative Crimes Act*) and are enforceable by Federal officials or other personnel with federal enforcement commissions.

Violations resulting in 1805 citations are adjudicated through Federal Magistrate Court. Violations perpetrated by military personnel that result in 1408 citations may be adjudicated through a military tribunal under the Staff Judge Advocate.

11.4 Enforcement Problem Areas

On a nationwide basis, hunting and fishing require the most enforcement in the natural resources realm. Fort McClellan has both activities as well as other outdoor recreation which require enforcement activities. In addition, there are endangered species and communities, cultural resources, and nongame species in general which require protection.

11.4.1 Trespass

Some users of Fort McClellan gain access through illegal entry, or trespass. Probably the most common type of trespass occurs as entry onto Fort McClellan from private land. Such trespass may be associated with poaching or other violations. Trespass also occurs as illegal entry onto restricted areas of Fort McClellan, such as impact areas.

Trespass is often the precursor to illegal range activities. Illegal activities can either directly or indirectly impact efforts to protect natural resources and often pose a safety risk for the person involved. Reduction of many illegal activities on Fort McClellan is, therefore, contingent on minimizing of trespass.

11.4.2 Cultural Resources Vandalism and Theft

Fort McClellan has cultural resources of historic value. Archeological sites, both historic and prehistoric, are often relatively susceptible to irreparable damage or theft. Cultural artifacts have value, both for personal enjoyment and commercial sale. Fort McClellan is responsible for protecting cultural resources and enforcing the Archeological Resources Protection Act. Protection of cultural resources is directly related to trespass control.

11.4.3 Game Violations

Poaching, especially deer, is a significant enforcement issue at Fort McClellan. Although usually associated with the taking of deer near the installation boundary, poaching can occur simply as hunting in off-limits or unassigned areas. Another significant issue is the checking of deer at check stations. Fort McClellan Regulation 200-3 requires that all deer harvested on Fort McClellan be processed through check stations. Avoidance of check stations by hunters can directly affect the capability of Fort McClellan to make decisions regarding harvest regulations. Such avoidance will be regarded as poaching

There are some problems associated with baiting of deer and turkeys on Fort McClellan. This activity is illegal in Alabama. The other common violation associated with game is a lack of state or post hunting or fishing licenses or permits.

11.5 Training

The permanent civilian game warden receives training through the State law enforcement training course. Military Police game wardens receive normal MP basic training, and game warden training is primarily on-the-job (OFT) with the assistance the warden. To supplement OJT Fort McClellan sent one of its military game wardens to a course on environmental law held at Fort Sill, Oklahoma.

There is a generally recognized requirement for a 40-hour-minimum annual refresher training for enforcement officers. Less training than this opens Fort McClellan to liability risks in the event of legally debatable officer actions. Refresher training is regularly conducted by PMO on Fort McClellan. In addition, the National Military Fish and Wildlife Association offers annual training for experienced wardens. This one-week training uses highly qualified instructors, many of whom have national reputations. The course is open to all of the Department of Defense and is held on various military installations. Fort McClellan will evaluate this course's usefulness for its military and civilian wardens during 1998-2002.

11.6 1998-2002 Natural Resources Enforcement

There is a trend toward civilianization of natural resources enforcement on military installations. Fort McClellan was one of the earlier installations to recognize the value of permanent civilian positions when it hired civilian wardens in the 1980s. The combination of civilian-military wardens is a reasonably economical way to provide both continuity and adequate numbers of enforcement personnel in the field.

However, cuts in manpower and budgets in recent years are affecting natural resources enforcement on Fort McClellan and, particularly, PMO's ability to retain civilian personnel. During 1998-2002 PMO will

require a staff of three game wardens. PMO will ensure that staffing is maintained to accommodate at least one civilian warden and that reductions in time allotted to military game wardens for natural resources law enforcement are avoided.

12.0 ENVIRONMENTAL AWARENESS

Environmental awareness is instrumental in creating conditions needed to conduct natural resources management. Awareness involves education and communication with the public on natural resources issues. Awareness is crucial to protection of diverse resources, such as sensitive species, special interest natural areas, and wetlands.

12.1 Objectives

- Provide information to units, leaders, soldiers, civilian employees, and other installation users to improve their understanding of impacts of their activities on the environment.
- Provide decisionmakers with information needed to make judgements which affect the Fort McClellan natural resources program.
- Provide information to the military community and general public on recreational opportunities on Fort McClellan, especially those related to hunting and fishing.
- Provide general conservation education to the Fort McClellan community.
- Maintain good relations between Fort McClellan and regional media.

12.2 Military Personnel Awareness

Implementation of natural resources protection requirements in the field depends upon effective communication with military trainers. Two important means of communicating natural resources concerns to military personnel on Fort McClellan are awareness materials and briefings.

12.2.1 Awareness Materials

In addition to publishing environmental training restrictions in Fort McClellan Regulation 350-2 (Section 8.14), Fort McClellan publishes materials devoted exclusively to environmental concerns in the field. The booklet *Protecting Natural Resources in the Field* (Fort McClellan, 1995) condenses environmental requirements into a single, clear publication. It provides "environmental ground rules" (Fort McClellan, 1995: 1) for use of Fort McClellan and covers the following topics: off-road-vehicle movement, camouflage, stringing cable, crossing streams, fire, waste disposal, restricted areas, sensitive species and habitats, archeological sites, and use of the Natural Resource and Environmental Constraints Map. The booklet is issued to all trainers on Fort McClellan.

Fort McClellan's Natural Resource and Environmental Constraints Map is designed to identify off-limits areas, such as impact areas, and sensitive ecological and cultural resource areas that have use restrictions. The map provides specific symbols for each of the following: restricted areas, unfenced restricted areas, cemeteries, endangered species areas (Special Interest Natural Areas), wetlands, impact areas, wash racks, and refuse collection points. It is at a scale of 1:25,000. Separate maps are available for Main

Post/Choccolocco Corridor and Pelham Range.

12.2.2 Briefings

Briefings or presentations are another way to promote awareness among military personnel. Environment and natural resources considerations often are addressed at Range Control briefings held up to six times per month. Briefings last two and one-half hours and target field officers and range safety officers.

Briefings are also conducted on an informal basis as needed. For instance, a military unit preparing to bivouac near a sensitive area of a DEH contractor preparing to work near a wetland will be briefed on environmental requirements by the Natural Resources Specialist, Forester, or other Directorate of Environment personnel. Periodic meetings of the Fort McClellan's Environmental Quality Control Committee are another important forum for presenting information and concerns.

12.2.3 Environmental Awareness/ ITAM

Environmental Awareness is a component of ITAM developed to foster a conservation ethic in those who use military lands. The program particularly focuses on developing and distributing awareness materials, such as soldier's handbooks, leader's handbooks, field cards, training videos, posters, etc. Beginning in 1999, the program may be initiated by ALARNG on Pelham Range as part of ITAM implementation.

12.3 Media

Media can be an important tool for promoting conservation awareness. Fort McClellan's Public Affairs Office (PAO) produces the *Fort McClellan News*, a weekly newspaper distributed to Fort McClellan personnel and the surrounding community. The newspaper regularly publishes articles on environmental conservation, which promote natural resources programs and gain public support for implementation. Topics commonly covered include hunting and fishing, endangered species management, prescribed burning, longleaf pine restoration, special events, and TRADOC environmental awards.

The natural resources program also has access to regional newspapers, such as *The Birmingham News*, *The Anniston Star*, *Birmingham Post-Herald*, and *The Mobile Register*. In particular, *The Anniston Star* closely follows natural resources management on Fort McClellan. The paper has an "Outdoors" column that regularly covers the hunting and fishing program. Other recent topics of regional interest have included the awarding of TRADOC's Environmental Excellence Award to Fort McClellan for endangered species management, the awarding of TRADOC's individual award for natural resources management to Fort McClellan's former Forester, and the restoration program for longleaf pine. Longleaf pine restoration has even received coverage from papers as far away as Atlanta and New York.

The nearest television station is Alabama's ABC 33/40, managed by Allbritton Communications Group in Anniston. The station has a potential audience of 1.6 million people. In 1997 Alabama's ABC 33/40 covered Earth Day events associated with Fort McClellan. Regular coverage of such events will likely continue during 1998-2002. Anniston also has a number of radio stations, but Fort McClellan is rarely the subject of radio coverage.

News releases and interviews with media sources external to Fort McClellan are coordinated by PAO. Media will continue to provide an important awareness tool during 1998-2002.

12.4 Special Events

Special events with local, state, or national significance offer opportunities to educate the public on programs of high interest. The annual Earth Day/ Arbor Day (treated as one event on Fort McClellan) is such an event.

In 1997 Fort McClellan participated in an Alabama-wide Earth Day festival and competition. The theme for Fort McClellan's Earth Day presentation was *The Military Show Place of the South*. A professionally designed, commercially constructed exhibit was displayed at a central location on Main Post. The exhibit covered environmental training, environmental quality, pollution prevention, endangered species management, recycling, and cultural resources management. Earth Day events included a tree planting ceremony and an amnesty turn-in of household hazardous waste. During 1998-2002 Earth Day will continue to be celebrated as the major awareness event on Fort McClellan.

12.5 Hunting and Fishing Awareness

Fort McClellan puts considerable effort into increasing the level of awareness of opportunities to hunt, fish, and otherwise enjoy the out-of-doors on the installation. One-page notices inform the Fort McClellan public about angling and hunting opportunities or special restrictions. Notices are posted in the Game Management Office. The Game Management Office also offers other materials, such as Alabama hunting and fishing regulations and special publications of the Alabama Division of Natural Resource and Conservation.

An important element of hunting and fishing awareness is safety. In order to purchase a post wildlife permit (Section 13.5.3.2), hunters and anglers must first attend the Fort McClellan Fish and Wildlife Orientation Course. The course is a one time requirement that familiarizes hunters and anglers with Fort McClellan regulations, safe use of range areas, and hunter/angler check-in/out procedures. Usually, the course is offered every Thursday, beginning the first week of August and ending the last week of October.

Special hunting and fishing events are another way to educate the public on recreational opportunities. Free hunting and fishing on Fort McClellan are offered to the public on State-sponsored free days such as National Hunting and Fishing Day. Fort McClellan also holds an annual Disabled Youth Hunt on the weekend prior to the beginning of gun deer season. During 1998-2002 Fort McClellan will continue to update and improve ways to inform users of out-of-doors opportunities.

12.6 Watchable Wildlife

The Watchable Wildlife program is important to Fort McClellan. There are many naturally occurring opportunities to observe wildlife in and near Fort McClellan, and there are also special facilities to foster the observation of wildlife.

A nature trail around Reilly Lake extends into a wetlands area. This trail is ideal for observing many species of birds and game animals native to the area. Another trail is located around Yahoo Lake. Although the trail is no longer maintained, it still provides opportunities for wildlife viewing.

Non-game wildlife will be managed to ensure the continued existence of a diversity of species. In general,

any hunting and fishing area that is not closed for military use will be open for any non-consumptive recreational use, with appropriate and applicable restrictions.

12.7 Youth Groups

Fort McClellan is committed to cultivating a conservation ethic in local youth. Directorate of Environment personnel work with youth groups on conservation programs whenever possible. Scouts, in particular, need support with projects, merit badges, and conservation talks. On Fort McClellan scouts have assisted with natural resources management by participating in the nesting box program (Section 8.4.2.2). Fort McClellan has hosted a Scout-o-Rama event. In 1998-2002 Fort McClellan will continue to work with youth groups whenever possible. This is a good investment in the future.

13.0 OUTDOOR RECREATION

Fort McClellan provides excellent recreational opportunities to the installation community and the general public. The outdoor recreation program is managed by the Directorate of Engineering with support from the Directorate of Community Activities. Recreational usage of Fort McClellan property is accomplished without negative impacts to training missions by maintaining close coordination with Range Control. Hunting and fishing are the most popular forms of outdoor recreation on Fort McClellan. Public interest in hunting and fishing will likely remain strong during 1998-2002.

13.1 Objectives

- Provide opportunities to the Fort McClellan community and general public for high quality hunting, fishing, and other outdoor recreation.
- Manage outdoor recreation consistent with needs of the Fort McClellan military mission.
- Manage outdoor recreation while maintaining ecosystem integrity and function.

13.2 Military Mission Considerations

The military mission has priority over outdoor recreation. Hunting and fishing (or other outdoor recreational activities) will thrive on Fort McClellan as long as the military mission is not compromised. If recreational or management activities conflict with military activities, the military mission comes first. Fort McClellan's three impact areas, along with numerous firing ranges, are off-limits to recreation. Recreational access to other areas of Main Post and Pelham Range will be restricted as determined by Range Control.

13.3 Public Access

Public access is a tradition on Fort McClellan. There are many opportunities for the general public to participate in installation activities. Gates are usually unmanned, and with exception of special circumstances, access is seldom challenged. In maintaining a policy of public access, Fort McClellan relies on a responsible public to adhere to restrictions placed on range access.

Department of Defense Directive 4715.3, *Environmental Conservation Program*, May 3, 1996, states, "*The principal purpose of DoD lands and waters is to support mission-related activities. Those lands and waters shall be made available to the public for educational or recreational use of natural and cultural resources when such access is compatible with military mission activities, ecosystem sustainability, and other considerations such as security, safety, and fiscal soundness. Opportunities for such access shall be equitably and impartially allocated*".

Paragraph 2-10 of Army Regulation 200-3, *Natural Resources -- Land, Forest, and Wildlife Management*, states that access by recreational users, ... *will be within manageable quotas, subject to safety, military security, threatened or endangered species restrictions, and the capability of the natural resources to support such use; and at such times as such access can be granted without bona fide impairment of the military mission, as determined by the installation commander*. This regulation further states that withholding public access must be substantiated by a statement in the Integrated Natural Resources Management Plan.

Fort McClellan's hunting and fishing program will remain open to military personnel, dependents, civilian employees, and members of the outside public with an Alabama hunting, trapping, or fishing license. These individuals need only obtain post permits. There are no restrictions on number of permits issued to the public.

Fort McClellan's policies toward public access are within both the spirit and letter of Army and Defense policies. They will be continued in 1998-2002.

13.4 Outdoor Recreation Administration and History

Until recently, Fort McClellan had an Outdoor Recreation Office responsible for managing outdoor recreation, including recreational portions of the hunting and fishing program. In 1991, however, the office was closed and its mission transferred to the Directorate of Environment.

The Directorate of Environment manages outdoor recreation through its Game Management Office (GMO) in Building 698 on Main Post. GMO has two permanent personnel under the supervision of the Natural Resources Specialist. GMO is responsible for selling State hunting/fishing licenses, selling post permits, controlling access by issuing daily permits, renting equipment and campsites, selling fuelwood cutting permits, and operating hunter check stations.

The GMO generates revenue through the sale of post permits, sale of post hunting and fishing stamps, camping/rental fees, sale of fuelwood permits, and administrative fees from the sale of state hunting and fishing licenses. Revenue generated from the post wildlife permit is used for programmatic fish and wildlife responsibilities, including habitat and population management (sections 8.4 and 8.5). Other revenues generated by GMO are used to reimburse the NAF labor costs of GMO. In 1996 GMO generated $46,499.00 in total revenue.

13.5 Hunting and Fishing Program

On Fort McClellan approximately 36,200 acres are available for hunting, and over 23 acres of impoundments and numerous miles of streams are available for fishing. Hunting is authorized during seasons determined by the Natural Resources Specialist. Seasons are usually identical to State seasons. Fishing is allowed 12 months a year and hunting approximately seven months a year. Hunting seasons vary for the different game species. The first season begins in early September, and the last ends at the end of the following April. The first three weeks of March are closed to all hunting.

13.5.1 Hunting and Fishing Activities

Fort McClellan has about 1,200 registered hunters and 300 registered anglers. The Game Management Office administers over 20,000 man-days of hunting and over 5,000 man-days of fishing annually. Deer hunting is the most popular consumptive-use activity with the largest number of man-days. Fishing is second. Turkey hunting comes next, followed by small game hunting.

13.5.2 Hunter and Angler Administrative Processes

Military installations usually have complex hunter and angler control systems. These are needed to accommodate recreational activities without interference with the military mission and to ensure safe recreational experiences.

13.5.2.1 Hunting and Fishing Regulations

The Alabama Game and Fish Division issues regulations for hunters and anglers in Alabama, including those who use Fort McClellan. Army Regulation 200-3, *Natural Resources - Land Forest and Wildlife Management,* and Fort McClellan Regulation 200-3, *Hunting and Fishing on Fort McClellan,* are primary means of establishing controls on hunting and fishing as well as other natural resources-related activities on Fort McClellan. Recreational users of Fort McClellan must also comply with McClellan Regulation 350-2, *Range and Terrain.*

13.5.2.2 Registration and Requirement

In order to participate in hunting and fishing on Fort McClellan, individuals must obtain the following permits, licenses, and equipment, most of which can be obtained at the Game Management Office (GMO):

- *Post Wildlife Permit* - Hunters and anglers must have a valid post wildlife permit issued by GMO. The wildlife permit allows users recreational access to Fort McClellan and the opportunity to purchase hunting and fishing stamps. The permit contains important personal information which is also maintained in a database at GMO. Cost of the permit is $8.00. For those 65 or older, cost is $1.00.
- *State Licenses* - Persons are responsible for obtaining appropriate hunting and/or fishing licenses from the State of Alabama prior to purchase of a post wildlife permit. Alabama regulations provide information on hunting and fishing license requirements. Hunters born on or after 1 August 1977 must satisfactorily complete a State-certified hunter education course before being authorized to purchase a hunting license. In 1997 the cost of a standard hunting license was $16.00. A standard

freshwater fishing license was $9.50, and a combination hunting/fishing license was $24.50. For those 65 or older, combination licenses may be purchased for $1.00. GMO receives a commission for the sale of State licenses.

- *Fish and Wildlife Orientation Course* - Hunters and anglers must attend the Fish and Wildlife Orientation Course (Section 12.5) and receive an orientation card prior to purchase of a post wildlife permit. Senior citizens wishing only to fish are not required to possess an orientation card.
- *Post Hunting/Fishing Stamps* - In order to hunt or fish on Fort McClellan, individuals must first purchase the appropriate stamp(s) for their wildlife permits. Stamps are purchased from GMO and are valid for one year (or season). In 1997 costs were as follows: deer stamp - $20.00, turkey stamp - $15.00, upland game stamp - $10.00, and fish stamp - $2.00.
- *Blaze Orange* - All persons hunting with a firearm, with the exception of dove and turkey hunting, are required to wear at least 500 square inches of blaze orange to include a vest and hat. Archers are required to wear blaze orange if not hunting in a bow-only area.

13.5.2.3 Check-out and Clearing Procedures

Fort McClellan Regulation 200-3 outlines specific requirements of hunters, anglers, and other recreational users of Fort McClellan for check-out and clearing procedures. Check-in and clearing procedures are administered by GMO. Range Control provides a weekly list to GMO of areas available for recreational use. The Directorate of Environmental also informs GMO of areas closed for management purposes, such as prescribed burning.

Check-in at GMO is usually not required to fish on Fort McClellan. The Directorate of Environment posts closures of impoundments at each lake. All persons wishing to hunt or participate in other forms of outdoor recreation, such as hiking and birding, must first report, in person, to GMO to review open and closed areas. Persons reporting to GMO will be issued a temporary permit to be displayed on the dash of POVs used on the range.

All areas of Fort McClellan are closed to hunting except as assigned by GMO. Therefore, all persons wishing to hunt must report to GMO for assignment to a hunting area. Hunting areas will be assigned according to hunter preference, provided the number of hunters in any given hunting area does not exceed safety limitations. Only one form of hunting will be allowed at any one time within a hunting area. For example, deer and small game hunters will not be assigned to the same hunting area on the same day.

Active duty/retired military personnel and their dependents will be given priority for assignment to a hunting area. These individuals may report to GMO for assignment to an area up to three days in advance. DoD civilians may report to GMO for assignment to an area up to two days in advance. All other hunters may report one day before the day they wish to hunt.

Clearance is required only for certain hunters. For hunter convenience, GMO maintains a clearance/deer-check station on Pelham Range's Gate 3 in addition to its office on Main Post. Gun deer hunters must clear through GMO or Gate 3 for every day they are signed up, whether they hunt or not. Failure to clear will result in a suspension of hunting privileges. Any gun deer hunter not clearing will be reported to the Provost Marshal, who will conduct a search as necessary. Harvested deer must be presented for checking upon clearance.

Bow hunters are not required to clear unless a deer has been harvested during hours of operation of GMO

or the check-station at Gate 3. If a deer is harvested at other time, bow hunters will be required to furnish harvest data (*i.e.*, weight, jawbone, sex, antler development, etc.) to GMO the next day.

Turkey hunters are not required to clear unless a turkey has been harvested. Harvested turkeys must be presented to GMO for inspection prior to clearance. If check-stations are closed, harvest data (*i.e.*, weight, spur length, and beard length) must be furnish to GMO the following day.

Upland game hunters (quail, dove, small mammals, etc.) need not clear but must provide requested harvest information listed on the back of the permit issued by GMO. Permits may be deposited in drop boxes located at Gate 3, Baltzell Gate, Bain's Gap Gate, and GMO.

13.5.2.4 Hunting/Fishing Maps

Fort McClellan training maps are issued to all post wildlife permit holders. These maps identify off-limits areas, hunting areas, fishable ponds and streams, and training areas. In addition, hunters and anglers may be issued the Natural Resource and Environmental Constraints Map.

13.6 Other Natural Resources Oriented Outdoor Recreation

Fort McClellan has a plethora of natural resources-related recreational activities other than hunting and fishing. These range from more passive activities such as picnicking, wildlife watching, and nature photography to more active recreational outlets such as hiking, recreational shooting, and camping.

13.6.1 Camping and Picnicking

All managed impoundments on the installation have picnic areas available to military personnel and civilians. Reilly and Yahou lakes have picnic tables, grills, and playground equipment; Duck Pond and Willett Springs have only picnic tables.

Campgrounds are located at Reilly and Yahou lakes. Reilly Lake campground has primitive sites with no utilities and improved sites with electric and water facilities suitable for recreational vehicles. Yahou Lake campground has only primitive sites. The Directorate of Community Activities and the Directorate of Environmental are working on a project to improve existing facilities at Reilly Lake campground and add four improved campsites.

In 1997 rent for improved campsites was $10.00 a day. Rent for primitive campsites was $5.00 (Reilly Lake) and $4.00 (Yahou Lake) a day.

13.6.2 Watchable Wildlife Program

The recreational pursuit of wildlife watching is obviously dependent upon wildlife abundance and observability. Section 12.6 describes the Watchable Wildlife program on Fort McClellan.

13.6.3 Outdoor Equipment Rental

The Game Management Office operates an outdoor equipment rental shop. Due to reductions in personnel and budgetary constraints, the installation has very limited amounts of rental equipment for outdoor

recreation.

13.6.4 Boating and Canoeing

Opportunities for boating and canoeing, though permitted on Fort McClellan, are limited. Boat ramps are maintained at Reilly and Yahou lakes.

13.6.5 Recreational Shooting

The Directorate of Community Activities maintains a skeet range on Main Post. Fort McClellan has no other recreational shooting ranges.

13.6.6 Youth Recreation

Fort McClellan attempts to meet the needs of scouts and other youth groups for recreation. Sections 12.5 and 12.7 discuss a number of programs geared toward youth. Youth groups occasionally use the post for camping and hiking.

13.6.7 Other Recreational Activities

Other outdoor recreation activities include activities such as hiking, nature study and photography, and general nature enjoyment. Although persons involved in these activities need not purchase a post wildlife permit, they must check-in at GMO to receive a temporary permit.

13.7 Recreation and Ecosystem Management

A basic tenet of ecosystem management is the "human values and use" component. Fort McClellan's outdoor recreation program affects ecosystems in terms of both products (fish and game species harvested and plant products) and disturbance associated with recreationists. Fort McClellan is aware of the need to ensure recreation activities do not jeopardize ecosystem integrity. Activities will be monitored for impacts on ecosystem integrity. Special consideration will be given to protection of critical areas (Special Interest Natural Areas, wetlands, etc.) from negative impacts due to outdoor recreation.

14.0 CULTURAL RESOURCES PROTECTION

Cultural resources protection programs at Fort McClellan are provided in accordance with Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. Section 470, as amended), the Archeological Resources Protection Act (16 U.S.C. Section 470aa-47011), the American Indian Religious Freedom Act (42 U.S.C.), the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. Section 3001 *et seq.*), DoD Directive 4710.1 (*Archeological and Historic Resources Management*, 1984), and Army Regulation 200-4 (*Cultural Resources Management* (draft)).

Management of cultural resources on Fort McClellan is a mission of the Directorate of Environment. Cultural resources management is implemented by the Directorate of Environment's Archeologist. A Historic Preservation Plan (New South Associates, 1996) was approved for Fort McClellan in 1996. The

plan outlines Fort McClellan's strategy for management of archeological sites, historic properties, and curated resources.

The primary source of outside assistance is the State Historic Preservation Officer (SHPO) who is also the primary regulator with regard to cultural resources in Alabama. The SHPO will provide Section 106 guidance as the INRMP is implemented.

14.1 Objective

- Implement this INRMP in a manner consistent with protection of cultural and historic resources at Fort McClellan.

14.2 Cultural Resources Inventory

Inventory of both archeological sites and historic properties on Fort McClellan is complete. Three historic districts, Headquarters District, Ammunition Storage District, and Industrial District, have been identified. Fort McClellan is currently in the process of nominating the districts to the National Register of Historic Places.

Because this INRMP does not propose changes in the use or structure of the cantonment area, historic districts have little potential to be affected by the plan. Therefore, cultural resources protection concerns with regard to natural resources management are associated with archeological resources. Three hundred archeological sites have been identified on Fort McClellan. Of these, 160 are potentially eligible for the Natural Register and warrant protection. Evaluations, or Phase II investigations, of these sites to determine eligibility for the National Register began in 1997. Evaluations are focusing on Main Post, as Pelham Range is scheduled to transfer to ALARNG in 1999.

14.3 Natural Resources Management Implications

Potential negative effects to archeological sites from natural resource management are associated primarily with ground disturbance resulting from erosion control, firebreak maintenance, timber harvest, prescribed burning, and wildlife food plots. To reduce potential of disturbance, Fort McClellan will plan natural resources projects to avoid archeological sites potentially eligible for the National Register. The review process for all ground disturbing projects will include consultation with the Archeologist. GIS data on cultural resources, maintained by the Archeologist, will aid the review process. Review may be accomplished as part of NEPA (Chapter 15).

Certain archeological sites and cemeteries are protected as restricted areas on Fort McClellan (Section 8.13.2). These areas are identified on the Natural Resource and Environmental Constraints Map and will be avoided. If an archeological site is accidentally discovered during a natural resources project, the project will be suspended until the Archeologist evaluates the significance of the find.

Generally, natural resources management has numerous positive implications for cultural resources protection. Wetlands management (Section 8.6), water quality management (8.7). erosion control (Section 8.8.1), and Special Interest Natural Areas (8.13.1) all contribute to protection of archeological

sites. Enforcement (Chapter 11.0) includes enforcement of the Archeological Resources Protection Act.

15.0 NATIONAL ENVIRONMENTAL POLICY ACT IMPLEMENTATION

The National Environmental Policy Act (NEPA) was created to disclose environmental concerns with human activities and resolve them to the best degree possible. Implementing NEPA regulations (AR 200-2, *Environmental Effects of Army Actions*) require mitigation of damage to the environment. NEPA was not legislated to stop actions. Rather, it was crafted to identify environmental problems and attempt to resolve them using planning at early stages of project development.

15.1 Objectives

- Identify projects and activities on Fort McClellan which might impact natural resources and work with project planners to resolve issues early in the planning process using NEPA.
- Help Fort McClellan comply with NEPA.

15.2 Responsibilities and Implementation

15.2.1 Responsibility

The Directorate of Environment has primary responsibility for NEPA at Fort McClellan. NEPA review is accomplished by the Natural Resources Specialist, who reviews individual job orders, service orders, project specifications, etc. to determine NEPA documentation requirements.

15.2.2 NEPA Documentation

Army Regulation 200-2 (*Environmental Effects of Army Actions)* requires the proponent to prepare and fund NEPA documentation. On Fort McClellan military units are required to file a Record of Environmental Consideration (REC) with the Directorate of Environment for operations involving disturbance to soils, vegetation, or surface waters. An REC form along with instructions for filing are provided in the training booklet, *Protecting Natural Resources in the Field* (Section 12.2.1).

The most common NEPA document resulting from an REC is a Categorical Exclusion (CX). This simple documentation generally works well for routine projects such as vehicle decontamination exercises, borrow sites, small digging projects, and similar projects where natural sites are not damaged. A new, expanded list of actions which allow the use of CXs will be published in an ongoing revision of AR 200-2.

Environmental Assessments (EAs) are required when conditions for a CX are not met. This often happens when a new military exercise or range is planned, when the action involves a wide geographic area, or when wetlands or other sensitive plant communities may be involved. Examples include major LRAM projects, major erosion control projects, the Battle Maneuver Area, or range construction. EAs

often exceed 10 pages, and they require the Commander's approval, publishing a Finding of No Significant Impact (FONSI), and waiting 30 days for public comment.

15.2.3 Mitigation

Mitigation is required by NEPA and AR 200-2 when a proposed action causes adverse effects to the environment. Mitigation is an excellent way to either consider less damaging options or provide means to off-set damage to the environment. Mitigation needs and methods involving natural resources on Fort McClellan will be determined by the Natural Resources Specialist with the assistance and guidance of the U. S. Fish and Wildlife Service, Alabama Department of Conservation and Natural Resources, and other appropriate agencies. Below are five general mitigation tactics:

Avoidance: Avoid adverse impacts on natural resources by not performing activities that would result in such impact. Confine construction to areas where no significant impact would occur to life resources.

Limitation of action: The extent of an impact can be reduced by limiting the degree or magnitude of the action. Minimize impacts of construction projects by arranging timing, location, and magnitude of actions so that they have the least impact on natural resources.

Restoration of the environment: This method restores the environment to its previous condition or better. This could involve reseeding and/or replanting an area with preferred food or cover plants after it has been damaged by construction projects.

Preservation and maintenance operations: This method designs the action to reduce adverse environmental effects. This could involve actions such as monitoring and controlling pollution, contamination, disturbance, or erosion caused by construction projects that would impact natural resources.

Replacement: This method replaces the resource or environment that will be impacted by construction projects. Replacement can occur in-kind or otherwise, on-site or at another location. This could involve creation of the same type or better quality habitat for a particular impacted fish or wildlife species or creation of habitat for another species.

Mitigation that is identified in a FONSI is a Class 1 "must fund" for environmental purposes. This provides a reliable mechanism to fund mitigation included in NEPA documents.

15.3 NEPA and Natural Resources Management

The Natural Resources Specialist uses NEPA to ensure management activities (as described in this INRMP) are properly planned, coordinated, and documented. NEPA also is used to identify problems associated with other organizations' projects which affect the installation's natural resources through review such projects. Thus, the Natural Resources Specialist is both a proponent and responsible agent for NEPA.

Siting range-related projects is perhaps the most basic decision which requires input from natural resources personnel. If this phase is done within the cooperative spirit of NEPA, most other environmental problems are generally resolved with relative ease. Decisions such as specific siting or

mission planning should be cooperatively discussed prior to preparing actual NEPA draft documents. When the proponent prepares NEPA documentation, the task is greatly facilitated if the proponent is preparing the document based on ongoing discussions with environmental experts.

An important offshoot of proper NEPA implementation is that projects are often enhanced by the effort. Siting is one of the most common examples of project enhancement. When natural resources managers understand mission/project requirements in terms of land features and requirements, they often not only offer more potential site options to mission or project planners, but also offer alternatives to avoid future environmental conflicts.

In 1998-2002 the Fort McClellan will implement NEPA as follows:

- Route all NEPA documents, individual job orders, service orders, project specifications, etc. through the Natural Resources Specialist to ensure conflicts with natural resources are identified as early as possible in the planning stages.
- Ensure mitigation measures are included in the NEPA document when there is a proposed action that will impact natural resources. If such mitigation is included, ensure that it is entered in the A-106 process.
- Use natural resources capabilities to provide mitigation. These resources include special interest area protection, wetland management, etc.
- Track projects to ensure that mitigation is accomplished and that restrictions included within RECs are followed.
- Require that routine maintenance projects are evaluated using NEPA. This especially includes any projects which disturb soil or clear vegetation.
- Require that military training missions which are not documented via NEPA have such documentation.
- Use the lowest level of NEPA bureaucracy feasible to minimize paperwork.

15.4 NEPA and This INRMP

This INRMP can be referenced with regard to description of affected environment to reduce verbiage in other NEPA documents.

16.0 BIOPOLITICAL/UNRESOLVED ISSUES

Some issues involving future management Fort McClellan lands are unresolved. This section deals with natural resources management issues resulting from BRAC implementation on Fort McClellan.

16.1 Management of Pelham Range

Pelham Range is scheduled to be licensed to ALARNG in 1999. Thereafter, responsibility for natural resources management will rest with ALARNG, and funding will shift from TRADOC to National Guard Bureau (NGB). ALARNG responsibilities will include implementation of a fish and wildlife program, as required by the Sikes Act. As discussed in Section 3.5.2., no significant land-use changes on Pelham

Range are expected to result from transfer. Military training should be more intensive than current levels on weekends and summers and less intensive on weekdays. Consistencies in land use and funding mechanisms should allow ALARNG to continue implementation of natural resources management programs already established for Pelham Range.

The degree to which ALARNG will be able to implement and build on current management programs for Pelham Range remains uncertain. Full implementation of programs outlined in this INRMP will require a minimum staff of two forest management personnel and three fish and wildlife management personnel. The forestry staff would need to include a Forester and a Forestry Technician responsible for implementation of programs such as forest management (Section 8.2) and fire management (Section 8.12). The fish and wildlife staff would need to include a Wildlife Biologist, a Wildlife Technician, and an Equipment Operator responsible for implementation of programs such as habitat management (Section 8.4), population management (Section 8.5), endangered species management (Section 8.5.2), Special Interest Natural Area protection (Section 8.13), enforcement (Chapter 11.0), outdoor recreation (Chapter 13.0), and NEPA (Chapter 15.0). Implementation of an enforcement program would require that at least two personnel be trained as game wardens.

In addition, ALARNG likely will implement an ITAM program on Pelham Range, as discussed in sections 8.9, 9.2.1, and 12.2.3. Implementation of ITAM would require an ITAM Coordinator.
Although details regarding future staffing and programs are unresolved, management by ALARNG and NGB will ensure that the commitment to ecosystem management and biodiversity protection on Pelham Range is continued.

16.2 Disposal of Main Post

The military training mission of Fort McClellan is scheduled to leave in 1999 as the U.S. Army Chemical School and the U.S. Army Military Police School relocate to Fort Leonard Wood, Missouri. Thereafter, the mission of Fort McClellan will consist of disposal of Main Post (Section 3.5.1).

Future management of natural resources on Main Post will be a significant consideration in decisions of the Fort McClellan Reuse and Redevelopment Authority. Of particular concern are the longleaf pine forests and associated Special Interest Natural Areas occurring within mountainous portions of Main Post. As discussed in Section 8.13.1.1, management of longleaf pine forests as a continuous forest system is essential to conserving regional biodiversity. These areas harbor numerous sensitive species and are particularly susceptible to fragmentation resulting from development. Longleaf pine forests also require a fire regime for proper management.

The preferred disposal option will be to transfer these portions of Main Post to another federal or state agency with adequate management capabilities, such as the USFS, USFWS, or the State agency. The mountainous terrain may also make these areas less appealing for development. Disposal of Main Post will be the most significant natural resources management action undertaken by Fort McClellan following 2000.

17.0 IMPLEMENTATION

This plan is only as good as Fort McClellan's capability to implement it. This INRMP was prepared with a goal of 100% implementation. Below are described the organization, personnel, and funding needed to implement management programs described in chapters 8-15.

17.1 Organization

The Directorate of Environment at Fort McClellan can implement most of this INRMP and fulfill goals and policies established in Chapter 1. Other organizations identified in Chapter 5 with responsibilities are also capable of implementing their portions of this INRMP with no organizational changes, although they may elect to make changes during 1998-2002 for improved operations efficiency.

17.2 Personnel

17.2.1 Staffing

Proposed revisions to the Sikes Act include a specific requirement that there be "*sufficient numbers of professionally trained natural resources management and natural resources enforcement personnel to be available and assigned responsibility*" to implement this INRMP. At Fort McClellan, this will require a Natural Resources Specialist, Forester, and Archeologist/ GIS Operator. This list does not include supporting personnel of the Game Management Office, Directorate of Environment, Range Control, and the Directorate of Community Safety who have significant duties in addition to natural resources support.

17.2.2 Personnel Training

With closure of Fort McClellan imminent, opportunities for training of Directorate of Environment personnel will be limited during 1998-2002. Nevertheless, the Directorate of Environment will try to send at least one person to each of the following annual workshops or professional conferences:

National Military Fish and Wildlife Association annual workshop
North American Natural Resources Conference
The Wildlife Society Conference

Other conferences/workshops will be evaluated for their usefulness, and decisions will be made based on appropriateness to ongoing projects and funding availability. Personnel will be trained in related environmental fields, as appropriate. NEPA training will be required of all supervisory personnel and those who review or prepare NEPA documents.

The Wildlife Society, Society of American Foresters, and the National Military Fish and Wildlife Association are among the professional societies applicable to meeting the needs of Fort McClellan's natural resources managers. Membership in these societies is encouraged. They have some of the best scientific publications in their professions, and literature review is a necessary commitment to maintain standards. Attending meetings of these societies also provides excellent opportunities to communicate with fellow professionals as well as maintain professional standards.

Other opportunities to communicate with professionals and maintain standards will be used regularly by Fort McClellan personnel. The annual meeting and training workshop of the National Military Fish and Wildlife Association is one of the best opportunities each year for Natural Resources professionals to learn and teach others. This meeting includes DoD and U.S. Army breakout sessions.

17.2.3 Outside Assistance

Implementation of this INRMP will require active assistance from Fort McClellan's partners, both signatory and otherwise. Section 5 indicates agencies, organizations, and others in this category. Specific needs from organizations external to Fort McClellan are indicated throughout this document.

It is impossible for Fort McClellan to hire the specialized expertise needed for some projects within this INRMP. Fort McClellan will require considerable expertise from universities, agencies, and contractors to accomplish some tasks within this INRMP as described in Chapter 10. Fort McClellan will reimburse parties for much of this assistance.

17.3 Project/Program Priorities

Preparation and implementation of this INRMP is required by the Sikes Act and/or Department of Army policy, and therefore, is a high funding priority according to OMB Circular A-106 rules. The fact that this INRMP is a Federal Facilities Compliance Agreement with action required in a published NEPA document also qualifies it for high priority funding. There are also programs within this INRMP which are required for compliance with other laws and executive orders, especially involving , pollution prevention, restoration, wetlands, etc.

However, it is unlikely that all programs within this INRMP will be funded immediately. Therefore, below sections define relative importance of projects and programs specifically included within this INRMP. Each priority category's programs are listed in order they are first mentioned in this document. Estimated time schedules are provided.

Lower priority projects may be implemented ahead of higher ones. This may occur due to funding restrictions. Some High Priority projects are critical, but they may not be compliance driven which makes funding more difficult. The lists below are based upon need and effect on Fort McClellan natural resources, not funding likelihood.

17.3.1 High Priority Projects/Programs

- Integrate natural resources management with BRAC implementation (1.2.1) 1998-2002
- Implement an Ecosystem Management philosophy (1.2.6) 1998-2002
- Establish Ecosystem Management partnerships (1.2.6.1) 1998-2002
- Implement a forest ecosystem management program (8.2.2) 1998-2002
- Produce forest products on a sustainable basis (8.2.2) 1998-2002
- Conduct timber stand improvements (8.2.9) 1998-2002
- Implement a prescribed burn program to support training and enhance forest, habitat, and endangered species management (8.2.9.3, 8.4.2.7, 8.5.2, 8.12.2) 1998-2002
- Ensure hardwood mast production for wildlife species (8.4.2.1) 1998-2002
- Manage hunting and fishing harvest (8.5.1) 1998-2002

- Implement the *Endangered Species Management Plan for Fort McClellan* (8.5.2) 1998-2002
- Manage wetlands (8.6) 1998-2002
- Protect water quality (8.7) 1998-2002
- Implement the *Fort McClellan Soil Erosion Management Plan* (8.8.1) 1998-2002
- Minimize erosion through maintenance of roads and firebreaks (8.8.2) 1998-2002
- Implement the *Pest Management Plan for Fort McClellan, Alabama* (8.11.1) 1998-2002
- Maintain certifications for pest controllers (8.11.2.3) 1998-2002
- Implement allow-burn policy for longleaf pine forests and other sensitive habitats (8.12.4) 1998-2002
- Protect Special Interest Natural Areas that harbor sensitive species and/or unique habitats (8.13.1) 1998-2002
- Develop and implement a restoration/management plan for longleaf pine forests (8.13.1.1.1) 1998-2002
- Protect sensitive cultural resource areas (8.13.2) 1998-2002
- Enforce environmental restrictions within training regulations (8.14) 1998-2002
- Inventory and monitor threatened and endangered species (9.2.5, 9.3.2.1) 1998-2002
- Collect and maintain harvest data for wildlife game species (9.3.1.1) 1998-2002
- Establish a monitoring program for the endangered gray bat, as appropriate (9.3.2.1.1) 1999
- Monitor quality of ground and surface waters (9.4) 1998-2002
- Use GIS for analysis in support of natural resources management (9.5.2) 1998-2002
- Develop GIS databases (9.5.2.2) 1998-2002
- Conduct and improve natural resources law enforcement (11.0) 1998-2002
- Manage hunters and anglers (13.5) 1998-2002
- Implement hunter and angler administrative processes through the Game Management Office (13.5.2) 1998-2000
- Protect cultural resources while implementing INRMP (14.3) 1998-2002
- Implement a NEPA review process (15.3) 1998-2002
- Address natural resources management issues associated with ALARNG takeover of Pelham Range (16.1) 1998-1999
- Address natural resources management issues associated with disposal of Main Post (16.2) 1998-2002
- Obtain/realign personnel to implement this INRMP (17.2.1) 1998-2002
- Obtain funding to implement this INRMP (17.4) 1998-2002
- Provide command support to implement this INRMP (17.6) 1998-2002

17.3.2 Important Projects/Programs

- Implement *Alabama's Best Management Practices for Forestry* (8.2.15.3) 1998-2002
- Control forest diseases and pests (8.2.16) 1998-2002
- Maintain food plots for wildlife species (8.4.2.3) 1998-2002
- Manage impoundments for fisheries (8.4.3.1) 1998-2002
- Reduce grounds maintenance (8.10) 1998-2002
- Prevent and suppress wildfires (8.12) 1998-2002
- Update forest inventory to include understory (9.2.2) 1999
- Inventory longleaf pine forests (9.2.2) 1998
- Inventory wetland seeps (9.2.4) 1998
- Survey for nesting populations of red-cockaded woodpeckers (9.3.2.1.2) 2001-2002

- Monitor neotropical migratory birds (9.3.2.2) 1998-2002
- Complete reptiles and amphibians inventory (9.3.2.3) 1998
- Complete aquatic species/ mollusk inventory (9.3.2.4) 1998
- Promote environmental awareness in military personnel (12.2) 1998-2002
- Effectively use media (12.3) 1998-2002
- Promote hunting and fishing awareness (12.5) 1998-2002
- Manage other natural resources outdoor recreation (13.6) 1998-2002
- Provide personnel training (17.2.2) 1998-2002

17.3.3 Lesser Important Projects/Programs

- Establish and maintain artificial nest boxes (8.4.2.2) 1998-2002
- Provide mineralized salt blocks for deer (8.4.2.4) 1998-2002
- Fertilize impoundments (8.4.3.1.2) 1998-2002
- Control aquatic weeds (8.4.3.1.4) 1998-2002
- Control predators (8.5.3) 1998-2002
- Stock fish (8.5.1.10.3) 1998-2002
- Update floral inventory using data from other projects (9.2.3) 1998-2002
- Maintain creel boxes at impoundments (9.3.1.2) 1998-2002
- Conduct seine surveys of impoundments (9.3.1.2) 1998-2002
- Celebrate Earth Day (12.4) 1998-2002
- Maintain nature trails (12.6) 1998-2002
- Support youth activities (12.7) 1998-2002

17.4 Implementation Funding Options

Unlike most functions within the Department of Defense, natural resources management relies on a variety of funding mechanisms, some of which are self-generating and all of which have different application rules. Below are general discussions about different sources of funding to implement this INRMP.

17.4.1 Forestry Funds

Forestry funds are generated from sale of forest products. Forestry Funds are centrally controlled, and Fort McClellan is limited to recovering its approved expenses for forest management. The remainder of the money generated by the Fort McClellan forestry program is split 60:40 between the counties and U.S. Treasury.

These funds are commonly called P7 funds, and the account is called the Forest Reserve Account. Funds must be used only for items directly related to management of the forest ecosystem. Such items include timber management, reforestation, timber stand improvement, inventories, fire protection, construction and maintenance of timber area access roads, purchase of forestry equipment, disease and insect control, planning (including compliance with laws), marking, inspections, sales preparations, personnel training, and sales. DA Regulation AR 200-3 (Chapter 5) outlines collection and expenditures systems.

The Forestry program generates about $206,000 annually. Of this income, about $175,000 is required to operate the Forestry program, and the remainder is split between the counties and the U.S. Treasury. Income will fall significant following transfer of Pelham Range to ALARNG, scheduled for 1999.

17.4.2 Sikes Act Funds

Sikes Act funds are collected via sales of licenses to hunt or fish. They are authorized by the Sikes Act and regulated via AR 200-3, Chapter 6. These funds may be used only for fish and wildlife management on the installation where they are collected and cannot be used for recreational aspects of fish and wildlife management. They have no year-end (unobligated funds carry over on 1 October). Fee collection and administration (i.e. printing and issuing the State Sikes Act Permit) costs (not to exceed 10% of the annual Sikes Act revenue) are authorized.

Monies accrued from the collection of Sikes Act Permit fees will be expended in support of the fish and wildlife management on Fort McClellan and for no other purpose. Collections and disbursements will be accounted for in accordance with guidance provided for the appropriation titled "Wildlife Conservation , Military Reservations", Army Account 21X5095 (Army Regulation 37-100 and 37-108). Unobligated balances shall be accumulated with current fee collections, and the total amount accumulated at Fort McClellan will be available for obligation.

In FY 96 $9,396 was generated from Sikes Act funding. FY 97 income is expected to be about $10,000 with slight increases possible through FY 98. Funding for 1999-2002 is uncertain due to transfer of Pelham Range to ALARNG and disposal of Main Post. ALARNG may choose to issue Sikes Act Permits on Pelham Range.

17.4.3 Agricultural Funds

Agricultural funds are derived from agricultural leases on installations. They are centrally controlled at both Department of Army and Major Command levels with no requirements for spending where they were generated. AR 200-3 (Chapter 2) outlines procedures for collection and spending these funds. They are primarily intended to offset costs of maintaining agricultural leases, but they are also available for preparing and implementing INRMPs. These are broadest use funds available exclusively to natural resources managers. They are exempt from BCE limits on the purchase of equipment.

AR 200-3, para 2-14a(5) lists the following uses of agricultural funds:

- administrative and operational expenses of agricultural leases;
- initiation, improvement, and perpetuation of agricultural leases;
- preparation, revisions, and requirements of integrated natural resources management plans; and
- implementation of integrated natural resources management plans.

Services in lieu of payments must provide these same services.

Fort McClellan has no agricultural leases. Thus, the major use of these funds would be implementation of this INRMP. Fort McClellan receives about $10,000 in agricultural funds from TRADOC annually. Funding for 2000-2002 is uncertain due to disposal of Main Post.

17.4.4 Environmental Program Requirements

Environmental funds are a special subcategory of Operations & Maintenance (O&M) funds. They are controlled by the Environmental Program Requirements budget process. They are special in that they are

restricted by the Department of Defense solely for environmental purposes, but they are still subject to restrictions of O&M funds. Compliance with laws is the key to getting environmental funding. The program heavily favors high priority funding projects to return to compliance with federal or state laws, especially if noncompliances are backed by Notices of Violation or other enforcement agency action.

"Must fund" classifications include mitigation identified within *Findings of No Significant Impact*, items required within Federal Facilities Compliance Agreements and planning level surveys. This INRMP is a Federal Facilities Requirement Agreement, and some projects and programs within it are also used to mitigate various military activities. Planning level surveys are included.

-Luke, please provide figures for next draft.

Environmental Program Requirements Projects*

Project	FY 98	FY 99	FY 00	FY 01	FY 02	Totals
Salaries for Natural Resources not included elsewhere						$0
Prescribed Burn Program						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0

Project	FY 98	FY 99	FY 00	FY 01	FY 02	Totals
						$0
						$0
						$0
Totals	$0	$0	$0	$0	$0	$0

* Funding in thousand of dollars.

The above table indicates Environmental Program Requirements projects for environmental funding as of October 1997. Projects specifically for NEPA and cultural resources management are not included in this listing.

Thus, the total Environmental Fund budget for this INRMP is estimated at **$0 - Luke, need figures** - for 1998-2002. These estimates will be adjusted as needed each year.

17.4.5 Training Funds (ALARNG)

Fort McClellan's natural resources management program does not receive training funds. However, training funds may be used for natural resources management on Pelham Range if ALARNG implements ITAM beginning in 1999.

ITAM funding requests are not submitted via the Environmental Program Requirements process. Instead, a 5-year ITAM Work Plan is used to channel ITAM funding requests from ALARNG, through NGB, to ODCSOPS. ITAM funding requests will not contain projects which fall within Conservation Compliance (ODCSOPS, 1995). ALARNG's level of ITAM funding will be determined by a funding category established by NGB on the basis of projected training impacts on Pelham Range.

17.4.6 Other Funds

The only other source of funding for natural resources programs on Fort McClellan is O&M funds, generally from the Directorate of Engineering and Housing. These funds may used for wildfire protection or range road maintenance. For cost estimation purposes, annual costs of **$0 -Luke, need figure-** are included from O&M funds for implementation of this INRMP. It is understood that O&M funds may also be used for other maintenance projects during the next five years.

Non-appropriated funds (NAF) may also be used to defray the outdoor recreation costs associated with this INRMP. However, these are not specifically included within this plan.

17.5 INRMP Implementation Costs

Below is a summary of funding avenues and dollars required for implementation of this INRMP.

-Luke, need figures-

Type Funds*	FY 98	FY 99	FY 00	FY 01	FY 02	Totals
Sikes Act	$10	$?	$?	$?	$?	$10
Forestry	$206	$?	$?	$?	$?	$206
Agriculture	$10	$10	$10	$10	$10	$50
Environmental	$0	$0	$0	$0	$0	$0
Other						$0
Totals	$226	$10	$10	$10	$10	$266

* Funds in thousands of dollars.
** This is a funding option that is sometimes used if other options are not available.

Thus, total five-year funding to implement this INRMP will be $266,000.

Above costs do not include related organizations such as PMO, nor do they include costs incurred by other agencies. NEPA, cultural resources management, non-Forestry road maintenance, and pest management costs are not included.

17.6 Command Support

Command support is essential to implementation of this INRMP. Many priority projects for natural resources management within the next five years require command support. This INRMP has the support of the Fort McClellan Commander and other personnel in command positions who are needed for implementation. The Command is dedicated to implementation of this INRMP as required by the Sikes Act and other Federal laws. Just as importantly, the Command is dedicated to maintaining quality training on Fort McClellan while implementing 1995 BRAC recommendations for disposal and closure. Implementation of this INRMP is a means to that end.

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INTEGRATED NATURAL RESOURCES

MANAGEMENT PLAN

FORT MCCLELLAN, ALABAMA

APPENDICES

APPENDIX 4.1.2: Fort McClellan Firing Ranges

Firing Ranges,
Fort McClellan, Alabama

Range	Description	Location	Weapons Used
12	Competitive Pistol	Main Post	22 cal., 38 cal., 45 cal., and 9 mm pistols; 22 cal. rifle; 12 gauge shotgun
13	USMC Pistol Qualification	Main Post	22 cal., 38 cal., 45 cal., and 9 mm pistols; 12 gauge shotgun
18	Down Range Feedback	Main Post	M-16 rifle
19	Qualification Pistol	Main Post	22 cal., 38 cal., 45 cal., and 9 mm pistols; 12 gauge shotgun
20	Infiltration Course	Main Post	22 cal., 38 cal., 45 cal., and 9 mm pistols; 12 gauge shotgun
21	Dry Fire, Protective Mask, and Night Fire	Main Post	M-16 rifle
22	Zero Range	Main Post	M-16 rifle
23	M-16 Qualification, NBC, and Night Fire	Main Post	M-16 rifle
23-A	Multi-Purpose Range	Pelham Range	C-4, TNT, detonation cord, blasting caps, smoke, trip flares
24-A	Multi-Purpose Range	Main Post	C-4, TNT, detonation cord, blasting caps, smoke, trip flares
25	Known Distance Range	Main Post	M-16, M-14, M-1, and M-60 rifles; M-60 machine gun
26	Live Fire and Maneuver	Main Post	M-16 rifle
27	Special Operations	Main Post	45 cal. and 9 mm pistols; machine gun; 12 gauge shotgun
29	Weapons Demonstration and U.S. Weapons	Main Post	Pistol, machine gun, shotgun, detonation explosives, tactical ordnance
32	Hand Grenade	Main Post	Grenades
50	Special Operations Rifle	Pelham Range	M-16, M-203, M-24, and Remington 700 rifles

Range	Description	Location	Weapons Used
51	Multi-purpose Familiarization	Pelham Range	M-16 and M-203 rifles; M-60 and 50 cal. machine guns; M-72 LAW
53	M-60 Qualification	Pelham Range	M-60 machine gun
56	Mechanized Smoke	Pelham Range	Smoke generating equipment
57	300 Meter Field Fire	Pelham Range	M-16 rifle
59	300 Meter Record Field Fire	Pelham Range	M-16 rifle
60	Mark 19 Machine Gun	Pelham Range	M-60 and Mark 19 machine guns; 40 mm grenades
Table VI	Tank Range	Pelham Range	M-1 tank; 50 cal. and 62 mm machine gun
	Skeet Range	Main Post	Shotgun

APPENDIX 5.3.1: Specific Items of Cooperation Between the U.S. Fish and Wildlife Service, Alabama Department of Conservation and Natural Resources, and Fort McClellan

PURPOSE: The purpose of this document is to specifically list items to be provided by the Alabama Department of Conservation and Natural Resources (ADCNR), U.S. Fish and Wildlife Service (USFWS), and Fort McClellan for cooperative implementation of the Fort McClellan Integrated Natural Resources Management Plan. Items not specifically listed will generally be the responsibility of Fort McClellan unless the other agencies agree to assist with their implementation.

AUTHORITY: In accordance with the authority contained in Title 10, U.S. Code, Section 2671, and Title 16, U.S. Code, Section 670 the Department of Defense, the Department of Interior, and the State of Alabama, through their duly designated representatives whose signatures appear on the Fort McClellan Integrated Natural Resources Management Plan, specifically approve the Integrated Natural Resources Management Plan and the below specific items of cooperation between the three agencies.

MUTUAL AGREEMENT:

- Persons hunting or fishing the lands or waters of Fort McClellan shall be required to obtain special Fort McClellan hunting or fishing licenses unless exempt by Fort McClellan regulations. Fort McClellan reserves the right to charge for these licenses. Any funds derived from the sale of these licenses will be used exclusively for the implementation of the Fort McClellan Integrated Natural Resources Plan in accordance with Army regulations and the Sikes Act. Fees charged shall be established by the installation in accordance with Army regulations. Persons guilty of violating the requirement for these special licenses may be prosecuted under 10 USC 2671(c).

- Persons hunting or fishing the lands of Fort McClellan must purchase State licenses, tags, and stamps as required by ADCNR, unless exempt by ADCNR regulations. ADCNR agrees that military personnel on active duty and permanently stationed in Alabama may purchase special fishing and small game licenses at resident prices.

- All hunting and fishing on Fort McClellan will be in accordance with federal and state fish and game laws.

- Representatives of ADCNR and USFWS will be admitted to the installation at reasonable times, subject to requirements of military necessity and security. Such personnel may use U.S. Army transportation on a nonreimbursable basis, to include aircraft, for wildlife related functions on Fort McClellan provided such transportation is available without detriment to the military mission.

- ADCNR and USFWS shall furnish technical assistance for development and implementation of professionally sound natural resources programs on Fort McClellan provided funding for such support is available.

- Fort McClellan shall furnish assistance and facilities to ADCNR and/or USFWS for mutually agreed upon natural resources research projects. It shall be the policy of the Commander, Fort

McClellan to encourage and support research conducted by the participating agencies. To this end, suitable land areas, animals, facilities, and personnel may be made available at the Commander's discretion, when requested, providing the proposed studies are compatible with, and in no way limit, accomplishment of the military mission.

- No exotic species of fish or wildlife will be introduced on Fort McClellan lands without prior written approval of the Army, ADCNR, and the USFWS.

- ADCNR shall establish season and bag limits for harvest of game species on Fort McClellan. Fort McClellan may make special requests for such regulations according to procedures established by ADCNR. Requests for regulations not in accordance with those established statewide will be based on data specific to Fort McClellan or designed to meet Fort McClellan's training schedules.

- Hunting and fishing on Fort McClellan will be authorized and controlled by the Commander in accordance with locally published installation regulations promulgated in compliance with applicable Federal and State laws, Army regulations, military requirements, and the Integrated Natural Resources Management Plan.

- Fort McClellan will operate biological check stations to collect data on harvested deer and turkey. ADCNR may collect additional data on fish or wildlife resources at Fort McClellan with approval of Fort McClellan for access to training lands

- Public access for hunting and fishing is approved under a system of controls established by Fort McClellan in cooperation with ADCNR. Should there be a need for quotas on the number of hunters permitted on a daily or seasonal basis for reasons of safety, such quotas will not be instituted prior to consultation with ADCNR. Hunting and fishing will be allowed only on those areas where there is no conflict with military training activities and no unreasonable safety hazard to military personnel and dependents, Army civilian employees, or the public. Certain areas will be closed to hunting and fishing, including, but not limited to impact areas containing unexploded ordnance. Such areas will be marked as closed on installation hunting maps.

- Fort McClellan has exclusive jurisdiction with regard to law enforcement. Alabama laws are operable on Fort McClellan as federal laws. State and federal laws will be enforced by enforcement personnel with federal commissions. Agents of ADCNR must have federal commissions to enforce state laws on Fort McClellan. Enforcement will be a joint responsibility of Fort McClellan, ADCNR, and the USFWS. USFWS will assist with enforcement of federal laws as requested by Fort McClellan and as feasible given funding and personnel limitations.

- Fort McClellan agrees to cooperate with USFWS and ADCNR for management of any threatened or endangered species residing on the installation. Such efforts will be in compliance with federal and state laws and applicable Army regulations.

- ADCNR and USFWS will provide technical and professional advice on matters concerning wildlife and fish management when necessary. The ADCNR will provide technical wildlife and fisheries assistance on a non-reimbursable basis, except in specific mutually agreeable instances. Assistance from the USFWS will be provided within funding and personnel limitations. Cost-reimbursable assistance includes technical wildlife and fisheries assistance. Non-reimbursable

assistance includes law enforcement assistance and activities required of the USFWS by the Endangered Species Act, in particular Section 7 consultation or reviews associated with the National Environmental Policy Act and other federal laws.

- Fort McClellan has the option to directly transfer funds to the ADCNR or USFWS for implementation of this Integrated Natural Resources Management Plan.

- It is understood that implementation of this INRMP requires certain latitude with regard to professional decisions. However, Fort McClellan agrees that any land-use change which significantly impacts natural resources must include modification of this INRMP in addition to any other environmental compliance requirements.

LIMITATIONS:

The military mission of Fort McClellan supersedes natural resources management and associated recreational activities; and, such activities must in all instances be compatible with the military mission. However, where there is conflict between the military mission and provisions of the Endangered Species Act, the Sikes Act, or any other law associated with natural resources conservation, such conflicts will be resolved according to statutory requirements.

REQUIRED REFERENCES:

- Nothing contained in this agreement shall modify any rights granted by treaty to any Native American tribe or to members thereof.

- The possession of a special permit for hunting migratory game birds will not relieve the permittees of the requirements of the Migratory Bird Stamp Act, as amended.

- This INRMP is a Federal Facilities Compliance Agreement.

- As required by the Sikes Act, the following agreements are made:

(1) This Fort McClellan Integrated Natural Resources Management Plan is the planning document required by the Sikes Act, as amended. This Plan contains those items specifically required by law. In the event the Sikes Act is amended after this INRMP is signed, this plan will be amended to conform with the new requirements within the Sikes Act if needed.

(2) This plan will be reviewed by ADCNR, USFWS, and Fort McClellan on a regular basis, but not less often than every 5 years.

(3) No land or forest products from land on Fort McClellan will be sold under Section 2665 (a) or (b), Title 10 USC and no land will be leased on Fort McClellan under Section 2667 of such Title 10 unless the effects of such sales or leases are compatible with the purposes of the Integrated Natural Resources Management Plan.

(4) With regard to the implementation and enforcement of the Fort McClellan Integrated Natural Resources Management Plan, neither Office of Management and Budget Circular A-76 nor any successor

circular thereto applies to the procurement of services that are necessary for that implementation and enforcement, and priority shall be given to the entering into of contracts for the procurement of such implementation and enforcement services with Federal and State agencies having responsibility for the conservation or management of fish or wildlife.

(5) The Fort McClellan Integrated Natural Resources Management Plan is not, nor will be treated as, a cooperative agreement to which the Federal Grant and Cooperative Agreement Act of 1977 applies.

(6) This Integrated Natural Resources Management Plan will become effective upon the date subscribed by the last signature and shall continue in full force for a period of five years or until terminated by written notice to the other parties by any of the parties signing this agreement. This agreement may be amended or revised by agreement between the parties hereto. Action to amend or revise may originate with any of the other participating agencies.

APPENDIX 6.8: Confirmed Fauna on Fort McClellan

Mammals Within the Range of Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Virginia Opossum *Didelphis virginiana*	Open woods, brushland farmland	Ample Habitat present
Southeastern Shrew *Sorex longirostris*	Moist habitats and upland fields and woods	Ample Habitat present
Short-tailed Shrew Blarina brevicauda	Woods and wet habitats	Ample Habitat present
Southern Short-tailed Shrew *Blarina carolinensis*	Woodlands	Ample Habitat present
Least Shrew *Cryptotis parva*	Old fields, marshlands and wet woods	Moderate Habitat present
Eastern Mole *Scalopus aquaticus*	Well-drained loose soil in a variety of upland habitats	Limited Habitat present
Little Brown Myotis *Myotis lucifugus*	Buildings in the summer and caves in the winter	Limited Habitat present
Gray Myotis *Myotis grisescens*	Caves usually containing water	Limited Habitat present
Keen's Myotis *Myotis keenii*	Caves and mines in winter and loose bark shutters and shingles in the summer	Moderate to Limited Habitat present
Indiana Myotis *Myotis sodalis*	Caves in winter and wooded and open woods near streams during the summer	Moderate Habitat present
Silver-haired Bat *Lasionycteris noctivagans*	In winter in trees, crevices and buildings, tree cavities, under bark and birds nests during the summer	Moderate Habitat present
Eastern Pipistrelle *Pipistrellus subflavus*	Buildings, caves, mines, crevices and vegetation	Moderate Habitat present
Big Brown Bat *Eptesicus fuscus*	Caves, mines, storm sewers and buildings during the winter and buildings and hollow trees during the summer	Limited to Moderate Habitat present
Red Bat *Lasiurus borealis*	Trees, hedgerows and forest edge	Ample Habitat present

Mammals Within the Range of Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Seminole Bat *Lasiurus seminolus*	Spanish moss	Limited Habitat present
Hoary Bat *Lasiurus cinereus*	Conifers	Ample Habitat present
Evening Bat *Nycticelus humeralis*	Buildings and hollow trees	Moderate Habitat present
Rafinesque's Big-eared Bat *Plecotus rafinesquii*	Buildings in forested regions	Limited Habitat present
Brazilian Free-tailed Bat *Tadarida brasiliensis*	Buildings	Limited Habitat present
Eastern Cottontail *Sylvilagus floridanus*	Densely vegetated areas, farmland and oldfields	Ample Habitat present
New England Cottontail *Sylvilagus transitionalis*	Woods and brushlands	Ample Habitat present
Swamp Rabbit *Sylvilagus aquaticus*	Floodplains, swamps and canebrakes	Limited Habitat present
Eastern Chipmunk *Tamias striatus*	Hedgerows, brushlands, open woods, buildings and rocky areas	Ample Habitat present
Woodchuck *Marmota monax*	Farmland, oldfields and woods	Ample Habitat present
Gray Squirrel *Sciurus carolinensis*	Forests with mast producing trees	Ample Habitat present
Fox Squirrel *Sciurus niger*	Oak and mixed forests	Ample Habitat present
Southern Flying Squirrel *Glaucomys volans*	Oak and mixed hardwood forests	Ample Habitat present
Beaver *Castor canadensis*	Aquatic and wetland habitats	Limited Habitat present

Mammals Within the Range of Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Marsh Rice Rat *Oryzomys palustris*	Marshlands and wet oldfields	Limited Habitat present
Eastern Harvest Mouse *Reithrodontomys humulis*	Brushlands, oldfields and broomsedge fields	Moderate Habitat present
Oldfield Mouse *Peromyscus polionotus*	Oldfields	Moderate Habitat present
White-footed Mouse *Peromyscus leucopus*	Forests and brushlands	Ample Habitat present
Cotton Mouse *Peromyscus gossypinus*	Swamps and floodplains, forest and brushlands	Ample Habitat present
Golden Mouse *Ochrotomys nuttalli*	Swamps, brushland slopes, thickets, boulder piles	Moderate Habitat present
Hispid Cotton Rat *Sigmodon Hispidus*	Oldfields	Moderate Habitat present
Eastern Woodrat *Neotoma floridana*	Boulder fields, cliffs, caves, hedgerows and lowlands	Moderate Habitat present
Woodland Vole *Microtus pinetorum*	Deciduous forests with thick litter or ground cover	Ample Habitat present
Muskrat *Ondatra zibethicus*	Aquatic and wetland habitats	Limited Habitat present
Black Rat *Rattus rattus*	Buildings and populated areas	Moderate Habitat present
Norway Rat *Rattus norvegicus*	Buildings and populated areas and farmland	Moderate Habitat present
House Mouse *Mus musculus*	Buildings and populated areas and farmland	Moderate Habitat present
Coyote *Canis latrans*	Brushlands	Moderate Habitat present

Mammals Within the Range of Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Red Fox *Vulpes vulpes*	Most habitats with available cover	Ample Habitat present
Gray Fox *Urocyon cinereoargenteus*	Forests and brushlands	Ample Habitat present
Black Bear *Ursus americanus*	Forests and swamps	Ample Habitat present
Raccoon *Procyon lotor*	Most habitat types	Ample Habitat present
Long-tailed Weasel *Mustela frenata*	Most habitats near water	Limited Habitat present
Mink *Mustela vison*	Wetlands and along aquatic habitats	Limited Habitat present
Eastern Spotted Skunk *Spirogale putorius*	Oldfields, farmland, brushland and mixed forests	Ample Habitat present
Striped skunk *Mephitis mephitis*	Forests, oldfields and farmland	Ample Habitat present
River Otter *Lutra canadensis*	In and near aquatic habitats	Limited Habitat present
Bobcat *Felis rufus*	Semi-open forests, swamps and brushland	Ample Habitat present
Feral Hog *Sus scrofa*	Most habitats with water relatively nearby	Ample Habitat present
White-tailed Deer *Odocoileus virginianus*	Farmland, brushland and forests	Ample Habitat present
Source: Whitaker, J.O. 1980 and Unpublished listing of Mammals of Fort McClellan area which was provided by DEH or Fort McClellan.		

Ample Habitat Present - preferred habitat abundant at the facility
Moderate Habitat Present - preferred habitat common at the facility
Limited Habitat Present - habitat restricted to a few locations at the facility

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Pied-billed Grebe *Podilymbus podiceps*	Aquatic habitats such as lakes, ponds, and marshlands	W & S Moderate Habitat present
Green-backed Heron *Butorides striatus*	Wetlands	S Moderate Habitat present
Great Egret *Casmerodius albus*	Marshes, pond margins, riverbanks, shallow aquatic habitats	S Moderate Habitat present
Great Blue Heron *Ardea herodias*	Marshes, pond margins, riverbanks, shallow aquatic habitats	S Moderate Habitat present
White Ibis *Eudocimus albus*	Marshes, wet fields and stream banks	S Moderate Habitat present
Mallard *Anas platyrhynchos*	Marshlands	W Moderate Habitat present
American Black Duck *Anas rubripes*	Woodland lakes and streams, freshwater habitats	W Moderate Habitat present
Gadwall *Anas strepera*	Open water wetlands habitats	W Limited Habitat present
Green-winged Teal *Anas crecca*	Inland open water wetland habitats	W Limited Habitat present
American Wigeon *Anas americana*	Fresh water habitats	W Limited Habitat present
Northern Shoveler *Anas clypeata*	Marshes, ponds and bays	W Moderate Habitat present
Blue-winged Teal *Anas discors*	Marshes, lakes and ponds	W Moderate Habitat present
Ruddy Duck *Oxyura jamaicensis*	Large lakes	W Limited Habitat present
Wood Duck *Aix sponsa*	Open woodlands near ponds or rivers	W & S Moderate Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Canvasback *Aythya valisineria*	Open lakes and marshes	W Limited Habitat present
Redhead *Aythya americana*	Marshes, ponds and lakes	W Limited Habitat present
Ring-necked Duck *Aythya collaris*	Freshwater marshes, wooded ponds and small lakes	W Limited Habitat present
Lesser Scaup *Aythya affinis*	Bays, inlets and lakes	W Limited Habitat present
Common Goldeneye *Bucephala clangula*	Inland lakes and rivers	W Limited Habitat present
Bufflehead *Bucephala albeola*	Lakes, bays and rivers	W Limited Habitat present
Killdeer *Charadrius vociferus*	Fields and shores	W & S Ample Habitat present
Common Snipe *Gallinago gallinago*	Grassy marshes	W Moderate Habitat present
American Woodcock *Scolopax minor*	Moist woods and thickets	W & S Moderate Habitat present
Turkey Vulture *Cathartes aura*	Most upland habitats	W & S Ample Habitat present
Black Vulture *Coragyps atratus*	Open upland habitats	W & S Ample Habitat present
Bald Eagle *Haliaeetus leucocephalus*	Lakes and rivers and forest land nearby	W Limited Habitat present
Northern Harrier *Circus cyaneus*	Marshes and open fields	W Moderate Habitat present
Sharp-shinned Hawk *Accipiter striatus*	Mixed-forest lands	W & S Ample Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Cooper's Hawk *Accipiter cooperii*	Semi-open woods and forested streambanks	W & S Moderate Habitat present
Red-shouldered Hawk *Buteo lineatus*	Moist mixed forestlands	W & S Ample Habitat present
Broad-winged Hawk Buteo platypterus	Forests	S Ample Habitat present
Red-tailed Hawk *Buteo jamaicensis*	Rangeland and open woodlands	W & S Ample Habitat present
American Kestrel *Falco sparverius*	Rangeland	W & S Ample Habitat present
Merlin *Falco columbarius*	Open woods	W Moderate Habitat present
Northern Bobwhite *Colinus virginianus*	Open woods and brushlands	R Ample Habitat present
Rock Dove *Columba livia*	Urban and developed areas	R Ample Habitat present
Mourning Dove *Zenaida macroura*	Oldfields, grainfields and croplands	R Ample Habitat present
Yellow-billed Cuckoo *Coccyzus americanus*	Open woods, orchards, groves and forested streambanks	S Ample Habitat present
Black-billed Cuckoo *Coccyzus erythropthalmus*	Woods and along forested streambanks	S Ample Habitat present
Common Barn Owl *Tyto alba*	Buildings, trees and cliffs	W & S Moderate Habitat present
Great Horned Owl *Bubo virginianus*	Forests	W & S Ample Habitat present
Barred Owl *Strix varia*	Swamp and floodplain forests	W & S Moderate Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Eastern Screech Owl *Otus asio*	Upland and wetland forests	W & S Ample Habitat present
Chuck-will's-widow *Caprimulgus carolinensis*	Open forestlands	S Ample Habitat present
Whip-poor-will *Caprimulgus vociferus*	Open forestlands	S Moderate Habitat present
Common Nighthawk *Chordeiles minor*	Open habitats	S Ample Habitat present
Chimney Swift *Chaetura pelagica*	Buildings and trees	S Ample Habitat present
Ruby-throated Hummingbird *Archilochus colubris*	Forest edges	S Moderate Habitat present
Belted Kingfisher *Ceryle alcyon*	Aquatic habitats	W & S Moderate Habitat present
Red-bellied Woodpecker *Melanerpes carolinus*	Open woods	W & S Ample Habitat present
Northern Flicker *Colaptes auratus*	Open woods	W & S Ample Habitat present
Yellow-bellied Sapsucker *Sphyrapicus varius*	Deciduous woods	W Ample Habitat present
Downy Woodpecker *Picoides pubscens*	Forests and orchards	R Ample Habitat present
Hairy Woodpecker *Picoides villosus*	Forestlands	R Ample Habitat present
Red-cockaded Woodpecker *Picoides borealis*	Open mature pine forests with relatively middlestory	R Limited Habitat present
Pileated Woodpecker *Dryocopus pileatus*	Forests	W &Ample Habitat present S Ample Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Eastern Kingbird *Tyrannus tyrannus*	Rangeland, brushland and forest edges	S Ample Habitat present
Great Crested Flycatcher *Myiarchus crinitus*	Open woods	S Ample Habitat present
Eastern Wood-pewee *Contopus virens*	Forests	S Ample Habitat present
Eastern Phoebe *Sayornis phoebe*	Forests and farmland	W & S Ample Habitat present
Acadian Flycatcher *Empidonax virescens*	Moist woods and swamps, forested floodplain	S Moderate Habitat present
Horned Lark *Eremophila alpestris*	Dirt fields sparsely vegetated open areas	W Limited Habitat present
Purple Martin *Progne subis*	Open habitats	S Ample Habitat present
Northern Rough-winged Swallow *Stelgidopteryx serripennis*	Riverbanks, cliffs, culverts under bridges	S Limited Habitat present
Barn Swallow *Hirundo rustica*	Buildings and open areas	S Ample Habitat present
Blue Jay *Cyanocitta cristata*	Woods	R Ample Habitat present
American Crow *Corvus brachyrhynchos*	Variety of upland habitats	R Ample Habitat present
Tufted Titmouse *Parus bicolor*	Hardwoods	R Ample Habitat present
Carolina Chickadee *Parus carolinensis*	Open woods	R Ample Habitat present
Brown Creeper *Certhia americana*	Forests	W Ample Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
White-breasted Nuthatch *Sitta carolinensis*	Forests	W & S Ample Habitat present
Red-breasted Nuthatch *Sitta canadensis*	Coniferous forests	W & S Ample Habitat present
House Wren *Troglodytes aedon*	Brushland	S Ample Habitat present
Winter Wren *Troglodytes troglodytes*	Moist forestland	W Moderate Habitat present
Carolina Wren *Thryothorus ludovicianus*	Forest habitats	R Ample Habitat present
Golden-crowned Kinglet *Regulus satrapa*	Coniferous woods	W Ample Habitat present
Ruby-crowned Kinglet *Regulus calendula*	Forest, thickets, brushland	W Ample Habitat present
Blue-gray Gnatcatcher *Polioptila caerulea*	Forests and thickets	S Ample Habitat present
Eastern Bluebird *Sialia sialis*	Open woods and farmland	W & S Ample Habitat present
Wood Thrush *Hylocichla mustelina*	Mixed woods	S Ample Habitat present
Hermit Thrush *Catharus guttatus*	Forests and thickets	W Ample Habitat present
American Robin *Turdus migratorius*	Variety of upland habitats	W & S Ample Habitat present
Loggerhead Shrike *Lanius ludovicianus*	Open forests and brushland	W & S Ample Habitat present
Gray Catbird *Dumetella carolinensis*	Shrub and brushland	W & S Ample Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Northern Mockingbird *Mimus polyglottos*	Variety of open upland habitats	R Ample Habitat present
Brown Thrasher *Toxostoma rufum*	Brushland, hedgerows and forest edges	W & S Ample Habitat present
Water Pipit *Anthus spinoletta*	Fields and beaches	W Moderate Habitat present
Cedar Waxwing *Bombycilla cedrorum*	Open shrub and brushland	W Ample Habitat present
European Starling *Sturnus vulgaris*	Most upland habitats	R Ample Habitat present
White-eyed Vireo *Vireo griseus*	Shrub and brushland	S Ample Habitat present
Yellow-throated Vireo *Vireo flavifrons*	Deciduous woods	S Ample Habitat present
Red-eyed Vireo *Vireo olivaceus*	Hardwood forests	S Ample Habitat present
Prothonotary Warbler *Protonotaria citrea*	Forested floodplains	S Moderate Habitat present
Blue-winged Warbler *Vermivora pinus*	Open brushlands and second growth hardwoods	S Moderate Habitat present
Cerulean Warbler *Dendroica cerulea*	Mature deciduous forest	S Moderate Habitat present
Orange-crowned Warbler *Vermivora celata*	Swamps and low woodlands	W Moderate Habitat present
Northern Parula *Parula americana*	Coniferous and mixed woods	S Ample Habitat present
Black-and-white Warbler *Mniotilta varia*	Mixed woodlands	S Ample Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Yellow-rumped Warbler *Dendroica coronata*	Forestlands	W Ample Habitat present
Yellow-throated Warbler *Dendroica dominica*	Forestlands	S Ample Habitat present
Prairie Warbler *Dendroica discolor*	Oldfields, brushland and open woods	S Ample Habitat present
Pine Warbler *Dendroica pinus*	Hardwoods and pines	W & S Ample Habitat present
Palm Warbler *Dendroica palmarum*	Open brushlands, marshes and forest edges	W Ample Habitat present
Yellow Warbler *Dendroica petechia*	Shrub wetlands and open woods	S Ample Habitat present
Kentucky Warbler *Oporornis formosus*	Moist woods	S Moderate Habitat present
Worm-eating Warbler *Helmintheros vermivorus*	Forested slopes	S Moderate Habitat present
Swainson's Warbler *Limnothlypis swainsonii*	Swamps and canebrakes	S Moderate Habitat present
Ovenbird *Seiurus aurocapillus*	Mature forests	S Ample Habitat present
Louisiana Waterthrush *Seiurus motacilla*	Dense woods along streams and in swamps	S Moderate Habitat present
Common Yellowthroat *Geothlypis trichas*	Grassy fields, marshes, shrublands	S Moderate Habitat present
Yellow-breasted Chat *Icteria virens*	Dense thickets and brush	S Moderate Habitat present
American Redstart *Setophaga ruticilla*	Second growth forest	S Moderate Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Northern Cardinal *Cardinalis cardinalis*	Variety of shrub and forest uplands and wetlands	R Ample Habitat present
Blue Grosbeak *Guiraca caerulea*	Open brushland, forest edges and oldfields	W Moderate Habitat present
Indigo Bunting *Passerina cyanea*	Clearings in woods and brushlands	S Moderate Habitat present
Rufous-sided Towhee *Pipilo erythrophthalmus*	Shrub and brushlands, open woods and forest edges	R Ample Habitat present
Grasshopper Sparrow *Ammodramus savannarum*	Pastures, grasslands and old fields	W & S Moderate Habitat present
Vesper Sparrow *Pooecetes gramineus*	Dry open grasslands and forest clearings	W Moderate Habitat present
Savannah Sparrow *Passerculus sandwichensis*	Open upland and wetland habitats	W Moderate Habitat present
Song Sparrow *Melospiza melodia*	Brushlands and floodplains	W & S Ample Habitat present
Bachman's Sparrow *Aimophila aestivalis*	Brushlands and open woods	S Moderate Habitat present
Field Sparrow *Spizella pusilla*	Open brushlands and fields	W & S Ample Habitat present
Chipping Sparrow *Spizella pallida*	Fields, woodland edges and open forests	W & S Ample Habitat present
Dark-eyed Junco *Junco hyemalis*	Forestlands	W Ample Habitat present
White-throated Sparrow *Zonotrichia albicollis*	Forestlands	W Ample Habitat present
Fox Sparrow *Passerella iliaca*	Forestlands	W Ample Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Swamp Sparrow *Melospiza georgiana*	Dense marsh vegetation	W Moderate Habitat present
Eastern Meadowlark *Sturnella magna*	Old fields and pastures	W & S Moderate Habitat present
Red-winged Blackbird *Agelaius phoeniceus*	Fields and marshes, shrub and brushlands	W & S Ample Habitat present
Rusty Blackbird *Euphagus carolinus*	Wet woods and swamps	W Moderate Habitat present
Brewer's Blackbird *Euphagus cyanocephalus*	Open habitats	W Moderate Habitat present
Brown-headed Cowbird *Molothrus aeneus*	Open habitaats and brushlands	W & S Moderate Habitat present
Common Grackle *Quiscalus quiscula*	Old fields, marshes, open woods and shrubland	W & S Moderate Habitat present
Orchard Oriole *Icterus spurius*	Brushland and open woods	S Moderate Habitat present
Northern Oriole *Icterus galbula*	Open woods	S Moderate Habitat present
Scarlet Tananger *Piranga olivacea*	Deciduous forests	S Ample Habitat present
Summer Tanager *Piranga rubra*	Mixed pine and hardwoods	S Ample Habitat present
House Sparrow *Passer domesticus*	Populated areas	R Ample Habitat present
Pine Siskin *Carduelis pinus*	Shrubs and fields	W Ample Habitat present
American Goldfinch *Carduelis tristis*	Oldfields and brushland	W & S Ample Habitat present

Birds Observed at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Purple Finch *Carpodacus purpureus*	Woodlands	W Ample Habitat present
House Finch *Carpodacus mexicanus*	Populated areas	W Ample Habitat present
Evening Grosbeak *Coccothraustes vespertinus*	Woodlands and brushlands	W Ample Habitat present
Sources: Summerour, 1992. Unpublished checklist from the Fort McCellan Directorate of The Environment and Audubon Society		

Ample Habitat Present - preferred habitat abundant at the facility
Moderate Habitat Present - preferred habitat covering common areas at the facility
Limited Habitat Present - habitat sparsely present and limited to a few areas at the facility

R = Resident
S = Summer
W = Winter
W & S = Winter and Summer

Fish Species Collected at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Stoneroller *Campostoma anomalum*	Rocky and sandy streams	Ample Habitat Present
Golden Shiner *Notemigonus crysoleucas*	Varied aquatic habitats	Ample Habitat Present
Blue Shiner *Notropis caeruleus*	Moderate to large clear cool streams with gravel to small boulder bottoms	Found in Choccolocco Creek
Alabama Shiner *Notropis callistius*	Moderate rubble to gravel bottom streams with varying clarity	Ample Habitat Present
Rainbow Shiner *Notropis chrosomus*	Springfed streams	Limited Habitat Present
Striped Shiner *Notropis chrysocephalus*	Moderate sized streams with clear weedless waters with moderate to swift current	Moderate Habitat Present
Mountain Shiner *Notropis lirus*	Small to moderate sized streams with riffle/pool systems and sand to boulder bottoms	Moderate Habitat Present
Silverstripe Shiner *Notropis stilbius*	Moderate to large unvegetated streams of moderate to high turbidity, sand to rubble bottom	Moderate Habitat Present
Tricolor Shiner *Notropis trichroistius*	No data	No Data
Blacktail Shiner *Notropis venustus*	Moderate to large clear streams with sand to rubble bottoms	Ample Habitat Present
Coosa Shiner *Notropis xaenocephalus*	Clear cool often spring fed streams	Ample Habitat Present
Blacknose Dace *Rhinichthys atratulus*	Springs	Limited Habitat Present
Creek Chub *Semotilus atromaculatus*	Small clear streams and small lakes	Ample Habitat Present
Alabama Hogsucker *Hypentelium etowanum*	Clear high gradient streams; rocks to gravel substrates	Limited Habitat Present
Black Redhorse *Moxostoma duquesnei*	Medium to large sandy to rocky streams with pools	Moderate Habitat Present

Fish Species Collected at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Golden Redhorse *Moxostoma erythrurum*	Small to large streams to rivers, ponds, and lakes	Ample Habitat Present
Black Bullhead *Ictalurus melas*	Most aquatic habitats	Ample Habitat Present
Yellow Bullhead *Ictalurus natalis*	Most aquatic habitats with quiet waters	Ample Habitat Present
Channel Catfish *Ictalurus punctatus*	Moderate to large clean rivers with swift currents over sand to rocky bottoms	Moderate Habitat Present
Souther Studfish *Fundulus stellifer*	Clear streams with sand to gravel bottoms	Moderate Habitat Present
Mosquitofish *Gambusia affinis*	Most shallow calm water habitats	Ample Habitat Present
Green Sunfish *Lepomis cyanellus*	Most aquatic habitats	Ample Habitat Present
Warmouth *Lepomis gulosus*	Ponds, lakes and some streams	Ample Habitat Present
Bluegill *Lepomis machrochirus*	Shallow aquatic habitats with vegetation	Moderate Habitat Present
Longear Sunfish *Lepomis megalotis*	Small streams and impoundments	Moderate Habitat Present
Redear Sunfish *Lepomis microlophus*	Clear quiet waters with vegetation	Moderate Habitat Present
Spotted Sunfish *Lepomis punctatus*	Clear quiet waters with vegetation	Moderate Habitat Present
Redeyed Bass *Micropterus coosae*	Small to large streams	Moderate Habitat Present
Spotted Bass *Micropterus punctulatus*	Large streams and rivers	Limited Habitat Present
Largemouth Bass *Micropterus salmoides*	Clear quiet waters with vegetation	Moderate Habitat Present

Fish Species Collected at Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Black Crappie *Pomoxis nigromaculatus*	Quiet waters with vegetation, lakes, ponds	Limited Habitat Present
White Crappie *Pomoxis annularis*	Streams, lakes, ponds and slow moving rivers	Limited Habitat Present
Coosa Darter *Etheostoma coosae*	Small to moderate size clear streams with rubble bottoms	Ample Habitat Present
Clodwater Darter *Etheostoma ditrema*	Limestone springs	Limited Habitat Present
Speckled Darter *Etheostoma stigmaeum*	Small to moderate size streams with sand to gravel bottoms	Ample Habitat Present
Blackbanded Darter *Percina nigrofasciata*	Streams with sand to ground bottoms with debris	Ample Habitat Present
Banded Sculpin *Cottus carolinae*	Small to moderate clear streams	Ample Habitat Present
White Bass *Morone chrysops*	Rivers and impoundments	Limited Habitat Present
Stripped Bass *Morone saxatilis*	Impoundments	Limited Habitat Present
Source: Directorate of Engineering and Housing (1991); Gaddy (1984); Lee, et al (1980)		

Reptiles and Amphibians Observed on or Near Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
American toad *Bufo americanus americanus*	Ponds, floodplain pools, flooded ditches	Moderate Habitat presented
Oak toad *Bufo quericus*	Protected areas near small pools or flooded ditches	Moderate Habitat presented
Fowler's toad *Bufo woodhousei fowleri*	Most terrestrial habitats	Ample Habitat presented
Northern cricket frog *Acris crepitans crepitans*	Mudflats near streams, ponds, lakes and floodplain pools	Moderate Habitat presented
Northern spring peeper *Hyla crucifer crucifer*	Damp woods, vegetation near temporary or semipermanent pools	Moderate Habitat presented
Barking treefrog *Hyla gratiosa*	Shallow, semipermanent ponds	Moderate Habitat presented
Squirrel treefrog *Hyla squirella*	Near flooded ditches, ponds, and semipermanent ponds	Moderate Habitat presented
Gray treefrog *Hyla versicolor*	Vegetation near flooded ditches, ponds, and semipermanent ponds	Moderate Habitat presented
Mountain chorus frog *Pseudacris brachyphona*	Wooded hills, seepage areas at base of hills, shallow pools	Moderate Habitat presented
Upland chorus frog *Pseudacris triseriata feriarum*	Rainwater pools in ditches, fields, and open woods	Moderate Habitat presented
Eastern narrow-mouthed toad *Gastrophryne carolinensis*	Subterranean burrows, stumps, under rocks and rotting logs	Moderate Habitat presented
Eastern spadefoot toad *Scaphiopus holbrooki holbrooki*	Subterranean burrows, temporary pools and ponds	Moderate Habitat presented
Bullfrog *Rana catesbeiana*	Lakes and permanent ponds	Limited Habitat presented
Green frog *Rana clamitans melanota*	Swamps, floodplain pools, small streams	Limited Habitat presented
Pickerel frog *Rana palustris*	Clear waters in upland woods and meadows	Limited Habitat presented
Southern leopard frog *Rana pipiens sphenocephala*	Most types of aquatic habitats	Moderate Habitat presented
Spotted salamander *Ambystoma maculatum*	Low areas in hardwoods	Moderate Habitat presented
Marbled salamander *Ambystoma opacum*	Floodplains and low hammocks	Moderate Habitat presented

Reptiles and Amphibians Observed on or Near Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Eastern tiger salamander *Ambystoma tigrinum tigrinum*	Subterranean burrows	Moderate Habitat presented
Seepage salamander *Desmognathus aeneus*	Shaded seepage areas in moist deciduous ravines	Limited Habitat presented
Northern dusky salamander *Desmognathus fuscus fuscus*	Swamps, seepage areas, edges of springs, rocky or muddy streams	Moderate Habitat presented
Seal salamander *Desmognathus monticola*	Rocky, aerated brooks	Limited Habitat presented
Two-lined salamander *Eurycea bislineata*	Edges of small rock-bottomed brooks, under rotting logs	Limited Habitat presented
Three-lined salamander *Eurycea longicauda guttolineata*	Shaded moist areas, under logs and debris in forested floodplains	Limited Habitat presented
Cave salamander *Eurycea lucifuga*	Caves, cave mouths, under rocks and litter	Limited Habitat presented
Spring salamander *Gyrinophilus porphyriticus*	Caves, springs, seeps and small streams, under logs	Limited Habitat presented
Four-toed salamander *Hemidactylium scutatum*	Under logs near water	Limited Habitat presented
Georgia red-backed salamander *Plethodon cinereus polycentratus*	Mesic woodlands under logs and leaf litter	Moderate Habitat presented
Zigzag salmander *Plethodon dorsalis*	Under rocks and logs in mesic rocky deciduous woodlands	Moderate Habitat presented
Slimy salmander *Plethodon glutinosus glutinosus*	Wooded floodplains and shaded ravine slopes	Moderate Habitat presented
Gulf coast mud salmander *Pseudotriton montanus flavissimus*	Under logs in low wooded floodplains	Moderate Habitat presented
Northern red salmander *Pseudotriton ruber*	Around springs and small streams in forested areas	Limited Habitat presented
Red-spotted newt *Notopthalmus viridescens*	Quiet pools or ponds	Limited Habitat presented
Eastern slender glass lizard *Ophisaurus attenuatus longicaudus*	Brushy, cut-over woodlands, abandoned fields, along streams	Moderate Habitat presented
Eastern glass lizard *Ophisaurus ventralis*	Damp to mesic areas under debris in residental areas, overgrown vacant lots	Moderate Habitat presented

Reptiles and Amphibians Observed on or Near Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Green anole *Anolis carolinensis carolinensis*	Trees and tall vegetation	Ample Habitat presented
Northern fence lizard *Sceloporus undulatus hyacinthinus*	Dry open woodlands, abandoned farms buildings, rock outcrops, piles of old lumber	Ample Habitat presented
Northern mole skink *Eumeces egregius similis*	Subterranean burrows	Moderate Habitat presented
Five-lined skink *Eumeces fasciatus*	Mesic forest areas under rotting logs and stumps, in high water debris along streams	Moderate Habitat presented
Southeastern five-lined skink *Eumeces inexpectatus*	Xeric ridgetops, well drained sandy areas	Limited Habitat presented
Broadheaded skink *Eumeces laticeps*	Hollow trees in wooded areas, cavities in rotting stumps and logs	Moderate Habitat presented
Ground skink *Scincella laterale*	Mesic to dry sites among leaves on forest floor	Ample Habitat presented
Eastern six-lined racerunner *Cnemidophorus sexlineatus sexlineatus*	Dry, relatively open areas, barren waste areas	Ample Habitat presented
Eastern worm snake *Carphophis amoenus amoenus*	Mesic hardwoods with abundant leaf litter	Ample Habitat presented
Midwest worm snake *Carphophis amoenus helenae*	Mesic hardwoods with abundant leaf litter	Ample Habitat presented
Northern scarlet snake *Cemophora coccinea copei*	Under rocks and rotting logs with well drained loose soils	Ample Habitat presented
Northern black racer *Coluber constrictor constrictor*	Most terrestrial habitats, commonly in open woods, forests edges, and along brushy margins of streams	Ample Habitat presented
Southern ringneck snake *Diadophis punctatus punctatus*	Rotting pine logs and stumps, beneath rocks and in leaf litter	Ample Habitat presented
Corn snake *Elaphe guttata guttata*	Abandoned farms and fields	Ample Habitat presented
Black rat snake *Elaphe obsoleta obsoleta*	Most terrestrial habitats, commonly in forest/farmland mixes	Ample Habitat presented
Gray rat snake *Elaphe obsoleta spiloides*	Most terrestrial habitats, commonly in forest/farmland mixes	Ample Habitat presented

Reptiles and Amphibians Observed on or Near Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Eastern hognose snake *Heterodon platyrhinos*	Fields and areas of broken terrain	Ample Habitat presented
Southern hognose snake *Heterodon simus*	Sandy, relatively open areas	Limited Habitat presented
Mole snake *Lampropeltis calligaster rhombomaculata*	Usually underground	Limited Habitat presented
Black kingsnake *Lampropeltis getulus niger*	Most terrestrial habitats, abandoned farms, rural garbage dumps, edges of floodplains and stream margins	Ample Habitat presented
Scarlet kingsnake *Lampropeltis triangulum elapsoides*	Rotting pine stumps	Ample Habitat presented
Eastern coachwhip *Masticophis flagellum flagellum*	Dry, relatively open areas, upland areas where open woods are interspersed with weedy fields	Moderate Habitat presented
Yellowbellied water snake *Nerodia erythrogaster flavigaster*	Permanently aquatic habitats, swamps, sluggish pools, ponds with swampy margins	Limited Habitat presented
Red-bellied water snake *Nerodia erythrogaster erythrogaster*	Permanently aquatic habitats, swamps, sluggish pools, ponds with swampy margins	Limited Habitat presented
Midland water snake *Nerodia sipdeon pleuralis*	Farm ponds, lakes, streams, most permanently aquatic habitats	Limited Habitat presented
Rough green snake *Opheodrys aestivus*	Among shrubbery and vegetation around lakes and streams	Limited Habitat presented
Northern pine snake *Pituophis melanoleucus melanoleucus*	Xeric habitats, dry pine flatwoods, gravelly upland slopes with pine-hardwood mix	Ample Habitat presented
Queen snake *Regina septemvittata*	Along rivers or streams or impoundments of streams	Limited Habitat presented
Midland brown snake *Storeia dekayi wrightorum*	Under logs or debris in urban and rural areas, vacant lots	Ample Habitat presented
Northern red-bellied snake *Storeia occipitomaculata occipitomaculata*	Mesic hilly forested areas where soils are moderately heavy	Ample Habitat presented
Southeastern crowned snake *Tantilla coronata*	Under logs on dry hillsides, ridgetops, and other xeric habitats	Ample Habitat presented

Reptiles and Amphibians Observed on or Near Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Eastern ribbon snake *Thamnophis sauritus sauritus*	Open damp areas, marshes, weedy lake shore, beaver ponds, wet meadows	Limited Habitat presented
Eastern garter snake *Thamnophis sirtalis sirtalis*	Most terrestrial habitats	Ample Habitat presented
Eastern smooth earth snake *Virginia valeriae valeriae*	Under logs and rocks and in organic debris in mesic forested areas	Ample Habitat presented
Southern copperhead *Agkistrodon contortrix contortrix*	Forested areas with rocky bluffs and ravines, along streams and hedgerows	Ample Habitat presented
Northern copperhead *Agkistrodon contortrix mokeson*	Forested areas with rocky bluffs and ravines, along streams and hedgerows	Ample Habitat presented
Eastern cottonmouth *Agkistrodon piscivorus piscivorus*	Most permanently aquatic habitats, swamps, sloughs	Limited Habitat presented
Timber rattlesnake *Crotalus horridus*	Uplands and lowlands in sparsely settled forested areas, dry sandy areas	Ample Habitat presented
Carolina pygmy rattlesnake *Sistrurus miliarius miliarius*	Mixed pine-hardwood forests	Ample Habitat presented
Common snapping turtle *Chelydra serpentina serpentina*	Permanently aquatic habitats, small ponds to large rivers	Limited Habitat presented
Eastern painted turtle *Chrysemys picta picta*	Lakes, ponds, sloughs with mud or silt bottoms and vegetation	Limited Habitat presented
Southern painted turtle *Chrysemys picta dorsalis*	Lakes, ponds, sloughs with mud or silt bottoms and vegetation	Limited Habitat presented
Alabama map turtle *Graptemys pulchra*	Medium creeks to large rivers	Limited Habitat presented
River cooter *Pseudemys concinna concinna*	Streams and relatively large lakes	Limited Habitat presented
Yellow-bellied pond slider *Pseudemys scripta scripta*	Aquatic habitats with abundant vegetation, lakes, ponds, swamps, sloughs	Limited Habitat presented
Red-eared pond slider *Pseudemys scripta elegans*	Permanently aquatic habitats, large lakes and sluggish rivers	Limited Habitat presented
Eastern box turtle *Terrapene carolina carolina*	Moist forested areas	Moderate Habitat presented

Reptiles and Amphibians Observed on or Near Fort McClellan		
Common Name/Scientific Name	**Preferred Habitat**	**Site Status**
Three-toed box turtle *Terrapene carolina triunguis*	Moist forested areas	Moderate Habitat presented
Eastern mud turtle *Kinosternon subrubrum subrubrum*	Ponds, lakes, swamps, marshes, flooded roadside ditches	Limited Habitat presented
Stripe-necked musk turtle *Sternotherus minor peltifer*	Rivers and creeks, occasionally ponds	Limited Habitat presented
Common musk turtle *Sternotherus odoratus*	Still and sluggish waters of ponds, lakes, and sloughs	Limited Habitat presented
Gulf coast spiny softshell *Trionyx spiniferus asper*	Small creeks, ponds, large rivers and lakes	Limited Habitat presented
Source: Derived from range records in R. H. Mount. 1975. The Reptiles and Amphibians of Alabama, Auburn University, Agricultural Experiment Station.		

Ample Habitat Present - Habitat abundant at the facility
Moderate Habitat Present - Habitat common at the facility
Limited Habitat Present - Habitat restricted to a few locations at the facility

APPENDIX 8.2.14: Timber Harvest Income/Costs

Income and Costs from Timber Harvests
Fort McClellan, Alabama

Fiscal Year	Pine Sawtimber*	Hardwood Sawtimber*	Pine Pulp**	Hardwood Pulp**	Stumpage Received $	Forestry Costs $
1951	1,250,000	-	3,546	-	41,887.19	-
1952	82,271	-	134	-	873.13	-
1953	349,401	-	-	-	6,988.02	-
1954	1,409,540	-	2,124	-	16,530.68	12,339.08
1955	415,190	-	99	-	9,043.88	22,760.51
1956	619,315	47,240	735	-	24,059.62	19,664.79
1957	264,660	16,850	26	108	7,498.61	30,153.43
1958	397,170	91,280	1,086	4	16,044.14	26,630.22
1959	1,174,930	108,340	1,893	-	44,368.85	31,563.51
1960	1,169,281	-	1,101	-	36,376.20	34,717.43
1961	1,882,000	177,000	1,969	-	54,489.29	27,603.23
1962	1,123,287	113,120	4,969	-	63,954.26	38,271.57
1963	1,921,938	379,728	8,194	94	101,327.84	75,958.95
1964	2,737,310	283,835	8,386	73	123,650.67	82,421.01
1965	2,137,828	131,668	5,526	-	89,196.77	98,394.37
1966	1,144,316	-	6,844	-	82,583.11	91,393.94
1967	1,334,875	-	7,725	178	90,818.41	91,999.98
1968	2,433,460	131,982	1,780	63	84,407.36	91,699.97
1969	1,883,215	13,665	594	17	61,839.41	96,113.23
1970	2,686,477	20,163	1,652	68	124,484.16	96,110.82
1971	2,226,625	-	3,631	-	99,932.24	86,203.92
1972	1,264,018	-	3,008	-	63,741.60	118,096.06
1973	1,080,553	94,930	4,625	59	77,668.32	95,758.00

1974	1,783,600	-	3,755	101	227,030.53	104,700.00
1975	758,000	-	1,902	-	76,137.05	108,700.00
1976	1,340,000	-	560	-	113,016.56	137,186.45
1976T	157,000	90,000	536	-	13,264.78	25,451.12
1977	574,000	6,000	1,045	-	56,798.24	103,604.43
1978	1,090,000	-	1,677	286	119,625.76	116,722.00
1979	1,144,000	-	4,952	74	201,900.34	122,339.12
1980	5,679,000	53,000	10,457	51	342,291.60	159,874.00
1981	-	-	-	-	-	-
1982	1,028,000	100,000	1,772	500	165,777.69	226,316.01
1983	683,000	11,000	1,419	400	110,936.67	165,449.00
1984	1,315,000	6,000	1,617	624	215,769.93	169,212.18
1985	2,211,000	144,000	5,074	340	398,130.38	311,959.86
1986	369,000	4,000	1,789	94	68,173.62	140,823.90
1987	1,184,000	-	2,352	230	184,277.00	147.951.00
1988	434,000	-	2,660	72	85,142.00	108,400.00
1989	987,000	-	1,611	361	150,513.00	157,240.00
1990	1,594,303	155,970	1,216	47	224,753.52	163,000.00
1991	907,014	17,000	1,599	68	207,460.72	115,200.00
1992	784,727	10,350	2,744	199	173,049.56	120,000.00
1993	1,856,271	11,000	5,311	26	341,179.30	118,500.00
1994	262,857	7,703	2,360	193	141,968.22	98,000.00
1995	704,235	3,412	2,067	135	238,815.19	113,000.00
1996	264,474	-	2,011	29	135,733.58	99,000.00

* Board Feet

** Cords

- No Data Available

T Change in fiscal year which added three months (Jul-Sep).

APPENDIX 9.5.2.1: GIS Hardware

Sun SPARC Station 5
Hewlett Packard 1200c Desk Jet
ALTEK Digitizer
Hurta Digitizer
Hewlett Packard 750C Color Plotter
Gateway P5-120 PC
Trimble Proxl

APPENDIX 9.5.2.2: GIS Databases

Ft. McClellan

ITEM	HEADING	LABEL	VECTOR	RASTER	COLOR
Leased Land	A	1	lsdlnd.0	lsdlnd	RED
. Threatened & Endangered Species	C	--	tespec0.0	tespec	--
Fraser's Loosestrife	C	1	fralse.0	fralse	RED
White Fringeless Orchid	C	2	wforc.1	wforc	GREEN
Unknown	C	3	unknwn.2	unknwn	BLUE
Tennessee Yellow-Eyed Grass	C	4	tyegrs.3	tyegrs	YELLOW
. Toxic Area	D	--	toxarea0.0	toxarea	--
Range I	D	1	rangei.0	rangei	RED
Range J	D	2	rangej.0	rangej	GREEN
Range K	D	3	rangek.0	rangek	BLUE
Range L	D	4	rangel.0	rangel	YELLOW
Old Waterhole	D	5	oldwth.0	oldwth	MAGENTA
HD Spill/Burial Site (Moved To Contaminated Land)	--	--	--	--	--
-4	D	7	t4.0	t4	AQUA
T-24A	D	8	t24a.0	t24a	GREY
Dud Impact Areas/Small & Large Arms	D	9	diarea.1	diarea	ORANGE
Above Ground Storage Facilities (Moved To Contaminated Land)	--	--	--	--	--
. Natural Area .	C	--	natarea0.0	natarea	--
Large Forested Wetland	C	1	lfwet.0	lfwet	RED
Willett Springs and Adjacent Stream	C	2	wilspr.0	wilspr	GREEN
Battle Drill Area Wetlands	C	3	bdawet.0	bdawet	BLUE
Spring/Seep Wetlands	C	4	sprwet.0	sprwet	YELLOW
Mature Longleaf Pine Forest Areas	C	5	mlpfar.1	mlpfar	MAGENTA
Mixed Pine/Hardwood Forest Block	C	6	mphfbk.1	mphfbk	CYAN
Zigademus Leimanthoides and Platanthera Integrilabia Habitat	C	7	zlpihb.1	zlpihb	AQUA
Demolition Landfill	C	8	demlnd.1	demlnd	GREY
Red-Cockaded Woodpecker Habitat Area	C	9	rcwhab.1	rcwhab	ORANGE
Reilly Lake Nature Trail	C	10	rlnat.1	rlnat	BROWN
Cane Creek At Golf Course	C	11	cancrk.1	cancrk	INDIGO
Wetlands	C	--	wetlnd.0	wetlnd	--

Ft. Mc Clellan

ITEM	HEADING	LABEL	VECTOR	RASTER	COLOR
. Research & Development Area	D	--	rdarea0.0	rdarea	--
R24A	D	1	r24a.0	r24a	RED
R29	D	2	r29.0	r29	GREEN
R16	D	3	r16.0	r16	BLUE
R17	D	4	r17.0	r17	YELLOW
Sots Site	D	5	sotsit.0	sotsit	MAGENTA
Area 4B	D	6	area4b.0	area4b	CYAN
Firing Fans	D	--	firefan.13	firefan	--
Firing Fans	D	70	ff70.1	ff70	RED
Firing Fans	D	71	ff71.1	ff71	GREEN
Firing Fans	D	72	ff72.1	ff72	BLUE
Firing Fans	D	73	ff73.1	ff73	YELLOW
Firing Fans	D	74	ff74.1	ff74	MAGENTA
Firing Fans	D	75	ff75.1	ff75	CYAN
Firing Fans	D	76	ff76.1	ff76	AQUA
Firing Fans	D	77	ff77.1	ff77	GREY
Firing Fans	D	78	ff78.1	ff78	ORANGE
Firing Fans	D	79	ff79.1	ff79	BROWN
Firing Fans	D	80	ff80.1	ff80	INDIGO
Firing Fans	D	81	ff81.1	ff81	RED
Firing Fans	D	82	ff82.1	ff82	GREEN
Firing Fans	D	83	ff83.1	ff83	BLUE
Firing Fans	D	84	ff84.1	ff84	YELLOW
Firing Fans	D	85	ff85.1	ff85	MAGENTA
Firing Fans	D	86	ff86.1	ff86	CYAN
Firing Fans	D	87	ff87.1	ff87	AQUA
Firing Fans	D	88	ff88.1	ff88	GREY
Firing Fans	D	89	ff89.1	ff89	ORANGE
Firing Fans	D	90	ff90.1	ff90	BROWN
Firing Fans	D	91	ff91.1	ff91	INDIGO
Firing Fans	D	92	ff92.1	ff92	RED
Firing Fans	D	93	ff93.1	ff93	GREEN

Ft. McClellan

Item	HEADING	LABEL	VECTOR	RASTER	COLOR
iring Fans	D	94	ff94.1	ff94	BLUE
Firing Fans	D	95	ff95.1	ff95	YELLOW
Firing Fans	D	96	ff96.1	ff96	MAGENTA
Firing Fans	D	97	ff97.1	ff97	CYAN
Firing Fans	D	98	ff98.1	ff98	AQUA
Ammunition Supply Plant	D	10	amsplt.2	amsplt	BROWN
Radiological Hazard Areas	D	11	radhaz.3	radhaz	INDIGO
CDTF Security Area	A,D	12	cdtfsa.4	cdtfsa	AQUA
. Fire Breaks	A	--	firebrk0.0	firebrk	--
Primary	A	1	fbkpri.0	fbkpri	RED
Secondary	A	2	fbksec.1	fbksec	GREEN
. Cultural Resources	C	--	cultres0.0	cultres	--
Historic District Buildings	C	1	hisbld.0	hisbld	RED
Industrial District Buildings (Moved To Contaminated Land)	--	--	--	--	--
hemical Storage Areas	D	3	chesto.2	chesto	WHITE
Radon Monitored Building	--	--	--	--	--
. 12 Month Monitoring Being Conducted	D	4	rmbld1.3	rmbld1	YELLOW
. Radon Measures Underway	D	5	rmbld2.4	rmbld2	MAGENTA
Waste Treatment Plant	D	6	wtplnt.5	wtplnt	CYAN
Primary & Secondary Roadway	A,B,C	7	psroad.6	psroad	AQUA
Planning/Land Use Zones	--	--	--	--	--
. Family Housing	A,B,C	8	famhse.7	famhse	GREY
. Troop Housing	A,B,C	9	trphse.7	trphse	ORANGE
. Administration	A,B,C	10	admin.7	admin	BROWN
. Training & Operations	A,B,C	11	traope.7	traope	INDIGO
. Community Facilities	A,B,C	12	comfac.7	comfac	RED
. Recreation	A,B,C	13	rec.7	rec	GREEN
. Army Reserves (Empty File)	--	--	--	--	--
Supply, Storage & Public Works	A,B,C	15	supsto.7	supsto	YELLOW
pen Space	A,B,C	16	ospace.7	ospace	MAGENTA
. National Guard	A,B,C	17	natgrd.7	natgrd	CYAN
. Reservation Boundary	A,B,C	18	resbnd.7	resbnd	AQUA

Ft. McClellan

ITEM	HEADING	LABEL	VECTOR	RASTER	COLOR
. Contaminated Land	D	--	conland0.0	conland	--
Sanitary Landfill #1	D	1	sanlf1.0	sanlf1	RED
Sanitary Landfill #2	D	2	sanlf2.1	sanlf2	GREEN
Sanitary Landfill #3	D	3	sanlf3.2	sanlf3	BLUE
Sanitary Landfill #4	D	4	sanlf4.3	sanlf4	YELLOW
Above Ground Storage Facilities	D	5	agsfac.0	agsfac	MAGENTA
Under Ground Storage Tanks	D	6	ugstks.5	ugstks	CYAN
Air Pollution Sources	D	7	airpol.6	airpol	BROWN
Hazardous Waste Accumulation Points	D	8	hwapts.7	hwapts	GREY
Hazardous Waste Storage	--	--	--	--	--
. Building 348	D	9	hws348.8	hws348	ORANGE
. PCB Storage	D	10	hwspcb.9	hwspcb	BROWN
Temporary Transformer Storage/Staging	D	11	temtrs.11	temtrs	CYAN
Wash Racks	D	12	wshrks.12	wshrks	RED
Toxic Areas (CERCLA Sites)	--	--	--	--	--
. T-5	A,D	13	tat5.13	tat5	GREEN
. T-6	A,D	14	tat6.13	tat6	BLUE
. T-31	A,D	21	tat31.13	tat13	BROWN
. T-38	A,D	15	tat38.13	tat38	YELLOW
. Detention & Identification Area	A,D	16	detiad.13	detida	MAGENTA
. Old Toxic Training Area	A,D	17	otoxta.13	otoxta	CYAN
. HD Spill/Burial Sites	A,D	18	hdsbur0.0	hdsbur	AQUA
Headquarters District	A,D	19	hqdist.14	hqdist	GREY
Industrial District	A,D	20	indbld0.0	indbld	ORANGE
. Boundary	A	1	bound2	bound2	RED
. Proposed Development	--	--	prodev.12	prodev	--

LABEL	(PROPOSED DEVELOPMENT) (Pelham)	COLOR
0		VIOLET
1	. ARNG South Tank Trail Upgrade	RED
2	. ARNG Tank Trail All-Weather Upgrade	GREEN
3	. ARNG Multipurpose Platoon Battle Course & ARNG Mout Assault Course Range	BLUE
4	. ARNG Water Purification Training Facility	YELLOW
5	. ARNG Signal Training Site	MAGENTA
6	. ARNG Maneuver Lane Training Range	CYAN
7	. ARNG Drop Zone Surface Clearing/Control	BROWN
4	. ARNG Water Purification Training Facility	YELLOW
8	. ARNG Range HQ Control/Target Storage Building	GREY
9	. ARNG Range Training/Exercise Control Building	ORANGE
0	. Chemical/Nuclear Operations Training Assistance Range	RED
11	. ARNG Tent Pads/Bivouac Site Pelham Range	GREEN
5	. ARNG Signal Training Site	MAGENTA
5	. ARNG Signal Training Site	MAGENTA

LABEL	(FT. McCLELLAN)	COLOR
12	Family Housing Whole Neighborhood - Area 3500	RED
13	Elementary School Addition	GREEN
14	Family Housing Whole Neighborhood - Area 3600	BLUE
5	ARNG Signal Training Site	MAGENTA
15	Family Housing Renewal Jr. & Sr. NCO Dwelling Units	YELLOW
16	ARNG Battle Simulation Center	CYAN
17	Chemical School Battle Simulator	BROWN
18	ARNG Air Assault Training/Landing Facility	GREY
5	ARNG Signal Training Site	MAGENTA
19	ARNG Miles Warehouse	ORANGE
20	ARNG Training Site Addition	RED
21	ARNG Armory	GREEN
22	General Purpose Warehouse	BLUE
23	Medical Supply Warehouse	YELLOW
24	ARNG GS/DS Maintenance Training Area	CYAN
25	ARNG Ammunition Training Area	BROWN
26	Deployment/Force Modernization Complex	GREY
27	Consolidated Storage TISA (Cold/Dry) CIF Facility	ORANGE
28	Commissary Expansion	RED
29	Enlisted Single Soldier Community	GREEN
30	ARNG KD Firing Range (Upgrade)	BLUE
31	Chemical Decontamination Training Facility Expansion	MAGENTA

KEY

A: Location & Administrative
B: Terrain
C: Natural Resources
D: Environmental Restrictions

HEADING

C . Cultural Resources (Buildings)(Hist. & Indus.)
A,B,C Planning/Land Use Zones (Boundaries)
D Chemical Storage Areas (Buildings)
D Waste Treatment Facility (Plant)
D Radon Monitored Bldgs. (Buildings)

A . Leased Land (Boundaries)

C . Natural Areas (Boundaries)(Forests, Birds, Trails, Wetlands)

D . Toxic Areas (Boundaries)
D Dud Impact Areas/Small, Large Arms Impact Areas (Boundaries)
D Above Ground Storage Facilities (Boundaries)

A . Firebreak System (Forest Cut Lines)

C . Threatened & Endangered Species (Boundaries)(Grass, Trees)

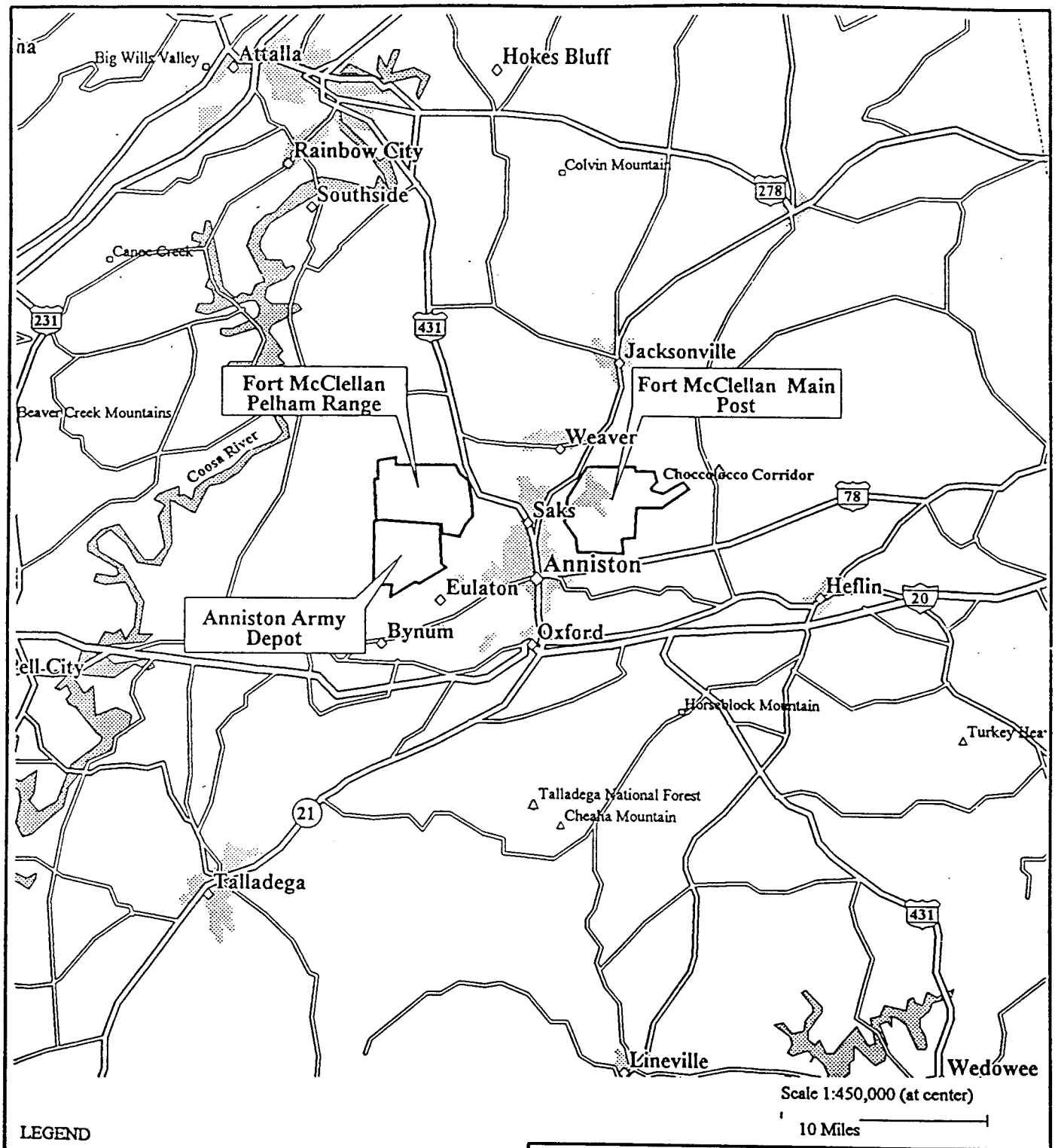
D . Research Development & Test Areas (Boundaries)
D Firing Fans (Boundaries)
D Ammunition Supply Plant (Plant)
A,D CDTF Security Area (Boundaries)
D Radiological Hazard Areas (Boundaries)

C,D . Contaminated Groundwater Sources/Contaminated Land (Boundaries)
D Sanitary Landfill #1, #2, #3, #4 (Boundaries)
D Above Ground Storage Facilities (Boundaries)
D Under Ground Storage Facilities (Boundaries)
D Air Pollution Sources (Boundaries)
D Hazardous Waste Accumulation Points (Boundaries)
D Hazardous Waste Storage (Building) (Boundaries)
D Temporary Transformer Storage/Staging Area (Boundaries)
D Wash Racks (Boundaries)
A,D Toxic Areas (Old Toxic Training Area, HD Spill/Burial Sites)(Boundaries)
A Headquarters & Industrial Districts (Boundaries)

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FORT MCCLELLAN, ALABAMA

MAPS

MAP 2.1: General Vicinity of Fort McClellan, Alabama



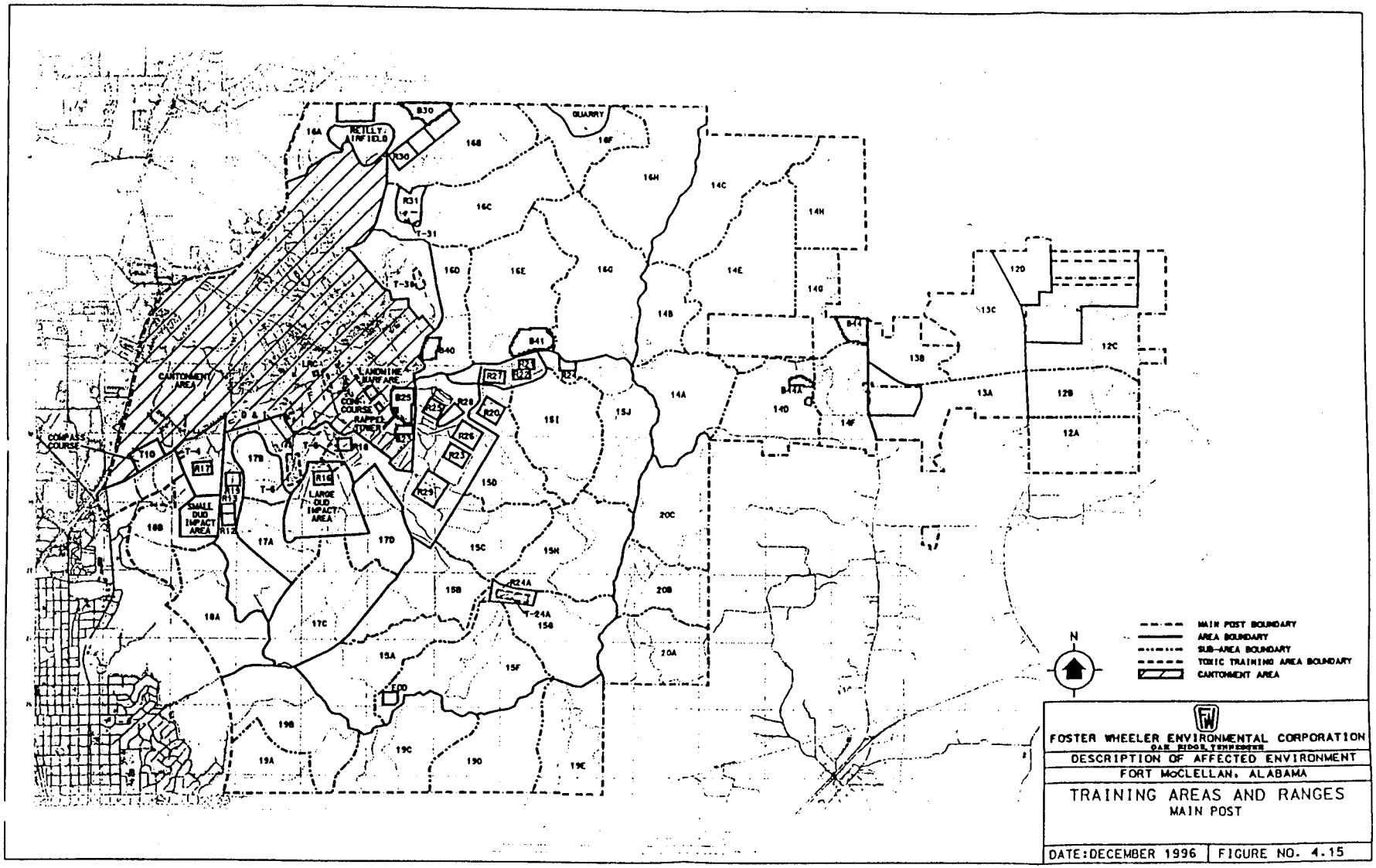
FOSTER WHEELER ENVIRONMENTAL CORPORATION
HUNTSVILLE, ALABAMA

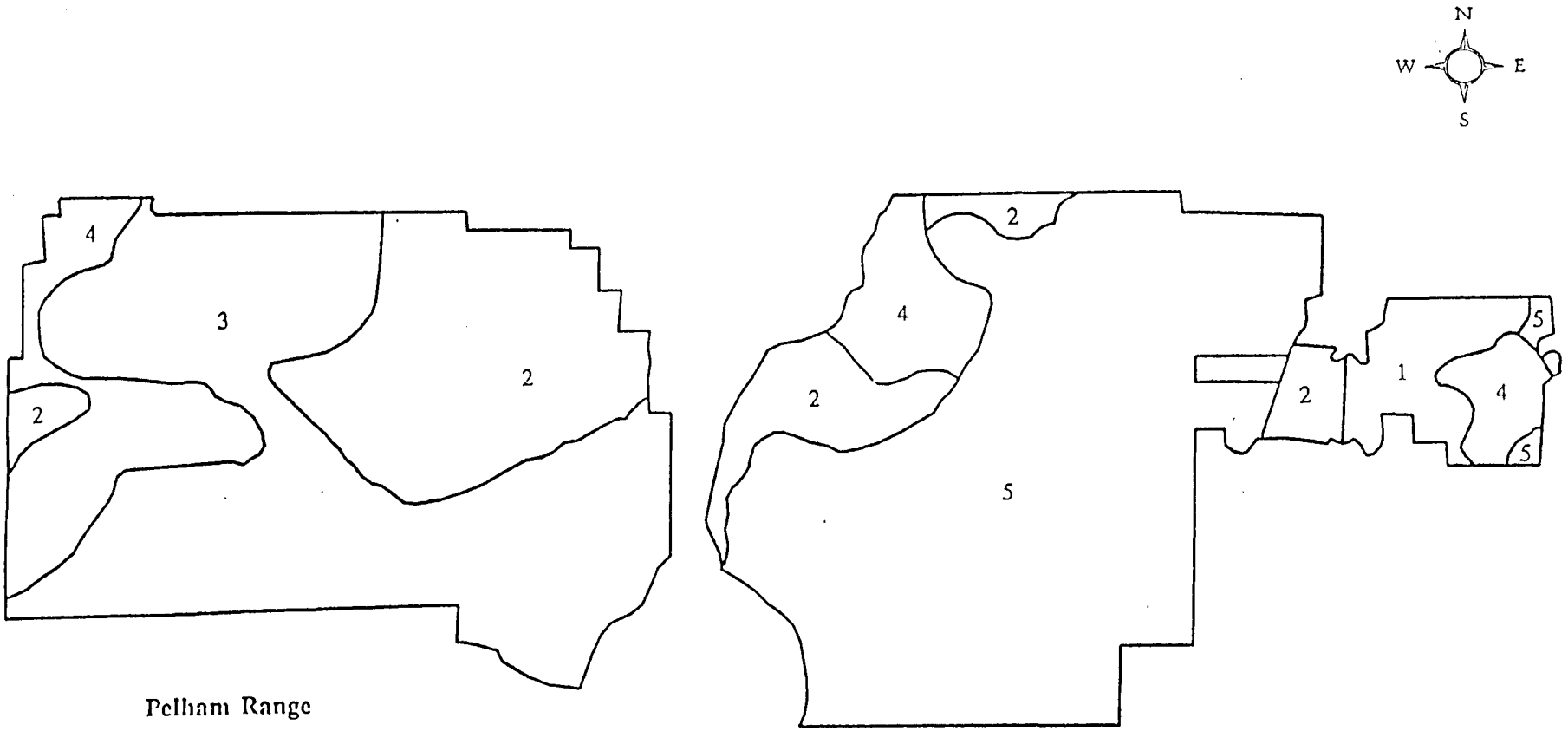
DESCRIPTION OF AFFECTED ENVIRONMENT
FORT McCLELLAN, ALABAMA

VICINITY MAP

DATE: December 1996 | FIGURE NO. 4.2

MAP 6.4: Fort McClellan Soil Associations


MAIN POST BOUNDARY
AREA BOUNDARY
SUB-AREA BOUNDARY
TOXIC TRAINING AREA BOUNDARY
CANTONMENT AREA
N
FOSTER WHEELER ENVIRONMENTAL CORPORATION
OAK RIDGE, TENNESSEE
DESCRIPTION OF AFFECTED ENVIRONMENT
FORT McCLELLAN, ALABAMA
TRAINING AREAS AND RANGES
MAIN POST
DATE:DECEMBER 1996
FIGURE NO. 4.15



Legend

1. Altavista-Masada-Tate
2. Anniston-Allen-Decatur-Cumberland
3. Clarksville-Fullerton
4. Rarden-Montevallo-Lehew
5. Stony Rough Land

FOSTER WHEELER ENVIRONMENTAL CORPORATION
HUNTSVILLE, ALABAMA

DESCRIPTION OF AFFECTED ENVIRONMENT

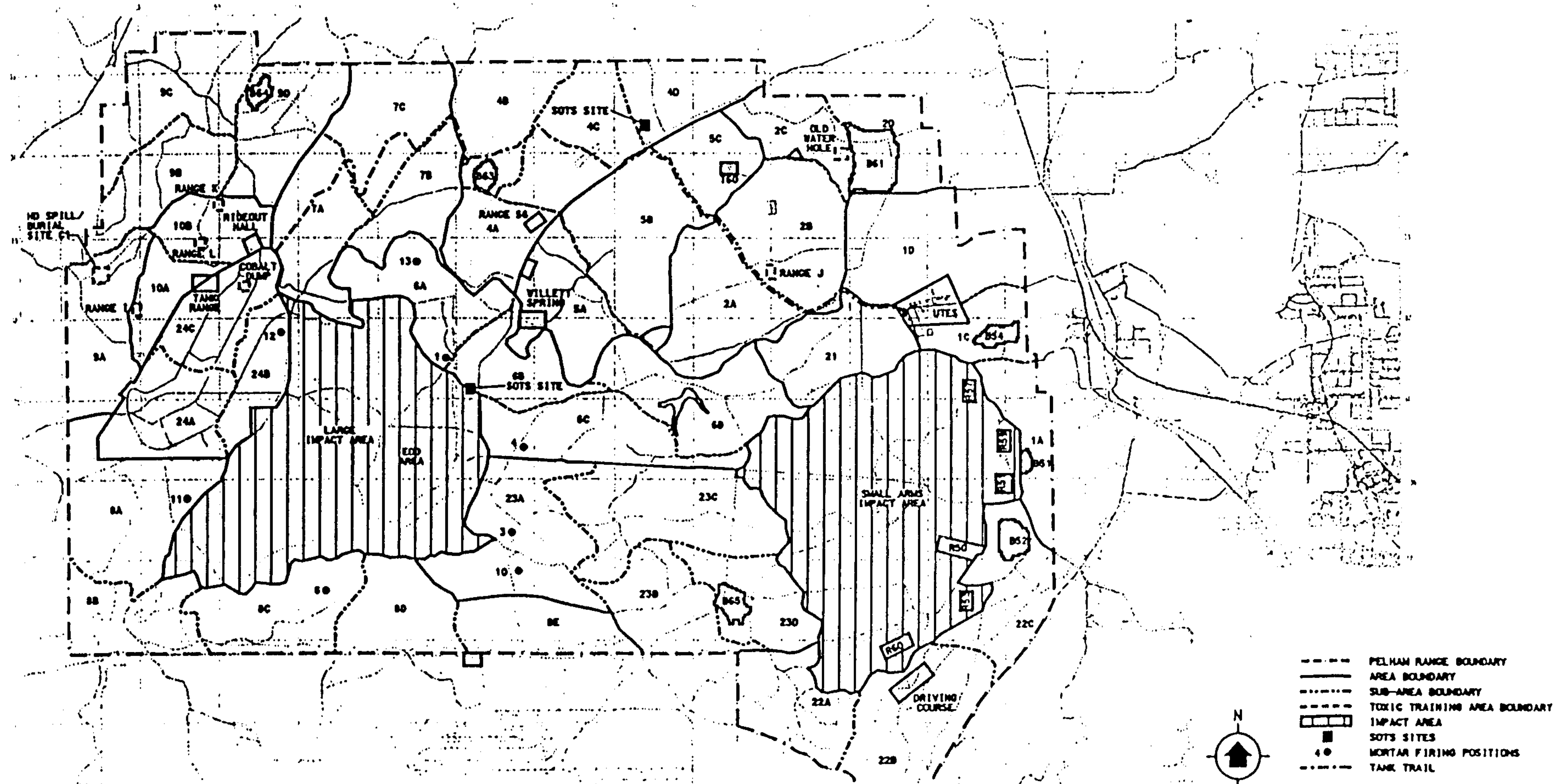
FORT McCLELLAN, ALABAMA

SOIL ASSOCIATIONS AT MAIN POST AND PELHAM RANGE

DATE: December 1996 | FIGURE NO. 4.8

MAP 7.1.2.1: Fort McClellan Training Areas and Firing Ranges (Main Post)

MAP 7.1.2.2: Fort McClellan Training Areas and Firing Ranges (Pelham Range)



FOSTER WHEELER ENVIRONMENTAL CORPORATION
OAK RIDGE, TENNESSEE

DESCRIPTION OF AFFECTED ENVIRONMENT

FORT McCLELLAN, ALABAMA

TRAINING AREAS AND RANGES
PELHAM RANGE

DATE: DECEMBER 1996 | FIGURE NO. 4.16

MAP 7.1.3: Fort McClellan Forest Compartments

COMMENTS DRAFT INRMP

Page 2: In the last paragraph under "Base Realignment and Closure", change the 2nd sentence to read "Closure of Fort McClellan is required not later than 12 July 2001 but is currently scheduled for 30 September 1999".

Page 3: In section Costs and Benefits, what do you mean in the last sentence (Costs) by stating "INRMP will cost about $0,000". Please clarify since this question was not clear to a number of reviewers.

Page 10, Section 2.4.2: Pelham Range was purchased in 1941.

Page 10, Section 2.4.3: Fort McClellan is in the process of returning the Choccolocco Corridor leased land to the Alabama Forestry Commission as part of the base closure process. It is anticipated that this lease will be terminated no later than January 1998. It would probably be appropriate to delete this section in the entirety or add statement to the effect that "This property will be returned to the Alabama Forestry Commission in the early stages of the BRAC process". Also, if left in the INRMP, add "The Alabama Forestry Commission is responsible for all natural resources management".

Page 15, Section 3.3, Paragraph 3, Line 4: At the end of sentence delete 73.

Page 15, Section 3.3, Paragraph 5, Line 1: Tracked maneuver is also accomplished, on a more limited degree, in the Graham Drop Zone.

Page 16, Section 3.3, Paragraph 3, Line 3: Change resources to resource.

Page 16, Section 3.3, Paragraph 2, Line 4: Add "Bureau of" prior to "Alcohol, Tobacco and Firearms (ATF) Special Reaction Team". Also, change (ATF) to (BATF).

Page 16, Section 3.3, Paragraph 3, Line 3: Change resources to resource.

Page 17, Section 3.5.1, Line 2: Delete the entire sentence. The who, what, when, where and how is very much undecided at this point in the closure process.

Page 17, Section 3.5.2, Line 1: Change transfer to licensed. The Department of the Army will retain ownership.

Page 18, Section 4.1.5, Paragraph 1, Line 2: Change grid coordinates for Noble Hospital Pad to either a 6 or 8 digit grid coordinate. Currently shown as a 7 digit coordinate.

Page 18, Section 4.2.1, Paragraph 2, Line 1: Should state that there are 5 gates entering the Main Post. The 4 you have listed entering from the west along Hwy. 21 are correct, however, you can enter the Main Post from the east through Bain Gap Gate.

Page 19, Section 4.2.2, Line 1: There is only 3.4 miles of usable track on the installation. The balance of the original quantity has either been removed or abandoned.

Page 19, Section 4.3: Change entire section to read as follows.

Fort McClellan obtains potable water from the City of Anniston Water Works and Sewer Board. Source water for this system is primarily Coldwater Spring (24-36 million gallons per day (MGD) estimated flow), seven miles southwest of Anniston. Hillabee Creek Reservoir , located approximately 3 miles southwest of Anniston, also supplies some of this water. Although water from both sources undergoes chlorination and flouridation, only water from Hillabee Creek Reservoir must undergo filtration.

The Calhoun Water and Fire Protection Authority Office, which gets its source water from Seven Springs and Read's Mill, supplies water to one faucet in area B-44. This area is located in the leased Choccolocco Corridor area which is being returned to the Alabama Forestry Commission as part of the closure process.

Potable water is supplied to Main Post through double mains from the city's distribution system to government-owned booster pump stations at Summerall and Baltzell Gates. Under normal operating conditions, Main Post's water demands are met solely by the Summerall Gate pumping station; the Baltzell Gate pumping station is used only for peak demand days and in case of fire. Summerall Gate and Baltzell Gate pumps were replaced within the last 15 years with 1,500 gallons-per-minute (GPM) pumps, respectively.

PELHAM Range receives water through mains at Gate 3 and the Mark 19 Range. Pelham Range also receives water by truck.

There are two water storage tanks on Fort McClellan. An underground concrete storage reservoir with a one million gallon capacity is no longer in use due to a degraded liner. Currently in use is an aboveground steel tank with a 1.5 million gallon capacity that was refurbished in 1990. The steel tank is a permitted water supply under the Department of Environmental Management.

There are six secondary potable water wells on the installation: two on Main Post and four on Pelham Range. On

Main Post one well is located at Reilly Lake and another at Range B-44. The B-44 Range well, permitted by ADEM in 1987, was disconnected and taken off permit status in 1988 when the range received water from the county water supply. On Pelham Range there are wells at Range 57, Rideout Hall (Bldg. 8802), the Security Operations Training Site (SOTS) Administrative Area (Bldg. 8203), and the SOTS (Bldg. 8605). The wells at Range 57 and the SOTS Administrative Area are permitted by ADEM. Water from wells undergoes chlorine treatment (Foster Wheeler Environmental Corporation, 1996).

Fort McClellan is currently in compliance with Safe Drinking Water Standards. The water distribution system was inspected by ADEM in July 1997. In December 1993 Fort McClellan began annual sampling of the three permitted wells on Pelham Range for nitrates in accordance with ADEM requirements. Levels of nitrates above the regulatory level of 10 mg/l were found at the SOTS Site Administration Area (Bldg. 8203) and Rideout Hall (Bldg. 8802). In December 1994, increased sampling was undertaken at the sites in accordance with ADEM regulations and continued through 1995. No other incidences of elevated nitrates were reported during the sampling period. Annual monitoring is ongoing.

In 1994, Fort McClellan had an average daily demand for water of 1.17 MGD. Under the existing contract with the City of Anniston's Water and Sewer Board, Fort McClellan's water limit is 3.5 MGD. In August 1993, the maximum water usage was 1.51 MGD. Under fire fighting conditions, a maximum of 5,800 gallons per minute would be available from approximately 485 fire hydrants within the cantonment area.

Page 20, Section 4.4.1, Line 1: Change "disposal by" to "disposal through".

Page 21, Section 4.4.2, Paragraph 1, Line 1: Change the first sentence to read "All facilities on Pelham Range will become the property of the Alabama National Guard when the range is licensed to ALARNG, projected in 1999". Delete the last sentence in the paragraph, "Other facilities may be reallocated/disposed of by the Fort McClellan Reuse Authority".

Page 23, Section 5.1.6, Paragraph 3, Line 1: Delete the first sentence, "In preparation for closure of Fort McClellan, responsibilities and mission of Range Control (formally staffed by DPTMSEC&RCS personnel) were transferred to the ALARNG in 1997".

Page 25, Section 5.2.2, Paragraph 1, Line 4: Delete the sentence, "In 1997 ALARNG took over responsibility for Range Control operations on the installation (Section 5.1.6)".

Page 27, Section 5.4.1, Paragraph 2, Line 1: Change "Commissioner" to "Director".

Page 28, Section 5.8: Other environmental and natural resource groups having participated in the scoping process for the installation's BRAC EIS include USDA-Natural Resource Conservation Service; Alabama Environmental Council; Alabama Natural Heritage Program; ECG, Inc. (local environmental consulting firm); Jacksonville State University; Alabama Department of Conservation and Natural resources; Alabama Forestry Commission; Alabama Department of Environmental Management; and Alabama State Parks. These organizations should be included as interested parties.

Page 32, Section 6.5.1, Last Paragraph: Add "The significant impact of this study is the identification of natural sources for the heavy metals. Although there is suspected anthropogenic contributions to the overall metal load by far the greatest contributor is the natural environment."

Page 35, Section 6.7.2, Last sentence on page: Change "southeastern slopes" to "southwestern slopes".

Page 36, Section 6.7.2, Paragraph 2, Line 3: Correct spelling "sylviculture" to "silviculture".

Page 37, Section 6.7.3, Paragraph 2, Line 2: Change "nesting population" to "recovery population".

Pages 40, Section 6.7.5.1: Delete the 2nd table covering type of restrictions. Replace the table and the paragraph above the table with the following paragraph.

There are various restrictions on timber harvest on Fort McClellan. Restrictions are placed on timber harvesting activities in areas having unique characteristics or other limiting factors such as the cantonment area, range/bivouac areas, impact areas, drop zone, range safety fans, etc. Restrictions vary in their effects on timber harvest from a no harvest policy to normal harvest practices. For example, a firing fan may affect an area almost daily if located on a heavily used range or it may affect an area for only a few days per month if the range is used on a limited basis. Likewise, many portions of the dud impact areas are totally off-limits, but some portions may be open to certain forest management practices, dependent upon the type and amount of unexploded ordinance in the area.

Page 41, Section 6.7.5.3, Paragraph 1, Line 4: The abbreviation "MBF" is shown for the Pine Sawtimber and has not previously been spelled out as "Million Board Feet" in the INRMP.

Page 44, Section 6.8.5.1.1, Paragraph 3: After the last sentence add "Larger streams on Main Post and Pelham Range provide foraging habitat for this species".

Page 48, Section 6.8.5.2.3: After the last sentence add "The snail was recently determined to be more common than previously believed and was placed in the Candidate 3C status."

Page 49, Section 7.3.1, Paragraph 1: Change last sentence to read "Compartments containing a pine component are generally burned on a three year cycle."

Page 50, Section 7.3.3, Line 2: Change Section 7.3.3 to Section 7.3.2 and subunits to training areas.

Page 52, Section 8.2.1, Paragraph 8, Line 4: Change sentence to read "Clearcutting is reserved for special purposes such as removing disease spots, salvage operations and stands too small for uneven management.

Page 53, Section 8.2.4: Change "Pine and hardwood sawtimber" to read "Minimum merchantability is 12 inches diameter outside the bark at breast height (dbh) (4 ½ feet above the ground) with one 18 foot log".

Page 54, Section 8.2.5, Paragraph 4: Delete last sentence beginning "The primary" and ending "profit" on an average.

Page 55, Section 8.2.6, Paragraph 2, line 7: Change "five to seven" to "two to five".

Page 56, Section 8.2.7, Line 2: Insert "pine" after "any one".

Page 57, Section 8.2.9, Line 2: Put period after "timber" and delete "for later harvest".

Page 64, Section 8.2.15, Line 4: Delete last sentence beginning with "Every" and ending with "sustaining".

Page 66, Section 8.4: Need space between paragraphs.

Page 71, Section 8.5.1.1, Paragraph 2, Line 1: Change "December" to "January".

Page 71, Section 8.5.1.1, Paragraph 2, Line 3: Delete "with some areas having a limit of two per day." This is true for some areas in the state but not on McClellan.

Page 71, Section 8.5.1.2, Paragraph 2, Line 1: After "toms" add "per season".

Page 71, Section 8.5.1.2, Paragraph 2, Line 1: Delete the sentences beginning with "There" and ending with "to do so". We do not have a fall season and do not have a option to do so.

Page 72, Section 8.5.1.3, Paragraph 2, Line 1: After "The" add "daily".

Page 73, Section 8.5.1.7, Paragraph 3, Line 1: Delete "mid".

Page 73, Section 8.5.1.9, Paragraph 2, Line 2: Change last sentence to read "Management practices currently undertaken for this species consists of trapping and/or shooting for damage control purposes."

Page 75, Section 8.5.2.2.1, Paragraphs 4 and 5: Have enclosed two reports that have received Section 7 concurrence from the Fish/Wildlife Service. Need to change wording in these paragraphs to reflect foraging habitat on Fort McClellan as outlined by these reports.

Page 76, Section 8.5.2.3.1: Other than the name, refer to this specie as a "plant" rather than a "grass" since it is actually not a grass. Make changes throughout this section.

Page 78, Section 8.5.3.2: Trapping is used for damage control as stated in Section 8.5.1.9.

Page 78, Section 8.5.4: Need to reference the Migratory Birds Treaty Act as regulatory requirement.

Page 78, Section 8.6: Change 2nd bullet to read "signs prohibiting vehicle access are maintained around wetlands that are experiencing training encroachment."

Page 81, Section 8.8.2, Paragraph 1, Line 1: Change first sentence to read "The Directorate of Engineering and Housing is responsible for maintenance of roads while the Directorate of Environment (Forestry Section) is responsible for firebreaks."

Page 82, Section 8.9, Paragraph 4, Line 1: Change the 2nd sentence to read "However, following the BRAC transfer of Pelham Range to the Alabama Army National Guard (ALARNG), projected in 1999, ITAM may be initiated by the Guard". Delete the last sentence that says "ITAM implementation would likely begin in 1999".

Page 86, Section 8.12, Paragraph 2: Delete last sentence beginning with "Fort McClellan" and ending with "fires".

Page 86, Section 8.8.12.9, Paragraph 2, Line 1: After "contractor" add "and forestry section, DOE."

Page 89, Section 8.12.6: SEE ATTACHED.

Page 91, Section 8.13.1.1.1, Paragraph 3, Line 6: Change "(Hill et al., 1996)" to "(Webb et al., 1997)".

Page 96, Section 8.13.1.2, Line 3: Change "ANHP listed sensitive species" to "former candidate species(species of concern)".

Page 97, Section 8.13.1.2.4, Paragraph 2, Line 2: Change "ANHP-listed" to "former candidate".

Page 97, Section 8.13.1.2.4, Bullet 2: Delete this bullet. We don't have any plans at this point to fence the pool.

Page 98, Section 8.13.2, Line 1: Delete sentence beginning with "Restricted" and ending with "Map". This is not entirely true.

Page 100, Section 9.2.4: Add "National Wetland Inventory maps are also available for consultation as required".

Page 103, Section 9.3.2.1.2: Add "Active colonies are known to exist in the Talladega National Forest at locations approximately 6 miles east of the Main Post. The possibility exists for birds to pioneer suitable habitat on the Main Post."

Page 104, Section 9.5.2, Paragraph 2, Line 1: Change "1990" to "1984 and upgraded in 1990".

Page 104, Section 9.5.2, Paragraph 2, Line 2: Change "Archeologist" to "Cultural Resource Manager".

Page 105, Section 9.5.2.1: Delete reference to ArcInfo® and change SunOS 5.1 to Solaris 2.5.

Page 105, Section 9.5.2.2, Paragraph 1, Line 3: Change "digitize" to "locate".

Page 118, Section 13.5.2.3, Paragraph 7, Line 3: Delete "or the check station at Gate 3".

Page 119, Section 13.6.3, Line 1: After first sentence change rest of paragraph to read "Due to reductions in personnel and budgetary constraints, the installation has very limited amounts of rental equipment for outdoor recreation".

Page 125, Section 16.2, Paragraph 3, Line 2: Change "Alabama Forestry Commission" to "state agency".

Page 133, Section 17.5, Funding Summary:

TYPE FUNDS	FY98	FY99	FY00	FY01	FY02	TOTALS
Sikes Act	$10	$10	$10	$10	$10	$50
Forestry	$200	$200	$200	$200	$200	$1000
Agriculture	$25	$25	$25	$25	$25	$125
Environmental	$100	$100	$100	$100	$100	$500
Other						$0
TOTALS	$335	$335	$335	$335	$335	$1675

Page 136: Under "PERSONS CONTACTED", change the first name listed to "Case, Bernie (MAJ) - Range Officer, Fort McClellan, AL".

Page 149, APPENDIX 9.5.2.1: Change Tremble Pro GPS (2) to Trimble Proxl