

**INTEGRATED
NATURAL
RESOURCES
MANAGEMENT
PLAN
2024-2028**



FORT NOVOSEL, ALABAMA

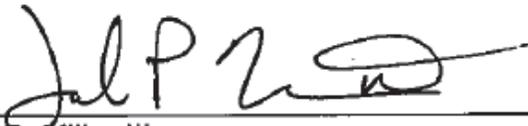
**NATURAL RESOURCES BRANCH
ENVIRONMENTAL AND NATURAL RESOURCES DIVISION
DIRECTORATE OF PUBLIC WORKS**

**Integrated Natural Resources Management Plan (INRMP)
Fort Novosel, Alabama**

APPROVAL

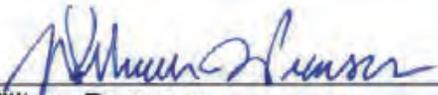
This Integrated Natural Resources Management Plan meets the requirements of the Sikes Act (16 United States Code 670a et seq.) as amended. The plan has been prepared in accordance with the procedures of the U.S. Department of Defense and the U.S. Army in cooperation with the U.S. Fish and Wildlife Service and the Alabama Department of Natural Resources. The signatures below indicate mutual agreement of the parties concerning the conservation, protection, and management of all natural resources presented in this Plan.

The intention of this agreement is to develop functioning, sustainable ecological communities on these sites that integrate the interests and missions of the agencies charged with conservation, protection, and management of natural resources in the public interest. 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 5 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 participating agencies.



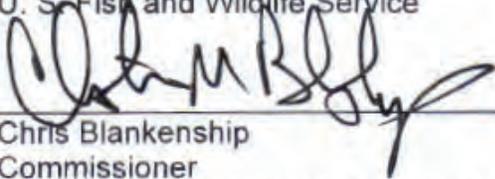
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Integrated Natural Resources Management Plan (INRMP) Fort Novosel, Alabama

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EXECUTIVE SUMMARY

The primary purpose of this Integrated Natural Resources Management Plan (INRMP) is to integrate the management and conservation of natural resources with the military mission and land use needs of Fort Novosel, Alabama. This INRMP has been developed to meet the statutory regulations of the Sikes Act Improvement Act of 1997, Department of Defense instructions, and U.S. Army guidance. In cooperation with federal and state agencies, and incorporating public input, Fort Novosel will endeavor to conserve, protect, and manage fish and wildlife resources on the installation.

This INRMP identifies goals, objectives, and strategies for the management of Fort Novosel's natural resources for the next 5-year period, 2024 through 2028. Management practices and projects have been identified to support the strategies and accomplish the goals and objectives of the INRMP. The program serves to integrate Fort Novosel's natural resources management in a manner that is consistent with maintaining high quality training land to support Fort Novosel's critical military mission. The recommended management practices and projects take into consideration and are consistent with the military mission requirement for the use of land within the boundaries of the main Fort Novosel installation and its numerous satellite installations within southern Alabama. The main installation includes four stagefields, three basefields, and one forward arming/refueling point. Satellite installations include 11 stagefields, two basefields, one test site, and one tactical site. Fort Novosel's land area is used for the military mission, a majority of which includes uses for runway surface zones, administrative and industrial support facilities, airfield drainage, and recreation. Management practices and projects in the INRMP focus on support of fulfillment of the military mission, management and restoration of natural resources in a sustainable manner, recovery of threatened and endangered species, and a variety of natural resource based recreational opportunities. This INRMP provides a discussion of environmental stewardship initiatives for natural communities, efforts to control invasive and exotic animal and plant species, and prevention of conditions that contribute to a bird/wildlife aircraft strike hazard potential. The goals, objectives, strategies, recommended management practices, and projects of this INRMP include:

- Implement an ecosystem management strategy.
- Conduct forest and fire management activities to support desired training conditions and minimize hazards.
- Control wildfires to protect the public and mission assets.
- Control invasive non-native species to prevent degradation of training areas.
- Support erosion control efforts of the Integrated Training Area Management (ITAM) program through reforestation.
- Support animal and vegetation control efforts of the Wildlife Aircraft Strike Hazard (WASH) program around airfields.
- Coordinate with the United States Fish and Wildlife Service (USFWS) to complete Endangered Species Act (ESA) Section 7 consultations for activities affecting federally listed species.

- Provide input on natural resources considerations and impact minimization measures on proposed projects and activities during the National Environmental Policy Act (NEPA) process.
- Educate installation personnel on natural resources laws and regulations as well as necessary steps required to minimize impacts on natural resources.
- Provide professional enforcement of natural resources related laws and regulations.
- Manage and monitor protected and at-risk species.
- Conduct prescribed burns to support native species and habitats and to reduce natural fuel loads.
- Conduct longleaf pine restoration in priority areas through seedling plantings and prescribed burns.
- Manage forested areas in a manner that provides quality habitat for wildlife while allowing the sustainable harvest of wood-products.
- Protect and restore water resources and wetlands.
- Control invasive non-native plants and animals to prevent impacts to native species.
- Protect and manage areas of special ecological concern.
- Protect cultural resources during natural resources management activities.
- Conduct management activities to maintain quality habitats for hunting, fishing, and other outdoor recreation activities.
- Monitor fish and game species and manage them on a sustainable, carrying capacity basis.
- Promote hunting and fishing awareness, and provide conservation education opportunities.
- Maintain infrastructure and facilities that support fishing, hunting, and other natural resource-based recreation.

All requirements set forth in this INRMP requiring the expenditure of funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 United States Code Section 1341). No obligation undertaken by Fort Novosel under the terms of this INRMP will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

TABLE OF CONTENTS

APPROVAL i

EXECUTIVE SUMMARY iii

1.0 MANAGEMENT OVERVIEW 1

1.1 PURPOSE AND SCOPE 1

1.2 MANAGEMENT PHILOSOPHY 1

1.3 GOALS AND OBJECTIVES..... 4

1.4 RESPONSIBILITIES 6

1.4.1 Fort Novosel Personnel..... 6

1.4.1.1 Commanding General/Commandant..... 6

1.4.1.2 Deputy Commanding General 6

1.4.1.3 Chief of Staff 6

1.4.1.4 Garrison Commander..... 6

1.4.1.5 Director of Public Works..... 6

1.4.1.6 Environmental and Natural Resources Division 7

1.4.1.7 Directorate of Plans, Training, Mobilization, and Security 7

1.4.1.8 Directorate of Family and Morale, Welfare and Recreation..... 7

1.4.1.9 Directorate of Public Safety..... 8

1.4.1.10 Public Affairs Office..... 8

1.4.1.11 Army Contracting Agency..... 8

1.4.1.12 Garrison Safety Office..... 8

1.4.1.13 Other Installation Organizations 8

1.4.2 Other Defense Organizations..... 9

1.4.2.1 Installation Management Command..... 9

1.4.2.2 U.S. Army Environmental Command..... 9

1.4.2.3 U.S. Army Corps of Engineers 9

1.4.2.4 U.S. Army Environmental Training Support Center..... 9

1.4.2.5 Medical Command/U.S. Army Public Health Center 10

1.4.3 Other Federal Agencies 10

1.4.3.1 U.S. Fish and Wildlife Service 10

1.4.3.2 U.S. Geological Survey 10

1.4.3.3 U.S. Department of Agriculture, Natural Resources Conservation Service 10

1.4.3.4 U.S. Environmental Protection Agency 10

1.4.3.5 U.S. Department of Agriculture, Animal Plant Health Inspection Service-Wildlife Services..... 11

1.4.4 State Agencies..... 11

1.4.4.1 Alabama Department of Conservation and Natural Resources..... 11

1.4.4.2 Alabama Department of Environmental Management..... 11

1.4.5 Universities 11

1.4.6 Contractors 12

1.4.7 Other Interested Parties..... 12

1.5 AUTHORITY..... 12

1.6 STEWARDSHIP AND COMPLIANCE..... 13

1.7 UPDATES, REVIEW, AND REVISION PROCESS..... 14

1.7.1 INRMP Updates 14

1.7.2 INRMP Reviews 15

 1.7.2.1 Draft Review 15

 1.7.2.2 Final Update and Concurrence 15

1.7.3 INRMP Revisions 15

1.8 OTHER PLAN INTEGRATION 16

2.0 INSTALLATION OVERVIEW 18

2.1 GENERAL INSTALLATION INFORMATION 18

 2.1.1 Location 18

 2.1.2 Aviation Training Facility 18

 2.1.3 Ground Maneuver Training Facility 20

 2.1.4 Training Ranges 21

2.2 REGIONAL LAND USE AND SETTING 23

2.3 INSTALLATION HISTORY 23

2.4 MILITARY MISSIONS 25

2.5 3RS OF EXPLOSIVES SAFETY EDUCATION 26

3.0 ENVIRONMENTAL MANAGEMENT STRATEGY AND MISSION SUSTAINABILITY 27

3.1 SUPPORTING SUSTAINABILITY OF THE MILITARY MISSION AND THE NATURAL ENVIRONMENT 27

 3.1.1 Military Mission and Sustainable Land Use Integration 27

 3.1.2 Training Requirements Integration 27

 3.1.3 Impacts to the Military Mission 28

 3.1.3.1 Potential Impacts to Natural Resources from Operations and Activities 28

 3.1.3.2 Natural Resources Constraints to Mission Activities 29

 3.1.4 Military Personnel Awareness 30

3.2 NATURAL RESOURCES COMPLIANCE AND CONSULTATION REQUIREMENTS 30

3.3 NATIONAL ENVIRONMENTAL POLICY ACT 32

 3.3.1 Objectives 32

 3.3.2 NEPA and Natural Resources Branch Support for NEPA 32

 3.3.3 NEPA for the Fort Novosel INRMP 33

3.4 BENEFICIAL PARTNERSHIPS AND COLLABORATIVE RESOURCE PLANNING 33

 3.4.1 Other Agency Personnel and Project Assistance 33

 3.4.2 University Assistance 34

 3.4.3 Contractor Support 34

 3.4.4 Other Support 34

 3.4.5 Planned External Support 34

3.5 PUBLIC ACCESS AND OUTREACH 35

 3.5.1 Public Access and Outdoor Recreation 35

 3.5.1.1 Public Access 35

 3.5.1.2 Native American Access 36

 3.5.2 Public Outreach 36

 3.5.2.1 Special Events 36

 3.5.2.2 Youth Groups 36

 3.5.2.3 Printed Media 37

3.5.2.4 Television and Radio.....	37
3.5.3 Conservation Awareness	37
3.6 ENCROACHMENT PARTNERING	38
4.0 NATURAL RESOURCES EXISTING CONDITIONS	39
4.1 CLIMATE.....	39
4.2 CLIMATE CHANGE	39
4.3 TOPOGRAPHY AND PHYSIOGRAPHY.....	40
4.4 GEOLOGY AND SOILS	42
4.5 WATER RESOURCES	42
4.5.1 Surface Water	42
4.5.2 Groundwater	45
4.5.3 Wetlands.....	46
4.5.4 Floodplains.....	47
4.6 ECOSYSTEMS AND HABITAT	47
4.6.1 Historic Vegetation.....	47
4.6.2 Current Habitats and Associated Plants and Animal Species.....	49
4.6.2.1 Hardwood-dominated Mesic Forest	49
4.6.2.2 Mixed Pine-hardwood Forests on Mesic Sites	51
4.6.2.3 Mid-aged Pine Plantations	53
4.6.2.4 Xeric Forest-Sandhill Type.....	53
4.6.3 Fauna.....	54
4.6.3.1 Game Fish and Wildlife Species	55
4.6.3.2 Non-game Birds and Mammals.....	55
4.6.3.3 Fish	55
4.6.3.4 Reptiles and Amphibians.....	56
4.6.3.5 Insects.....	56
4.6.4 Threatened and Endangered Species	56
4.6.5 Wetlands.....	58
5.0 PROGRAM ELEMENTS	59
5.1 VEGETATION MANAGEMENT	59
5.1.1 Improved Grounds	59
5.1.1.1 Golf Courses	60
5.1.1.2 Cemeteries.....	60
5.1.1.3 Ammunition Storage Point.....	60
5.1.2 Landscaping Establishment and Maintenance.....	60
5.1.2.1 Irrigation	61
5.1.2.2 Sod Establishment	61
5.1.2.3 In-house Tree Planting.....	62
5.1.2.4 No Mow-Areas	62
5.1.3 Disease, Insects, and Undesirable Vegetation.....	63
5.1.4 Grounds Police	63
5.2 FISH AND WILDLIFE MANAGEMENT.....	63
5.2.1 Terrestrial Habitat Management.....	64
5.2.1.1 Hardwood Tree Management.....	66
5.2.1.2 Wildlife Openings, Supplemental Planting, and Brush Piles.....	66
5.2.1.3 Prescribed Burning.....	67

5.2.1.4 Special Plant Sites	68
5.2.2 Aquatic Habitat Management.....	68
5.2.2.1 Pond Fertilization	68
5.2.2.2 Aquatic Weed Control	68
5.2.2.3 Liming.....	69
5.2.2.4 Pond Maintenance	69
5.2.2.5 Erosion Control Efforts	69
5.2.2.6 Fish Attractors	70
5.2.3 Game and Fish Species Management.....	70
5.2.3.1 White-tailed Deer	70
5.2.3.2 Eastern Wild Turkey.....	72
5.2.3.3 Northern Bobwhite	73
5.2.3.4 Mourning Dove.....	74
5.2.3.5 Waterfowl	74
5.2.3.6 Squirrels.....	74
5.2.3.7 Eastern Cottontail/Swamp Rabbit	74
5.2.3.8 Fish	75
5.2.3.9 Other Game Species.....	75
5.2.4 Non-game Species Management.....	75
5.3 MIGRATORY BIRD MANAGEMENT	76
5.3.1 Nest Boxes.....	76
5.4 SENSITIVE SPECIES MANAGEMENT	76
5.4.1 Objectives	76
5.4.2 Threatened and Endangered Species	79
5.4.2.1 Mussel Species	79
5.4.2.2 Gopher Tortoise	81
5.4.2.3 American Alligator	83
5.4.2.4 Bald Eagle.....	83
5.4.2.5 Tri-colored Bat.....	83
5.4.3 Species of Concern.....	83
5.5 WETLANDS MANAGEMENT	84
5.5.1 Objectives	84
5.6 FOREST MANAGEMENT	85
5.6.1 Objectives	85
5.6.2 History of Forest Lands on Fort Novosel.....	86
5.6.3 Emphasized Stands and Species	87
5.6.3.1 Pine Species	88
5.6.3.2 “Hard” Hardwood Species.....	88
5.6.3.3 “Soft” Hardwood Species	88
5.6.4 Forest Inventory	88
5.6.4.1 Forest Management Strategy.....	89
5.6.4.2 Scope of Forest Management	89
5.6.4.3 Off Post Lands	90
5.6.4.4 Timber Compartments and Treatment Units	91
5.6.5 Harvest Management.....	91
5.6.5.1 Management Cycle	91
5.6.5.2 Harvest.....	93
5.6.5.3 Timber Stand Improvement.....	95

5.6.5.4 Timber for Installation Use 96

5.6.6 Restoration and Reforestation 97

5.6.7 Site Preparation 97

 5.6.7.1 Wildlife Considerations..... 97

 5.6.7.2 Prescribed Burning..... 98

5.6.8 Forest Diseases and Pests 100

5.6.9 Offset Loss of Managed Forest Lands 100

5.6.10 Biodiversity Conservation and Longleaf Pine Restoration Sites..... 100

 5.6.10.1 Impact Area..... 100

 5.6.10.2 Bivouac Sites 101

 5.6.10.3 Survival, Evasion, Resistance, and Escape Training 101

5.7 INTEGRATED PEST MANAGEMENT 101

 5.7.1 Pest Management Priorities 102

 5.7.2 Installation Pest Management Plan..... 102

 5.7.2.1 Use of Pesticides, Growth Regulators, and Other Chemicals 102

5.8 INVASIVE SPECIES MANAGEMENT 104

 5.8.1 Invasive Plant Species..... 104

 5.8.2 Invasive Animal Species 105

 5.8.2.1 Coyotes 105

 5.8.2.2 Feral Swine 107

5.9 LAND MANAGEMENT 109

 5.9.1 Integrated Training Area Management 110

 5.9.1.1 ITAM Overview, Elements, and Organization..... 110

 5.9.1.2 LRAM Best Management Practices 112

 5.9.1.3 LRAM Vegetation Management Techniques..... 113

 5.9.1.4 Project Approval, Environmental Coordination, and Compliance Procedures..... 114

5.10 WILDLAND FIRE MANAGEMENT 115

 5.10.1 Responsibilities 117

 5.10.2 Forest Fire Record..... 117

 5.10.3 Fire Prevention and Suppression..... 118

5.11 AGRICULTURAL OUTLEASING..... 118

5.12 WILDLIFE AIRCRAFT STRIKE HAZARD (WASH) 119

5.13 COASTAL/MARINE MANAGEMENT..... 119

5.14 FLOODPLAINS MANAGEMENT..... 119

5.15 OUTDOOR RECREATION..... 120

 5.15.1 Military Mission Considerations..... 121

 5.15.2 Lake Tholocco..... 121

 5.15.3 Hunting, Fishing, and Trapping Program 122

 5.15.3.1 Hunting, Trapping, and Fishing Regulations 124

 5.15.3.2 Fort Novosel Permits..... 124

 5.15.3.3 State License Sales..... 124

 5.15.3.4 Check-out and Clearing Procedures 124

 5.15.3.5 Hunting and Fishing Maps..... 125

 5.15.3.6 Safety Considerations 125

 5.15.3.7 Growth Potential of Hunting and Fishing Program 126

 5.15.3.8 Lake Tholocco and Other Ponds..... 126

 5.15.4 Other Natural Resources-Oriented Outdoor Recreation 127

5.15.4.1 Camping and Picnicking.....	127
5.15.4.2 Boating and Canoeing.....	127
5.15.4.3 Nature Trails and Watchable Wildlife	127
5.15.4.4 Outdoor Equipment Checkout.....	128
5.15.4.5 Recreational Shooting.....	128
5.15.4.6 Riding Stables.....	128
5.15.4.7 All-Terrain Vehicles.....	129
5.15.4.8 Recreation and Ecosystem Management.....	129
5.16 CONSERVATION LAW ENFORCEMENT	129
5.16.1 Authority and Jurisdiction.....	129
5.16.2 Enforcement Issues	130
5.16.3 Training.....	130
5.17 GEOSPATIAL INFORMATION SYSTEMS AND IMAGERY.....	131
5.17.1 GIS.....	131
5.17.2 Imagery.....	131
6.0 INRMP IMPLEMENTATION.....	133
6.1 INRMP IMPLEMENTATION.....	133
6.2 PROCESS FOR PREPARING PROJECT PRESCRIPTIONS.....	133
6.3 ACHIEVING NO NET LOSS	133
6.4 NATURAL RESOURCES STAFFING	133
6.4.1 Training of Natural Resources Personnel	134
6.5 USE OF COOPERATIVE AGREEMENTS.....	134
6.6 FUNDING	135
6.6.1 Forestry Funds.....	135
6.6.2 Sikes Act Funds.....	135
6.6.3 Agricultural Funds.....	136
6.6.4 Environmental Funds.....	136
6.6.5 Other Funds.....	136
6.6.6 Anti-Deficiency Act Statement.....	137
7.0 REFERENCES.....	138

LIST OF TABLES

Table 1-1. Goals and Objectives 5

Table 2-1. Satellite Aviation Flight Facilities 20

Table 2-2. Major Population Centers near Fort Novosel 23

Table 3-1. 2024-2028 Natural Resources External Support Project Needs 35

Table 4-1. Average Monthly Temperature and Precipitation for Dothan, Alabama (1992-2022)..... 39

Table 4-2. Predicted Change in Climate Parameters for Fort Novosel, Alabama..... 40

Table 4-3. Managed Game Species..... 55

Table 4-4. Federally Listed Species and State Species of Conservation Concern Documented or that Have the Potential to Occur at Fort Novosel and Associated Satellite Areas 57

Table 5-1. Improved Grounds 60

Table 5-2. Landscape Shrubbery Pruning Schedule 61

Table 5-3. Mussel Species Documented in 1998-2000 Survey..... 80

Table 5-4. Forest Species and Management Prescriptions..... 90

Table 5-5. Timber Compartment Organization 93

Table 5-6. Forest Fire (Wildfire) Record..... 117

LIST OF FIGURES

Figure 1-1. Fort Novosel Regional Map..... 2

Figure 1-2. Fort Novosel Satellite Installations 3

Figure 2-1. Fort Novosel Installation Map..... 19

Figure 2-2. Fort Novosel Firing Ranges 22

Figure 2-3. Local and Regional Natural Areas Near Fort Novosel 24

Figure 4-1. Topographical Map for Fort Novosel..... 41

Figure 4-2. Soil Map for Fort Novosel..... 43

Figure 4-3. Surface Water Features at Fort Novosel..... 44

Figure 4-4. Floodplains at Fort Novosel 48

Figure 4-5. Habitat Types found at Fort Novosel..... 50

Figure 5-1. Land Management Units at Fort Novosel..... 65

Figure 5-2. Fort Novosel Deer Harvest, 1984-2022..... 71

Figure 5-3. Fort Novosel Turkey Harvest, 2001-2023 73

Figure 5-4. Gopher Tortoise Habitat Suitability at Fort Novosel 82

Figure 5-5. Timber Compartments at Fort Novosel 92

Figure 5-6. Burn Unit Rotation at Fort Novosel 99

Figure 5-7. Coyote Harvests, 2012-2022 107

Figure 5-8. Feral Swine Removal, 2010-2022..... 109

LIST OF APPENDICES

- Appendix 1. List of Acronyms
- Appendix 2. Specific Items of Cooperation Between the U.S. Fish and Wildlife Service, Alabama Department of Wildlife and Freshwater Fisheries, and Fort Novosel
- Appendix 3. Soil Erosion and Sediment Control Plan
- Appendix 4. Burn Plan Form
- Appendix 5. Management Guidelines for the Gopher Tortoise on Army Installations
- Appendix 6. Descriptions of Habitats
- Appendix 7. Scientific Names of Flora on Fort Novosel
- Appendix 8. Scientific Names of Fauna on Fort Novosel
- Appendix 9. Replacement Plantings
- Appendix 10. FY23 Pesticide Use List
- Appendix 11. Wildlife Food Plot Information
- Appendix 12. Fort Novosel Land Rehabilitation and Maintenance (LRAM) Projects Summary (Recurring Projects)
- Appendix 13. Fort Novosel Integrated Training Area Management (ITAM) Sediment and Erosion Control Plan for Training Lands
- Appendix 14. Integrated Wildland Fire Management Plan
- Appendix 15. 3Rs Wildland Firefighting Safety Guide
- Appendix 16. Fort Novosel Regulation 215-1
- Appendix 17. Fort Novosel GIS Databases

1.0 MANAGEMENT OVERVIEW

1.1 Purpose and Scope

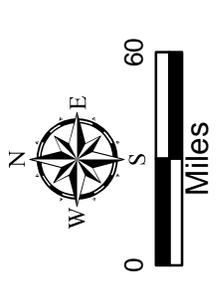
This Integrated Natural Resources Management Plan (INRMP) guides implementation of the natural resources program at Fort Novosel, Alabama from 2024 through 2028 in accordance with the Sikes Act Improvement Act, as amended through 2003; Department of Defense Instruction (DoDI) 4715.03, *Natural Resources Conservation Program*; Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*; and the most recent Department of the Army (DA) and Department of Defense (DoD) Sikes Act and INRMP guidance memoranda. The program serves to integrate Fort Novosel's natural resources management in a manner that is consistent with maintaining high quality training land to support Fort Novosel's critical military mission.

This INRMP is designed as a guiding document for the management of natural resources at Fort Novosel (**Figure 1-1**) and its numerous satellite installations as shown in **Figure 1-2**. The main Fort Novosel installation is located in Coffee and Dale counties, and includes four stagefields, three basefields, and one forward arming/refueling point (FARP). Satellite installations are scattered across Barbour, Coffee, Dale, Geneva, and Houston counties; and include 11 stagefields, two basefields, one test site, and one tactical site. The INRMP provides information for internal and external organizations including active-duty units, National Guard and Reserve Components, directorates, private groups, individuals, and state and federal agencies with interest in the management of natural resources at Fort Novosel.

1.2 Management Philosophy

The management measures and strategies for implementation at Fort Novosel have been developed with consideration for the interrelationships between the individual components of the ecosystem, the requirements of the military mission, and other land use activities. Ecosystem management may be defined as management to restore and maintain the health, sustainability, and biological diversity of ecosystems while supporting sustainable economies and communities. The goal of ecosystem management on military lands is to ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. The programs and projects outlined in this INRMP form the basis of Fort Novosel's management strategy for maintaining ecosystems and their components as well as providing sustainable military training. Management at an ecosystem level allows Fort Novosel to maximize biodiversity, improve habitat for wildlife, minimize invasive species, create healthy forest systems, reduce accelerated erosion, maintain a robust recreational program, and provide high-quality military readiness.

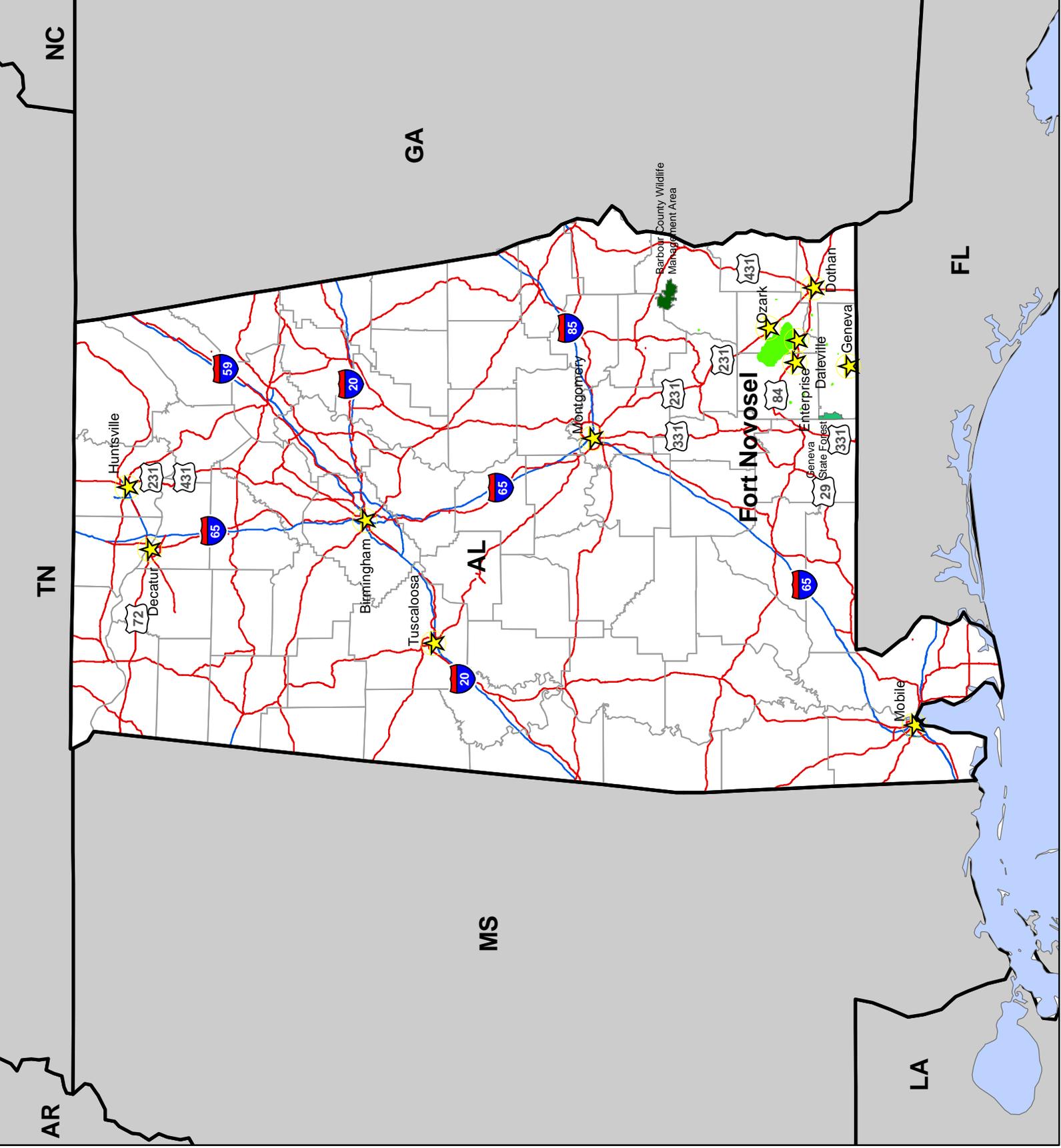
This INRMP enables Fort Novosel to maintain sustainable land use through ecosystem management. Each of the strategies described in this INRMP should be monitored so that modifications can be made as conditions change. Human communities are entirely and completely dependent on the goods and services provided by our diverse ecosystems (Bernstein 2008). Decline of these ecosystems, and the biodiversity within them, is one of the foremost limitations to human prosperity. Ecosystem sustainability is the key to both biological diversity and human existence.



- LEGEND**
- State Boundaries
 - Alabama Counties
 - Interstate
 - Highway
 - Fort Novosel and Satellite Installations
 - Geneva State Forest
 - Barbour Wildlife Management Area
 - Major Population Centers



Figure 1-1.
Fort Novosel
Regional Map





LEGEND

- Alabama Counties
- Fort Novosel Installation
- Highway
- Alabama Highway
- Geneva State Forest
- Major Population Centers

SATELLITE INSTALLATIONS:

- Allen Stagefield
- Brown Stagefield
- Cairns Army
- Goldberg Stagefield
- Highbluff Stagefield
- Highfalls Army Helipoint
- Hunt Stagefield
- Louisville Stagefield
- Lucas Stagefield
- Runkle Stagefield
- Shell Army Helipoint
- Skelly Stagefield
- Stinson Stagefield
- Tac-X Army Helipoint
- Toth Stagefield

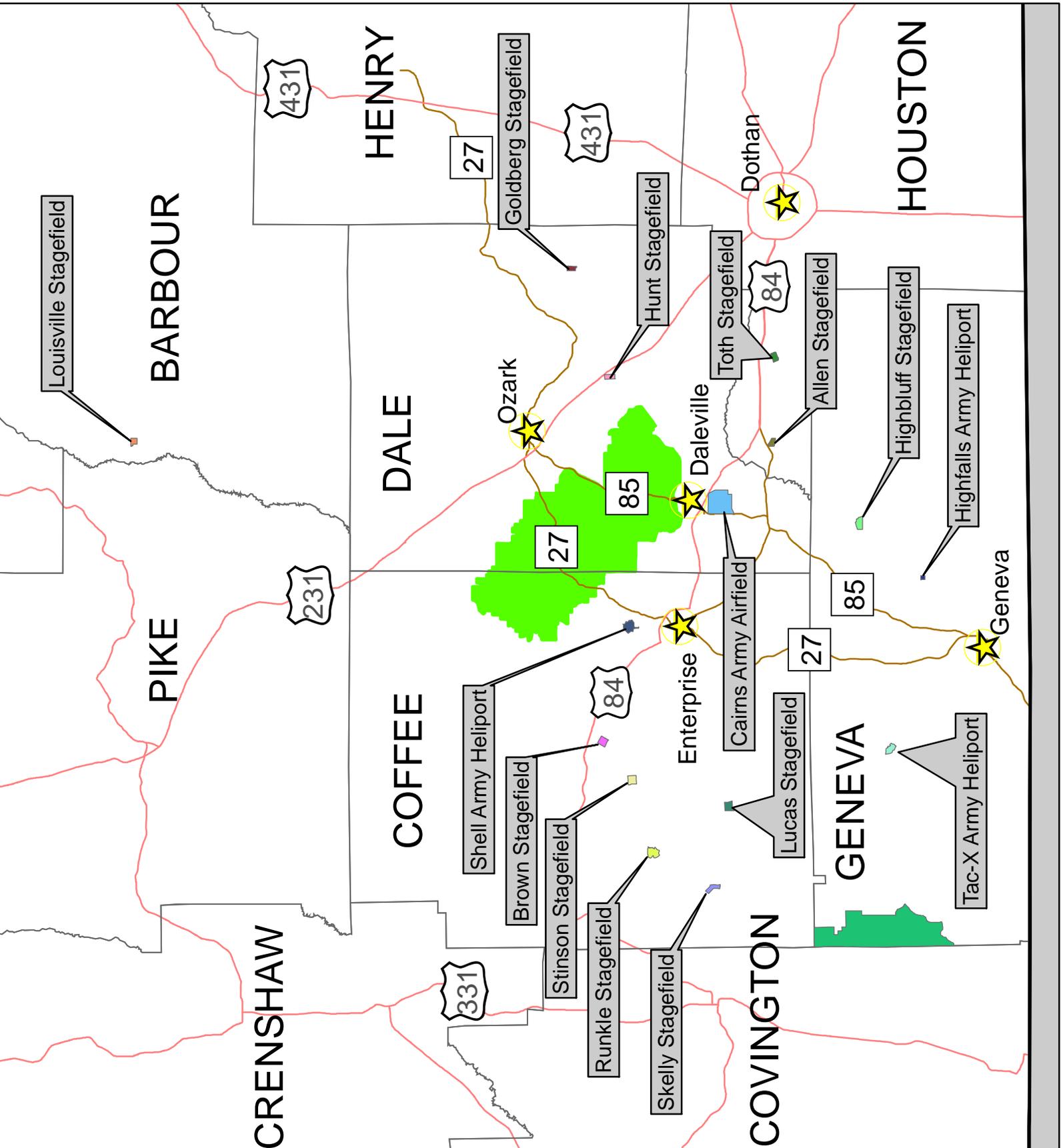



Figure 1-2.
Fort Novosel
Satellite
Installations 3

It is the goal of this INRMP to successfully integrate ecological sustainability with goals and objectives that will sustain human communities and the operational missions of Fort Novosel. By protecting a mosaic of habitats that support the greatest variety of life, this INRMP helps perpetuate viable, sustainable populations of native species, and the communities they compose. The protection of these species and communities, in turn, promotes the sustainability of functional ecosystems across the landscape.

1.3 Goals and Objectives

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 AR 200-1, which requires that INRMPs be developed and maintained for all Army installations.

The command and staff of Fort Novosel are committed to environmental stewardship as an integral part of the mission at Fort Novosel. This commitment is evidenced by support of past environmental programs and their full support of this INRMP.

Fort Novosel natural resources goals and objectives are consistent with DoDI 4715.03, *Natural Resources Conservation Program*; the Army's Strategy for the Environment; and AR 200-1. The main goal of this INRMP is to support Fort Novosel's military and nonmilitary activities while maintaining a functional, healthy ecosystem. Over the next 5 years this document and the programs outlined here will be refined as the situation warrants. Ecosystem management is an evolving management scheme. As new information and ideas are gleaned from current research, Fort Novosel's resource management will change to reflect the best information available.

Table 1-1 lists general goals and objectives of Fort Novosel's commitment to manage natural resources. All goals not only support management of natural resources but also support the overall military mission. Statements listed below represent general objectives for attaining those goals. These statements will serve as a checklist for monitoring the plan's success. More specific objectives and tasks are proposed for each resource area in Section 5.

Table 1-1. Goals and Objectives

Goal	Objective
No net loss in the capability of military installation lands to support the military mission of the installation	<ul style="list-style-type: none"> • Manage all resources to support long-term sustainment of the installation’s training mission
Provide natural resources expertise and management services to support fulfillment of the military mission	<ul style="list-style-type: none"> • Implement an Ecosystem Management strategy to provide a realistic training environment • Conduct forest and fire management activities to support desired training conditions and minimize hazards • Control wildfires to protect the public and mission assets • Control invasive non-native species to prevent degradation of training areas • Support erosion control efforts of the ITAM program through reforestation • Support animal and vegetation control efforts of the WASH program around airfields • Provide input on natural resources considerations and impact minimization measures on proposed projects and activities during the NEPA process • Educate installation personnel on natural resources laws and regulations as well as necessary steps required to minimize impacts on natural resources • Provide professional enforcement of natural resources related laws and regulations • Protect cultural resources during natural resources management activities
Manage and restore natural resources in a sustainable manner and promote recovery of threatened and endangered species	<ul style="list-style-type: none"> • Coordinate with the USFWS to complete ESA Section 7 consultations for activities affecting federally listed species • Manage and monitor protected and at-risk species • Conduct prescribed fires to support native species and habitats and to reduce natural fuel loads • Conduct longleaf pine restoration in priority areas through seedling plantings and prescribed fire • Control invasive non-native plants and animals to prevent impacts to native species • Protect and manage areas of special ecological concern
Provide for fish and wildlife habitat, including wetlands protection, enhancement, and restoration	<ul style="list-style-type: none"> • Implement an ecosystem management strategy • Manage forested areas in a manner that provides quality habitat for wildlife while allowing the sustainable harvest of wood-products • Protect and restore water resources and wetlands
Provide a variety of natural resource-based recreational opportunities to the public	<ul style="list-style-type: none"> • Conduct management activities to maintain quality habitats for hunting, fishing, and other outdoor recreation activities • Monitor fish and game species and manage them on a sustainable, carrying capacity basis • Promote hunting and fishing awareness, and provide conservation and educational opportunities • Maintain infrastructure and facilities that support fishing, hunting, and other natural resource-based recreation

ESA Endangered Species Act
 ITAM Integrated Training Area Management
 NEPA National Environmental Policy Act
 USFWS U.S. Fish and Wildlife Service
 WASH Wildlife Aircraft Strike Hazard

1.4 Responsibilities

There are numerous people and organizations responsible for successful natural resources management at Fort Novosel. Below is a list of stakeholders, as well as brief descriptions of their responsibilities.

1.4.1 Fort Novosel Personnel

1.4.1.1 Commanding General/Commandant

The Commanding General commands the U.S. Army Aviation Center of Excellence (USAACE) and Fort Novosel, and bears ultimate responsibility for management of natural resources on Fort Novosel (AR 200-1).

1.4.1.2 Deputy Commanding General

The Deputy Commanding General serves as the principal deputy/assistant to the Commanding General/Commandant in the command and management of the USAACE. The Deputy Commanding General directs and is responsible for all aspects of training conducted at Fort Novosel.

1.4.1.3 Chief of Staff

The Chief of Staff serves as advisor and assistant to the Commanding General/Commandant in the command and management of the USAACE.

1.4.1.4 Garrison Commander

The Garrison Commander serves as integrator 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. Many of these programs are included in the INRMP and the Garrison Commander is responsible for its implementation. The Garrison Commander also ensures that professionally trained natural resource management personnel and natural resources law enforcement personnel are available and assigned the responsibility to perform tasks necessary to comply with the provisions of the Sikes Act; approves INRMPs; approves annual reports of availability (ROAs) for timber sales after review by higher headquarters and the U.S. Army Environmental Command (USAEC); designates an installation wildland fire program manager, and approves the Integrated Wildland Fire Management Plan (IWFMP).

1.4.1.5 Director of Public Works

The Director of the Directorate of Public Works (DPW), acting through the chief of the Environmental and Natural Resources Division (ENRD), is responsible for managing the Natural Resources Program; ensuring that Natural Resources Branch (hereafter, Natural Resources) personnel are properly trained; developing and implementing programs to inventory, delineate, and classify natural resources; submitting Garrison Environmental Requirements Build (GERB) and annual work plans; reviewing all environmental documents, construction designs, and proposals to ensure that guidance from the INRMP is followed and that natural resources are protected; and coordinating

with local, state, and federal governmental and civilian conservation organizations (AR 200-1).

1.4.1.6 Environmental and Natural Resources Division

Responsibilities of the Chief, ENRD include the identification and protection of cultural resources and compliance with the National Environmental Policy Act (NEPA). The Chief, ENRD, acting through the Chief of the Natural Resources Branch, carries out all other DPW responsibilities for the management of natural resources addressed in this INRMP. The Chief, Natural Resources Branch, carries out natural resource management functions assigned to Natural Resources.

1.4.1.7 Directorate of Plans, Training, Mobilization, and Security

The Director of the Directorate of Plans, Training, Mobilization, and Security (DPTMS), acting through various division chiefs, is principal assistant to the Garrison Commander for planning, estimating, coordinating, integrating, and supervising: military training, installation schools, mission activities and mobilization planning, troop movements, aviation operations, range operations, emergency operations, force modernization and integration activities, and more.

Training Division, DPTMS, is directly responsible for implementation and/or support of portions of this INRMP that directly affect or interact with training responsibilities including: operating and maintaining the Fort Novosel Range Complex, associated training facilities, field training sites, and range equipment; preparing, maintaining, and enforcing installation regulations (Fort Novosel Regulation [FN Reg.] 385-1, *Range and Training Area Regulation*); providing overall coordination for implementing Fort Novosel's Integrated Training Area Management (ITAM) program; coordinating, designing, and implementing range development plans; developing and executing ITAM program requirements; and coordinating with DPW regarding activities that may affect fish and wildlife, forestry, wetlands, or cultural resources; and posting a daily briefing of available hunting areas. In 2023, Fort Rucker was redesignated as Fort Novosel and some of the legacy references still refer to the installation as Fort Rucker. Installation regulations are in the process of being updated to a new naming convention (FN Reg) but not all are currently published.

1.4.1.8 Directorate of Family and Morale, Welfare and Recreation

The Directorate of Family and Morale, Welfare and Recreation (DFMWR) establishes procedures for and governs various aspects of installation Morale, Welfare, and Recreation activities. The Chief, Community Recreation Division, develops and executes the Community Recreation Program, manages all attendant facilities, and monitors the Outdoor Recreation Council. Responsibilities of the Outdoor Recreation Branch include: planning and implementing the installation Outdoor Recreation Program in accordance with AR 215-1, *Military Morale, Welfare and Recreation Programs and Nonappropriated Fund Instrumentalities*; supervising, maintaining, and collecting fees for outdoor recreation activities; printing, issuing, and, if necessary, collecting fees for hunting and fishing permits; planning and conducting group and special hunting and fishing events; and participating in national and state-sponsored hunting and fishing events such as National Fishing Week and National Hunting and Fishing Day.

1.4.1.9 Directorate of Public Safety

The Directorate of Public Safety (DPS) is responsible for providing military police and fire protection support to the installation. Natural resources functions within DPS are conducted by the Military Police Activity's Operations Division, which includes a Game Warden Section. Specific responsibilities of the Game Warden Section include: enforcing federal, state, and installation laws and regulations pertaining to fish and wildlife, and cultural resources; ensuring that Fort Novosel wildlife law enforcement personnel are trained and qualified; and coordinating with other state and federal law enforcement agencies for completion of wildlife law enforcement duties and responsibilities.

1.4.1.10 Public Affairs Office

The Public Affairs Office (PAO) is responsible for promoting an understanding of Army Aviation, the Aviation Branch, and Fort Novosel to the public and providing professional public affairs advice and support. The PAO is important in disseminating information critical to the success of the natural resources program. Specific responsibilities include providing news releases and public information notices of activities important to the installation or community, including National Hunting and Fishing Day and National Fishing Week; and assisting DPW in promoting, publishing, and promulgating fish and wildlife information for public release.

1.4.1.11 Army Contracting Agency

The Army Contracting Agency provides centralized contracting support to the USAACE and Fort Novosel, satellite/tenant activities, and activities/units in Fort Novosel's area of responsibility. Programs funded by this mechanism include contract support to DPW for management of land, forest, and fish and wildlife; contract support to DPTMS for ITAM implementation; contract support to the Directorate of Contracting for the Army for implementation of the outdoor recreation program; and contract support to DPS for implementing natural resource law enforcement responsibilities.

1.4.1.12 Garrison Safety Office

The Garrison Safety Office (GSO) plans, organizes, directs, evaluates, and implements safety programs. Responsibilities included in this INRMP are establishing limits and coordinating with DPTMS, DFMWR, and DPW Outdoor Recreation Manager, Chief Game Law Enforcement (GLE) Officer, and Fish and Wildlife Administrator regarding: determining the number of hunters that can safely be allowed in each training area at one time; developing and implementing hunter and water safety education programs; and determining the type of weapons that can be safely used by hunters in each training area.

1.4.1.13 Other Installation Organizations

Implementation of the INRMP will require as-needed assistance from other directorates and organizations. Such organizations include the Logistics Readiness Center (LRC; supply and transportation), Garrison Resource Management Office (GRMO; budget, personnel, and equipment authorizations), 1st Aviation Brigade (1AB; aerial survey support), 110th Aviation Brigade (110AB; aerial survey support), 26th Operational

Weather Squadron, Fort Novosel Weather Operations, Fort Novosel Veterinary Treatment Facility, and the Gulf Coast Veterinary Services Support District (disposal of dead animals).

1.4.2 Other Defense Organizations

1.4.2.1 Installation Management Command

The U.S. Army Installation Management Command (IMCOM) is located at Fort Sam Houston, Texas. On November 1, 2016, IMCOM established three co-located functionally-aligned directorates: Forces Command (IMCOM-Readiness), Training and Doctrine Command (IMCOM-Training), and Army Material Command (IMCOM-Sustainment). The directorates will be more efficient and improve mission command through unity of purpose, a smaller number of garrisons to manage, and similar demographics of communities. The directorates will solve functional challenges for garrison commanders, coordinate IMCOM Headquarters support, and drive/assess garrison execution of service delivery.

The modern IMCOM formation also includes the two overseas IMCOM directorates (IMCOM Europe and IMCOM Pacific) and the USAEC.

As the needs and resources of the Army change, IMCOM remains committed to delivering installation services and sustaining facilities in support of senior commanders to enable a ready and resilient Army.

1.4.2.2 U.S. Army Environmental Command

The USAEC is a subordinate Command to the IMCOM and provides environmental services and solutions in support of the Army's Environmental Program enabling Army readiness and sustainability. USAEC provides technical expertise on environmental quality and technology and manages the environmental cleanup programs. Focus areas include assessing and improving installations' environmental performance; evaluating and transferring best management practices (BMPs) and technologies to enhance environmental stewardship; and assimilating, analyzing, and communicating environmental information.

1.4.2.3 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) manages one of the largest federal environmental missions: restoring degraded ecosystems; constructing sustainable facilities; regulating waterways; managing natural resources; and cleaning up contaminated sites from past military activities. USACE's environmental program provides technical management, design, and execution of a full range of environmental protection, cleanup, and sustainability activities.

1.4.2.4 U.S. Army Environmental Training Support Center

The Environmental Training Support Center specializes in providing material for the Environmental Awareness program within ITAM.

1.4.2.5 Medical Command/U.S. Army Public Health Center

The Medical Command/U.S. Army Public Health Center (USAPHC) identifies and assesses current and emerging health threats, develops and communicates public health solutions, and ensures the quality and effectiveness of the Army's Public Health Enterprise. USAPHC provides support in the areas of medical entomology, environmental health engineering, sanitation, veterinary, industrial hygiene and occupational health, and preventative medicine readiness planning and training.

1.4.3 Other Federal Agencies

1.4.3.1 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) provides technical guidance to Fort Novosel for the management of its natural resources, particularly management of endangered and threatened species through the Daphne, Alabama field office. AR 200-1, The Fish and Wildlife Coordination Act (16 United States Code [USC] § 661), and Section 7 of the ESA provide guidance to be followed by Fort Novosel when working with the USFWS for endangered species management.

The USFWS is a signatory cooperator in implementation of this INRMP in accordance with the Sikes Act. **Appendix 2** contains specific items of that agreement among the USFWS, Alabama Department of Conservation and Natural Resources (ADCNR), and Fort Novosel as required by the Sikes Act.

1.4.3.2 U.S. Geological Survey

The U.S. Geological Survey (USGS) installed the geographic information system (GIS) at Fort Novosel. Under a recent federal organizational change, the USGS also operates a Cooperative Fisheries and Wildlife Unit at Auburn University that has provided natural resource management assistance to Fort Novosel on numerous occasions, notably in identification of factors limiting northern bobwhite (*Colinus virginianus*) on the installation.

1.4.3.3 U.S. Department of Agriculture, Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) conducted the soils surveys for Barbour, Coffee, Dale, Geneva, and Houston counties which include lands owned by Fort Novosel. The NRCS is available to assist with designing erosion control and Land Rehabilitation and Maintenance (LRAM) projects. This agency may also be used to assist with GIS database development, especially regarding soils. In the past, NRCS has worked with DPW, Natural Resources to provide a training event and project tour for local landowners that showcased completed conservation projects on the installation.

1.4.3.4 U.S. Environmental Protection Agency

As the nation's major regulatory and advisory body for environmental matters, the U.S. Environmental Protection Agency (USEPA) impacts virtually every program on Fort Novosel. Its regulations and recommendations form the framework of almost every environmental document drafted, but USEPA is not directly involved with INRMP

development and implementation. USEPA Region 4 is responsible for issuing permits for sediment control on Fort Novosel.

1.4.3.5 U.S. Department of Agriculture, Animal Plant Health Inspection Service-Wildlife Services

U.S. Department of Agriculture-Animal Plant Health Inspection Service-Wildlife Services (USDA-APHIS-WS) has provided guidance in the past to Fort Novosel regarding its feral swine (*Sus scrofa*) invasive species management program. USDA-APHIS-WS has provided coordination, manpower, and equipment to support the planned reduction of feral swine, coyotes (*Canis latrans*), and other predator species.

1.4.4 State Agencies

1.4.4.1 Alabama Department of Conservation and Natural Resources

ADCNR, Division of Wildlife and Freshwater Fisheries provides support to Fort Novosel's natural resources management program in the areas of fisheries, game, and law enforcement. The State District Fisheries Biologist (Enterprise, Alabama) provides technical assistance and advice on matters such as lake restocking, fertilization, aquatic weed control, feeding programs, population surveys, fish diseases, fish parasites, and fish kills. The State District Game Biologist (Enterprise, Alabama) provides technical assistance and advice on matters concerning game and non-game wildlife species, such as fish and wildlife conservation program development, population surveys, habitat manipulation, habitat maintenance, and predator control. Division of Wildlife and Freshwater Fisheries assistance is also provided in the trapping and removal of feral swine and predator coyotes as well as in relocation of nuisance alligators (*Alligator mississippiensis*) through a specified state-licensed trapper.

The ADCNR, through the Commissioner of its Division of Wildlife and Freshwater Fisheries, is a signatory cooperator in implementation of this INRMP (16 USC § 670a). **Appendix 2** contains specific items of that agreement among the ADCNR, USFWS, and Fort Novosel, as required by the Sikes Act.

1.4.4.2 Alabama Department of Environmental Management

The Alabama Department of Environmental Management (ADEM) provides policy clarification and limited technical assistance in the areas of environmental protection and pollution control and abatement.

1.4.5 Universities

Regional universities have provided specialized expertise to help manage natural resources on Fort Novosel. Auburn University (Auburn, Alabama) has used Fort Novosel for a number of graduate studies, notably on white-tailed deer (*Odocoileus virginianus*) productivity and the effect of feral swine on white-tailed deer. Fort Novosel continues to work with Auburn University wildlife biologists on issues related to deer herd management. Auburn University also performs soil testing for Fort Novosel on an as-needed basis under a blanket contract. A study on the interactions between white-tailed deer and habitat on Fort Novosel was done by a University of Tennessee (Knoxville) graduate student. The Southeastern Cooperative Wildlife Disease Study

(University of Georgia at Athens, Georgia) assists with deer herd health checks on Fort Novosel. Troy State University assisted with the biodiversity study (Mount and Diamond 1992) on Fort Novosel.

1.4.6 Contractors

Fort Novosel uses contractors for many programs associated with natural resources, including INRMP preparation, collection of biological data, wildlife food planting, NEPA documentation, groundwater testing, and cultural and archaeological surveys.

1.4.7 Other Interested Parties

The National Wild Turkey Federation provided funds to help establish “walk-in” (areas where no motorized vehicles are allowed to provide protection of nest and brood rearing areas) wild turkey management areas on Fort Novosel. Local Boy and Girl Scout organizations have provided volunteer assistance for the interpretative component of Fort Novosel’s natural resources conservation efforts.

1.5 Authority

This INRMP was developed to meet requirements of the Sikes Act (16 USC § 670a et seq.) as amended by the Sikes Act Improvement Act of 1997; DoDI 4715.03; Department of Defense Manual (DoDM) 4715.03, *INRMP Implementation Manual*; and AR 200-1.

The Sikes Act states that “consistent with the use of military installations and state-owned National Guard installations to ensure the preparedness of the Armed Forces, the Secretaries of the military departments shall carry out the program required by this subsection for:

- The conservation and rehabilitation of natural resources on such installations;
- The sustainable multipurpose use of the resources on such installations, which shall include hunting, fishing, trapping, and non-consumptive uses; and
- Subject to safety requirements and military security, public access to military installations to facilitate the use.”

An INRMP should also “to the extent appropriate and applicable”, provide for:

- 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 installation that is necessary or appropriate for the use described [above]; subject to requirements necessary to ensure safety and military security;
- Enforcement of applicable natural resource laws (including regulations);
- No net loss in the capability of the installation lands to support the military mission of the installation; and
- Such other activities as the Secretary of the military department determines appropriate.

The Sikes Act also provides for:

- Regular review of this INRMP and its effects, not less often than every 5 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.
- Priority for contracts involving implementation of this INRMP to state and federal agencies having responsibility for conservation of fish and wildlife.

DoDI 4715.03 provides instruction applicable to all DoD installations regarding natural and cultural resource management. This instruction assigns responsibilities and procedures necessary to implement the Sikes Act and other policies regarding natural resources management. AR 200-1 outlines Army specific policies for “preserving, protecting, conserving, and restoring the quality of the environment”. According to AR 200-1, an INRMP should serve as an “adaptive plan for managing natural resources to support and be consistent with the military mission while protecting and enhancing those resources for multiple use, sustainable yield, and biological integrity” for the installation commander.

Additionally, this plan is compatible with the Installation Real Property Master Plan (RPMP) and Operations of the USAACE and Fort Novosel. This plan describes how Fort Novosel will implement provisions of AR 200-1 and local regulations; most notably FN Reg. 215-1, *Hunting, Fishing, Water Safety, and Trapping* and portions of FN Reg. 385-1.

1.6 Stewardship and Compliance

The Army’s Strategy for the Environment (2004) establishes a long-range vision that enables the Army to meet its mission today and into the future by placing a focus on sustainability and community partnerships. The Strategy applies community, regional, and ecosystem approaches to managing the natural resources on installations. The programs and actions outlined in this INRMP are designed to not only achieve compliance with applicable laws and regulations, but also to outline a program that will

help Fort Novosel accomplish its environmental stewardship goal of sustaining lands needed to accomplish the military mission in the future, safeguard human health, enhance the natural environment, and improve quality of life for Soldiers and their families, as well as the surrounding community.

1.7 Updates, Review, and Revision Process

Per DoDI 4715.03, Fort Novosel will review the INRMP annually, in cooperation with the USFWS and ADCNR to ensure the goals and objectives of the INRMP remain current. The plan will be reviewed annually to include an evaluation of metrics for assessing the effectiveness of the INRMP in applying conservation efforts to ensure no net loss of military training capability at Fort Novosel. The following metrics will be reviewed annually:

- INRMP project implementation
- Federally listed species and critical habitat
- Partnership effectiveness
- Fish and wildlife management and public use
- Team adequacy
- Ecosystem integrity
- INRMP impact on the installation mission activities

Pursuant to the Sikes Act, DoDI 4715.03, and AR 200-1, the INRMP will be reviewed for operation and effect no less than every 5 years by Fort Novosel, USFWS, and ADCNR. This review will be documented and signed by these parties. The INRMP review will determine whether the existing INRMP meets Sikes Act requirements and contributes to the conservation and rehabilitation of natural resources on the installation. Fort Novosel will update or revise the INRMP as necessary based on the results of these reviews.

1.7.1 INRMP Updates

An INRMP “update” is any change to the INRMP that, if implemented, is not expected to result in consequences materially different from those in the existing INRMP and analyzed in an existing NEPA document. These are minor edits to address new information or management priorities. Such changes will not result in a significant environmental impact, and the installation is not required to invite the public to review or to comment on the decision to continue implementing the updated INRMP.

The process for reviewing and concurring on minor changes or “updates” to the existing and approved INRMP will follow DoD’s streamlined review process as described in the *Mutual Department of Defense and U.S. Fish and Wildlife Service Guidelines for Streamlined Review of Integrated Natural Resources Management Plan Updates* (DoD 2015). These guidelines clarify and describe the process for reviewing and concurring on updates to existing INRMPs, as described in the *Memorandum of Understanding between the US. Department of Defense and the U. S. Fish and Wildlife Service (USFWS) and the Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resource Management Program on Military Installations* (Tripartite MOU, July 2013). The process is outlined below.

1.7.2 INRMP Reviews

1.7.2.1 Draft Review

When Fort Novosel determines that an INRMP update is appropriate, they notify the USFWS and ADCNR as soon as possible, but no less than 30 days prior to submitting a draft update for review. The completed draft is then sent to both agencies. The USFWS staff will review the draft and respond to the installation within 15 days of receipt. The USFWS field office and ADCNR will provide comments (if any) on the draft update to Fort Novosel within a maximum of 60 calendar days, unless a longer review timeline is agreed upon. If a review cannot be completed in this timeframe, the USFWS and/or ADCNR will notify Fort Novosel and provide an alternate timeline. If the parties cannot agree on a timeline, the Regional Sikes Act Coordinator may be brought in to help complete the review. If USFWS and/or ADCNR do not provide notification that an alternative timeline is needed within 60 days, Fort Novosel may, at its discretion, finalize the update. If there is a disagreement concerning the methods proposed in an INRMP update, all efforts will be made by Fort Novosel, USFWS, ADCNR, and the Regional Sikes Act Coordinator to resolve those issues within the agreed upon review timelines.

1.7.2.2 Final Update and Concurrence

Once complete, Fort Novosel submits the final update to the USFWS, ADCNR, and the Sikes Act Coordinator. The USFWS and ADCNR will respond and provide signature on the final update within a maximum of 60 calendar days of receipt unless the parties agree that a longer timeline for review is acceptable. If ADCNR and/or USFWS are unable to provide signature coordination within the applicable timelines, that agency will advise Fort Novosel, as well as the Regional Sikes Act Coordinator, as to why the review and signature process cannot be completed within the designated timeframe and offer an alternate date by which it can be completed. The Regional Sikes Act Coordinator will then coordinate to ensure review and comment on the final update, discuss comments with the Regional Director, and prepare the Regional Director's response to DoD, if needed. The USFWS field office will return the original concurrence letter or signature page to Fort Novosel, and provide a copy to the Regional Sikes Act Coordinator and to the ADCNR. Once finalized, the updated INRMP will be considered reviewed.

1.7.3 INRMP Revisions

During the review process, Fort Novosel, USFWS, and ADCNR will determine whether the existing INRMP needs formal revision. A formal revision, rather than an update, of the INRMP, as well as appropriate consideration under NEPA, is necessary when any new natural resources management action necessitated by changes to the military mission, the condition of the land, or the status of the species present and not previously considered in the INRMP.

Changes that necessitate new natural resources management actions, such as changes to the military mission, the condition of the land, or the status of the species present and not previously considered by the parties to the INRMP when the plan was last approved and/or reviewed as to operation and effect, will require an INRMP revision. All such revisions require approval by all parties to the INRMP, and Fort

Novosel will conduct a new or supplemental environmental impact analysis of the proposed action under NEPA, and make the INRMP and the environmental impact analysis document available for public review and comment, as appropriate. During the revision process, the current INRMP will remain in effect, as will the applicable natural resource laws and regulations.

1.8 Other Plan Integration

This INRMP serves as the primary document for natural resource management at Fort Novosel. Installation projects will be reviewed to ensure that they are consistent with the goals and management strategies outlined in this INRMP. A number of plans have been developed for the management of specific resources, as listed below:

- **Integrated Cultural Resources Management Plan:** The DPW ENRD reviews all proposed installation projects for impacts on existing cultural sites. All cultural sites are identified and protected in the field during all land management operations (USACE 2016).
- **U.S. Army Aviation Center of Excellence Installation Command Plan:** ENRD maintains daily interaction with the command to ensure all command priorities are recognized and implemented. As the command changes, ENRD programs are reviewed for compliance and priority.
- **Integrated Wildland Fire Management Plan:** ENRD applies planned forestry management practices to avoid and prevent wildfires. The plan is a comprehensive, operational guide to land management activities that describes the interface and actions of all involved in a wildfire response. ENRD applies preventative wildfire measures throughout the year in prescribed burning of 9,000 acres annually (Fort Novosel 2022). Additionally, Range Branch conducts prescribed burning of the Impact Area annually in the December-January period with a target of 2,000 acres.
- **Real Property Master Plan:** ENRD maintains awareness of current and long-range installation infrastructure planning. Timber sales are projected well in advance along with impacts on all existing ecosystems (Rust Environment and Infrastructure 1999).
- **Range Complex Master Plan:** ENRD reviews and provides comments annually in updating the Range Complex Master Plan. This plan establishes the range and maneuver land requirements needed at Fort Novosel to support the installation training missions. It identifies encroachment issues that could impact the use of the range complex and is designed to be a road map for the future development of the range complex to ensure that Fort Novosel can meet its current and future training missions (DPTMS 2022).
- **Wildlife Aircraft Strike Hazard (WASH) Plan:** ENRD maintains a current awareness of all wildlife impacts on training lands especially airfields. ENRD has recently developed a working relationship with USDA-APHIS-WS to address roosting pigeons inside airfield hangar space. The WASH program and plans are maintained and reviewed annually.

- **Pest Management Plan:** The Pest Management Plan is a working document that is utilized by ENRD daily in combating invasive plant and animal species on all installation lands. Herbicide reduction methods using physical and mechanical methods are considered on all land management projects (Fort Rucker 2018a).
- **Soil Erosion and Sediment Control Plan:** All soils on the installation are very fragile and most are considered highly erodible. Soil limitations and capabilities are considered in all project work that may require soil disturbance. Forestry BMPs and civil engineering principles are required for the stabilization of most installation soils. Turbidity testing of installation surface waters has been completed to determine compliance with Alabama Water Quality Standards. This plan is provided in **Appendix 3**.
- **ITAM Annual Workplan:** The ITAM workplan is hosted in the web-based application embedded in the Range Control Master Plan. Projects are developed to provide sustainable preventive and corrective land rehabilitation and maintenance (see Section 5.9 for more detail).

Alabama updated its State Wildlife Conservation Strategy in 2015. The overall goal of the strategy is to identify and conserve those species in greatest need for conservation action while also addressing the full array of wildlife and habitats. This INRMP and the natural resources programs on Fort Novosel work together with and are compatible with *Alabama's Wildlife Action Plan 2015-2025* (ADCNR 2015), specifically, the sections that address management of state and federal rare, threatened, and endangered species and their habitats. A copy of the plan can be found at:

https://www.outdooralabama.com/sites/default/files/Research/SWCS/AL_SWAP_FINAL%20June2017.pdf.

2.0 INSTALLATION OVERVIEW

2.1 General Installation Information

2.1.1 Location

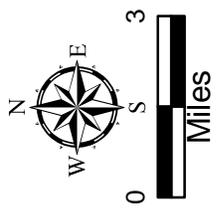
Fort Novosel is located in the East Gulf Coastal Plain approximately 25 miles northwest of Dothan, Alabama, between the cities of Daleville, Enterprise, and Ozark (**Figure 2-1**). The main installation (58,097 acres) lies in southeastern Coffee and southwestern Dale counties, Alabama and averages 17 miles long by 9 miles wide (**Figure 2-1**). Fort Novosel encompasses an additional 4,038 acres of satellite properties (**Figure 1-2**) in five Alabama counties, including 568 acres of leased land (utilized as remote training sites for helicopter training) located off the installation. Leased sites are not included within this INRMP in terms of management of natural resources, as they are maintained in accordance with the lease agreements.

Land usage at Fort Novosel may be categorized as aviation basefields, stagefields, remote training sites, such as the Aerial Gunnery Range Complex, unit training areas, small arms ranges, and the cantonment area. Range and training areas constitute the major land use with 52,309 acres available for ground maneuver training and operations (including the 12,890-acre impact area). Training areas and firing ranges are used extensively throughout the year by Soldiers assigned to Fort Novosel, active Army units from other installations, U.S. Army Reserve, National Guard, and U.S. Air Force units.

2.1.2 Aviation Training Facility

Flight training at Fort Novosel is spread across five basefields, one FARP, 15 stagefields, one tactical site, one test site, and approximately 62 remote training sites. Three active basefields (Hanchey, Knox, and Lowe Army heliports [AHPs]), four of 15 active stagefields (Ech, Hatch, Hooper, and Tabernacle), and one FARP (Molinelli) are located on the main Fort Novosel installation.

Because requirements for training areas and airspace cannot be met on the Fort Novosel installation alone, Fort Novosel utilizes aviation facilities of several types located off the main installation (**Table 2-1** and **Figure 1-2**). Cairns Army Airfield (AAF) and Shell AHP as well as 11 active stagefields, one test site (Highfalls AHP), and one tactical site (TAC-X AHP) are not located on the main Fort Novosel installation. Guthrie Basefield is not included in this discussion because it is inactive. Fort Novosel's training area and airspace and land availability encompass 27 counties in three states. Remote aviation facilities that are used in support of aviation training include heliports categorized either as basefields or stagefields. Basefields serve as home-ports for helicopters and have a full range of maintenance and classroom facilities as well as helicopter parking and refueling areas. Stagefields are used primarily for practicing standard maneuvers, such as takeoffs, turns, landing, and hovering, as well as emergency maneuvers, but not for basing of aircraft. Generally, helicopters return to designated basefields following practice at stagefields.



LEGEND

- Alabama Counties
- Fort Novosel Installation
- Highway
- Alabama Highway
- Training Area Boundary
- Fort Novosel Cantonment
- Impact Area
- Lake
- Major Population Centers

AIRFIELDS AND STAGEFIELDS:

- Cairns Army Airfield
- Hunt Stagefield
- Shell Army Heliport
- Ech Stagefield
- Hanchey Army Heliport
- Hatch Stagefield
- Hooper Stagefield
- Knox Army Heliport
- Lowe Army Heliport
- Molinnelli FARP
- Range Operations
- Tabernacle Stagefield



Figure 2-1.
Fort Novosel
Installation Map¹⁹

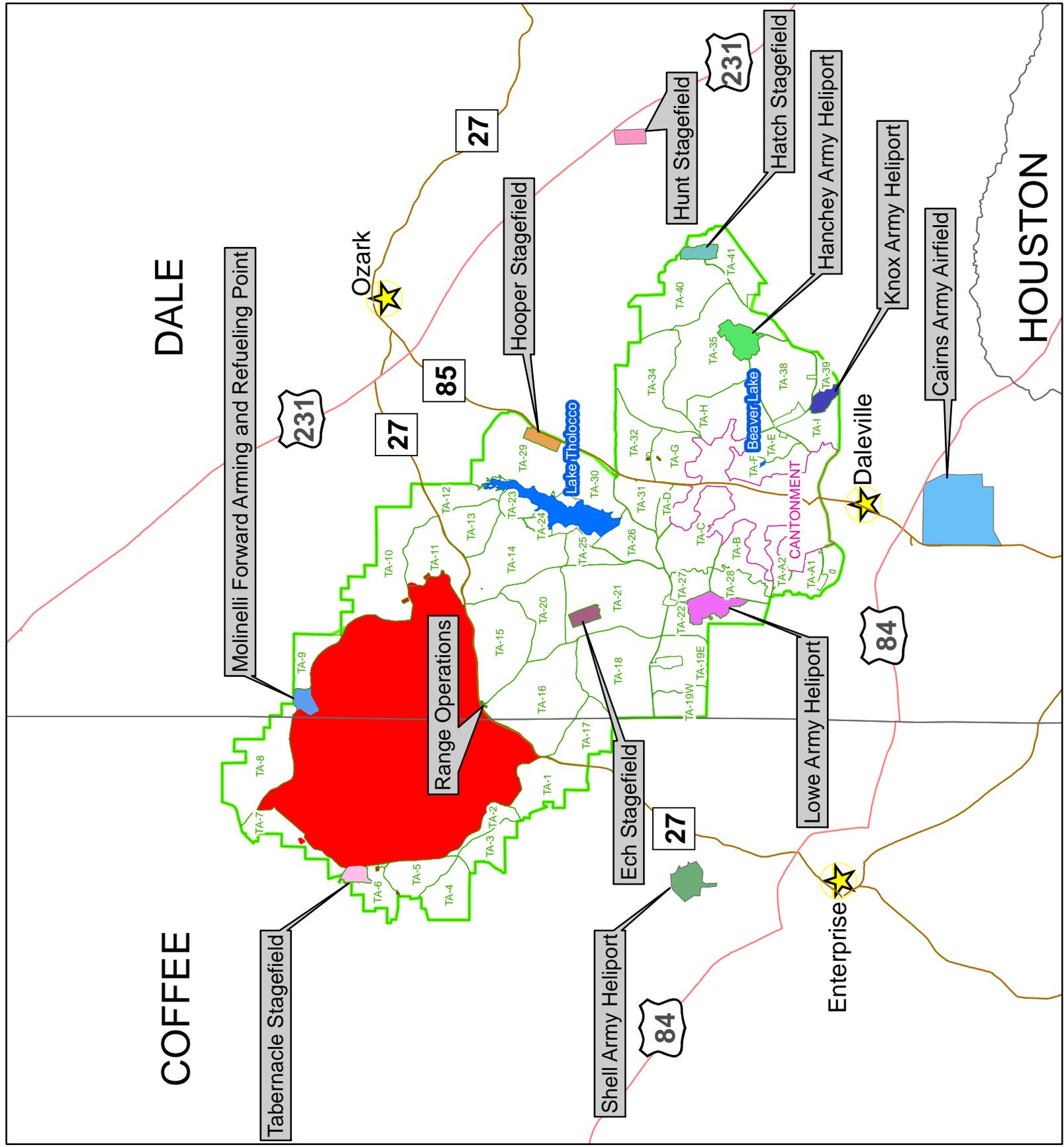


Table 2-1. Satellite Aviation Flight Facilities

Area	Acreage	County
Allen Stagefield	114	Houston
Brown Stagefield	166	Coffee
Cairns Army Airfield	1,292	Dale
Goldberg Stagefield	98	Dale
Highbluff Stagefield	187	Geneva
Highfalls Army Heliport	39	Geneva
Hunt Stagefield	131	Dale
Louisville Stagefield	104	Barbour
Lucas Stagefield	180	Coffee
Runkle Stagefield	263	Coffee
Shell Army Heliport	260	Coffee
Skelly Stagefield	157	Coffee
Stinson Stagefield	182	Coffee
TAC-X Army Heliport	173	Geneva
Toth Stagefield	124	Houston

In addition to basefields and stagefields, there are approximately 62 remote training sites both on and off the installation. Most off-installation sites are located on leased property or public land. These sites are used for activities such as low-level navigation (day and night), operation in confined areas, and advanced tactical maneuvers. Fort Novosel has also developed an extensive system of airspace corridors and special visual flight rule (VFR) routes to promote the safe and efficient flow of traffic during VFR conditions. There are four active corridor/route systems, corresponding to Cairns AAF and Lowe, Shell, and Hanchey AHPs.

Local aviation training areas are used by Fort Novosel aircraft. Within these are designated areas of operation (AOs) that provide for the separation of aircraft and different types of aviation training. Combined with the areas on and adjacent to the Fort Novosel installation, these AOs encompass approximately 9,000 square miles including all of southeast Alabama, a portion of southwest Georgia, and the northern portion of the Florida panhandle. The Army owns or leases only approximately 100 square miles of the AOs. The Army depends heavily on the cooperation of the civilian sector to accomplish its aviation-training mission.

2.1.3 Ground Maneuver Training Facility

Fort Novosel has terrain suitable for units up to battalion size to conduct training for extended periods. Terrain and vegetation accommodate exercises such as selection and occupancy of defensive positions, concealment and camouflage, limited patrolling, and some tactical movement. More extensive maneuver is possible with a fair degree of realism for smaller units (Higginbotham/Briggs and Associates 1991).

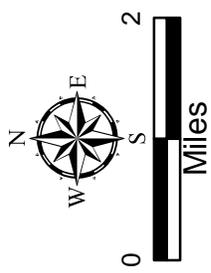
The road and trail network throughout the training areas permit cross-country movement of all classes of tactical vehicles. Bridges on dirt roads extending north from the vicinity of Lowe AHP have been constructed with load capacities sufficient to pass tanks and self-propelled artillery. A concrete turning pad has been constructed across State Highway 27 to permit passage of tracked vehicles into areas north of Highway 27. Access to all-weather roads is possible throughout the training area system (Higginbotham/Briggs and Associates 1991).

The area available for ground maneuver training is sub-divided into 49 training areas to permit several training activities to occur at the same time. Tracked vehicles are permitted to operate in certain designated areas with other areas set aside for wheeled vehicles only. The terrain is well suited for most non-firing tactical type exercises and is heavily used by the Aviation School and other units. Communications training; bivouac; land navigation; vehicle operator cross-country driving; survival, evasion, resistance, and escape (SERE) training; medical field operations; potable water production; and forward air traffic control are the main categories of exercises conducted. At full capacity, Lake Tholocco offers approximately 677 acres of water surface for training. Although used primarily for recreation, it also affords an opportunity to conduct CH-47 helicopter float and recovery training and could support engineer rafting training (Higginbotham/Briggs and Associates 1991).

The Alabama Army National Guard (ARNG) has conducted tracked-vehicle training activities on the installation and operates a Unit Training and Equipment Site, a fenced compound for storage and maintenance of ARNG vehicles. ARNG uses a 1.5-mile Test Track to exercise and test ARNG vehicles. These facilities are used for training Reserve Component personnel on weekends throughout the year (Rust Environment and Infrastructure 1999).

2.1.4 Training Ranges

Firing ranges for military training are in the northern portion (Land Management Unit [LMU] 1) of the installation, around the periphery of the impact area, which allows most ranges to be used at the same time (**Figure 2-2**). Included in this area are 20 firing ranges, including but not limited to, a range for use of privately-owned weapons, a demolition training area, a movement-to-contact range, a squad live fire range, a dedicated aerial gunnery range (with well-distributed firing points for 30-millimeter guns and 2.75-inch folding fin aerial rockets), 15 field artillery firing points, and one field artillery observation post.



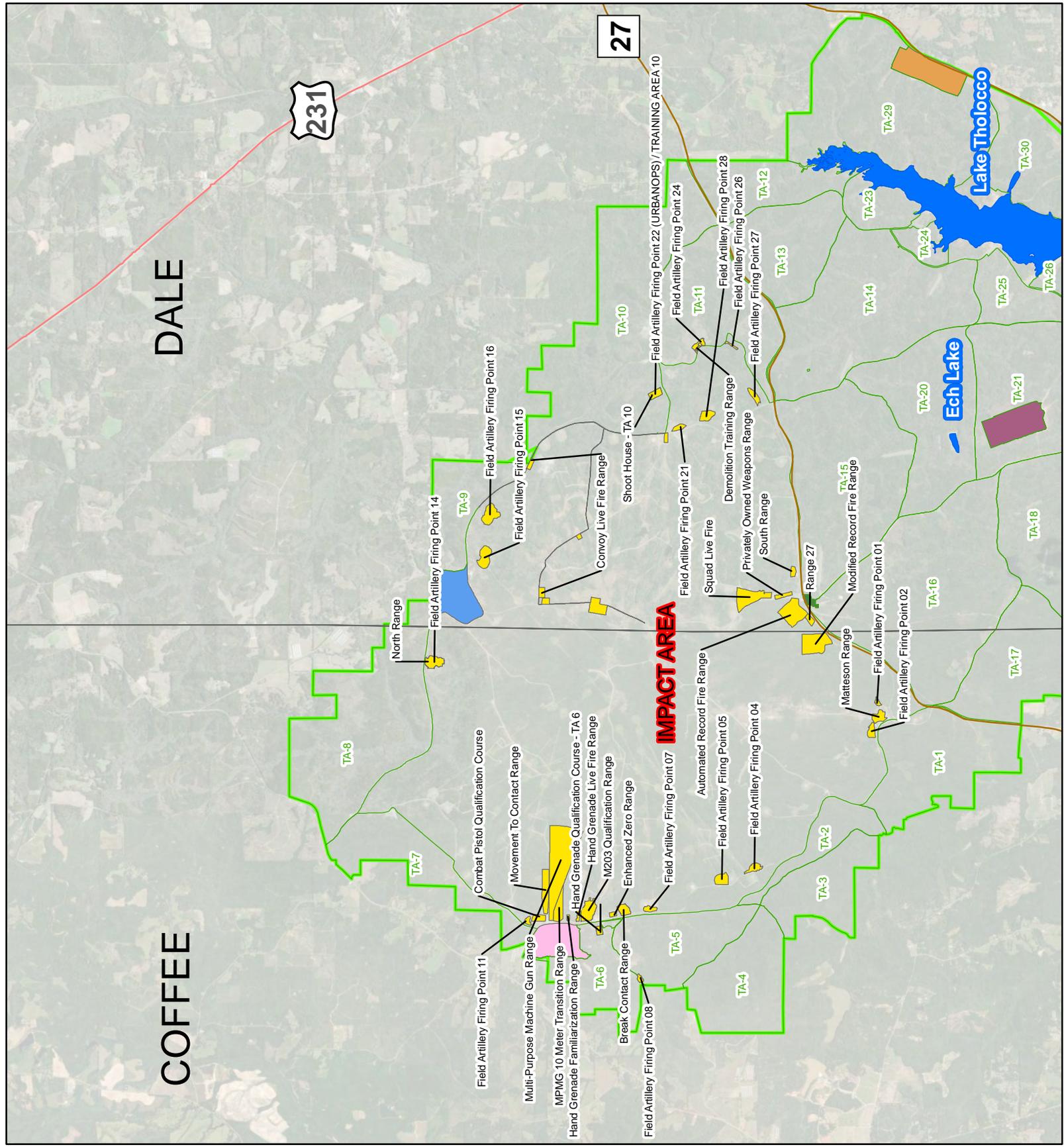
LEGEND

- Highway
- Alabama Highway
- Alabama Counties
- Fort Novosel Installation
- Current Ranges
- Training Area Boundary
- Lakes
- Ech Stagefield
- Hooper Stagefield
- Molinelli FARP
- Range Operations
- Tabernacle Stagefield

FARP - Forward Arming and Refueling Point



Figure 2-2.
Fort Novosel
Firing Ranges



2.2 Regional Land Use and Setting

The following discussion is limited to the five southeastern Alabama counties (Barbour, Coffee, Dale, Geneva, and Houston) influenced by the socioeconomic impact of Fort Novosel. Predominately rural in nature, these counties make up the Southeast Alabama Economic Development District, which has been classified as a long-term Economically Distressed Area by the Southeast Alabama Regional Planning and Development Commission.

The area around Fort Novosel has traditionally relied on farming for income, and it remains an important part of the economy. Manufacturing is now the leading employment sector followed by trade (wholesale and retail) and government. The forestry industry is a major component of the manufacturing sector in the area.

There are two significant open space recreational areas in the region (Conecuh National Forest and Eufaula National Wildlife Refuge). Two wildlife management areas administered by the state (Barbour Wildlife Management Area and Geneva State Forest Wildlife Management Area) also occur in the area (**Figure 2-3**).

The Dale County population declined by almost 10 percent following the Vietnam Conflict, largely due to a decrease in activities at Fort Novosel, and has increased approximately 0.4 percent in the period between 2000 and 2020. The five-county region experienced an almost 26 percent increase in population in the period from 2000-2020 with the greatest rate of growth (22 percent) in Coffee County (U.S. Census Bureau 2023a). Major population centers within a 30-mile radius of Fort Novosel are listed in **Table 2-2**.

Table 2-2. Major Population Centers near Fort Novosel

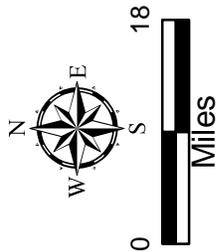
Name	2020 Population
Dothan	71,072
Enterprise	28,711
Ozark	14,368
Daleville	4,866
Geneva	4,245

Source: U.S. Census Bureau 2023b, c, d, e, and f

2.3 Installation History

The following provides a summary of land uses on the Fort Novosel property prior to military acquisition, along with a brief history of the military activities that have occurred at Fort Novosel. A more complete history is available in the Integrated Cultural Resources Management Plan Update (USACE 2016) and in the *Final Environmental Assessment of the Implementation of the Updated Integrated Cultural Resources Management Plan* (CH2M 2016).

As part of the New Deal Program, marginal farmland was taken out of production and overall agricultural production was decreased. One such project was the Pea River Land Use project, which included the U.S. Department of Agriculture (USDA) purchase of the land that was to become Fort Rucker.



LEGEND

- Alabama Counties
- States
- Fort Novosel Installation
- Barbour Wildlife Management Area
- Conecuh National Forest
- Eufaula National Wildlife Refuge
- Geneva State Forest Wildlife Management Area

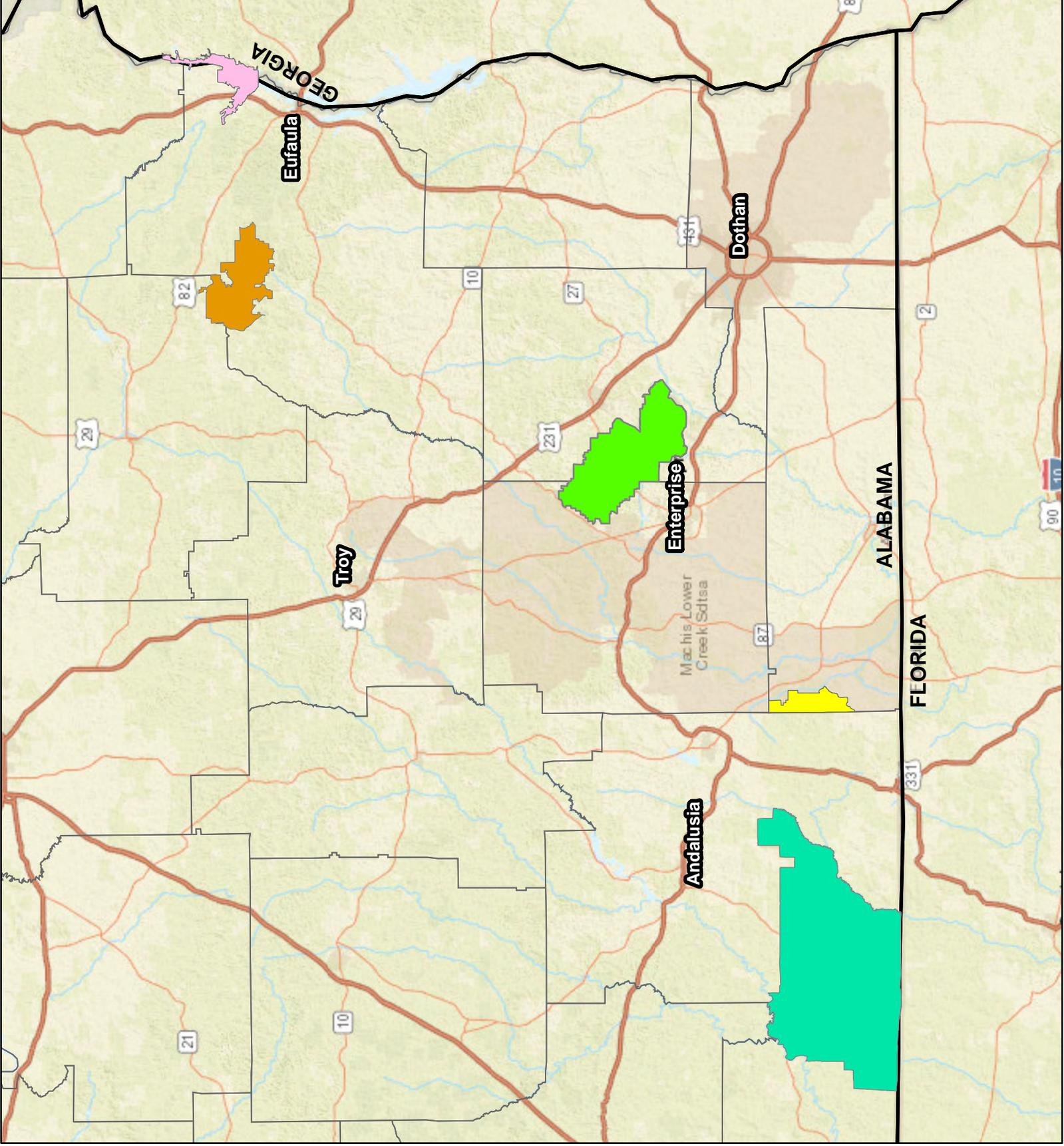


Figure 2-3.
Local and Regional
Natural Areas Near
Fort Novosel 24

Between 1936 and 1938, ownership of 31,760 acres in Dale and Coffee counties was transferred to the federal government. In 1940, this land was leased to the State of Alabama as a recreational facility (Pea River State Forest). Although the lease was for 50 years, it contained a provision allowing the federal government to retake possession at any time (McGee 1987; Dothan Progress Ltd. 1995).

With the approaching war in Europe, the Alabama Department of Conservation turned over approximately 25,000 acres of the Pea River State Forest to the Alabama National Guard for use as an artillery firing range, and in July 1941, the War Department announced the Pea River Project as a training site for some 30,000 infantrymen. In August 1942, the Pea River Project was transferred from the USDA to the War Department with the provision that it be returned when no longer needed for military purposes (McGee 1987; Dothan Progress Ltd. 1995).

In January 1942, the U.S. government took possession of 29,055 acres of land in Dale County between the existing Pea River Project and Atlantic Coast Line Railroad between Newton and Enterprise to create the Ozark Triangular Division Training Camp (McGee 1987; Dothan Progress Ltd. 1995). The camp was officially opened on May 1, 1942, and was used to train infantry, tank, and Women's Army Corps units. In September 1942, the U.S. government took possession of an additional 1,259 acres south of Daleville for development of an air base designated as Ozark AAF (later renamed Cairns Airfield). After the war, Camp Rucker was inactive from March 1946 until August 1950.

During the Korean conflict, the 47th Infantry Division at Fort Rucker trained replacement troops for combat in Korea. Camp Rucker was inactivated in June 1954 after the Korean conflict ended, but was reopened to prepare for movement of the Army Aviation School to Camp Rucker. On October 26, 1955 the post was given permanent status with the name change from Camp Rucker to Fort Rucker.

The first aviation officer basic and advanced courses began at Fort Rucker in 1984 followed by a gradual consolidation of all aviation related activities to the installation. In 1986, the U.S. Army Air Traffic Control Activity became part of the branch, and in 1987 a Non-Commissioned Officer academy was established at Fort Rucker. In 1988, the Army Aviation Logistics School was incorporated into the Aviation Branch. Presently, Army Aviation continues to train for infiltration, reconnaissance, evacuation, and strike missions of unconventional warfare.

2.4 Military Missions

The primary mission of the USAACE is to produce aviation Soldiers for the world's premier aviation force. The main objective of Fort Novosel's mission is to provide the Army installation capabilities and services while supporting expeditionary operations and providing a quality of life for Soldiers and families during their service (Army 2023a).

The Fort Novosel population consists of 14,579 military and civilian personnel. Additionally, 7,663 retired military and family members live in the Fort Novosel Service Area. The Fort Novosel team is made up of approximately 36 organizations. These organizations are multi-command, multi-service (Active Duty, Reserve Component, and National Guard), and multi-missioned (military, civilian, and contractor). Major troop units assigned to the USAACE and Fort Novosel include the 1AB and the 110AB.

1AB units are responsible for conducting a wide range of activities. Units of the brigade provide advanced individual training in air operations and aviation maintenance fields, conduct officer basic and advanced courses and warrant officer military development training, and operate numerous tactical simulation facilities. The U.S. Army SERE School at Fort Novosel conducts training for groups identified as high risk of isolation on the Code of Conduct and tactics, techniques, and procedures of survival, escape, resistance, and evasion, enabling them to survive isolation and captivity to “Return with Honor” (Army 2023b).

The 110AB conducts flight training. Each of three subordinate battalions is responsible for flight training operations at one of three Fort Novosel basefields: the 1st Battalion, 14th Aviation Regiment at Hanchey AHP; the 1st Battalion, 223rd Aviation Regiment at Cairns AAF; and the 1st Battalion, 212th Aviation Regiment at Lowe AHP. A fourth battalion, the 1st Battalion, 11th Aviation Regiment, located on the main installation, provides air traffic control services for Fort Novosel and performs maintenance on tactical navigation aids.

In addition to operations and training activities of the USAACE, there are more than 30 other tenants and activities on the installation. Tenant activities include Air Force undergraduate and conversion helicopter pilot training; operation of the U.S. Army Combat Readiness Center; research on air crew training and performance; operation of the Department of Aviation Medicine, the Army Aeromedical Research Laboratory, Air Traffic Services Command, the 164th Theater Airfield Operations Group, and the Army Aeromedical Research Laboratory.

2.5 3Rs of Explosives Safety Education

Munitions are designed to be dangerous. Our nation’s military have used and continue to use land and water across the United States for live-fire training or testing with munitions. As a result, munitions that are unexploded ordnance (UXO) may be present on both land and in the water. No matter what you call munitions — ammo, explosives, unexploded ordnance or UXO, duds, souvenirs — remember munitions are dangerous and can explode if you touch, move, or disturb them.

Personnel have found munitions at Fort Novosel, outside of the training ranges. Munitions may be encountered anywhere past or present military training occurred. Current range boundaries do not necessarily reflect where munitions may be found.

For all activities outlined in the Integrated Natural Resources Management Plan, should you encounter a munition, follow the 3Rs



Recognize - when you may have encountered a munition and that munitions are dangerous.

Retreat – do not approach, touch, move or disturb it, but carefully leave the area.

Report – call 911 if off post. Anywhere on Fort Novosel, call Range Operations at (334) 255-4303.

3.0 ENVIRONMENTAL MANAGEMENT STRATEGY AND MISSION SUSTAINABILITY

3.1 Supporting Sustainability of the Military Mission and the Natural Environment

The underlying driver for natural resources management actions on Fort Novosel is supporting the military mission and the sustainability of ecosystems. To ensure a sustainable balance is achieved, coordination and cooperation among mission and environmental personnel organizations is required.

3.1.1 Military Mission and Sustainable Land Use Integration

The primary natural resource requirements for Fort Novosel's main military mission of aviation training are airspace and open, relatively flat landing-hovering lands. For aerial gunnery training, isolated space with good target visibility is also required. SERE training requires habitat conditions as close to natural as possible. Fort Novosel's role in supporting Reserve and National Guard forces is more land intensive. Areas with overhead concealment are required, as is land with open ground for target visibility for firing ranges. For various activities, including artillery firing, there is also a requirement for forested areas with openings. These training activity requirements are supported by, and in many cases, enhanced by, the restoration of the original longleaf pine (*Pinus palustris*) ecosystem wherever appropriate at Fort Novosel.

3.1.2 Training Requirements Integration

Training Requirements Integration (TRI) is the component of the ITAM program that integrates training requirements and management with land management, natural resources, and cultural resources management processes. Data derived from Range and Training Land Assessment (RTLTA) and these various components help identify options that support mission activities, but also minimize impacts to environmental resources. The integration of training requirements with land, natural resources, and cultural resources occurs through continuous consultation among the DPTMS, natural and cultural resources managers, and other environmental staff members. On occasion, TRI requirements necessitate that other entities, such as DPW, external agencies, and other federal agencies provide information as well. TRI ensures wise land-use planning and management decisions that meet regulatory compliance and training and testing activity requirements while maintaining a "training-environmental" balance.

Through TRI, the DPTMS provides commanders with an analysis of the recommended course of action, along with alternatives, for allocating training and testing requirements to available lands. The analysis of alternatives includes potential environmental impacts, such as avoidance of streams and wetlands, to allow commanders to make decisions weighing readiness and conservation factors.

It is important to locate mission activities where natural resources can provide support on a sustained basis. Proper siting provides higher quality training for troops, and minimizes the potential for environmental damage and the associated costs of rehabilitation. New mission activity siting is effectively implemented on Fort Novosel via the NEPA process. NEPA coordination helps to locate mission activities on lands best suited for supporting them by analyzing all feasible alternatives. The NEPA process is

discussed in further detail in Section 3.3. GIS (Section 5.17) is also becoming a more valuable tool for exploring multiple conditions which must be considered prior to siting a mission activity.

3.1.3 Impacts to the Military Mission

Land management activities play an important role in the sustainment and improvement of training conditions, thus it is important to coordinate with mission personnel to identify future training requirements. Prescribed fire and forest manipulations can be used to manage forest conditions that meet training activity requirements; however, these may also negatively impact training activities if not properly coordinated.

Fort Novosel has incorporated environmental restrictions into FN Reg. 385-1. Restrictions within this regulation specifically related to natural resources protection address field training and bivouacking activities, water resources protection, wetlands protection, digging restrictions, and sensitive species protection.

Prescribed fire has the potential to impact training activity objectives. Positive impacts to the military training mission include reduction of hazardous fuel loads, improvement of access due to management of undergrowth, and the creation of a more realistic, natural training environment. However, smoke can reduce visibility required for aerial training missions. For these reasons, environmental conditions such as wind direction and likelihood of smoke dispersion are considered in planning prescribed fire events. Due to weather and military training constraints there are typically 20 to 24 acceptable burn days within each year. Prior to burns, a Daily Burn Plan is completed and made available to any whose training activities may be affected. A copy of the Daily Burn Plan form is included as **Appendix 4**.

3.1.3.1 Potential Impacts to Natural Resources from Operations and Activities

Habitat types and associated flora and fauna of Fort Novosel have the potential to be impacted by training. Training activities involving tracked and wheeled vehicles and impacts of ordnance on the gunnery-range complex can destroy vegetative cover and destabilize soil surfaces such that they readily erode during rainfall events. In addition, rotor wash at helicopter hover points is a major cause of wind erosion. The large area affected by these activities, combined with the erodible nature of soils throughout the installation, make erosion a major issue at Fort Novosel (Rust Environment and Infrastructure 1999). Ground disturbing activities near wetlands, streams, or other water bodies can be particularly damaging and result in erosion, sedimentation, and direct impacts to sensitive natural resources. Uncovered areas begin to erode quickly, and unless repair and control measures are taken, the damage becomes extensive (Higginbotham/Briggs and Associates 1991). Damage caused by the training mission is repaired or rehabilitated under the LRAM component of ITAM.

Within the impact area on Fort Novosel, munitions can cause damage to soils, vegetation, and wildlife upon impact, and can potentially cause wildfires. Dependent on location and habitat, wildfires may positively or negatively affect natural resources.

Adverse effects of soil erosion include loss of topsoil; formation of gullies; loss of soil fertility for plant growth; and stream, pond, and lake sedimentation. Sedimentation in surface water bodies results in adverse impacts to aquatic biota, and may reduce the

capacities of streams and other wetlands to handle storm water runoff, resulting in increased flooding and impacts to floodplains (Rust Environment and Infrastructure 1999).

Terrestrial wildlife is affected by noise from helicopter-training and weapons-firing activities that take place over extensive areas both on and outside the installation. Wildlife can become habituated or show decreased responsiveness to stimuli after repeated exposure. Wildlife inhabiting Fort Novosel have been exposed to noise from training activity for many years.

3.1.3.2 Natural Resources Constraints to Mission Activities

Soldiers need to be aware of their environment, whether during war or peacetime. There are always rules of engagement, and planning and implementation of natural resources management plans must take these rules into account. Learning to plan around environmental restrictions helps develop a disciplined mindset that is a valuable asset to today's Soldier. However, a balance must exist to avoid "negative training" from excessive constraints.

Most of Fort Novosel is available for training purposes, with few exceptions. Ground disturbing activities are limited in the following areas: in the vicinity of streams, wetlands, and water bodies; locations where gopher tortoise (*Gopherus polyphemus*) exist; and locations with documented cultural resources.

Streams, wetlands, and water bodies must be protected to the greatest extent possible to preserve water quality in these areas. This is accomplished by using erosion control measures and BMPs as described in Section 5.2.2.5. In areas where endangered mussel species listed in Section 5.4.2.1 are or may be located, extra precautions and proper consultation with USFWS may be required during the planning stages of any activity in which habitat may be impacted. All consultation correspondence (including email correspondence) will be kept on file at Fort Novosel.

Ground disturbing activities must also be limited when gopher tortoises (*Gopherus polyphemus*) are present. Burrows will be marked, and all activities must maintain a minimum distance of 25 feet from any active burrow and its associated mound. Should a project require activities to take place within this buffer, relocation of the tortoise or tortoise eggs may be required with coordination with Natural Resources and, if necessary, USFWS (**Appendix 5**). As discussed in Section 5.4.2.2, the gopher tortoise is a Fort Novosel species at risk (SAR) and a protected species in Alabama. The eastern population of the gopher tortoise is a candidate species for listing under the ESA. Should the eastern population of the gopher tortoise be listed as endangered or threatened, it could impact mission activities. Fort Novosel will continue to coordinate with the USFWS on the status of the eastern population of the gopher tortoise. Measures that would be implemented under this INRMP would provide benefit to the species, which should avoid the designation of critical habitat for the eastern population of the gopher tortoise on Fort Novosel.

Activities such as vegetation clearing, wildlife food planting, timber management, and training land rehabilitation are potentially damaging to cultural resources as well. In order to prevent activities from impacting cultural resources, natural resources projects that involve ground disturbing activities will be processed through the Fort Novosel

cultural resources manager. Projects in areas with known cultural resource sites must have site specific surveys completed prior to implementation. Determination of effect and consultation guidelines provided in implementing regulations for the National Historic Preservation Act (36 *Code of Federal Regulations* [CFR] § 800) will be followed during ENRD review of projects. Any project assessed as potentially affecting a cultural resource site at Fort Novosel will be coordinated with the Alabama State Historic Preservation Officer (SHPO).

Other restrictions include any area where bald eagles (*Haliaeetus leucocephalus*) or migratory birds reside. Fort Novosel supports a pair of bald eagles, and one nest has been observed at Lake Tholocco. Although the bald eagle is no longer federally listed, it is still protected under the Bald and Golden Eagle Protection Act and both the ADCNR Division of Wildlife and Freshwater Fisheries and the USFWS are aware of the eagles at the lake. Due to the recreational nature of this area, the presence of eagles is not expected to create any constraints. The removal of bird nests during the breeding season is restricted per the Migratory Bird Treaty Act and the Migratory Bird Permit Memorandum (USFWS 2003) and must be addressed prior to any removal.

3.1.4 Military Personnel Awareness

The Sustainable Range Awareness (SRA) component of ITAM includes Environmental Awareness elements in order to foster a conservation ethic in all who use Fort Novosel lands. Fort Novosel's Environmental Awareness component was fully implemented in 1998. Currently, Fort Novosel's SRA component is supported by Colorado State University's Center for Environmental Management of Military Lands (CEMML) and includes Soldier Field Cards (SFCs) for distribution to training units and digital displays at various locations. Training Division addresses compliance measures within FN Reg. 385-1 as well as provides awareness through various digital and hard-copy media outlets which are distributed to Soldiers.

Restrictions on training are sometimes necessary for long-term sustainment of training and ecosystem protection. FN Reg. 385-1 identifies restrictions for natural resources protection, including limitations on field training, digging, and bivouac activities to prevent impacts to water resources, wetlands, and sensitive species.

3.2 Natural Resources Compliance and Consultation Requirements

Natural resources compliance focuses on maintaining compliance with major federal laws that affect Fort Novosel activities. The following paragraphs discuss the most relevant laws to natural resources management on Fort Novosel.

Endangered Species Act

The ESA of 1973, as amended (16 USC § 1531 et seq.) provides for the identification and protection of threatened and endangered plants and animals, including their critical habitats. The ESA requires federal agencies to conserve threatened and endangered species and cooperate with state and local authorities to resolve water resources issues in concert with the conservation of threatened and endangered species. This law establishes a consultation process involving federal agencies with input from state agencies to minimize impacts to the greatest extent practicable by agency action that would adversely affect species or habitat. Further, it prohibits all persons subject to U.S.

jurisdiction from taking, including any harm or harassment, endangered or threatened species.

Section 7 consultations will be initiated if warranted; otherwise, written documentation that there are no effects on federally listed threatened, endangered, and species of concern will be generated by the Natural Resources Program Manager and kept with the project files. There is suitable habitat on Fort Novosel for several federally listed mussel species. Any activities affecting watersheds on the installation must be reviewed for possible impacts to listed mussel species. This includes land disturbance, chemical use, low water crossings, roadwork, and any other activity with the potential to affect water quality or to constitute a barrier to mussel or fish travel within waterways. Future development and resource management projects on Fort Novosel that may directly or indirectly impact streams where these mussels can be found will require communication with the USFWS for an informal consultation and site survey. Email documentation of informal consultation will be kept on file at Fort Novosel.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act prohibits, unless permitted by regulations, the pursuit, hunting, take, capture, killing or attempting to take, capture, kill, or possess any migratory birds included in the Act, including any part, nest, or egg of any such bird (16 USC § 703). The DoD has a Memorandum of Understanding (MOU) with the USFWS pursuant to Executive Order (EO) 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, which outlines a collaborative approach to promote the conservation of migratory bird populations. This MOU specifically pertains to natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, invasive weed management, and prescribed burning. It also pertains to installation support functions, operation of industrial activities, construction and demolition activities, and hazardous waste cleanup. If any of the Armed Forces determine that a proposed or an ongoing military readiness activity may result in a significant adverse effect on a population of migratory bird species, then they must confer and cooperate with the USFWS to develop appropriate and reasonable management recommendations to minimize or mitigate identified significant adverse effects (50 CFR Part 21).

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC § 668-668c), enacted in 1940 and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Regulations further define "disturb" as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR 22.6). The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously-used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

3.3 National Environmental Policy Act

The NEPA of 1969 (Public Law 91-190; 42 USC §§ 4321-4347), President's Council on Environmental Quality (CEQ) Regulation (40 CFR § 1500-1508), and Regulations for Implementing the Procedural Provisions of the NEPA, dated November 28, 1978 require all federal agencies to evaluate possible environmental impacts associated with proposed activities and consider all feasible alternatives. Additionally, AR 200-1 and 32 CFR § 651 detail NEPA policies specific to the Army.

At Fort Novosel, the DPW Environmental Office has primary responsibility for NEPA management, including review of individual job orders, service orders, and project specifications to determine NEPA documentation requirements. Items that may affect natural resources are sent to Natural Resources for further review. These considerations must be documented, and most often the analysis is presented to the public for comment. The depth of this analysis depends on many factors, including, but not limited to, the significance of the project, its effects on the public, and the expected degree of environmental impact.

3.3.1 Objectives

Specific objectives related to NEPA include:

- Coordinate with the Environmental Impact Analysis office and other installation personnel to improve early coordination for avoidance of natural resources impacts; to ensure all NEPA documents, individual job orders, routine maintenance projects, service orders, and project specifications are routed through Natural Resources; and to ensure environmental requirements are distributed to mission and project personnel.
- Assist the Environmental Impact Analysis office with identification of military training activities in need of NEPA documentation.
- Ensure mitigation measures are included in the NEPA document when there is a proposed action that will impact natural resources, and ensure that it is entered in the environmental project review process with the proponent's funding code.
- Establish a process to track projects to ensure that mitigations are accomplished and that restrictions included within Records of Environmental Consideration (RECs) are followed.

3.3.2 NEPA and Natural Resources Branch Support for NEPA

Natural Resources personnel are asked to consult in siting range-related projects. If this process is approached with the cooperative spirit of NEPA, most associated environmental impacts are generally resolved or mitigated. Decisions such as specific

siting or mission planning should be cooperatively discussed with Natural Resources as well as all involved parties prior to preparing NEPA draft documents.

In 2024-2028, the installation will continue to actively incorporate the use of NEPA documentation in order to protect and conserve Fort Novosel's natural and cultural resources.

3.3.3 NEPA for the Fort Novosel INRMP

An environmental assessment (EA) was completed for the implementation of the 2010-2014 INRMP. Since that time, two listed mussel species have been located on Fort Novosel and the gopher tortoise has been listed as a federal candidate species and these species were discussed in the 2018-2022 INRMP EA (Fort Rucker 2018b). Certain management activities detailed in the 2018-2022 INRMP were not addressed in the previous INRMP EA (for example, herbicide applications) and required separate NEPA analysis. Natural Resources uses the INRMP EA to ensure its activities (as described in the INRMP) are properly planned, coordinated, publicly reviewed, and documented. Natural Resources has also used the INRMP EA to identify potential impacts to natural resources associated with other organizations' projects. As such, Natural Resources is both a proponent and responsible agent for NEPA. No significant changes have occurred since the 2018-2022 INRMP; therefore, an EA will not be necessary for this updated INRMP.

3.4 Beneficial Partnerships and Collaborative Resource Planning

Surveys such as ecosystem studies or population evaluations are an important part of the adaptive management process, which is essential to ecosystem management. Due to limited Army resources, research or special projects using outside expertise are often used to help meet natural resource management objectives. These projects may be used to determine baselines with regards to status of ecosystems (for future comparisons) or to directly evaluate management programs in terms of meeting management objectives. Some of the support mechanisms by which these partnerships and collaborations are accomplished are identified below. Recent examples of collaborative efforts include: Solar Project, Erosion Control Survey and Design, Bridge Upgrades-Survey and Design, and Gopher Tortoise Surveys.

3.4.1 Other Agency Personnel and Project Assistance

The Intergovernmental Personnel Act of 1972 provides a means by which to conduct research or obtain other personnel assistance at Fort Novosel. Sections 1.4.2 through 1.4.7 contain a list of agencies with which Fort Novosel has cooperated with in recent years. However, any state or federal agency is authorized to participate utilizing the Intergovernmental Personnel Act. This Act is set up so that a federal (or state) agency may borrow other federal or state agency personnel for a limited time in order to complete a specific project. The installation pays the borrowed employee's salary and administrative overhead. There are two advantages: personnel would be directly supervised by Fort Novosel and no manpower authorizations are required. In 2024-2028, Fort Novosel will consider using Intergovernmental Personnel Act agreements as a source of assistance with special projects.

3.4.2 University Assistance

Fort Novosel has used several universities in recent years to help with specialized research needs. Auburn University, the University of Georgia, and Colorado State University are the most likely sources of assistance with implementation of this INRMP (Section 1.4.5).

3.4.3 Contractor Support

Fort Novosel may also use contractors to complete 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, and aerial photography when existing DoD manpower is not available. Tables of Distribution Allowance Manpower authorizations have been greatly reduced within the natural resources program within the last 5 years; therefore, requiring contract supported manpower to execute essential program objectives. Contract manpower is provided to supply forestry and wildlife technical field support under the direction of the Natural Resources Manager.

3.4.4 Other Support

In addition to the sources named above, programs such as the Student Conservation Association and the Oak Ridge Institute for Science and Education exist and can be accessed to support various installation projects and program needs.

3.4.5 Planned External Support

Table 3-1 outlines needed external support projects in order of priority. In 2024-2028 many of these projects will be determined by funding availability.

Table 3-1. 2024-2028 Natural Resources External Support Project Needs

Project	Priority*	Agency	Completion	Comments
Agricultural out-leasing	1	USACE	Indefinite	5-year renewal
Invasive species management	1	USDA-APHIS-WS	Indefinite	Annually
Game harvest	1	ADCNR	Indefinite	Annually
Endangered species consultation and management	1	USFWS	Indefinite	As needed
Erosion control	1	NRCS	Indefinite	As needed
Grounds maintenance	1	Various contractors	Indefinite	Annually
Soil testing	1	Auburn University	Indefinite	As needed
Wetland management	1	USFWS	Indefinite	As needed
GIS implementation	1	CEMML and others	Indefinite	As needed
Law enforcement	1	ADCNR	Indefinite	As needed
Deer necropsy	2	Southeastern Cooperative Wildlife Disease Study	Indefinite	Every 5 years
Environmental awareness	2	CEMML	Indefinite	Ongoing
Swine and coyote depredation efforts review	1	USDA-APHIS-WS	Indefinite	Annually

*Priority: 1 Needed as soon as possible for immediate management application.

2 Useful for improving management to a significant degree over a long period.

ADCNR Alabama Department of Conservation and Natural Resources

CEMML Center for Environmental Management of Military Lands

NRCS Natural Resources Conservation Service

USDA-APHIS-WS U.S. Department of Agriculture-Animal and Plant Health Inspection Service-Wildlife Services

USFWS U.S. Fish and Wildlife Service

3.5 Public Access and Outreach

3.5.1 Public Access and Outdoor Recreation

Natural resources-based outdoor recreational opportunities on Fort Novosel are abundant because of the large portion of acreage that is undeveloped. Some sections are restricted due to safety and security requirements, including explosive safety arcs, the restricted airfields, and other restricted land for training. Hunting and fishing are permitted on the installation.

3.5.1.1 Public Access

In accordance with the Sikes Act and DoDI 4715.03, DoD lands, waters, and coastal resources shall be made available to the public for the educational and recreational use of natural resources when such access is compatible with ecosystem sustainability, the military mission, and with other considerations such as safety and security.

Public access is a tradition on Fort Novosel. There are many opportunities for the general public to participate in installation activities. As of June 5, 2015, visitors with a valid DoD issued identification (ID) card may access Fort Novosel without a visitor pass. Visitor passes may be obtained at the Daleville or Ozark Visitor Control Centers between the hours of 8 a.m. and 4 p.m., Monday through Friday. The Daleville Visitor Control Center is also open on Saturdays and Sundays from 8 a.m. to 4 p.m. To obtain a visitor pass, a valid stateside issued driver's license/ID card that is REAL-ID compliant, or a valid passport is required. Visitors with a stateside issued driver's license/ID card that is REAL-ID compliant may also request a visitor pass through the Automated Installation Entry online pre-registration process at https://pass.aie.army.mil/steps/branch_selection. Using the online process, passes cannot be requested more than 14 days prior, or less than 5 days prior, to the anticipated date of visit. Visitor passes issued to personnel not obtaining sponsorship are issued for 30 days.

Fort Novosel hunting, trapping, and fishing programs will remain open to military personnel, dependents, civilian employees, and members of the outside public with an Alabama and Fort Novosel hunting, trapping, or fishing license. Both permits are available for purchase at the Outdoor Recreation Center. There are currently no restrictions on the number of permits issued to the public. Typically, the public has more participation in hunting and fishing activities than military personnel on Fort Novosel. Outdoor recreation is discussed in further detail in Section 5.15.

3.5.1.2 Native American Access

Access will be granted to any Native American entity to include current or future sites on the installation that have religious importance for the continuance of their culture.

3.5.2 Public Outreach

3.5.2.1 Special Events

Special events with local, state, or national significance offer opportunities to educate the public on programs of high interest. These programs include an annual Wildlife School for Landowners, hosted by Fort Novosel and the NRCS; Fort Novosel's Annual Earth Day Celebration; and various events scheduled within local schools to increase awareness of natural resources and programs.

3.5.2.2 Youth Groups

The development of outdoor skills and conservation ethics among youth is a priority and Natural Resources is committed to cultivating a conservation ethic in local youth. Branch personnel work with youth groups on conservation programs, and occasionally give presentations to school groups. Natural Resources and DPW have also supported Boy Scouts with projects, merit badges, and conservation talks. Boy Scouts often volunteer to help with natural resources management projects. Eagle Scout projects include installing public seating benches on installation lakes, installing bird houses in a watchable wildlife area, and making improvements to the Claybank Creek nature trail.

Jakes, a National Wild Turkey Federation youth group, uses Fort Novosel personnel to provide presentations, judge turkey calling contests, and facilitate shooting competitions. The installation also has a provision to conduct special youth hunts. These annual state-approved hunts allow youth to begin hunting deer using a gun earlier in the season than other hunters. Natural Resources believes that these programs are a good investment in the future of natural resources management, and will continue to work with youth groups whenever possible.

3.5.2.3 Printed Media

Fort Novosel's bi-monthly newspaper, the *Army Flier*, is the most efficient way for Natural Resources personnel to distribute information to the Fort Novosel community. This newspaper is used to explain programs and gain support for their implementation. Natural Resources personnel write several articles annually for the *Army Flier*, and staff writers also cover natural resources. Outdoor Recreation uses the paper regularly to inform users of recreational opportunities. Social media will be increasingly used for articles on natural resources management and conservation.

Other newspapers, such as the *Enterprise Ledger*, *Southeast Sun*, and *Dothan Eagle*, use information about Fort Novosel's natural resources programs. News releases and interviews with outside media are coordinated with the PAO.

3.5.2.4 Television and Radio

Fort Novosel's natural resources program is seldom the subject of television or radio coverage. However, special events such as youth hunts, fishing tournaments, and some research projects may attract television and radio coverage. Use of television and radio during the next 5 years will be largely driven by media events on the installation.

3.5.3 Conservation Awareness

Conservation awareness is instrumental in creating conditions needed to conduct natural resources management. Fort Novosel's approach to awareness stresses education. It provides military personnel and the public with insights into Fort Novosel's natural environment and conservation challenges. The more people know about the installation's unique natural resources, the more responsibly they act toward them. Conservation awareness efforts at Fort Novosel focus on providing military personnel and the public with information on Fort Novosel's natural environment, conservation challenges, and critical natural resource projects. Certain issues require effective conservation communication to get positive support and, perhaps more importantly, avoid adverse reactions from various users. Such issues include protection of sensitive species and habitats, permit fees and their uses, and timber harvesting practices.

Education also promotes awareness of critical environmental projects and the rationale behind them. Activities such as fish stocking, erosion control, and wildfire suppression can be accomplished with little conservation awareness effort since Soldiers, recreationists, and the general public naturally support these easily understood efforts. However, issues such as protection of sensitive areas for little understood plant and wildlife species, restrictions on troop field operations, non-game wildlife management, permit fees and their uses, and timber harvesting practices require effective conservation communication to gain positive support and, perhaps more importantly,

avoid adverse reactions from various users. An active conservation awareness program must be directed to both installation and external interests if it is to be effective.

Fort Novosel also has multiple websites where natural resources information can be found. ENRD maintains a website located at <https://fortnovosel-env.com/>, which has information regarding natural resources programs on base. Fort Novosel DFMWR also maintains a website located at <https://novosel.armymwr.com/programs/outdoor-recreation>, which provides a calendar of events and information regarding various DFMWR programs including a hunting and fishing status map displaying which areas are currently open to recreation.

To foster a conservation ethic in all who use Fort Novosel lands, Environmental Awareness is included as an element of the SRA component of ITAM. Environmental Awareness messages and information are included in SFCs and slide decks displayed at various locations on Fort Novosel.

SFCs are distributed at the Range Operations firing desk, range and training area coordination meetings, and other public forums frequented by Soldiers, trainers, and civilians. Slide additions and revisions are made as needed throughout the year. Graphic training aids on natural resources and SFCs are available to units through DPTMS, Training Division, Training Support Center.

The ARNG is the most likely entity to utilize heavy machinery at Fort Novosel. Considering that Guard and Army Reserve units typically only train for one weekend per month and up to two weeks (consecutive days) per year, it is difficult to provide individualized Environmental Awareness briefings. As such, the Training Division addresses compliance measures within FN 385-1, as well as providing awareness through various digital and hard-copy media outlets that are distributed to Soldiers.

3.6 Encroachment Partnering

Encroachment of surrounding development can reduce the flexibility needed to conduct military mission activities; thus, it is a top DoD priority to take measures to minimize encroachment. From the natural resources' perspective, development surrounding Fort Novosel is a problem due to the potential for urban interface issues associated with prescribed fire and wildfires. Civilian activities or development adjacent to the Fort Novosel boundary could be at risk from wildfires that originate on the installation. Smoke from prescribed fires could be a nuisance to off-installation locations. Fort Novosel will continue to work with ADCNR and Alabama Forestry Commission to initiate a Sentinel Landscape program. Fort Novosel ENRD is actively involved in the Compatible Land Use Study and the Army Compatible Use Buffer Program. The purpose of these programs is to improve the intergovernmental coordination and notification process by and between local governments and Fort Novosel about future developments and land uses near the installation and flying areas.

4.0 NATURAL RESOURCES EXISTING CONDITIONS

4.1 Climate

A variety of factors contribute to Fort Novosel’s temperate subtropical climate, including location, topography, and air-mass activity. Long, hot summers and short, mild winters are typical. Average annual rainfall in the area is 55.3 inches and monthly rainfall ranges from a low of 2.87 inches in October to a high 5.02 inches in December (**Table 4-1**). Although measurable precipitation (greater than 0.01 inch) occurs on an average of 110 days each year, a large percentage of the rain typically occurs on a single day each month. Thunderstorms occur an average of 70 days per year, but are more frequent during summer months (an average of 12-15 events per month). Prolonged or severe droughts are rare, although dry periods from 4 to 6 weeks are common.

Table 4-1. Average Monthly Temperature and Precipitation for Dothan, Alabama (1992-2022)

Month	Average Low Temperature (°F)	Average High Temperature (°F)	Average Rain Precipitation (inches)
January	23	76	4.47
February	28	79	4.91
March	32	84	4.58
April	41	88	4.13
May	51	95	3.19
June	64	97	4.90
July	69	98	5.67
August	66	97	5.87
September	56	95	3.64
October	40	90	2.87
November	31	83	3.59
December	27	78	5.02

Source: National Weather Service 2023
 °F degrees Fahrenheit

Prevailing winds on Fort Novosel are normally light (5 to 8 knots) and vary in direction. Intense weather activity at Fort Novosel is infrequent. High winds associated with thunderstorms occasionally cause damage, and hurricanes and tornadoes can bring intense winds and rain to the region.

4.2 Climate Change

DoDI 4715.03 requires the INRMP to assess the potential impacts of climate change on natural resources and to adaptively manage such resources to minimize adverse mission activity impacts.

The Climate Explorer, along with the U.S. Climate Resilience Toolkit, is an interactive online tool providing graphs and maps which display climate projections for counties across the United States. The Climate Explorer shows projections for two scenarios: a lower emissions and a higher emissions scenario. In the lower emissions scenario,

global emissions of heat-trapping gases are drastically reduced and stabilized whereas in the higher emissions scenario, emissions continue to increase through the end of the 21st century (U.S. Federal Government 2021). It provides data for temperature, precipitation, and related climate variables. The Climate Explorer was developed by an interagency team of climate model experts at the USEPA, National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration (NOAA), and the USGS and is overseen through the U.S. Global Change Research Program.

Models for both emissions scenarios provided by Climate Explorer have ranges in predicted values as shown in **Table 4-2**. By 2100, under both scenarios, average daily maximum temperature at Fort Novosel is expected to increase. The average daily maximum temperature is predicted to increase by 5.0 degrees Fahrenheit (°F) in the low emissions scenario and by 9.1 °F in the high emissions scenario. Similarly, the total number of days with temperatures above 90 °F are predicted to significantly increase from an observed average of 69.9 days, to an average of 129.5 days in the lower emissions scenario and an average of 169.9 days under the higher emissions scenario. The annual average precipitation is expected to increase by 1.8 inches under the low emissions scenario and by 0.8 inch under the high emissions scenario (U.S. Federal Government 2021).

Table 4-2. Predicted Change in Climate Parameters for Fort Novosel, Alabama

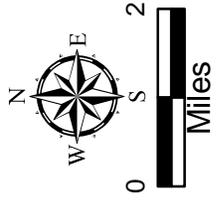
Parameter	Observed Average (1961-1990)	Low Emission Scenario (2100)		High Emission Scenario (2100)	
		Average	Range	Average	Range
Daily maximum temperature (°F)	77.1	82.1	78-85.7	86.2	81.7-93.1
Number of days above 90 °F	69.9	129.5	79.9-165.5	169.9	122.2-220.4
Average annual total precipitation (inches)	55.7	57.5	37.2-85.2	56.5	33.4-80.9

Source: U.S. Federal Government 2021

4.3 Topography and Physiography

Fort Novosel extends northwestward from the floodplain of the Choctawhatchee River, rising gradually from 164 feet above mean sea level, through undulating to rolling, sometimes deeply dissected, forested terrain to elevations slightly above 515 feet above mean sea level (McGee 1987; 1204th Engineer Co. 1995; Rust Environment and Infrastructure 1999). A topographic map is included as **Figure 4-1**.

Fort Novosel is in the Buhrstone Hills sub-district, which was developed on indurated resistant siliceous claystone and sandstone (Sapp and Emplainscourt 1985; Osborne et al. 1989). Terrain on Fort Novosel consequently consists of typically narrow and winding ridgetops that range from highly dissected along the creeks and Lake Tholocco in the eastern portion of the installation to gently rolling in the western and extreme eastern portions. Sideslopes are gently rolling in the western part of the installation and steep in the eastern portion. Drainage-ways are typically narrow bands of alluvium along small streams (1204th Engineer Co. 1995; Rust Environment and Infrastructure 1999).

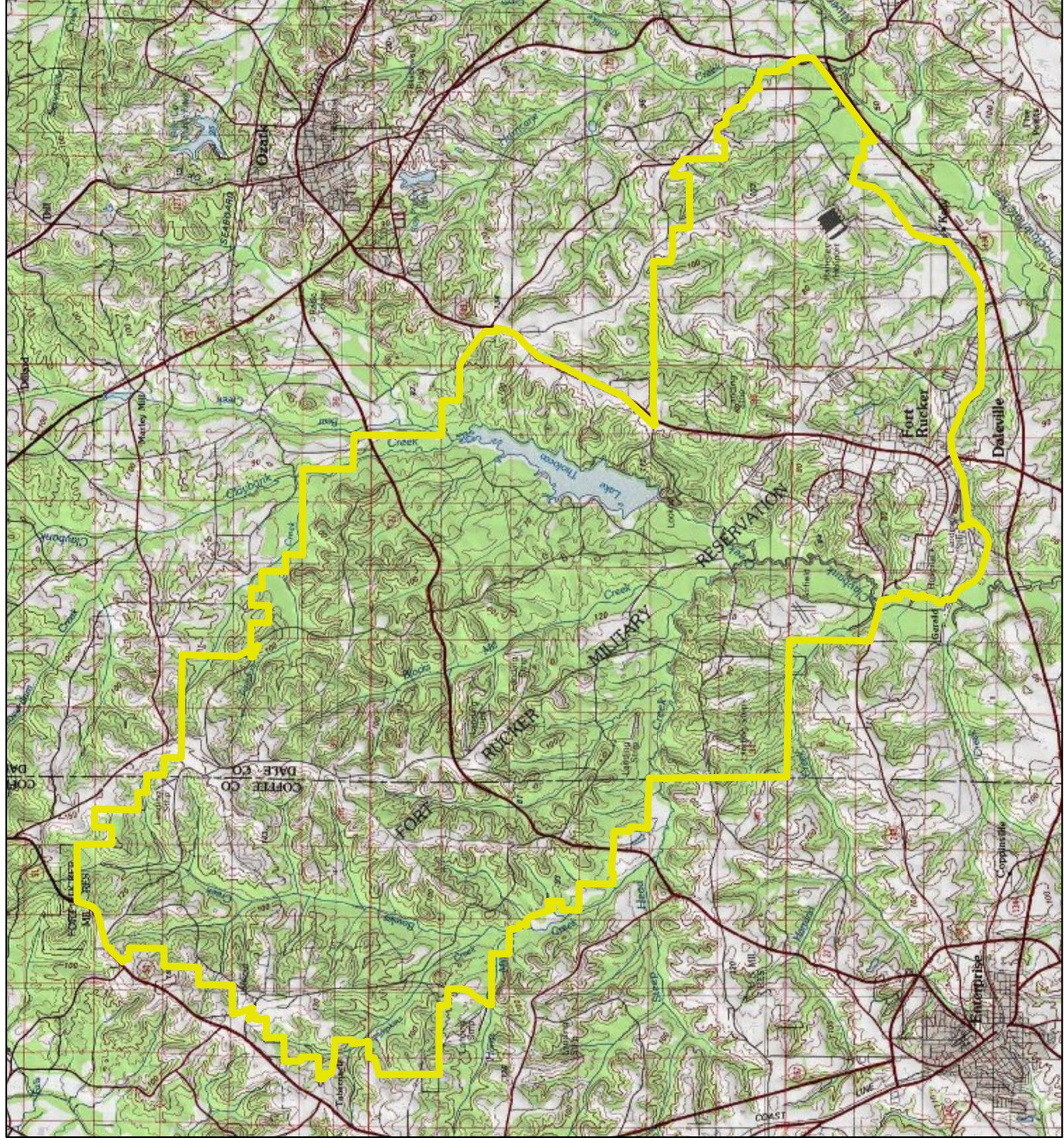


LEGEND

 Fort Novosel Installation



Figure 4-1.
Topographical Map
for Fort Novosel



4.4 Geology and Soils

The East Gulf Coastal Plain is an elevated former sea bottom, with sedimentary geologic formations and underlying basement rock that includes metamorphic, igneous crystalline, and sedimentary rock. Fort Novosel soils overlie the Buhrstone Escarpment, a formation held up by shale and sandstone (Roberts 1996). Geologic formations that outcrop on Fort Novosel include: Tuscaloosa Sand, Hatchetigbee and Tallahatta Formations, Lisbon Formation, Residuum, Alluvial High Terrace Deposits, and Low Terrace Deposits (Metcalf and Eddy, Inc. 1992; Rust Environment and Infrastructure 1999).

While no minerals are mined on Fort Novosel, and no petroleum deposits are known, there are limited resources of potential future economic value including brown iron ore, sand and gravel, and clay (Turner et al. 1965; Newton 1968).

Predominant soil series that occur on the Fort Novosel main installation include the Troup-Orangeburg-Nankin-Lucy series and Troup-Luverne-Conecuh series. In the far eastern portion of the main installation, there is also an area of Troup-Red Bay-Orangeburg series soils. The locations of these soil series, as well as those located on outlying properties are shown on **Figure 4-2**.

4.5 Water Resources

4.5.1 Surface Water

The main Fort Novosel installation and all satellite installations are located in the Choctawhatchee River Basin, with the Choctawhatchee River to the southeast and the Pea River to the northwest of the installation (**Figure 4-3**). Fort Novosel has approximately 335 miles of streams and rivers within the main installation. Claybank Creek and its tributaries constitute 82 percent of these streams and rivers. Claybank Creek flows from a source north of Fort Novosel, bisecting the installation, and flows into the Choctawhatchee River southwest of Fort Novosel. Average annual discharge of the Choctawhatchee River at Newton (USGS Station 02361000) was 638.8 cubic feet per second with a maximum discharge of 9,190 cubic feet per second in 2022 (USGS 2023a). Average annual flow in the Pea River at Ariton (USGS Station 02363000) was 559.4 cubic feet per second in 2022 (USGS 2023b). No USGS flow data is available for Claybank Creek. Four of the five lakes on Fort Novosel (Beaver, Buckhorn, Ech, and Parcours) are small (less than 20 acres) reservoirs built on tributary streams of Claybank Creek. Lake Tholocco is an approximately 677-acre impoundment of Claybank Creek and is used for both recreation and training activities. Surface water locations are shown on **Figure 4-3**.

Neither Fort Novosel, nor the surrounding areas, use surface water as a source of drinking water. However, surface water is used extensively for agricultural purposes. Recreational use of surface water in the area is largely limited to Lake Tholocco, Dale County Public Lake, Coffee County Public Lake, and several other lakes in the region.

LEGEND

- Alabama Counties
- Fort Novosel and Satellite Installation
- Boundaries
- Alaga loamy sand
- Alpin sand
- Americus loamy fine sand
- Ardilla sandy loam
- Bibb and Osier soils
- Bibb fine sandy loam
- Bigbee sand
- Bladen fine sandy loam
- Boswell very fine sandy loam
- Cowarts fine sandy loam
- Cowarts loamy sand
- Cowarts-Dothan complex
- Cuthbert fine sandy clay
- Cuthbert fine sandy loam
- Cuthbert, Boswell, and Eustis soils
- Dothan fine sandy complex
- Dothan fine sandy loam
- Eunola loamy sand
- Eustis loamy sand
- Faceville fine sandy loam
- Flint fine sandy loam
- Fuquay loamy sand
- Grady soils
- Grady-Byars complex
- Gravel pits
- Gullied land
- Hammatchee loam
- Huckabee loamy fine sand
- Iuka soils
- Izagora very fine sandy loam
- Kalmia fine sandy loam
- Lakeland and Cuthbert soils
- Lakeland loamy fine sand
- Leaf very fine sandy loam
- Leaf-Lenoir complex
- Lucy loamy sand
- Luverne-Lucy association
- Magnolia fine sandy loam
- Magnolia sandy clay loam
- Myatt very fine sandy loam
- Nankin sandy clay loam
- Norfolk fine sandy loam
- Norfolk loamy sand
- Ocilla loamy fine sand
- Orangeburg loamy sand
- Orangeburg sandy loam
- Orangeburg-Troup association
- Plummer loamy sand
- Rains and Plummer soils
- Red Bay and Magnolia fine sandy loams
- Red Bay fine sandy loam
- Red Bay loamy sand
- Ruston fine sandy loam
- Ruston loamy sand
- Sandy alluvial land
- Shubuta and Angie sandy clay
- Shubuta and Angie very fine sandy
- Springhill loamy sand
- Tifton fine sandy loam
- Troup loamy sand
- Troup-Bonifay complex
- Troup-Lucy association
- Troup-Orangeburg loamy sands
- Water

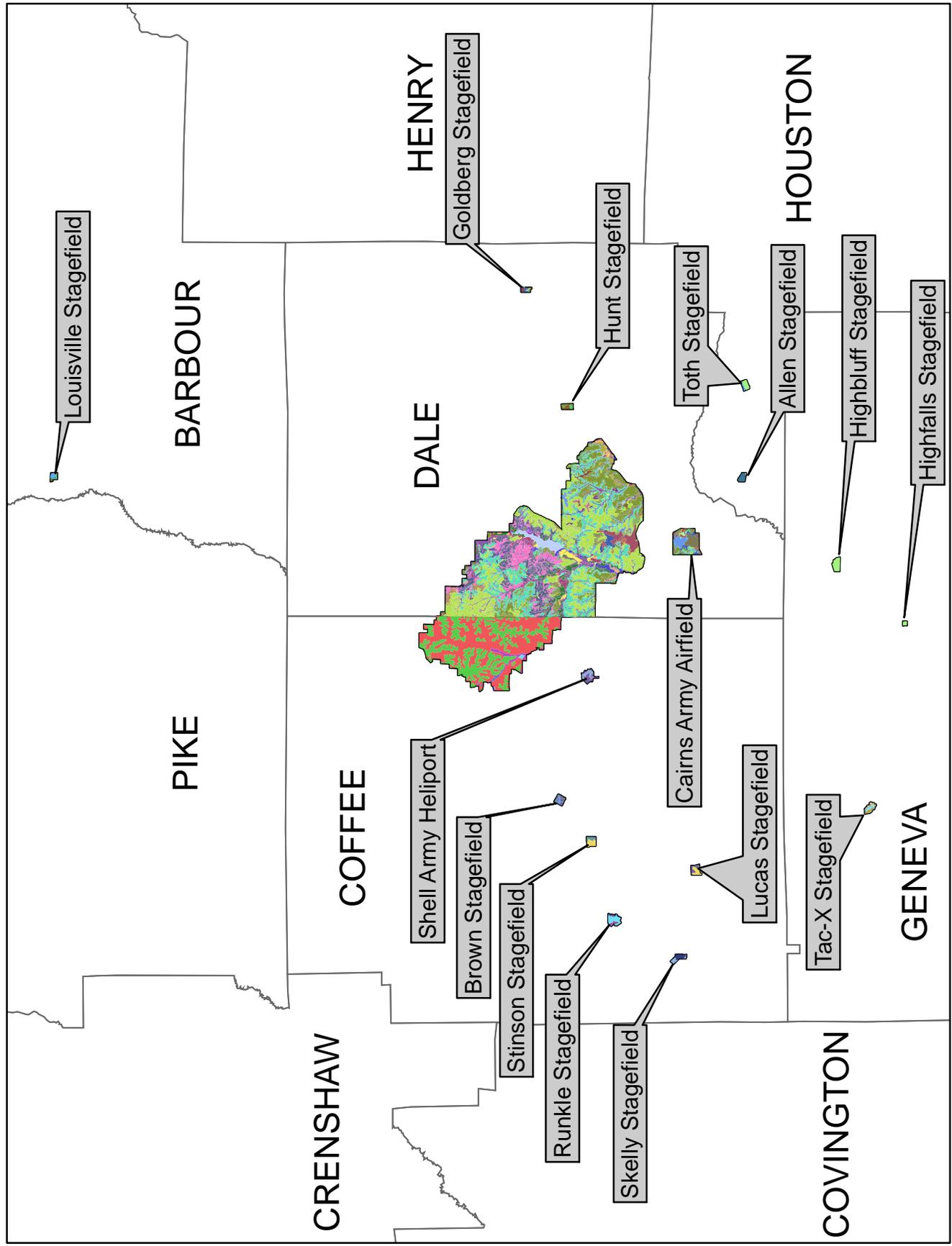
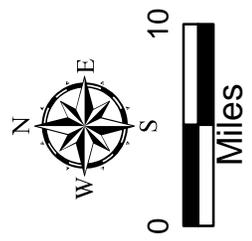
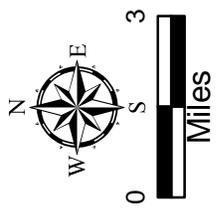


Figure 4-2. Soil Map for Fort Novosel

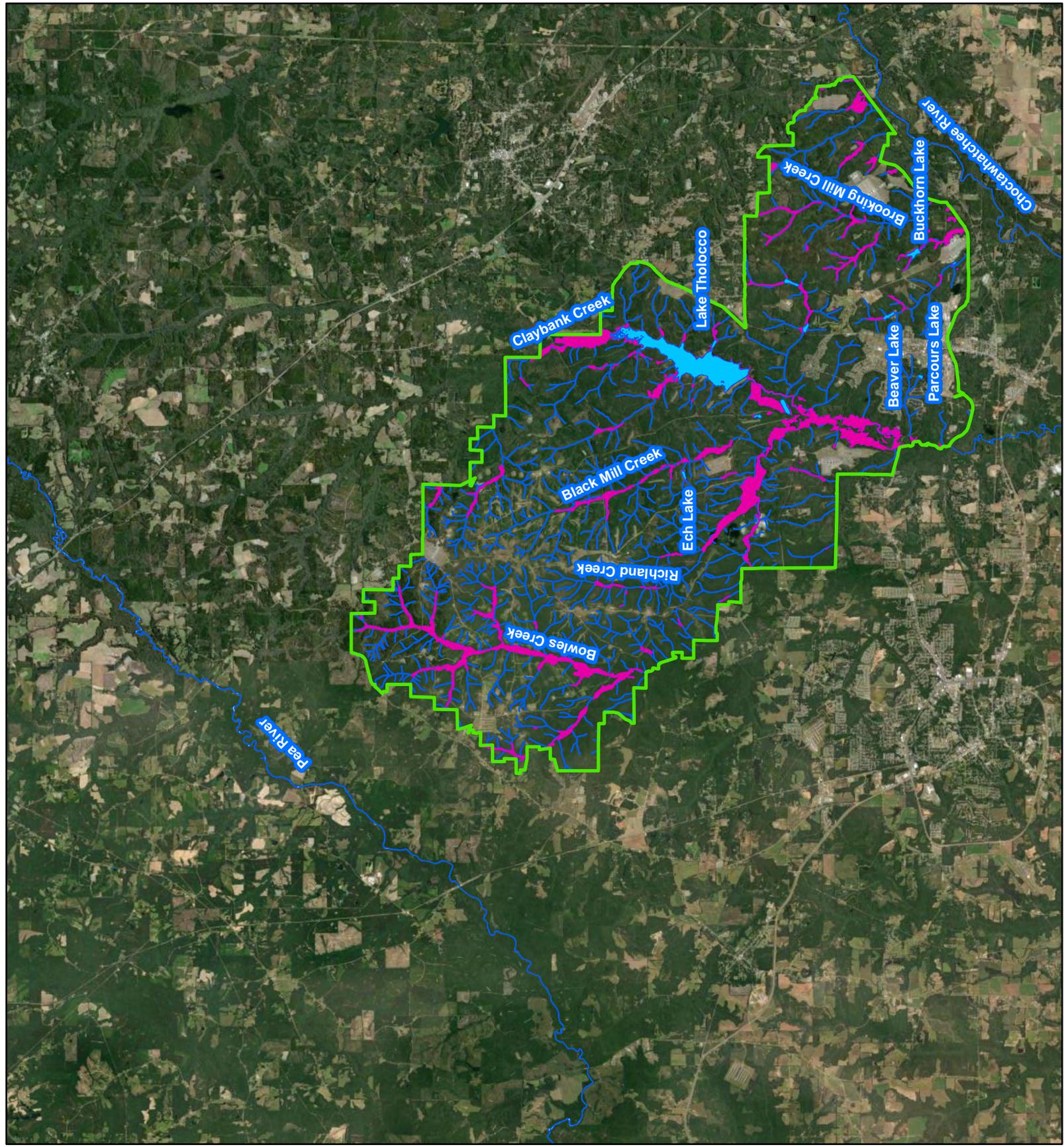




- LEGEND**
- Stream
 - Lake
 - Wetland
 - Fort Novosel Installation



Figure 4-3.
Surface Water
Features at
Fort Novosel 44



The Choctawhatchee River and most of its tributaries are classified as “Fish and Wildlife” waters by ADEM. This designation indicates that surface waters are suitable for the propagation of fish, aquatic life, and wildlife but are not suitable for swimming, drinking water, or food processing. The waters of Lake Tholocco are designated as “Fish and Wildlife” and “Swimming” (ADEM Administrative Code r. 335-6-11, 2015). Information regarding the process by which designation of surface water classifications are decided can be found in Alabama’s Water Quality Assessment and Listing Methodology (ADEM 2022). Wetlands and floodplains are described in Sections 5.5 and 5.14.

4.5.2 Groundwater

The three regional aquifer units underlying Fort Novosel are part of the Southeastern Coastal Plain Aquifer System, which forms a thick wedge of sedimentary strata resting upon a base of relatively impervious igneous, metamorphic, and sedimentary rock sloping down from the Piedmont Geologic Region. The shallow aquifer at Fort Novosel is the Lisbon Aquifer, which is subdivided into the Lisbon Formation and deeper Tallahatta and Hatchetigbee formations. This aquifer extends to a depth of 10-140 feet below land surface, with shallow locations existing on higher ground in northwestern Fort Novosel (in the impact area of LMU 1) and to the southeast at the cantonment area. The Lisbon Aquifer is separated from deeper aquifers by the Tuscahoma Sand Confining Unit. The Tuscahoma Formation primarily outcrops north of Fort Novosel, but it is also surficial in valleys of Claybank, Steep Head, and Bowles creeks.

Immediately below the Tuscahoma Confining Unit are the Nanafalia and Clayton formations, which outcrop north of Fort Novosel at the headwaters of the Choctawhatchee River. The Nanafalia Formation consists of sand bed, hydrologically connected to sand and limestone beds of the Clayton Formation. These formations are 400-500 feet thick in the vicinity of Fort Novosel and are the primary source of drinking water for Fort Novosel and surrounding municipalities.

The Nanafalia and Clayton formations are separated from the deeper Providence Sand/Ripley Formation by a narrow confining unit, and in places, they are hydrologically connected. The Providence Sand/Ripley Formation is 600-800 feet thick, and groundwater flow is to the south. Still deeper formations include the Blufftown Formation and part of the Eutaw Formation, which are separated from the basal (deepest) aquifer by a confining unit of clay and chalk called the Middle Eutaw Formation. This confining unit lies 2,000 to 2,500 feet beneath Fort Novosel. The basal aquifer unit includes the Tuscaloosa and Atkinson formations.

Due to the extensive pumping of groundwater, cones of depression have developed in the Nanafalia Aquifer in the area of Fort Novosel and surrounding municipalities (Geological Survey of Alabama 2018). Long-term water level measurements from Daleville indicate an average water level decline of approximately 2.6 feet per year since 2007. Deeper formations have been tapped for groundwater use with no reported instances of drawdown in the aquifer. These formations provide a substantial potential auxiliary water supply. Although the Nanafalia Aquifer has been impacted by these withdrawals, it is not at a level which is likely to affect habitation or use by biota or people on Fort Novosel (Geological Survey of Alabama 2018).

Due to concerns regarding depression of the aquifers and higher turbidity during extended periods of pumping, Fort Novosel limits pumping time to no more than 18 hours per day per supply well. Average amount of water supplied to Fort Novosel is 813,698 gallons per day (American Water 2022). If operations are expanded, it may be necessary to increase water conservation measures and/or to rely more heavily on the deeper Ripley Formation for drinking water.

The Fort Novosel potable water supply is provided by groundwater from the Nanafalia/Clayton and Providence Sand/Ripley formations, and consists of seven wells drilled to a depth of 600 feet below land surface. Wells No. 1-6 have a pumping capacity of 500 gallons per minute. Well No. 7 is rated at 1,000 gallons per minute. There are no reports of drawdown affecting production in these wells. The water supply system serves the cantonment area, Hanchey AHP, and Knox AHP. Hanchey and Knox have no other source of water. This system has been privatized and is now provided by American Water. Cairns AAF is connected to the City of Daleville water system. Shell AHP is connected to the City of Enterprise water system.

Primary production wells which supply Fort Novosel are sampled regularly for pH, chlorine, coliform bacteria, metals, nutrients, and organic constituents. American Water most recently performed water sampling at Fort Novosel in 2022; lead, copper, coliform, *E. coli*, chlorine, and pH all met government requirements (American Water 2022).

Groundwater quality in the area is good, however elements considered secondary drinking water concerns, such as iron and hardness, are occasionally seen at high levels (Rust Environment and Infrastructure 1999). Iron levels were in compliance in 2022 although hardness was not tested in 2022. These contaminants may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in water, but are not considered a present risk to human health (40 CFR § 143).

A second major use of groundwater is for fire protection. Cairns AAF, Lowe AHP, and Hanchey AHP each store 200,000 gallons for fire protection. Wells in the cantonment area provide firefighting water for Hanchey AHP. Lowe AHP has a 225 gallons per minute well, and Cairns AAF also has a well to furnish water for fire protection. Most other outlying fields are also connected to public water systems.

4.5.3 Wetlands

USACE and the USEPA 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.*” These resources are protected under Section 404 of the Clean Water Act (33 USC § 1344) and at the state level under ADEM Administrative Code 335-8 (2013). Wetlands on federal lands are afforded additional protection under EO 11990, *Protection of Wetlands*, which sets a goal of “no net loss” of wetlands. Most jurisdictional wetlands in the United States are identified using three wetland delineation criteria: 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. Fort Novosel supports approximately 3,425 acres of wetlands influenced by seasonal fluctuations in precipitation, overland or near surface flow, shallow groundwater, or

some combination of these processes (**Figure 4-3**). Per EO 11990 and AR 200-1 actions are only permitted to take place in these areas should the proposed action be analyzed and found to have no significant impact or that there is no practicable alternative. Further information regarding wetland habitats on Fort Novosel can be found in Section 4.6.5.

4.5.4 Floodplains

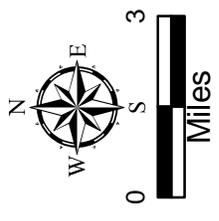
Floodplains are lowland areas adjacent to surface water bodies (i.e., lakes, wetlands, and rivers) that are periodically covered by water during flooding events. Floodplains and riparian habitat are biologically unique ecosystems that support a rich diversity of aquatic and terrestrial species and act as a functional part of natural systems. Floodplain management on Fort Novosel includes floodplain protection, floodplain boundary determination, and assessment of proposed actions within floodplains. Many portions of Fort Novosel fall within the 100-year floodplain (areas with a one percent chance of being inundated by floodwater in a given year; **Figure 4-4**). Most 100-year floodplains are in the northwestern portion of Fort Novosel, associated with Bowles Creek and its tributaries. The largest 100-year floodplain is associated with Claybank Creek and extends in a southerly direction through the east central portion of Fort Novosel. Per EO 11988, *Floodplain Management* and AR 200-1, actions are only permitted to take place in these areas should the proposed action be analyzed and found to have no significant impact or that there is no practicable alternative.

4.6 Ecosystems and Habitat

4.6.1 Historic Vegetation

The United States is divided into 15 broad ecological regions (ecoregion) with distinctive biological, physical, and human characteristics. These ecoregions were developed to enhance the capability of organizations to assess the nature, condition, and trends of the major ecosystems in North America. These Level I ecoregions are further divided into Level II, III, and IV ecoregions.

Fort Novosel is located in the Eastern Temperate Forests ecoregion (USEPA 2023). This ecoregion covers much of the eastern United States and is characterized by broadleaf deciduous or needle-leaf conifer forests which characteristically provide continuous canopy cover in the summer and drop their leaves in the winter. Beech-maple and maple-basswood forest types occur in the eastern portions of this ecoregion, mixed oak-hickory in the Upper Midwest, and oak-hickory-pine are common in the south and Appalachians (CEC 1997). Fort Novosel can be further divided into the Southeastern US Plains (Level II), Southeastern Plains (Level III), and the Southern Hilly Gulf Coast Plains (Level IV) ecoregions (CEC 2022).



LEGEND

-  A - 1% Annual Chance Flood Hazard
-  AE - Floodway
-  X - Minimal Flood Hazard
-  Fort Novosel Installation



Figure 4-4.
Floodplains
at Fort Novosel

Fort Novosel has an extensive history of natural resource use prior to its establishment as a military installation. Euro-American and Afro-American settlement of the area began during the 1820s. The vast majority of the pre-Fort Novosel population was more or less evenly scattered along the road system and lived on small farms without slaves. Although this region was not considered prime cotton producing land, many farmers earned their livelihood as cotton share-croppers. Archaeological evidence indicates their material possessions were few, and that there was a high degree of self-sufficiency among these late 19th and early 20th century farm families (Southeastern Wildlife Services Inc. 1984; Higginbotham/Briggs and Associates 1991; Dothan Progress Ltd. 1995).

4.6.2 Current Habitats and Associated Plants and Animal Species

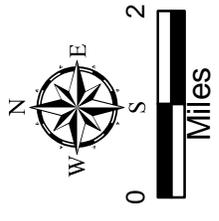
The *Fauna and Flora of Fort Rucker, Alabama* (Mount and Diamond 1992) contains an annotated checklist of flora known to occur on the installation or that could possibly occur, based on literature review. Unconfirmed species' probabilities of occurrence are also listed in this survey. A survey for threatened, endangered, or special concern plants was completed in November 2002 by Troy State University (Mount and Bailey 2003). **Appendix 6** contains descriptions of other habitats found on Fort Novosel. **Appendix 7** contains an index to scientific names of floral species known to occur on Fort Novosel and which are mentioned in the habitat descriptions.

The most prevalent habitats on Fort Novosel are hardwood-dominated mesic forest, mixed pine-hardwood mesic forests, xeric forest-sandhill type, and mid-aged pine stands (**Figure 4-5**). These habitats and typical associated species found on Fort Novosel are discussed in further detail below. Detailed habitat descriptions and comprehensive species lists are available in the *Survey of Fauna and Flora of Fort Rucker, Alabama* (Mount and Diamond 1992). Other habitats found on Fort Novosel include steep, forested, ravine slopes; xeric forest-clayhill type; young pine plantations; agricultural land, fallow fields, and old fields; eroded sites, waste areas, quarries; developed areas; floodplain forests; bay swamps; seeps, bogs, and wetlands; borrow pits; intermittent streams; oxbow ponds; beaver ponds; permanent streams; and man-made lakes.

A more detailed description of habitats not discussed below can be found in **Appendix 6** and a complete list of species in **Appendices 7-8**.

4.6.2.1 Hardwood-dominated Mesic Forest

This is the most common habitat on Fort Novosel and it occurs where mesic (relatively moist rich soils) conditions prevail, such as on lower slopes, on floors of coves and ravines, and along some smaller permanent watercourses. Most forests of this type burn infrequently. Logging has occurred on several sites formerly supporting this habitat type, and most of these sites have been converted to stands dominated by loblolly pine (*Pinus taeda*).

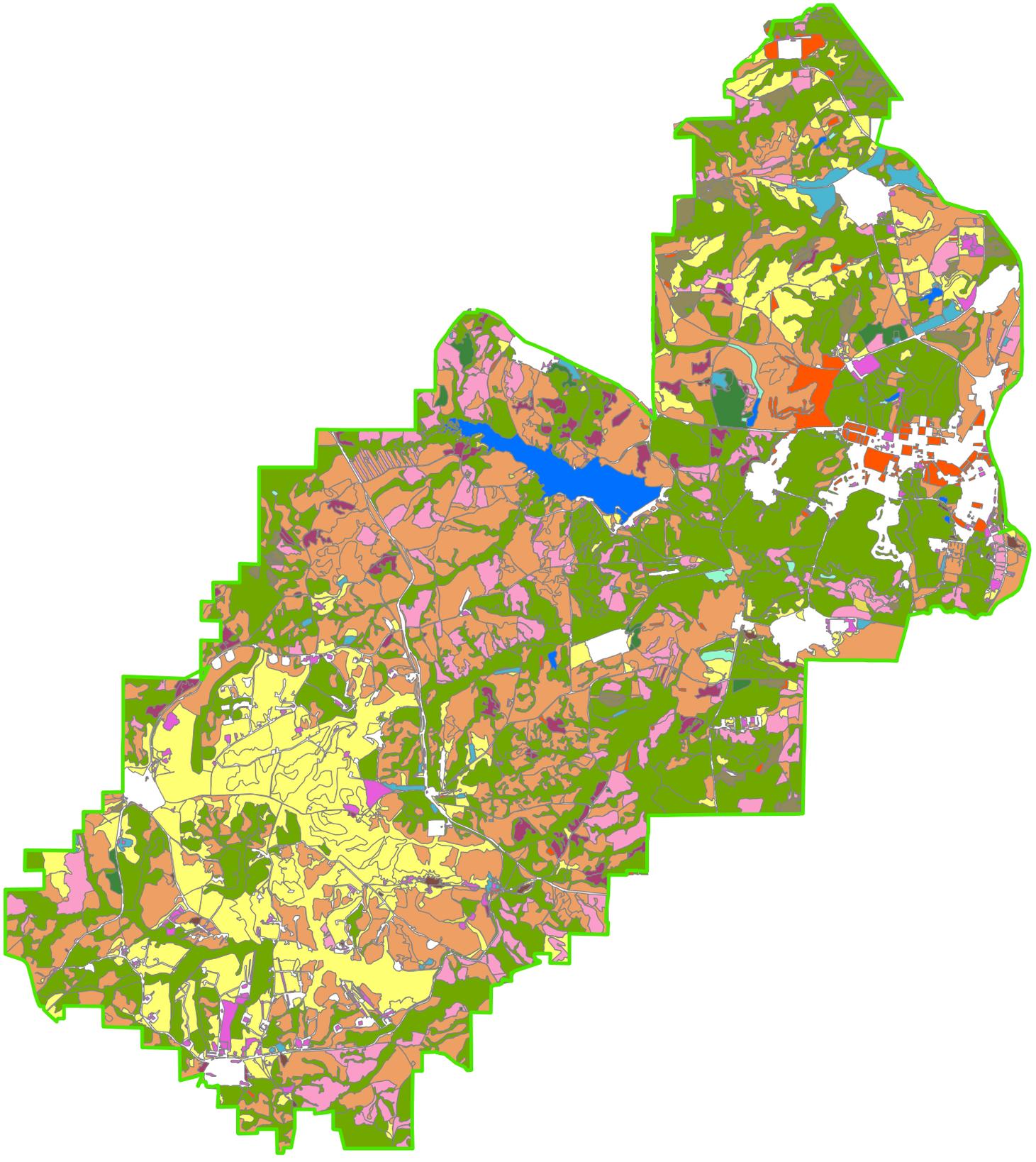


LEGEND

- Agricultural Land, Fallow Fields and Old Fields
- Badly Eroded Sites, Wasted Areas, Quarries
- Beaver Ponds
- Borrow Pits
- Changed Land-use
- Golf Courses and Similar Places
- Hardwood Dominated Mesic Forests
- Water
- Mid-Aged Pine Stands
- Mixed Pine-Hardwood Mesic Forests
- Seeps, Bogs and Wet Meadows
- Xeric Forests Clayhill Type
- Xeric Forests Sandhill Type
- Young Pine Stands
- Fort Novosel Installation



Figure 4-5.
Habitat Types
found at
Fort Novosel⁵⁰



This forest type is typically dominated by mesophytic hardwoods, such as laurel oak (*Quercus laurifolia*), white oak (*Quercus alba*), tuliptree (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), maples, southern magnolia (*Magnolia grandiflora*), water oak (*Quercus nigra*), and blackgum (*Nyssa sylvatica*). Smaller trees include American holly (*Ilex opaca*), flowering dogwood (*Cornus florida*), sweetbay (*Magnolia virginiana*), silverbell (*Halesia* spp.), hophornbeam (*Ostrya virginiana*), common sweetleaf (*Symplocos tinctoria*), American hornbeam (*Carpinus caroliniana*), and Devil's walkingstick (*Aralia spinosa*). The shrub understory typically includes red buckeye (*Aesculus pavia*), mountain laurel (*Kalmia latifolia*), mountain azalea (*Rhododendron canescens*), eastern sweetshrub (*Calycanthus floridus*), Florida anisetree (*Illicium floridanum*), and members of the blueberry-huckleberry complex. Needle palm (*Rhaphidophyllum hystrix*) may occur. Herbs include a wide variety of wildflowers and ferns, such as wild ginger (*Asarum canadense*), violets (*Viola* spp.), trillium, partridgeberry (*Mitchella repens*), and cinnamon fern (*Osmunda cinnamomea*). In areas with increased light penetration, greenbrier, eastern poison ivy (*Toxicodendron radicans*), and giant cane (*Arundinaria gigantea*) may also be common.

Wild turkey (*Meleagris gallopavo*), white-tailed deer, and eastern gray squirrels (*Sciurus carolinensis*) make heavy use of mast and other food sources available in this habitat, as do the southern flying squirrel (*Glaucomys volans*), cotton mouse (*Peromyscus gossypinus*), and golden mouse (*Ochrotomys nuttali*). Invertebrates constitute the major food source for shrews and nine-banded armadillos (*Dasypus novemcinctus*), both of which are common inhabitants of this habitat.

Common birds in this habitat include passerines such as the northern cardinal (*Cardinalis cardinalis*), wood thrush (*Hylocichla mustelina*), vireos, and warblers, as well as several woodpeckers. Raptors that use this habitat, often for nesting, include the eastern screech owl (*Megascops asio*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), broad-winged hawk (*Buteo platypterus*), and Cooper's hawk (*Accipiter cooperii*).

Snakes that may utilize this habitat include the timber rattlesnake (*Crotalus horridus*), eastern copperhead (*Agkistrodon contortrix contortrix*), gray rat snake (*Pantherophis spiloides*), and several small secretive species (e.g., ring-necked snake [*Diadophis punctatus*]). Lizards most often encountered are the little brown skink (*Scincella lateralis*), common five-lined skink (*Plestiodon fasciatus*), and broad-headed skink (*Plestiodon laticeps*). Around forest edges, the green anole (*Anolis carolinensis*) and eastern fence lizard (*Sceloporus undulatus*) are also common. Typical amphibian inhabitants are the southern toad (*Anaxyrus terrestris*), gray treefrog (*Hyla versicolor*), eastern narrow-mouthed toad (*Gastrophryne carolinensis*), and spring peeper (*Pseudacris crucifer*). Salamanders utilizing this habitat are the southeastern slimy salamander (*Plethodon grobmani*) and, near small streams and in and around seepages, the spotted dusky salamander (*Desmognathus conanti*), southern two-lined salamander (*Eurycea cirrigera*), and red salamanders (*Pseudotriton ruber* spp.).

4.6.2.2 Mixed Pine-hardwood Forests on Mesic Sites

This habitat type includes both pine and hardwood species on moderately well drained, mesic sites where mesophytic species predominate. Such forests are abundantly represented on the installation in uplands with clay subsoils. They occur throughout Fort

Novosel and are the dominant habitat type on the northwestern portion of the installation (**Figure 4-5**). This type of forest has developed naturally on much of the formerly cultivated uplands. Generally, top soils are low in nutrients and consist of sandy clay loams or sandy clays. Most sites are highly erodible, and the topsoil layer may be shallow. On the tops of hills and ridges where conditions become xeric, this forest type may be replaced by one of the two xeric habitat types described below, or by an intermediate type.

Pines in these mixed pine-hardwood forests include loblolly, shortleaf (*Pinus echinata*), and longleaf pine, in decreasing order of frequency. Common large hardwood species include southern red oak (*Quercus falcata*), water oak, laurel oak, sweetgum (*Liquidambar styraciflua*), and tuliptree. Less common are post oak (*Quercus stellata*), black oak (*Quercus velutina*), and hickory. Southern magnolia, beech, white oak, and spruce pine (*Pinus glabra*) may also occur on flat areas. Predominant small trees include sassafras (*Sassafras albidum*), dogwood, sourwood (*Oxydendrum arboreum*), hawthorn, common persimmon (*Diospyros virginiana*), and black cherry (*Prunus serotina*). Present in lower frequencies of occurrence are bluejack oak (*Quercus incana*), white fringe tree (*Chionanthus virginicus*), eastern red cedar (*Juniperus virginiana*), yaupon (*Ilex vomitoria*), and devilwood (*Osmanthus americanus*).

Shrub understory plants are mostly members of the blueberry/huckleberry complex, wax myrtle (*Myrica cerifera*), and young individuals of the trees described above. Occasionally, mountain azalea (*Rhododendron canescens*) and red buckeye (*Aesculus pavia*) are also present. Blackberry and American plum (*Prunus americana*) may be common in forest openings. Ground cover includes a wide variety of grasses and forbs, including numerous species of legumes, but no species is dominant.

Animal life in mixed pine-hardwood forests is diverse. Common passerine birds, which may breed here, include the pine warbler (*Setophaga pinus*), brown-headed nuthatch (*Sitta pusilla*), red-eyed vireo (*Vireo olivaceus*), northern cardinal, Carolina wren (*Thryothorus ludovicianus*), American crow (*Corvus brachyrhynchos*), and blue jay (*Cyanocitta cristata*). Also common are several woodpeckers, including the downy (*Dryobates pubescens*), red-bellied (*Melanerpes carolinus*), and pileated (*Dryocopus pileatus*), as well as the northern flicker (*Colaptes auratus*). Other avian residents include the wild turkey, chuck-will's-widow (*Antrostomus carolinensis*), and several raptors, including the eastern screech owl, broad-winged hawk, red-tailed hawk, and sharp-shinned hawk (*Accipiter striatus*). Species diversity is greater during fall and winter due to migrants and non-breeding winter residents.

Common small mammals in this habitat include eastern gray squirrel, southern flying squirrel, eastern fox squirrel (*Sciurus niger*) where the shrub understory has been suppressed by fire, cotton mouse (*Peromyscus gossypinus*), woodland vole (*Microtus pinetorum*), golden mouse, eastern red bat (*Lasiurus borealis*), and several shrew species. The white-tailed deer, nine-banded armadillo, Virginia opossum (*Didelphis virginianus*), and eastern cottontail (*Sylvilagus floridanus*) are also common.

Reptiles frequently encountered in this habitat are the eastern box turtle (*Terrapene carolina carolina*), green anole, eastern glass lizard (*Ophisaurus ventralis*), gray rat snake, eastern garter snake (*Thamnophis sirtalis*), and three species of skinks. The eastern copperhead (*Agkistrodon contortrix contortrix*) and timber rattlesnake are

moderately common, especially around thickets at the edge of intermittent streams and drains. During winter, cottonmouths (*Agkistrodon* spp.) tend to move away from their usual aquatic habitats and into these and other upland forests to overwinter in stump holes and similar places. Amphibians are infrequent in this type of habitat. Those most likely to occur are the southeastern slimy salamander, several treefrogs, and several toad species during the non-breeding period.

4.6.2.3 Mid-aged Pine Plantations

Flora and fauna of pine stands from 10 to 30 years in age vary depending on tree-age classes, tree spacing, and forest management practices. Those pine stands in which intensive efforts are made to suppress other vegetation, such as by annual burning or herbicides, are not as biodiverse as those burned less frequently (3- to 4-year intervals). In addition to planted pines, flora encountered in mid-aged pine stands may be extremely variable, depending on light availability, soil type, moisture conditions, and history of the site.

Scattered mast-producing hardwoods, such as oaks and dogwood, growing among the pines enhance the carrying capacity of this habitat type for wildlife and contribute to faunal diversity. The presence of certain shrubs, such as blueberry, as well as the presence of standing dead trees and snags or rotting stumps and tree trunks on the forest floor also increase wildlife habitat.

Common fauna likely to occur in the mid-aged pine stands include several lizards, the southeastern slimy salamander, the southern toad, and snakes of several species; notably the scarlet snake (*Cemophora coccinea*) in areas where rotting pine stumps and snags are present for denning sites, the ring-necked snake (*Diadophis punctatus*), southern black racer (*Coluber constrictor priapus*), southeastern crowned snake (*Tantilla coronata*), and, if gopher tortoises are present, the eastern diamondback rattlesnake (*Crotalus adamanteus*) is likely present as well.

Birds that characteristically breed in this habitat include the brown-headed nuthatch, pine warbler, northern cardinal, American crow, and several woodpeckers. Eastern fox squirrels in southeastern Alabama tend to occur with greatest frequency in open stands of mature pine. Also found in mid-aged pine forests are woodland voles, cotton mice, and shrews. Wild turkey and white-tailed deer generally prefer even-aged pine stands to a lesser extent than other forested habitats.

4.6.2.4 Xeric Forest-Sandhill Type

Xeric (low moisture) forests consist principally of plants that require minimal amounts of moisture and which, consequently, can grow in excessively well-drained soils. Xeric sandhill forests, as the name implies, develop in extremely dry, sandy soils. Trees strongly indicative of this forest type are turkey oak (*Quercus laevis*) and bluejack oak (*Quercus incana*). Longleaf pine is the most common dominant large tree species. Other woody species frequently occurring in this habitat type on Fort Novosel include hawthorn (*Crataegus* spp.), southern red oak, sand post oak (*Quercus margaretta*), Darlington oak (*Quercus hemisphaerica*), and occasionally, persimmon and devilwood. Turkey oak and bluejack oak tend to be more fire susceptible than other oaks. Low-growing species include several grasses, orangegrass (*Hypericum gentianoides*),

Virginia tephrosia (*Tephrosia virginiana*), ticktrefoil (*Desmodium* spp.), wild indigo (*Baptisia* spp.), milkweeds, prickly pear (*Opuntia humifusa*), littleleaf sensitive briar (*Mimosa microphylla*), finger rot (*Cnidoscolus urens*), and Atlantic poison oak (*Toxicodendron pubescens*). Patches of blackberry may be present.

Most sandhill forest occurs in small tracts within more extensive areas of mixed pine-hardwood forests on mesic sites. Boundaries of these tracts are frequently imprecise, with broad ecotones occurring. Even where moderately well developed, the xeric sandhill forest type on most sites on Fort Novosel lacks the sharply distinctive character of this type of forest where it occurs further south in the lower East Gulf Coastal Plain. Most, but not all, of the habitat within this category is found in the eastern portion of the installation near the impact area. Much of the acreage on the installation capable of supporting this habitat type has been cleared.

Many animals associated with sandhill forest habitat create burrows. Mammalian inhabitants include the oldfield mouse (*Peromyscus polionotus*), southeastern pocket gopher (*Geomys pinetis*), fox squirrel (where fire is frequent), and the southern flying squirrel (where tree cavities are available). Reptiles particularly well adapted to xeric conditions include the six-lined racerunner (*Aspidoscelis sexlineatus*), eastern coachwhip (*Masticophis flagellum flagellum*), Florida pine snake (*Pituophis melanoleucus mugitus*), and gopher tortoise. Although the gopher tortoise is not confined to this habitat, it does show a preference for it. The eastern fence lizard, southeastern five-lined skink, ground skink, and southeastern crowned snake also occur. During winter, numerous other species may be found, often as hibernators either utilizing gopher tortoise burrows or in burrows they construct themselves. Included in this group are several frogs and toads (e.g., the ornate chorus frog [*Pseudacris ornata*], barking treefrog [*Hyla gratiosa*], and possibly, the oak toad [*Anaxyrus quercicus*]), as well as the eastern diamondback rattlesnake.

Gopher tortoise burrows also provide optimum denning retreats and nesting sites for several larger mammals including the gray fox (*Urocyon cinereoargenteus*), Virginia opossum, nine-banded armadillo, and striped skunk (*Mephitis mephitis*). With appropriate management (i.e., judicious use of fire and provision of scattered clumps of brush for cover) the northern bobwhite and eastern cottontail rabbit are also found in this habitat. Acorns produced by mature oaks, when present in reasonable numbers, are valuable winter foods for white-tailed deer and wild turkey, although these animals are likely to spend most of their time in other habitat types.

Xeric forest-sandhill type is the most dominant habitat in the impact area. Due to its location in an impact area and the high likelihood of encountering unexploded ordnance, Natural Resources is frequently unable to access or manage this area to the degree desired. However, Training Division, Range Branch is responsible for and conducts maintenance and operations functions within the area. All activity is centered upon aligning environmental BMPs while meeting Army operational requirements.

4.6.3 Fauna

Although Fort Novosel has a diverse fauna as noted previously, natural animal communities in the area, especially large mammals, have been affected by urbanization. For example, two large mammals, the cougar (*Felis concolor*) and black

bear (*Ursus americanus*) have been extirpated from the area. White-tailed deer and feral swine are common, as are many smaller mammals which have been relatively undisturbed by urbanization. **Appendix 8** contains scientific names of fauna species known to occur on Fort Novosel (Mount and Diamond 1992). For a complete list of fauna species known to occur, or which may occur on Fort Novosel, see *Fauna and Flora of Fort Rucker, Alabama* (Mount and Diamond 1992).

4.6.3.1 Game Fish and Wildlife Species

The species listed in **Table 4-3** are actively managed as game for sport hunting or fishing. These species and specific management prescriptions are outlined in Section 5.2.3.

Table 4-3. Managed Game Species

Common Name	Scientific Name
Fish	
Bluegill	<i>Lepomis macrochirus</i>
Channel catfish	<i>Ictalurus punctatus</i>
Largemouth bass	<i>Micropterus salmoides</i>
Redear sunfish (shellcracker)	<i>Lepomis microlophus</i>
Birds	
Northern bobwhite	<i>Colinus virginianus</i>
Eastern wild turkey	<i>Meleagris gallopavo</i>
Mourning dove	<i>Zenaida macroura</i>
Wood duck	<i>Aix sponsa</i>
Mammals	
Coyote	<i>Canis latrans</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
Eastern fox squirrel	<i>Sciurus niger</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Feral swine	<i>Sus scrofa</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Raccoon	<i>Procyon lotor</i>
Virginia opossum	<i>Didelphis virginiana</i>
White-tailed deer	<i>Odocoileus virginianus</i>

4.6.3.2 Non-game Birds and Mammals

Section 4.6.2 contains a discussion of terrestrial habitats and associated species of non-game birds and mammals. **Appendix 8** contains a list of non-game bird and mammal species known to occur on Fort Novosel.

4.6.3.3 Fish

Section 4.6.5 of the INRMP contains a discussion of aquatic habitats and associated fish species. **Appendix 8** contains a list of fish species known to occur on Fort Novosel.

4.6.3.4 *Reptiles and Amphibians*

Section 4.6.2 contains a discussion of terrestrial and aquatic habitats and associated reptile and amphibian species. **Appendix 8** contains a list of reptile and amphibian species known to occur on Fort Novosel.

4.6.3.5 *Insects*

The Fort Novosel entomologist has been collecting and inventorying insects on Fort Novosel for many years, emphasizing the Order Coleoptera. To date, the collection includes 590 species from 59 families of beetles. Additional species collected from the installation (approximately 100) are stored at the University of Georgia. The current Coleoptera species list is filed at the University of Georgia Department of Entomology.

4.6.4 Threatened and Endangered Species

Protection and management of threatened and endangered species will be conducted in accordance with the ESA, NEPA, AR 200-1, DoDI 4715.03, USFWS regulations and agreements, and other applicable laws or guidance from higher headquarters.

The State of Alabama does not have a state law equivalent to the federal ESA so species do not have regulatory protection as state endangered or threatened species. Some species do receive protection through non-game species regulations. Consideration will be given to species that the Alabama Natural Heritage Program includes on its list of rare or sensitive species of Coffee and Dale counties in Alabama and species listed as protected and species of greatest conservation need (SGCN) published in Alabama's Wildlife Action Plan (ADCNR 2015).

Eight threatened or endangered species, one proposed endangered species, one proposed threatened, and two candidate species were documented or have the potential to occur on Fort Novosel and include one insect, five clams, one fish, four reptiles, and one mammal, as discussed in detail in Section 5.4. **Table 4-4** provides a summary of species that have been observed or have the potential to occur at Fort Novosel that are federally listed. The State of Alabama has no official plant list of threatened or endangered plants; however, the Alabama Wildlife Action Plan notes state protection status for species (ADCNR 2015). Comments are included regarding the status of each species found on Fort Novosel.

Table 4-4. Federally Listed Species and State Species of Conservation Concern Documented or that Have the Potential to Occur at Fort Novosel and Associated Satellite Areas

Species Name	Listing Status		Comments
	Federal	State	
Insects			
Monarch butterfly (<i>Danaus plexippus</i>)	C	-	Not documented
Clams			
Choctaw bean (<i>Villosa choctawensis</i>)	E	SP	Located during 1998 – 2000 mussel survey
Fuzzy pigtoe (<i>Pleurobema strodeanum</i>)	T	SP	Located during 1998 – 2000 mussel survey
Southern kidneyshell (<i>Ptychobranthus jonesi</i>)	E	SP	Not documented
Southern sandshell (<i>Hamiota australis</i>)	T	SP	Not documented
Tapered pigtoe (<i>Fusconaia burkei</i>)	T	SP	Not documented
Fish			
Gulf sturgeon (<i>Acipenser oxyrinchus</i> [= <i>oxyrhynchus</i>] <i>desotoi</i>)	T	SP	Not documented
Reptiles			
Alligator snapping turtle (<i>Macrochelys temminckii</i>)	PT	-	Not documented
Eastern indigo snake (<i>Drymarchon couperi</i>)	T	SP	Not documented
Barbour's map turtle (<i>Graptemys 57arbourin</i>)	-	SP	Not documented
American alligator (<i>Alligator mississippiensis</i>)	T (SA)	-	Uncommon, probably stable
Eastern diamondback rattlesnake (<i>Crotalus adamanteus</i>)	-	SGCN	Uncommon, likely declining
Gopher tortoise (<i>Gopherus polyphemus</i>)	C	SP	Locally common, low-density population
Rainbow snake (<i>Farancia erythrogramma</i>)	-	SP	Not documented
Birds			
American black duck (<i>Anas rubripes</i>)	-	SGCN	Documented
Bald eagle (<i>Haliaeetus leucocephalus</i>)	BGEPA	-	Nesting pair at Lake Tholocco
Mississippi kite (<i>Ictinia mississippiensis</i>)	-	SP	Not documented
Swallow-tailed kite (<i>Elanoides forficatus</i>)	-	SP	Not documented

Species Name	Listing Status		Comments
	Federal	State	
Mammals			
Eastern spotted skunk (<i>Spilogale putorius</i>)	-	SP	Not documented
Southeastern pocket gopher (<i>Geomys pinetis</i>)	-	SCGN	Rare- two localities, declining
Tri-colored bat (<i>Perimyotis subflavus</i>)	PE	SCGN	Not documented

Source: USFWS 2023; ADCNR 2015; Alabama Natural Heritage 2022

E = Endangered T = Threatened PE = Proposed endangered PT = Proposed threatened

C = Candidate T(SA) = Threatened by similarity in appearance

BGEPA = Bald and Golden Eagle Protection Act

SCGN = Species of greatest conservation need

SP = State Protected: Species protected by Regulation 220-2-.92 (Nongame Species Regulation), 220-2-.98 (Invertebrate Species Regulation), 220-2-.26(4) (Protection of Sturgeon), 220-2-.94

A literature search, herbarium records, and an on-site flora survey conducted by Mount and Diamond (1992) indicate no flora species listed as endangered or threatened by the USFWS. Several species of interest to the USFWS may occur on Fort Novosel, including the incised groovebur (*Agrimonia incisa*), Flyr’s nemesis (*Brickellia cordifolia*), Baltzell’s sedge (*Carex baltzellii*), and Alabama anglepod (*Matelea alabamensis*). These species have not been confirmed on Fort Novosel in recent surveys.

4.6.5 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 USACE and the USEPA. “Waters of the United States” protected by the Clean Water Act include rivers, streams, estuaries, and most ponds, lakes, and wetlands. Most wetlands on Fort Novosel are part of the tributary system of truly navigable waters and are therefore under USACE jurisdiction. However, if a wetland is believed to be hydrologically isolated (lacking the necessary connection to navigable waters), USACE, Mobile District should be consulted to make a jurisdictional determination.

Wetlands are dispersed throughout Fort Novosel, mostly associated with numerous streams that traverse the installation. The largest contiguous wetland complex is a floodplain forest in the south-central portion of the installation. This wetland system includes floodplains of Claybank Creek, Steep Head Creek, and Black Mill Creek below Lake Tholocco dam. Claybank Creek also has an extensive wetland above the old Lake Tholocco bed, along the north-northeastern installation boundary.

Rust Environment and Infrastructure (1999) completed a wetland study that identified 3,425 acres of wetlands on Fort Novosel.

5.0 PROGRAM ELEMENTS

5.1 Vegetation Management

Vegetation management is an important component of the INRMP due to the presence of rare natural communities as well as sensitive wildlife species that are dependent on habitats that occur at Fort Novosel. Vegetation management principles are considered when conducting general maintenance activities, such as invasive species management, weed control, and improving wildlife habitat.

Objectives for vegetation management include:

- Work with Grounds Maintenance personnel to ensure only native plants are used in landscaping.
- Ensure the use of pesticides on the base and in sensitive habitats is done in accordance with the product label at the lowest amount possible.
- Monitor and remove invasive species to prevent further spread and infestation.

Grounds maintenance provides opportunities to enhance the visual appeal of the environment. The main objectives of grounds maintenance operations are to reduce ground maintenance costs, conserve water, minimize the use of invasive and exotic species, and use plants native to the Fort Novosel region to the extent practicable. This is often performed in correlation with vegetative management operations. Enforcement of beneficial landscaping concepts, such as planting native species to reduce nutrient and water demands, reduce the costs of grounds maintenance, improve wildlife habitat, and protect vegetation by using shade trees, is encouraged.

5.1.1 Improved Grounds

Mowing requirements of Fort Novosel have evolved from a combination of in-house, contract, and family housing occupant responsibility to the most recent arrangement wherein the construction and property management firm, Picerne, has been granted a 50-year lease on family housing and provides mowing as part of the lease. Plant growth regulators are applied to areas away from runways on airfields and stagefields. The areas are mowed and plant growth regulators are applied in spring (April/May) and again in summer (July/August). The areas are then mowed a final time in November. Mowing on 3,000 acres has been reduced from 21 cuts per year down to three or possibly four. This reduction in mowing has decreased the heavy equipment wear on all airfield and stagefield turf and infrastructure, greatly improved the turf quality and resulted in a tremendous cost savings nearing \$200,000 per year. Improved grounds occur on 5,238 acres on Fort Novosel and management of the grounds varies as shown in **Table 5-1**.

Table 5-1. Improved Grounds

Improved Grounds	Total Acres	Mowed by
Around buildings	776	Contract
Lawns, Housing	189	Occupant
Lawns, Vacant Quarters	40	Contract
Lawns, General Officer	2	Contract
Lawns, Common Use	126	Contract
Post Cemeteries	2	Contract
Ammunition Storage	56	Contract
Roadways and Recreation Areas	404	Contract
Airfields	3,643	Contract

5.1.1.1 Golf Courses

Fort Novosel has a 280-acre, 27-hole golf course, a driving range, and a chipping area. Fairways and roughs on the course were established with Bermuda grass (*Cynodon dactylon*), and tees and greens were established with 328 Improved Bermuda grass and are overseeded during winter with perennial ryegrass (*Lolium perenne*). In 1988, fairways were sprigged to 419 Bermuda grass, and all maintenance became a golf course greens keeper responsibility at that time.

5.1.1.2 Cemeteries

There are four small private cemeteries on Fort Novosel. These cemeteries have been maintained and protected in accordance with AR 200-1. Maintenance consists of mowing and maintaining fences and shrubs.

5.1.1.3 Ammunition Storage Point

The Ammunition Storage Point was constructed in 1999. Maintenance consists of grass cutting to reduce fire hazards and prevent the growth of woody vegetation.

5.1.2 Landscaping Establishment and Maintenance

General landscaping is limited to community facilities; post exchanges; theaters; Bachelor Officers Quarters; barracks; chapels; clinics; family quarters; administrative, school, and research buildings; Post Headquarters; Veterans Park; main entrances to the post; and areas adjacent to athletic facilities. In general, trees, shrubs, and ground covers have been intermittently planted without the benefit of a landscape plan, so there is no consistency in the arrangement or relationships of one area to another or to the overall theme of the landscape. In the future, special consideration will be given to creating a landscape with continuity and a better blend of trees, shrubs, and flowering plants.

Fort Novosel utilizes various methods to accomplish landscaping operations. During new construction, plantings are contracted. The cantonment area is managed through a combination of self-help, in-house, and contract planting; and housing areas are managed by self-help and contract planting. As landscapes are planned, Fort Novosel

considers the use of native vegetation as set forth in the Presidential Memorandum (Office of the President 1994) and EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*.

For contract planting sites, a one-year plant establishment period is written into the contract. Trees, shrubs, and special ground cover plants are maintained on a year-round cycle (**Table 5-2**). Fertilizing, weeding, mulching, and pruning are scheduled to meet needs of various plant species, considering available manpower. As a rule, spring-flowering shrubs are pruned in late winter or early spring. Pruning of screening shrubbery throughout the cantonment and housing areas is done twice annually by contract. A removal and replacement program for trees and shrubs has been in effect for several years to mitigate effects of crowding, storm damage, and changes in utility services.

Table 5-2. Landscape Shrubbery Pruning Schedule

Type of Plant	Time of Pruning
Evergreens (holly, ligustrum, photinia)	Year-round
Berry-producing plants	Before spring growth and blooming
Camellias	Pruned in winter only to shape
Crepe myrtle	Winter
Trees	Winter

For new planting specifications, Fort Novosel uses the recommendations found in the *Fort Rucker Installation Design Guide* (EDAW 1987). Specifications and compatible species are also identified in the Installation Design Guide. Species used to replace damaged or removed trees and shrubs on Fort Novosel are listed in **Appendix 9**.

5.1.2.1 Irrigation

Fort Novosel normally receives sufficient annual rainfall to support vegetation without the use of irrigation. In 1987, irrigation systems were installed at post headquarters and the adjacent parade field. In 1990, one additional irrigation system was installed at Veterans Park. During fiscal year (FY) 1991, new sprinkler systems were installed at the three main gates (Daleville, Enterprise, and Ozark) in conjunction with landscaping projects. The Soldier Service Center also has an irrigation system. Temporary irrigation systems have been used for major turf establishment or renovation projects as required.

5.1.2.2 Sod Establishment

In 1988 a reorganization of DPW transferred in-house accomplishment of all grounds maintenance to the Individual Job Order Branch, a contracting-out operation. Turf areas on the installation are established with selected grass species that will provide ground cover compatible with land use, tolerate seasonal drought conditions, allow for the least degree of maintenance necessitated by the site, and benefit wildlife where possible.

Planting preparations consist of preparing a seedbed 4- to 6-inches deep. Where topsoil is required, subsoil is scarified 2-4 inches for bonding with the topsoil. Lime or other amendments are incorporated into the seed bed during site preparation.

The area is then seeded by cyclone, cultipacker, or hydroseeder, dependent upon slope. Centipede grass is used on lawns, and bahia grass is used on other open areas. Centipede and St. Augustine are used in shaded areas. Hay or fabric mulch is applied after planting operations, and the areas are limed and fertilized.

Areas of improved grounds in the cantonment area where sod is present, such as family housing and high visibility airfields, are fertilized yearly during spring. Special areas, such as turf renovation areas of athletic fields or intensive foot traffic sites, have been fertilized at the time of planting or overseeded and top dressed 30-45 days later.

Fertilizer and lime requirements are typically determined by soil test analysis. When soil test data cannot be obtained in a timely manner, 300 pounds per acre of 17-17-17 (17 percent nitrogen, 17 percent phosphorus, and 17 percent potassium) or 15-0-15 (15 percent nitrogen, 0 percent phosphorus, and 15 percent potassium) fertilizer is applied, depending on the plant species. Under the ITAM program, 13-13-13 fertilizer is applied to sod areas at stagefields and government-owned remote training sites each year at 250 pounds per acre. Lime is applied at 2 tons per acre biennially. However, continued application of these supplements at these rates is contingent on continued funding under the ITAM program.

Fort Novosel conducts soil testing by using a blanket purchase agreement, and programs for 150 soil samples annually for analysis at the Soil Testing Laboratory, Auburn University. Samples are collected in advance of programmed work to allow time for analysis and procurement/contract application of needed soil amendments.

5.1.2.3 In-house Tree Planting

In-house tree planting is accomplished using a tractor-towed hydraulic tree spade. Whenever possible, trees are located in forested areas adjacent to the site to be planted. A hole is dug where the first tree is to be sited. The tree is removed from the adjacent forest and placed in the pre-dug hole. A second hole is then dug where the next tree is to be sited, and the dirt from that hole is placed in the hole the first tree was removed from. A second tree is then removed from the forest and placed in the second pre-dug hole. This process is repeated until all desired trees have been transplanted, leaving only the last hole from which a tree was removed to be filled by hand.

5.1.2.4 No Mow-Areas

Reduced grounds maintenance programs involve reduction of mowing and establishment of forest, grassland, or wildflower areas to reduce grounds maintenance costs on improved and semi-improved grounds. The tradition of manicured grass on military installations often makes it difficult to generate acceptance of such programs.

“No-mow” areas are those in which an area is no longer included in the grass mowing cycle. These areas are most accepted by the public when they are natural extensions of already wild lands, such as narrowing a mowed road shoulder or extension of a woody area into a field.

The largest “no mow” area in recent years has been a former nine-hole golf course. This area has been reverted to a wild status, and designated as a Watchable Wildlife area.

Fort Novosel will continue to look for areas that can be dropped from the mowing cycle during 2024-2028.

5.1.3 Disease, Insects, and Undesirable Vegetation

Trees and shrubs are relatively free of disease with the exception of photinias. These plants have been attacked by entomosporium leaf spot disease, which cannot be treated successfully at Fort Novosel, so their use has been discontinued. Brown patch is the only major turf disease on Fort Novosel, and it has not been a problem in recent years. Most turf grass disease has been limited to golf course greens. Primary control has been preventive maintenance through a combination of chemicals, proper watering, and mowing practices. Most common insect pests have been armyworms, tent caterpillars, aphids, mole crickets, and red spiders. Insect damage to turf has been minimal and influenced primarily by excessive rains or droughts. The Pest Management Section is generally able to control common pests. The FY 23 Pesticide Use Proposal lists approved herbicides for use on the installation (**Appendix 10**).

5.1.4 Grounds Police

Troop details and building occupants accomplish a continual program of policing grounds around facilities throughout the cantonment area, along roadways, and around lake facilities and picnic areas. Trash cans are located at strategic points for proper disposal of litter and are maintained using troop details. An anti-litter attitude by employees and residents of Fort Novosel helps maintain a clean post. Spring and fall clean-up campaigns have been conducted annually. In addition to policing by employees and residents, the grass-mowing contractor is required to police debris prior to mowing.

5.2 Fish and Wildlife Management

Game management is an important component of fish and wildlife management, but it is considerably different from management of other fish and wildlife species. Game management focuses on the production of harvestable surpluses on a sustained basis. Section 5.15.3 includes recreational aspects of game management.

Objectives for fish and wildlife management include:

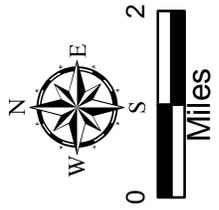
- Determine biological and recreational carrying capacities of game and fish species, and set management prescriptions and hunting/fishing harvesting quotas to ensure longevity and sustainment.
- Identify and map areas to improve or expand habitat for upland game birds through timber harvesting, Timber Stand Improvement (TSI), and the establishment of native grasses.
- Identify and map critical wildlife habitat areas for protection during timber harvesting.
- Implement any mitigation measures specified in project-specific NEPA analysis relevant to fish and wildlife management or habitat management.

- Establish a schedule for monitoring of lake/pond fish species and plant communities.
- Evaluate and review the effectiveness of the iSportsman program.
- Evaluate effectiveness of process for coordinating with Range Operations to ensure that an up-to-date roster of closed areas and areas designated for hunting and fishing is available.
- Rebuild the white-tailed deer herd population to near carrying capacity levels.
- Encourage the development of facilities that improve use and enjoyment of fishing, hunting, and other natural resources-based recreation, and increase the use of underutilized areas.
- Install bird nest boxes in priority areas.
- Conduct deer herd health surveys on a 3-year interval.
- Combat aquatic invasive species in all installation impoundments.
- Establish schedule for checking pond dams and spillways for maintenance and replacement needs.
- Submit annual REC for NEPA review of upcoming fish and wildlife management activities.

5.2.1 Terrestrial Habitat Management

Habitat trends on Fort Novosel are largely determined by military use, development, forestry practices, and prevailing climate. The rapid growth of plants, moderate temperatures, and long, snow-free conditions combine to provide a steady supply of food for wildlife. The harvesting of timber, creation of open areas for flight safety strips, and prescribed burning alter the successional trend in wildlife habitat. Open fields (covered with native herbs and forbs and interspersed with sparse woody growth) occur throughout the installation, especially in LMUs 1 and 3 (**Figure 5-1**). Many upland sites are being converted to native longleaf pine, replacing even-aged stands created by past logging and agricultural practices. Along streams, larger hardwoods and dense shrubs and vine understory are prevalent.

Information from the following surveys is used to support terrestrial habitat management: plant survey (1992), vegetation communities survey (2009), Gopher Tortoise Baseline Survey (2012), and threatened and endangered species survey (2003). The list of plants discovered during the flora survey (Mount and Diamond 1992) is updated as new species are found (**Appendix 7**).



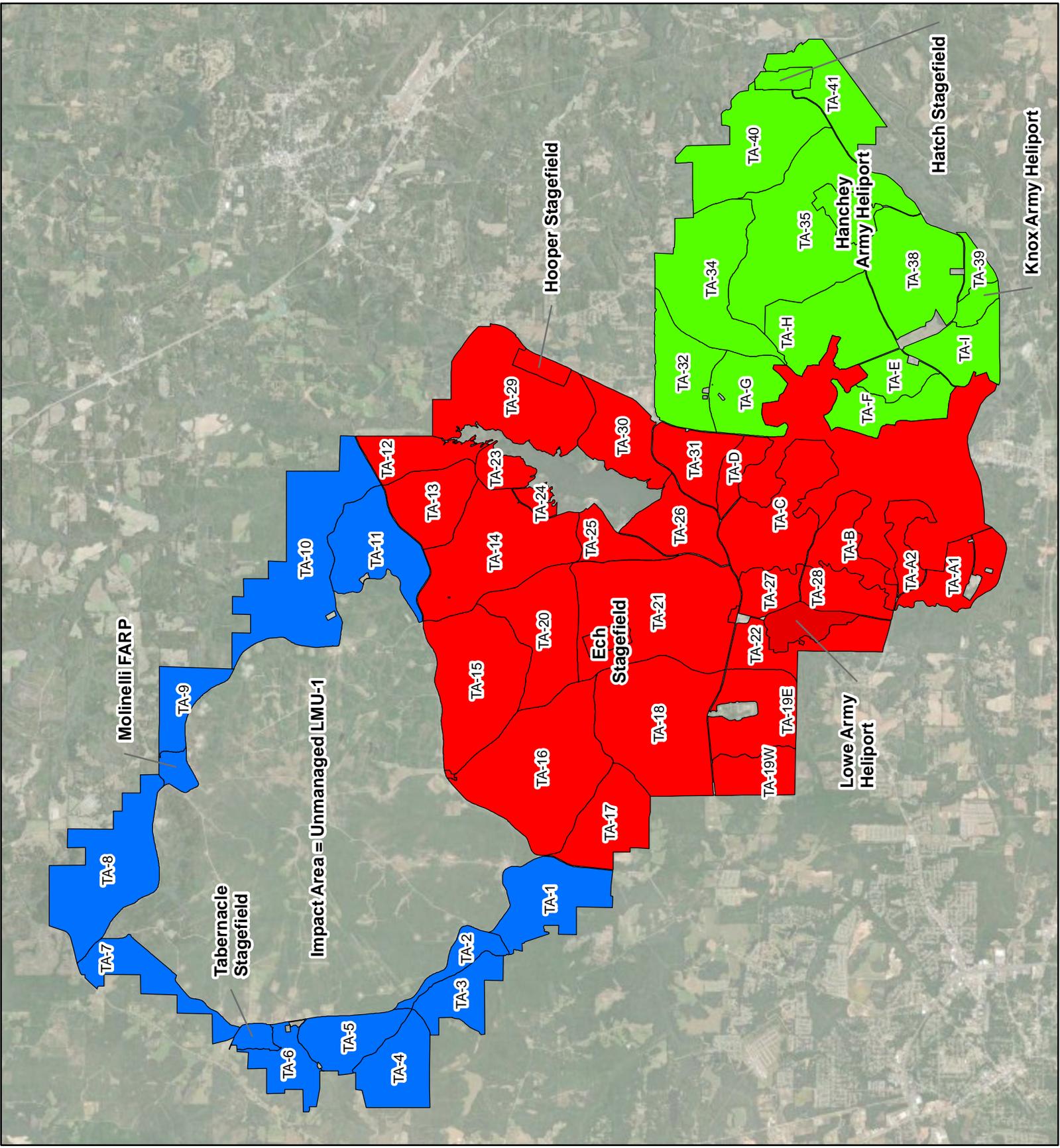
LEGEND

- LMU 1
- LMU 2
- LMU 3

FARP - Forward Arming and Refueling Point
 LMU - Land Management Unit
 TA - Training Area



Figure 5-1.
 Land Management Units at Fort Novosel



5.2.1.1 Hardwood Tree Management

Forest mast production is an important source of food for white-tailed deer, wild turkey, northern bobwhite, squirrels, and other wildlife species. Mast and den trees will be retained in pine/hardwood areas on Fort Novosel, with a minimum of 200 square feet of basal area in mast-producing species per 40 acres. Eighty square feet of this basal area will be from trees 15 inches or greater diameter at breast height, when available. In bottomland hardwood areas and streamside management zones, no commercial harvesting of hardwood mast-producing species will be performed. When present, one or two large hardwoods (particularly wide-spreading “wolf trees”) will be left per acre to serve as den trees.

Fort Novosel has instituted a program to improve the quality of hardwood mast producers in bottomland areas. Competing trees and midstory may be removed to release the best quality hardwood trees. Additionally, Natural Resources personnel are planting hardwood mast producing tree seedlings in areas where no adequate seed supply is available.

Fort Novosel implemented an annual tree planting program comprised of both soft and hard mast bearing trees in 2009. These trees allow the establishment of an annual food source as well as provide wildlife corridors, escape cover, and habitat for a variety of wildlife species. In 2024-2028, the same species will be planted in wildlife openings throughout the installation.

5.2.1.2 Wildlife Openings, Supplemental Planting, and Brush Piles

White-tailed deer and other browsers, such as eastern cottontail, mice, and squirrels prosper following any event that produces new growth vegetation within their reach. Natural Resources personnel mimic these events in wildlife clearings and surrounding wildlife habitat by using rotary mowers and harrows. Mowing stimulates the sprouting of choice hardwood browse and grasses. Numerous wildlife clearings are maintained by mowing, thereby improving browse quality. Mowing (bush-hogging) is performed on an annual basis to keep airfield overruns clear. Mowing is also used to clear food plots prior to planting and for maintenance of shrub lespedeza (*Lespedeza bicolor*). Food plots that are to be left idle are mowed to stimulate desired vegetation growth. In some open areas, native shrubs and forbs are fertilized to increase growth rates and forage value. In addition to wildlife clearings, other areas treated may include road shoulders, erosion control project sites, and similar areas of opportunity. Disking and/or plowing of wildlife openings and existing food plots, using standard agricultural practices, are performed annually on a rotational basis. Fort Novosel has numerous wildlife clearings, including those used for supplemental wildlife plantings. These clearings total approximately 500 acres. Wildlife food plots supplement natural food sources, particularly during the winter, thereby increasing wildlife population carrying capacity. Conversion of many areas to longleaf pine is further augmenting these food plots as wildlife find the understory vegetation associated with these forests highly desirable. Grain sorghum, winter green crop mixtures, shrub lespedeza, chufa (*Cyperus esculentus*), browntop millet (*Brachiaria ramosa*), kobe lespedeza (*Kummerowia stipulacea*), Egyptian wheat (*Sorghum* spp.), Chickasaw plum (*Prunus angustifolia*), lablab (*Lablab purpureus*), Austrian winter pea (*Lathyrus hirsutus*), chicory (*Cichorium intybus*), Iron clay cowpea (*Vigna unguiculata*), sunflower (*Helianthus annuus*), proso

millet (*Panicum miliaceum*), soft mast trees, and hard mast trees are planted on Fort Novosel to supplement wild food naturally available. Additional detail is provided in **Appendix 11**.

Fort Novosel uses a no-till drill to obtain optimum benefits from its supplemental food plots. This equipment allows overseeding of natural forage without the need for disking or plowing. Brush cuttings provide escape cover, nesting cover, and travel lanes for various wildlife species, particularly the eastern cottontail rabbit. This program is of an opportunistic nature, and utilizes debris from tree trimming projects where site conditions allow.

5.2.1.3 Prescribed Burning

The benefits to wildlife derived from prescribed burning include increasing forage by keeping hardwood sprouts short, tender, palatable, and abundant; reducing competition with undesirable species; stimulating growth of herbaceous plants, especially legumes; improving soil fertility; and increasing aesthetic quality and accessibility of the land. Prescribed burning will be conducted on a 3-year cycle on upland pine sites older than 20 years. Young, fire-tolerant pine stands will be burned when they become thick (generally between 2-6 years). Prescribed burning is coordinated through the DPTMS.

The main purposes of the IWFMP for Fort Novosel include:

- Reduce levels of hazardous fuels
- Prepare sites for reforestation
- Improve and maintain threatened and endangered species habitat
- Improve other native species habitat, especially forage for game species
- Manage understory hardwoods
- Control disease
- Improve access
- Enhance appearance
- Provide a safe military training environment

Prescribed fire is the most cost-effective method to return large areas to earlier successional stages. Featured game species with regards to prescribed burning are northern bobwhite, wild turkey, and white-tailed deer. Prescribed fire is the most important tool utilized in northern bobwhite management. In pine habitat, prescribed fire benefits white-tailed deer by improving the palatability and nutritional level of understory plants; reducing large, woody understory stems; encouraging production of new sprouts; reducing roughs that suppress forbs and grasses; keeping browse within reach of deer; and encouraging understory fruit and mast production.

Most prescribed burns are conducted from December through early March. Fort Novosel also conducts growing season burns to stimulate restoration of longleaf pine ecosystems. Although this burning will more closely mimic natural burn cycles in the region, there is some concern that growing season burns have a greater potential to negatively impact wildlife, thus growing season burns will be qualitatively monitored for wildlife effects. Effects may include loss of legumes during seed production phases and effects on hardwood soft mast production. Growing season burns are more manpower-

intensive than winter burning due to the need to maintain cover in wildlife food plot areas.

5.2.1.4 Special Plant Sites

Mount and Diamond (1992) identified the following three sites warranting special attention due to their distinct floral assemblages, which are scarce elsewhere on Fort Novosel:

- The bay swamp below the beaver dam on Brooking Mill Creek, south of the southeastern perimeter road (Training Area [TA]-38). The swamp lies along the eastern side of the creek and contains several plants (e.g., white arrow arum [*Peltandra sagittifolia*]) that are infrequently encountered elsewhere. Changes in the water regime, cutting, or mechanical disturbance could alter the habitat to the detriment of the plant assemblage.
- A seepage bog containing several species of plants uncommon elsewhere on the installation occurs in TA-21 between the stream crossing the Ech Stagefield Road and Ech Stagefield. The bog lies to the south of the road. The bog's unusual characteristics would be enhanced by periodic burning during the dormant season, preferably before February.
- The northeastern quadrant of TA-H (West 1/2 of Southeast 1/4 of Section 31, Township 5 North, Range 24 East) has gopher apples (*Licania michauxii*), which are not found elsewhere on Fort Novosel, and several other xerophytes that combine to make a floral assemblage worthy of maintenance. Periodic fire to keep it relatively open will promote its welfare.

These sites will continue to be protected or managed as stated above.

5.2.2 Aquatic Habitat Management

5.2.2.1 Pond Fertilization

Buckhorn, Parcours, Beaver, and Ech lakes (**Figure 4-3**) are fertilized to promote phytoplankton, which increases fish pond productivity and shades bottom muds to control aquatic vegetation. Lakes are fertilized starting the last week in February, and a regular schedule is continued throughout the summer. A 10-34-0 liquid ammonium phosphate fertilizer is applied at 1 gallon per acre, generally in 13 separate applications.

5.2.2.2 Aquatic Weed Control

Aquatic weeds are becoming more prevalent in response to high nitrates in watersheds and with transient boating traffic providing a source for the spread of propagules. As problems are discovered they are corrected by angler education, mechanical removal, or, as a last resort, chemical means. The Integrated Pest Management (IPM) Plan identifies the process for determining when controls are needed and how controls are implemented. The primary means of aquatic weed control is implementation of a consistent and effective pond fertilization program, as discussed in Section 5.2.2.1.

Biological control of weeds has been included as an element of the IPM Program. The herbivorous grass carp (*Ctenopharyngodon idella*) is stocked primarily to control

submerged weeds. Because this species is not native to the area, triploid fish are stocked to ensure 100 percent sterility and prevent natural reproduction of the species. Once stocked, grass carp can provide long-term control of noxious aquatic weeds. They are capable of eating two to three times their body weight per day in aquatic vegetation and can provide control for 10-15 years. In most circumstances, stocking is designed to augment other weed control actions. Use of grass carp should result in the decrease of aquatic herbicide usage. Grass carp have been stocked in four small ponds and in Lake Tholocco.

Chemical control involves herbicide application by certified applicators in accordance with label instructions and USEPA and DoD requirements. Herbicides (Rodeo®/glyphosate [53.5 percent active ingredients]) are applied during spring and summer when plants are most actively growing and flowering to reduce surface and shoreline aquatic weeds. Submersed aquatic weeds such as fanwort (*Cabomba caroliniana*) grow from the bottom and can reach the surface in up to 10 feet of water. This type of weed requires treatment of the entire water column for control and can become problematic for anglers and swimmers. Targeting treatment areas through contract work and in-house manpower have been successful in the past. Natural Resources has an airboat, equipped for this specialty application, and plans to incorporate aquatic management as a greater priority in future years.

5.2.2.3 Liming

When tests indicate that a pond's pH is below 6.5-7.0, agricultural (dolomitic) limestone is applied at a standard rate of 1 ton per acre. Ponds are tested at least every 3 years to determine lime requirements. Bulk limestone is most easily applied from a pontoon boat with a barge-like platform. Limestone is loaded onto the barge with a front-end loader, and it is spread by hosing the material off the platform as the boat is motored, distributing it as evenly as possible over the pond.

5.2.2.4 Pond Maintenance

Pond maintenance constitutes a wide array of activities with emphasis on mechanical actions. Dam maintenance is foremost to maintaining the integrity of the facility. Shoreline clearing and deepening of shallow edges are conducted as needed. Topsoil is brought in to fill low spots around the shoreline. The dam, spillway area, and improved shoreline are planted with Bermuda grass and fertilized to obtain a thick protective sod. A contractor regularly mows shorelines around the lakes during the summer. Maintenance and repair of water control structures and spillways are accomplished on an as needed basis.

5.2.2.5 Erosion Control Efforts

All installation construction projects are reviewed for impacts to wetlands and appropriate actions are required by NEPA for full compliance. Timber sales require BMPs incorporated into all timber harvesting activities. Small grains and cool season annuals are normally planted on disturbed areas to reduce soil movement. Buffer zones and filter strips are protected throughout all activities and sediment movement is monitored closely. Larger erosion control design and structures are normally completed under contract and smaller drainage projects only requiring riprap and vegetative covers

are normally completed by Grounds Maintenance contractors or in-house manpower. The ITAM program is actively engaged in managing rotor wash erosion on airfields and stagefields and the greatest defense against all erosion problems is a healthy stand of vegetative cover on drainage areas. Fort Novosel applies pH adjuster and fertilizers on a regular basis to all training land vegetative covers. Warm and cool season annuals are used as temporary measures in forest management operations and on all construction sites. Forest management measures also provide for maintaining effective buffers around streams and other water features, including wetlands.

5.2.2.6 Fish Attractors

Although the primary purpose of fish attractors is to concentrate fish for anglers, fish attractors can benefit all species of fish. Benefits include the aggregation of baitfish, additional substrate for aquatic invertebrate production, increased spawning habitat, and shelter. Numerous fish attractor designs have been utilized in Fort Novosel lakes, including sunken Christmas trees, car tires, wooden pallets, and others. Hazardous materials, if any, are removed before placement. Attractors using trees, pallets, and brush are refurbished periodically to replace those that have decomposed. Fish attractor site selection is based on the amount of naturally occurring structure, water depth, pond size, and angler use.

5.2.3 Game and Fish Species Management

When the State of Alabama transferred this land to the War Department in 1942, wild game was scarce (Barkalow 1949). Since that time, the installation has been stocked with white-tailed deer and wild turkey obtained from state agencies.

Census of game species is required for the establishment of harvest regulations that allow for the sustained use of game species. The State of Alabama provides the framework within which Fort Novosel must harvest game species. In some cases, such as management of deer, Fort Novosel imposes more restrictive regulations. Harvest numbers provide an inexpensive means to monitor game populations. All harvested game must be reported. Combining harvest data with hunter effort provides information adequate to manage most game species.

Other than the antlerless deer quota, there has never been a need to establish quotas on game harvest on the installation. The annual harvest of game is relatively self-adjusting to population levels and does not, by itself, significantly affect the following year's game populations. If, in the future, new quotas need to be set, the Fort Novosel Wildlife Biologist would consult with the ADCNR game biologists to determine the maximum harvest allowable.

A hunting harvest record has been kept since 1964. Records include the number of each species harvested plus the number of man-days spent hunting the species. Data are summarized and analyzed at the end of the hunting season by Fort Novosel wildlife biologists. This information is furnished to the District Wildlife Biologist, ADCNR.

5.2.3.1 White-tailed Deer

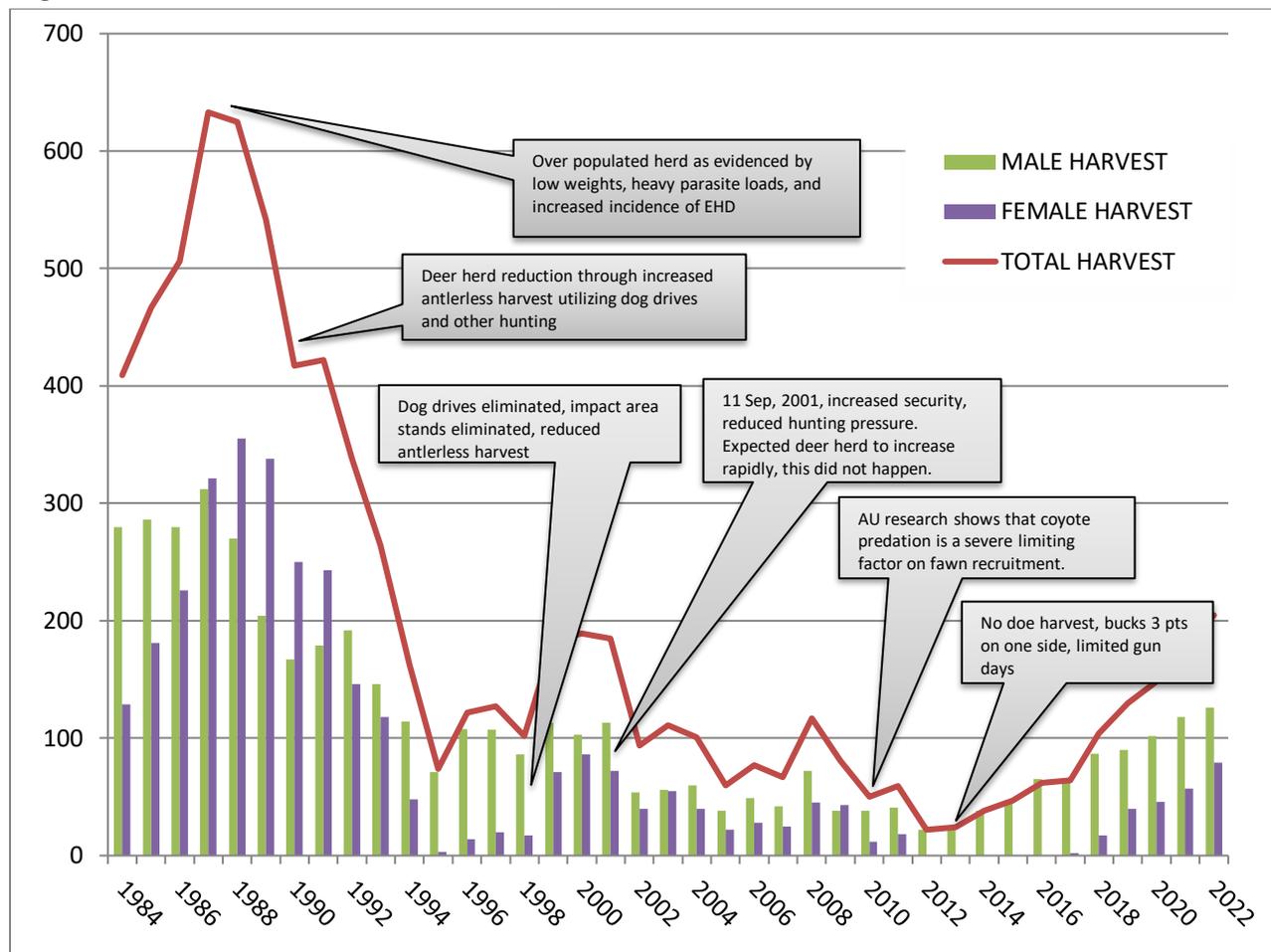
Fort Novosel strives to maintain a healthy and productive white-tailed deer herd with natural sex and age structures while producing optimal sustained yield. Harvest

numbers have improved but are still somewhat suppressed likely due to competition with feral swine and higher mortality from coyote predation (**Figure 5-2**). Corpora lutea counts from harvested females indicate normal reproductive rates for white-tailed deer in this part of Alabama, but fawn survival/recruitment appears to be low, perhaps indicating high fawn mortality. In cooperation with Auburn University and the ADCNR Division of Wildlife and Freshwater Fisheries, a study was completed in 2011 which indicated that coyote predation was likely a leading cause for low survival rates (Ditchkoff 2011). An additional study in 2014 found that feral swine also displace deer due to competition for food sources (Ditchkoff and McGowan 2014).

A 6-year cooperative research project was done on Fort Novosel in cooperation with the ADCNR and Auburn University to determine the preferred foods of white-tailed deer on Fort Novosel. Results of this study have been incorporated into habitat management programs on the post as discussed in Section 5.2.

Fort Novosel establishes a yearly deer harvest recommendation prior to the hunting season. For information on deer hunting, see Section 5.15.3. Fort Novosel implements a quality deer management (QDM) program that requires antlered bucks to have at least three points on one side to be harvested. Limited antlerless deer harvest will continue during this program.

Figure 5-2. Fort Novosel Deer Harvest, 1984-2022



All legally harvested deer are evaluated at deer check stations. Harvest data collection is the primary source of information to evaluate deer herd condition and establish antlerless deer seasons. Biologists collect data regarding area harvested, age, and body weights from all deer and determine antler development for bucks and collect incidence of lactation data from does. Ovaries are sampled for corpora lutea data (to evaluate incidence of pregnancy). Age-specific antler measurements, body weights, and reproductive data are compared with data from previous years to obtain a trend of the herd's overall condition.

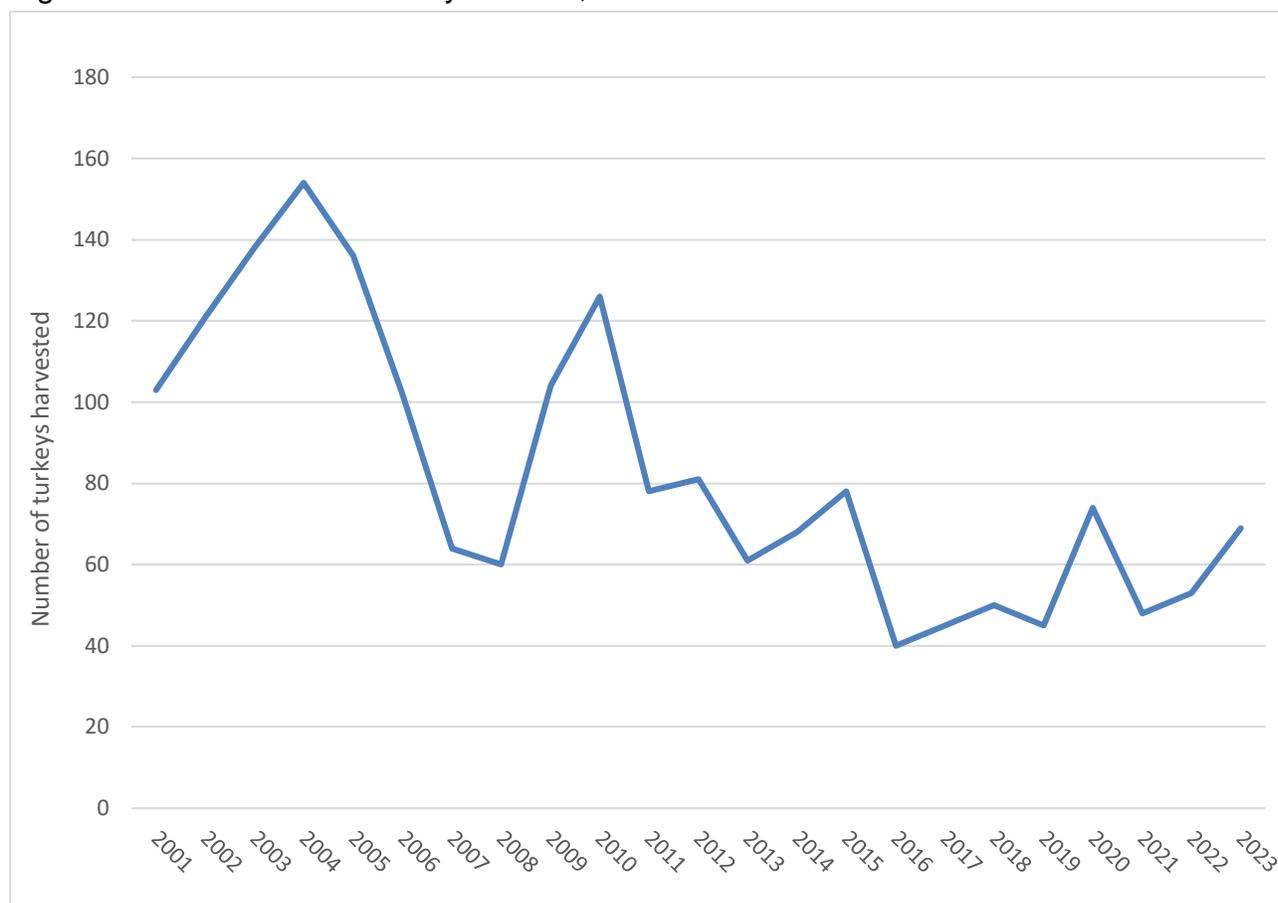
Every 5 years, as funds and schedules allow, Fort Novosel collects deer for necropsies to provide a general herd health check. Biological samples are sent to the University of Georgia, Southeastern Cooperative Wildlife Disease Study for analysis. USAPHC periodically conducts Lyme disease risk assessments utilizing harvested white-tailed deer. This will continue during 2024-2028.

Census for deer is completed using infrared camera surveys. Thirty bait sites with cameras are deployed each year to sample 3,000-acre blocks. The sample area is moved the subsequent year. Population estimates are developed using ratios of identified bucks. Every year the Natural Resources Manager and the wildlife biologists carefully analyze every aspect of biological data collected on the deer herd and make a recommendation to the Garrison Commander for the next year's game harvesting plan. Natural Resources is very optimistic about the recovery of the white-tailed deer population as Fort Novosel has already seen substantial improvements in animal quality and herd density and is currently in the fifth year of renewed antlerless harvest.

5.2.3.2 Eastern Wild Turkey

The turkey population on Fort Novosel is increasing, reflecting good hatching seasons and the availability of suitable habitat (**Figure 5-3**). Management techniques, such as controlled burning, maintenance of openings, and plantings have all contributed to good turkey habitat. The restriction on vehicular traffic during nesting season in certain areas has also decreased nest disruptions. It is mandatory to check harvested turkeys on Fort Novosel. Data are collected on area taken, sex, weight, beard length, and spur length.

Figure 5-3. Fort Novosel Turkey Harvest, 2001-2023



5.2.3.3 Northern Bobwhite

Historically, Fort Novosel has supported a low density of northern bobwhite (quail), a trend that continues today. Improvement of habitat through bush-hogging, fertilizing, liming, and planting of various wildlife foods is important for northern bobwhites on Fort Novosel. A more intensive management effort is being directed towards northern bobwhite habitat improvement through increased controlled burning and thinning of dense pine stands, cover interspersions, and establishment of a balanced variety of annual and perennial preferred food crops (see Section 5.2.1.1 and 5.2.1.3). Particular attention to managing for this habitat occurs in LMU 3 (**Figure 5-1**) due to the availability of open land in the area. This program has resulted in more and higher-quality northern bobwhite habitat, and northern bobwhite numbers are increasing in these areas. In 2015 approximately 3,000 acres were specifically designated and developed by Natural Resources as a primary northern bobwhite habitat ecosystem with completed conservation practices, such as TSI, thinning, burning, and native grass planting. These areas maintain an open understory with towering pines and are burned on a regular basis. A major emphasis was to remove and destroy invasive vegetative species within the area.

A study was conducted on Fort Novosel regarding effects to wild quail populations due to release of pen-raised northern bobwhites. Results of this study provided information concerning population dynamics and limiting factors of wild bobwhite populations on

Fort Novosel. A joint venture between Fort Novosel, Auburn University, USFWS, ADCNR, and Quail Unlimited assessed the northern bobwhite for management guidance.

It is important to monitor more precisely where northern bobwhites are found on Fort Novosel. Whistling call counts are conducted May through June with the objective of learning where northern bobwhites are absent in spite of good habitat. These data are used to identify potential transplant locations. Northern bobwhites are removed from areas where high quality habitat is abundant when training allows. Transplanted northern bobwhites are banded to provide information on population parameters. The annual goal is to transplant about 50 birds. Fort Novosel quail season and bag limits correspond with regular state seasons for this area.

5.2.3.4 Mourning Dove

Resident mourning dove (*Zenaida macroura*) populations on Fort Novosel are low, and the number of doves that use the post during migration is also low. It is difficult to draw migrating doves on to Fort Novosel property due to vast amounts of farm land in the immediate area. Plantings for northern bobwhite also benefit doves. Fort Novosel dove season and bag limits correspond with regular state seasons for this area. Fort Novosel uses the standard USFWS mourning dove call count methodology as part of a nationwide effort to monitor this migratory species.

5.2.3.5 Waterfowl

Fort Novosel is far removed from any major waterfowl flyway, and, as a result, any large migration of waterfowl through this area is generally attributed to major storm activity. An increased effort on wood duck (*Aix sponsa*) management is planned and will include banding; construction, maintenance, and monitoring of nest boxes (Section 5.3.1); and habitat improvement through hardwood improvement. Waterfowl abundance is estimated using population data gathered through visual counts, hunter success, and nest box monitoring.

5.2.3.6 Squirrels

Fort Novosel has initiated a program to improve the quality of hardwood stands by increasing the abundance of preferred mast producers (Section 5.2.1.1). Forest managers leave snag or den trees in place when upland sites are harvested. Squirrels are abundant on the installation, and hunting pressure on squirrels could be increased. Hunting seasons and bag limits for squirrels follow state regulations. Squirrel abundance is qualitatively estimated using nest counts and harvest data.

5.2.3.7 Eastern Cottontail/Swamp Rabbit

Rabbit populations benefit from much of the same management as deer and quail. Winter food crops such as clovers, rye, and wheat are especially important to rabbits. Additionally, Fort Novosel creates brush piles when site conditions allow to provide escape cover for rabbits in more open habitats. Rabbit population data are collected by harvest rates, track counts, flush counts, and pellet group counts.

5.2.3.8 Fish

Fish populations may fluctuate over the short and long term, stemming from fish harvest, enforced regulations, stocking, fish kills, pond productivity, and aquatic weed infestation, etc. Primary species emphasized in the Fort Novosel fisheries program are Florida largemouth bass (*Micropterus salmoides floridanus*), bluegill (*Lepomis macrochirus*), and shellcracker (redeer sunfish; *Lepomis microlophus*). Fish and Wildlife personnel conduct creel surveys on an opportunistic basis while in the field. Angler success and degree of satisfaction with the fishery are important parameters to monitor the success of the overall fish management program. Fort Novosel also uses seine surveys in its small ponds (5-15 acres) to monitor reproduction of fish species. Electroshocking is used to evaluate overall population dynamics in each body of water. Electroshocking is used both day and night, and principal data collected include species, length, and weight of each fish. Proportional stock density and length-weight relationships are calculated.

Fish population data are used to make decisions regarding the need for rough fish control and stocking. Population data are also used to evaluate effects of harvest regulations on important game species, especially largemouth bass and bream species.

To date, there has not been a need for direct control of undesirable species in Fort Novosel lakes. The preferred means to control undesirable species is to utilize a drawdown to concentrate these fish, allowing bass predation to resolve the imbalance. It is illegal to use baitfish in lakes on Fort Novosel, which reduces the problem of introduced species.

Sterile grass carp (white amur) are stocked to help control aquatic vegetation in the smaller lakes, as discussed in Section 5.2.2.2. If a lake's fish population were to get to the point where it could not be controlled using predation, it would be necessary to remove all fish and re-establish the population. In that case, the stocking rate would be 100 largemouth bass and 1,000 bluegill per acre.

5.2.3.9 Other Game Species

There is extremely light hunting pressure on raccoon (*Procyon lotor*), Virginia opossum, fox, and bobcat (*Lynx rufus*). Other species that are found on Fort Novosel, but are only lightly hunted, include Wilson's snipe (*Gallinago delicata*), clapper rail (*Rallus crepitans*), king rail (*Rallus elegans*), Virginia rail (*Rallus limicola*), purple gallinule (*Porphyrio martinica*), common gallinule (*Gallinula galeata*), and American woodcock (*Scolopax minor*).

5.2.4 Non-game Species Management

Except for threatened and endangered species, as discussed in Section 5.4, Fort Novosel performs little direct species management for non-game species; however, most non-game species benefit from general habitat management, such as prescribed burning. Fort Novosel has a Supervisory Entomologist who has been collecting data on insects found on the installation. To date, the collection includes 590 species from 59 families of beetles.

5.3 Migratory Bird Management

There is considerable continental-wide concern over declining numbers of many neotropical migratory bird species. Fort Novosel has cooperated with the Smithsonian Institution to complete migratory bird surveys on the installation in the past and will continue to cooperate in the future, as the Smithsonian Institution requests and as mission activities allow.

Objectives for migratory bird species management include:

- Monitor Breeding Bird Survey routes annually.
- Educate mission personnel on Migratory Bird Treaty Act requirements, and provide them with the protocol to follow when a nest must be removed to satisfy mission activity or project requirements.

5.3.1 Nest Boxes

Nest boxes have been constructed for multiple bird species including eastern bluebirds (*Sialia sialis*), wood ducks, and purple martins (*Progne subis*). In 1993, 72 bluebird boxes were constructed. In 2008, 50 additional bluebird boxes were constructed and placed throughout the installation in suitable habitat which includes open country around trees, frequently burned pine plantations, beaver ponds, mature but open woods, and forest openings. Additional locations include along pastures, agricultural fields, suburban parks, backyards, and golf courses. Fort Novosel will construct bluebird boxes annually, including replacement boxes.

Wood duck boxes are placed on ponds and beaver dams, but most are on Lake Tholocco. The loss of Lake Tholocco in 1994 was a major blow to the wood duck box program, which had about 90 boxes. When the lake was restored, Fort Novosel coordinated with ADCNR and the USFWS to construct or repair wood duck boxes on Lake Tholocco. In 2008, 50 wood duck boxes were constructed and placed on installation lakes and ponds. These and previously erected boxes are cleaned and/or repaired annually prior to the nesting season.

There are no specific plans for additional purple martin boxes. However, purple martin boxes are maintained on an annual basis.

5.4 Sensitive Species Management

Threatened and endangered species management at Fort Novosel is intended to maintain habitat quality to support existing populations of listed species and to provide benefits to the gopher tortoise such that Fort Novosel would not have any lands subject to designation as critical habitat under the ESA if the eastern population of the gopher tortoise is listed under the ESA.

5.4.1 Objectives

The management and protection of federally listed species is a priority for the Natural Resources Program. In cases where endangered species management in accordance with the appropriate guidance would conflict with other mission activities, consultation with the USFWS will be initiated to avoid jeopardizing any listed species or its critical

habitat. Proposals to enter into formal consultation with the USFWS or seek an exemption will be coordinated through the installation Staff Judge Advocate, IMCOM, and the Office of the Director of Environmental Programs.

Protection and management of threatened and endangered species will be conducted in accordance with the ESA (16 USC § 1531), NEPA (42 USC §§ 4321-4347), AR 200-1, DoDI 4715.03, USFWS regulations and agreements, and other applicable laws or guidance.

Consideration will be given to species considered rare by the State of Alabama. The Alabama Natural Heritage Program provides a list of rare or sensitive species of Coffee and Dale counties in Alabama in addition to the SGCN listing that was published in Alabama's State Wildlife Action Plan (ADCNR 2015). This list also includes updated status for state protected species.

AR 200-1 states that the Army has the following summarized responsibilities for threatened and endangered species:

- Prepare and implement an Endangered Species Management Component to the INRMP.
- Carry out mission activity requirements in compliance with 16 USC Chapter 35.
- Integrate endangered species management and installation planning functions to ensure compliance with 16 USC Chapter 35.
- Take appropriate actions to preclude critical habitat designation.
- Assess all activities at the earliest opportunity to determine if they may affect listed species.
- Coordinate threatened and endangered species actions or issues with appropriate organizations.
- Conduct biological assessments for activities that may affect listed species.
- Consult informally with USFWS or NOAA-Fisheries.
- Coordinate with affected installation organizations and the higher headquarters prior to initiating formal consultation.
- Confer with USFWS or NOAA-Fisheries on any action that is likely to jeopardize the continued existence of any proposed species and conduct formal consultation.
- Review all ongoing and proposed actions immediately upon listing of a threatened or endangered species.
- Complete a biological evaluation before initiating formal conference on actions affecting a proposed species.

- Develop and implement strategies to promote, in cooperation with other landowners, the use of conservation banking and/or Army Compatible Use Buffer initiatives to minimize impact of an action on threatened and endangered species.
- Report 16 USC Chapter 35 (ESA) violations within 24 hours.
- Coordinate with higher headquarters and Headquarters Department of the Army (HQDA) in taking final action to correct any endangered species management problems.
- Ensure that threatened and endangered species awareness is included in unit training for personnel who may encounter listed species.
- Obtain HQDA approval before supporting USFWS' or NOAA-Fisheries' introduction and/or reintroduction of federal and state listed, proposed, and candidate species.
- Protect the water rights necessary for the survival and recovery of listed, proposed, or candidate aquatic or riparian species.
- Participate in the listing/delisting process, recovery plan development, and critical habitat designation where the species in question may impact installation military missions.
- Cooperate with state and local authorities in the management of Assistant Chief of Staff for Installation Management designated Fort Novosel SAR.
- Participate in regional/habitat-wide efforts to conserve candidate and Assistant Chief of Staff for Installation Management designated Fort Novosel SAR.
- Include state protected species (however, Alabama does not have a regulation for state-listed species) in the installation INRMP.

Section 4(a)(3)(B)(i) of Public Law 108–136 prohibits the USFWS from designating as critical habitat any lands or other geographic areas owned or controlled by DoD, or designated for use by DoD if the following conditions are met:

- Those lands are subject to an INRMP prepared under Section 101 of the Sikes Act (16 USC § 670a); and
- The Secretary of the Interior determines in writing that such plan provides a benefit to the species.

Specific goals and objectives for the sensitive species management at Fort Novosel include:

- Implement an ecosystem management strategy.
- Conduct an installation-wide survey for federally protected mussel species.
- Continue to map locations of quality gopher tortoise habitat and of tortoise burrows.

- Provide information and maps to installation personnel regarding protected species, along with the requirements to avoid impacts to them.
- Review *Management Guidelines for the Gopher Tortoise on Army Installations*, and develop a Fort Novosel gopher tortoise management plan, including protection measures.
- Coordinate with Forest Management and Fire Management personnel to prioritize areas with protected plant and animal species for treatments, and to develop management prescriptions for these areas.
- Implement any mitigation measures specified in project-specific NEPA analysis relevant to threatened and endangered species or their habitats.
- Identify key species that require monitoring, and develop and implement monitoring plans.
- Work with conservation law enforcement to enforce restrictions on harming, harassing, or killing protected species.
- Identify areas where mechanical and chemical vegetation clearing could be turned over to prescribed burning to benefit gopher tortoises.
- Develop protocols to ensure Natural Resources is contacted to conduct site-specific surveys for gopher tortoises prior to project initiation.
- Annually survey the bald eagle nest for nesting activity, and mark a buffer around the nest if there are nearby activities that may impact nest success.
- Survey for state protected and federally listed species and SAR on the main installation and satellite properties.
- Map locations of all state protected and federally listed species and SAR, and develop management prescriptions as needed.
- Fulfill Fort Novosel's obligation under the terms of the Gopher Tortoise Candidate Conservation Agreement.

5.4.2 Threatened and Endangered Species

5.4.2.1 Mussel Species

Streams on Fort Novosel provide suitable habitat for several federally listed mussel species. The southern sandshell (*Hamiota australis*), southern kidneyshell (*Ptychobranchnus jonesi*), Choctaw bean (*Villosa choctawensis*), tapered pigtoe (*Fusconaia burkei*), and fuzzy pigtoe (*Pleurobema strodeanum*) occur in the Choctawhatchee watershed, which includes Claybank Creek and Steephead Creek. The Choctaw bean and fuzzy pigtoe have been recorded on Fort Novosel in recent invertebrate surveys. However, the other species have not been found in any recent surveys.

Lake Tholocco formerly supported populations of freshwater mussels and since the lake has been restored, the mussels are expected to re-establish themselves within reasonably short time. The Choctawhatchee and Pea River watersheds are also designated as critical habitat by the USFWS for these species in areas around Fort Novosel, including both the influent and effluent of certain streams which flow through Fort Novosel. Under Section 4(a)(3) of the ESA (16 USC § 1531), Fort Novosel was excluded from critical habitat designations because conservation efforts identified in Fort Novosel’s INRMP would be beneficial to these species in terms of reducing silt, sedimentation, and non-point source pollution. These conservation efforts will continue as identified in the INRMP.

Any activities affecting watersheds on the installation must be reviewed for possible impacts to listed mussel species. This includes land disturbance, chemical use, low water crossings, roadwork, and any other activity with the potential to affect water quality or to constitute a barrier to mussel or fish travel within the waterway.

Fort Novosel will coordinate with the USFWS, Daphne, Alabama field office to conduct a mussel inventory for baseline data as well as project planning during the 2024-2028 timeframe. A mussel survey conducted in 1998-2000 of the Choctawhatchee/Pea River system located endangered mussel species near the installation. Two of the collecting stations for this survey were in the vicinity of Fort Novosel at Steep Head Creek at Alabama Highway 27 (2 miles west of Fort Novosel) and Claybank Creek above Alabama Highway 27. Species detected during this survey are listed in **Table 5-3**.

Table 5-3. Mussel Species Documented in 1998-2000 Survey

Steep Head Creek at Alabama Highway 27	
Purple pigtoe	<i>Fusconaia succissa</i>
Fuzzy pigtoe	<i>Pleurobema strodeanum</i> (T)
Lilliput	<i>Toxolasma parvus</i>
Little spectaclecase	<i>Villosa lienosa</i>
Southern rainbow	<i>Villosa vibex</i>
Claybank Creek above Alabama Highway 27	
Rayed creekshell	<i>Anodontoides radiata</i>
Southern fatmucket	<i>Lampsilis straminea clairbornensis</i>
Choctaw bean	<i>Villosa choctawensis</i> (E)
Little spectaclecase	<i>Villosa lienosa</i>
Southern rainbow	<i>Villosa vibex</i>

T = Threatened E= Endangered

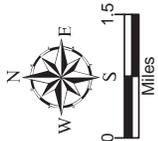
Mussels are water filters and are very susceptible to pollution, and, as such, they are excellent biomonitors of overall water quality. Any activity which may result in changes in water quality via erosion, sedimentation, or discharge must be coordinated with Natural Resources via the process identified in Section 3.3. Should an activity occur in an area where these mussels are likely to be found, ENRD will contact the USFWS for an informal consultation and site survey.

5.4.2.2 Gopher Tortoise

The gopher tortoise is of special concern as the eastern distinct population segment is a state protected species and a Fort Novosel SAR. In 2022, the USFWS determined the eastern distinct population segment no longer meets the criteria for ESA listing and therefore withdrew the eastern distinct population segment as a candidate species. The western distinct population segment is federally listed as threatened in Alabama west of the Mobile and Tombigbee rivers. Conservation of the gopher tortoise and other species is part of a broader goal to conserve biological diversity on Army lands consistent with the Army's mission activities. Biological diversity and the long-term survival of species such as the gopher tortoise ultimately depend upon the health and sustainability of the ecosystem in which they reside. Therefore, installation-specific gopher tortoise management strategies will promote ecosystem integrity. Maintenance of ecosystem integrity and health also benefits the Army by preserving and restoring training lands for long-term use.

A memorandum was distributed regarding management guidelines for the gopher tortoise on Army installations (**Appendix 5**) in March 2008. The guidelines address Army policies such as conservation, ecosystem management, education/outreach, funding, and cooperation with the Gopher Tortoise Team. Management strategies include population goals, habitat management, population monitoring, burrow marking, translocation, and data records/coordination. Management projects that may affect gopher tortoise habitat must follow the gopher tortoise guidelines listed in the memorandum.

Much of the prime gopher tortoise habitat on Fort Novosel occurs in the northern and southeastern portion of the installation (**Figure 5-4**). Should the eastern population of gopher tortoise become federally listed, it could create significant impacts to training activities at Fort Novosel. The SAR policy encourages proactive management efforts for SAR and their habitats (USACE 2010). Fort Novosel's primary method of managing for protection of the gopher tortoise is through the restoration of its favored habitat, the sandhill longleaf pine dominated forest, and minimizing the loss of the species. An increase in growing season burns is planned during the next 5 years to promote stand conversion to longleaf pine and to improve gopher tortoise habitat, which would enhance and restore the population and maintain the gopher tortoise as a keystone species in the ecosystem. If any project is planned in known gopher tortoise habitat or in areas where it is likely to occur on Fort Novosel, the site is surveyed by Natural Resources staff for tortoises prior to the project start date and appropriate action is taken to protect any tortoises identified within the project area. To assist in predicting locations where gopher tortoise may exist, a Gopher Tortoise Habitat Suitability Survey was completed. A population survey conducted in 2012 estimated more than 10,000 gopher tortoises on Fort Novosel, with most concentrated in the southern portion of the installation (CH2M Hill 2012). This information, as well as locations of known gopher tortoise burrows, has been added to the Fort Novosel GIS. **Figure 5-4** shows the results of the habitat survey.



LEGEND:



Fort Novosel Installation

Habitat Suitability



Unsuitable Habitat



Unlikely Habitat



Suitable Habitat



Preferred Habitat



Changed Land Use Areas



Water Bodies



SOURCES:

-Fort Rucker Spatial Geodatabase

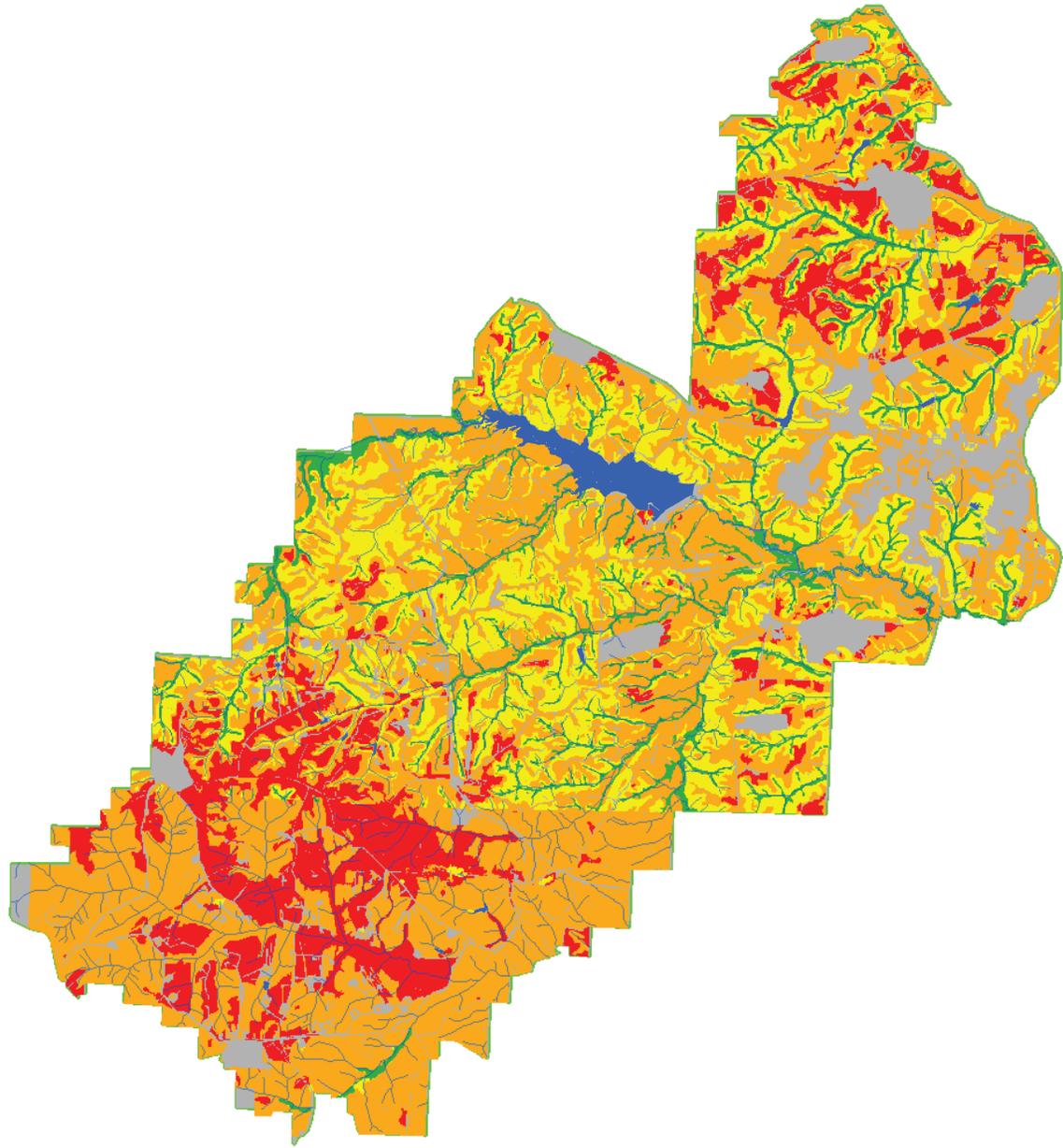


Figure 5-4 Gopher Tortoise Habitat Suitability at Fort Novosel

Ground disturbing activities must be limited when gopher tortoises are present. Burrows will be marked, and all activities must maintain a minimum distance of 25 feet from any active burrow and its associated mound. Should a project require activities to take place within this buffer, relocation of the tortoise or tortoise eggs may be required with coordination with Natural Resources and, if necessary, USFWS (**Appendix 5**).

Should this population of the species be listed in the future, Fort Novosel would be required to consult on activities with potential to affect the gopher tortoise. Because the gopher tortoise is widespread on Fort Novosel, the installation may pursue a programmatic Biological Opinion from the USFWS to address normal operations and training if the species is listed.

5.4.2.3 American Alligator

The American alligator is listed as “threatened due to similarity of appearance” to the endangered American crocodile (*Crocodylus acutus*). The American crocodile does not occur in the Fort Novosel area where alligators are locally common. No special protection measures have been deemed necessary for alligators, and they are not discussed further in this INRMP.

5.4.2.4 Bald Eagle

Fort Novosel supports a pair of bald eagles, and one nest has been observed at Lake Tholocco as recently as 2015. The ADCNR Division of Wildlife and Freshwater Fisheries and the USFWS have been notified regarding this nest. The eagles on Fort Novosel are protected by the Bald and Golden Eagle Protection Act. Notices to Air Missions (NOTAMS) will be published to helicopter pilots which include the coordinates where known eagle nests are established within Fort Novosel’s flight training area.

5.4.2.5 Tri-colored Bat

The tri-colored bat (*Perimyotis subflavus*, formerly the eastern pipistrelle) was proposed for listing as federally endangered on September 14, 2022 due to the threat from white-nose syndrome. This bat occurs throughout Alabama including southeast Alabama where Fort Novosel is located although none have been documented at the installation. Fort Novosel is treating the tri-colored bat as a SAR and is managing it proactively. Recommended management actions by USFWS include limiting growing season burns during the May-October timeframe and considering timing of timber harvests to avoid disruption or destruction of roosting habitat.

5.4.3 Species of Concern

Three species documented on Fort Novosel are considered SGCN by the state: eastern diamondback rattlesnake, American black duck (*Anas rubripes*), and southeastern pocket gopher (*Geomys pinetis*). The eastern diamondback rattlesnake is Alabama’s largest venomous snake that can reach lengths of 7 feet (ADCNR 2023a). The species prefers dry pine flatwoods and longleaf pine-turkey oak hills (ADCNR 2023a). The American black duck is a large dabbling duck that uses a variety of wetland habitats, often preferring large bodies of water (ADCNR 2023b). Preferring well-drained, sandy habitats, the southeastern pocket gopher is a medium-sized burrowing rodent (ADCNR 2023c).

5.5 Wetlands Management

Wetlands and deep-water habitat management at Fort Novosel is intended to maintain habitat quality to support existing populations of aquatic and wetland species, to maintain water quality in these features, and to ensure compliance with the Clean Water Act.

5.5.1 Objectives

Fort Novosel was one of five U.S. Army Training and Doctrine Command (TRADOC) installations to have wetland surveys performed as part of a cooperative agreement between the U.S. Army and the USFWS. This survey was conducted in 1996 as part of the National Wetlands Inventory. A total of 3,425 acres of wetlands were recorded. Wetland boundaries were confirmed using field observations and classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Data from this survey may be useful in planning development activities. However, land-disturbing activities being considered for areas in which wetlands or streams are present will still require assessment by qualified persons, and the extent of any jurisdictional areas shall be identified or verified by the USACE, Mobile District. 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, levee construction, dike construction, mechanized land clearing, land leveling, most road construction, and dam construction. The USACE permit process also requires coordination with the USFWS and the SHPO to allow for the assessment of potential impacts to protected species and cultural resources.

Wetland locations are shown on **Figure 4-3**. Additional wetland surveys, except those specific to project sites as described above, are not planned during the next 5 years. The primary directive of wetland management on Fort Novosel will consist of protection and maintenance of existing habitat. Efforts will be made to mitigate or restore impacted wetlands. The biggest impact to wetlands on Fort Novosel stems from watershed erosion and subsequent silting of low-lying areas and streams. *Alabama's Best Management Practices for Forestry* are utilized to protect, maintain, and improve various wetland functions and potential uses.

Specific objectives to protect and manage wetlands on the installation include:

- Coordinate with ITAM to provide expertise and support for projects that protect and restore wetlands and floodplains.
- Protect wetlands and the necessary physiological inputs where unique floral assemblages exist on the installation.
- Implement any wetland mitigation measures specified in project-specific NEPA analysis.

Additionally, unique floral assemblages exist in two wetland locations on Fort Novosel. The “bay swamp” below the beaver dam on Brooking Mill Creek, south of the southeastern perimeter road (TA-38) contains several rare plants (e.g., white arrow arum). Changes in the water regime, cutting, or mechanical disturbance could alter the habitat to the detriment of the plant assemblage. A seepage bog containing several

species of plants uncommon elsewhere on the installation occurs in TA-21 between the stream crossing Ech Stagefield Road and Ech Stagefield. The bog's unusual (for Fort Novosel) characteristics would be enhanced by periodic burning during the dormant season, preferably before February. These sites will be managed as specified above in order to protect these resources.

5.6 Forest Management

Improvement of forest resources and related ecosystems is achieved through active professional forest management based on soil-site capabilities in an ecologically sound manner. Forest management includes harvest, reforestation, and silvicultural treatments that foster forest health and vigor and structural and biological diversity. These actions will produce financial returns to the government, contribute commercial forest products to the economy, and maintain and improve the economic and ecological value, health, and diversity of the forest resources and related ecosystems. Forest management actions include timber management, forest administration, timber sales, reforestation, afforestation, TSI, timber access road construction and maintenance, forest protection, prescribed burning, and other directly related functions for maintaining the health and vigor of forest ecosystems. Forest management provides for the production and sale of forest products, enhancing the training environment, and maintaining the health and vigor of forest ecosystems.

5.6.1 Objectives

Specific objectives of forest management on the installation include:

- Annually coordinate with Training Division, Range Branch to identify areas that require forest management; map and prioritize these areas for harvesting and other treatments.
- Implement TSI to optimize growth and yield of pine-dominated areas.
- Annually identify and map upland sites that require timber management or reforestation; coordinate these activities with Natural Resources and other installation organizations to ensure habitat compatibility.
- Identify, map, and develop management prescriptions for existing areas of longleaf pine and for potential areas to be established in longleaf pine.
- Identify and map areas with invasive plant species, and prioritize treatment operations.
- Develop protocols for protection of gopher tortoises during forest management activities, including safeguards to minimize mechanical site preparation during nesting season (May-September) in areas where gopher tortoises are known to be established.
- Identify, map, and prioritize areas of erosion on logging roads, ramps, fire lanes, and trails, then implement stabilization measures.
- Develop and maintain an installation-wide continuous forest stand inventory, and monitor changes.

- Obtain and use aerial imagery for monitoring vegetative trends and forest stand delineation.
- Identify and map stream management zones, hardwood bottoms, and select upland hardwood sites with high wildlife benefit, and develop protection measures.
- Map and develop management prescriptions and protection measures for the bluffs and steep ravine slopes that overlook Steep Head Creek.
- Define protocol for coordination with the Cultural Resources team to identify, delineate, and protect cultural resources during forest management activities.
- Submit annual REC for NEPA review of upcoming timber sales and other forest management activities.
- Evaluate current forest access roads to determine which require maintenance or erosion control measures, and which should be closed and revegetated.

The purpose of Fort Novosel’s forest management program is to support the military mission, enhance ecosystem integrity, promote biodiversity, sustain renewable forest resources, protect forest watersheds, manage wildlife habitat, and provide outdoor recreation opportunities. Management objectives for the Fort Novosel forestry program have changed over the years from early forest restoration, to a unified ecosystem management approach that protects travel corridors, bedding, and roosting areas. Revenues generated from forest management operations are critical to Fort Novosel in funding of this INRMP execution. A major portion of the revenues generated from DoD timber sales are returned to the installation to pay salaries of forestry staff, to maintain and upgrade all heavy equipment, and to support forest management.

The current forest inventory is used to develop 10-year management and harvest plans for each stand and can be used to project growth and yield over longer periods. These projections are subject to change and are highly variable based on weather, timber prices, and training requirements, etc. Longleaf pine ecosystem recovery is a primary concern that is addressed specifically in long-range plans.

Goals during the life of this plan include restoration of native longleaf pine ecosystems over a wide range of slope, aspect, and soil conditions. Natural Resources plans to use various TSI strategies such as thinning or burning to improve the value of numerous training areas and bivouacs to the training community. Foresters will also assist in the maintenance of safe zones dispersed throughout training areas to include clearing of safe zones near basefields and stagefields. Management strategies will stress improved forest health and environmentally sound decisions.

5.6.2 History of Forest Lands on Fort Novosel

Historically, longleaf pine was wide-ranging, covering much of the coastal plain from southeastern Virginia to eastern Texas, as well as the northern two-thirds of Florida. The species was also found in the piedmont and mountain areas of Alabama and northwestern Georgia. In pre-settlement times, longleaf pine grew in extensive stands occupying approximately 90 million acres. Its value as timber and for the production of

naval stores led to widespread exploitation. Today, less than 5 million acres of this forest remains. Before acquisition by the U.S. government, land use patterns in the Fort Novosel area included the production of agricultural and forest crops. Most ridge tops and many bottomlands were cleared and used for crop cultivation. When the land was acquired by the USDA, a land utilization plan was prepared and put into effect a short time prior to designation of the area as a military installation.

During this period, wildfires burned at will, damaging or killing stands of trees. After cessation of intensive troop training, the installation was put on a standby basis. A caretaker force was left to protect the installation against wildfires. After reactivation in 1950, all lands were intensively used for training infantry division troops until 1954 when aviation training commenced. The woodland area was placed under intensive forest management in 1953 and a woodland management plan was approved in 1954.

Between 1953 and 1996, there were 541 wildfires affecting 4,747 acres of woodlands, exclusive of the impact area. Wildfires have been greatly reduced in recent years as shown by the table in Section 5.10.2. Environmental conditions are such (e.g., high relative humidity, rapid fuel decomposition, and light prevailing winds) that relatively few stands require salvage operations due to wildfire. An active prescribed burning program greatly reduces the threat of wildfires. The prescribed burning program is based on a 3-year rotation with an annual target acreage of approximately 9,000 acres. This aggressive approach has reduced wildfires to only one or two small brush fires reported each year. These wildfires generally consist of a very small acreage and with little to no damage.

By 1987, Natural Resources included two foresters, three technicians, and two equipment operators. In 1994, one forester and one technician position were eliminated. Forest management activities are currently performed by one forester and two forestry technicians. The forestry technicians are spread thin and perform all equipment operations including forestry road construction and repair, firebreak construction and repair, prescribed burning, and boundary line maintenance, as well as assist with timber sale preparation.

Fort Novosel is predominately an aviation training facility, and timber harvesting/silvicultural practices have little adverse impact on training. Harvesting operations are typically viewed favorably because they provide emergency landing areas and improve and promote ground training opportunities. Ground troop training has increased due to SERE training as well as expanded land navigation course training and Natural Resources cooperates with trainers to ensure that harvesting/silvicultural practices do not negatively affect training activities. The expansion of the ground training activities has slightly reduced the volume of timber being sold annually on Fort Novosel.

5.6.3 Emphasized Stands and Species

The portion of Fort Novosel east of Andrews Avenue bears close similarity to traditional coastal plain longleaf forests and represents an opportunity for re-establishing longleaf pine acreage at Fort Novosel. Vegetation in the area consists of hardwood scrub that is overgrown due to the exclusion of fire, poorly stocked loblolly or hardwood stands, poor quality stands, or acceptable stands on sub-optimal sites. Additional opportunities for longleaf pine reforestation on the west side of the installation include ridgelines with

deep sandy soils. Areas where sandy soils are shallower and areas further down slope are more appropriate for loblolly pine. In addition, a clay lens located in the center of the installation creates marginal growing conditions for longleaf pine that would require significant mechanical manipulation for success. This site may be more appropriately planted in loblolly pine. Both loblolly and longleaf pine were historically significant in the area, and current management strategies should yield high quality forests more closely resembling native ecosystems. Although priority will be given to propagating longleaf pine stands on upland sites and southern and western slopes, valuable hardwoods are also propagated in habitats to which they are best suited. Means of reforestation will include both artificial and natural regeneration. Principal species and reasons for selection are listed below.

5.6.3.1 *Pine Species*

The following pine species are present at Fort Novosel:

Longleaf pine – produces high quality timber and native to most soils on Fort Novosel.

Loblolly pine – good growth potential and native to some soils on Fort Novosel.

Slash pine (*Pinus elliotti*) – good growth potential.

Shortleaf pine (*Pinus echinata*) – resistant to fusiform rust (*Cronartium fusiforme*) and produces high quality timber.

5.6.3.2 *“Hard” Hardwood Species*

These hardwood species are not typically harvested, even when located within timber sale boundaries. This is due to considerations of mast production being a primary food source for wildlife.

White oak – High market value and quality mast producer.

Chestnut oak (*Quercus prinus*) – High market value and quality mast producer.

Red oak – High market value and quality mast producer.

5.6.3.3 *“Soft” Hardwood Species*

These hardwood species are the primary hardwoods harvested on Fort Novosel.

Yellow poplar – High market value.

Sweetgum – High market value.

Black gum – High market value.

5.6.4 Forest Inventory

In accordance with *Army Guidance Procedures for Forest Inventory* (April 2006), Fort Novosel completed an inventory in 2014 of managed forest lands on the installation. This forest inventory was conducted by using outside contract manpower. An updated inventory is needed.

Inventory transects (cruise lines) are laid out using aerial photographs and forest inventory maps. Data collected on transects include species, age, growth, overall timber

density, timber volume, site index, regeneration, stand delineation, slope, and other associated data. Inventory data are entered into computer databases and these databases will be linked to the GIS as this technology is implemented.

Pre-harvest inventories will be executed by Natural Resources to obtain the most current estimate of timber volume, species composition, and value of a particular management unit or sale area. Pre-harvest inventories are used to determine an appraised value of the trees and should precede normal silvicultural prescriptions. These inventories are performed for all timber availabilities to determine the type of harvest to be implemented. Thinning schedules are developed to ensure full advantage is taken of growth and yield for pine dominated stands. TSI activities are matched appropriately to specific sites and are prioritized to maximize growth and yield.

5.6.4.1 Forest Management Strategy

DoD and USDA philosophical changes, as well as public interest and concerns for species habitability, have increased the desire to restore the longleaf pine-wiregrass ecosystem in the coastal plain. This has caused a re-evaluation and adjustment of Fort Novosel's forest management strategies. Fort Novosel is located in the historical transition zone between the longleaf pine pyro-climax of the Gulf coastal plain and the more rugged southern mixed hardwood forest. Generally, forests will be managed on an ecosystem scale for longleaf pine restoration in all practical areas, and may also include healthy loblolly pine forests, mixed pine-hardwood forests, and bottomland hardwood forests where appropriate.

Fort Novosel's forest management program attempts to meet diverse objectives. Forests will be managed to provide adequate emergency landing and over-run areas at airfields and stagefields, optimize areas for ground maneuver and SERE training, optimize forest stand stocking for ecosystem and wildlife health, and to restore more natural, native community types. These objectives will be accomplished by appropriately reforesting harvested areas according to slope, aspect, and soil conditions. Uneven-aged management and TSI practices will be used to promote forest health, biodiversity, and sustainability. Even-aged management will be used as appropriate in marginal sites. Regeneration cutting is an appropriate silvicultural tool for species conversion or the removal of diseased or insect-infested trees. It is also an appropriate silvicultural tool for salvaging timber that is affected by natural disasters and/or construction projects. Poorly stocked upland sites and mature stands are also identified as potential sites for regeneration harvesting and a conversion to the longleaf ecosystem. A well-timed prescribed burning program is vital to maintaining healthy, diverse forests, as well as to the longleaf pine restoration efforts.

5.6.4.2 Scope of Forest Management

Almost all of Fort Novosel is classified as forest. The dominant forest species, acreage, percentage of land of each habitat type, and management prescriptions are described in **Table 5-4**. The remaining land on the installation is not managed due to being in the impact area, the cantonment area, or other restricted areas. Due to changes in management strategies, these acreages and percentages are likely to change over the life of the INRMP.

Table 5-4. Forest Species and Management Prescriptions

Dominant Species	Acreage	Percentage of Land (%)	Management Prescription
Pine	8,259	14	Intensive even-aged management
Pine/hardwoods	19,194	33	Even and uneven-aged management
Hardwoods	10,498	18	Most producing species are favored

Sources: Fort Rucker 2018b

Pure, or nearly pure, pine sites are typically found in upland areas and along ridgetops. Loblolly, shortleaf, slash, and longleaf pine grow together within these topographical areas. Stand delineation is often indistinct and irregular due to variations in age, stocking, site characteristics, and previous harvesting.

Mixed pine/hardwood sites are most frequently found along middle to lower slopes and alluvial bottoms. Pine and hardwood species grow in combination within these topographical areas. Stands vary significantly in age, stocking, and composition.

Hardwood sites are typically found along poorly drained stream bottom areas. These sites are composed of a mixture of primary and secondary hardwood crop trees. Stands vary significantly in age, stocking, and composition.

Fort Novosel has approximately 54,806 acres of forestland within the classifications listed below):

- Regulated (All options for forest management): 38,137 acres
- Modified (Limited timber harvest): 2,978 acres
- Restricted (Little, if any, forest management): 13,691 acres

Fort Novosel is divided into three LMUs to facilitate management planning (**Figure 5-1**).

5.6.4.3 Off Post Lands

Off post lands encompass 3,470 acres not located on the main installation and are largely devoted to aviation training. Cairns AAF, Shell Basefield, and the many stagefields/remote tactical training sites described in Section 2.1 of this INRMP (McGee 1987; Higginbotham/Briggs and Associates 1991; DPTMS 1994; Rust Environment and Infrastructure 1999).

Off post lands also include 480 acres of forested lands within forest management unit 50 within Cairns AAF which are managed by Natural Resources personnel. These forests consist of 100 percent natural pines and hardwoods.

Ideally, one common ecological management unit, based on ecosystem types or watersheds would be best for natural resources management. However, often it is more critical that field personnel, troop units, recreationists, and others be able to easily identify area boundaries than it is to use more scientifically based boundaries. Besides, due to the difficulty of determining at what level ecosystems should be identified and managed, it would be difficult to get agreement on a common ecosystem management unit designation that meets the needs of all users and managers.

5.6.4.4 Timber Compartments and Treatment Units

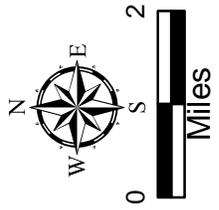
Forestry operations operate on a 10-year management cycle for cutting and thinning operations and a 3-year prescribed burn cycle at Fort Novosel. Management operations are discussed in further detail in Section 5.6.6. There are 10 timber compartments (**Figure 5-5**), which are managed using various ecosystem enhancements, consumptive, and non-consumptive forestry practices, as their place in the cycle occurs. Timber compartments are portions of LMUs that are managed for harvest. Compartments are further subdivided into 51 total treatment units. A historic fire regime and vegetation map is being developed to describe and display precolonial ecological information for Fort Novosel and the Southern Red Hills portion of Alabama.

5.6.5 Harvest Management

Fort Novosel harvests timber annually in a sustainable manner to meet training objectives, support land clearing activities for construction projects, and to meet silvicultural and other management objectives. Harvest management methods are matched to stands as appropriate for stand health, vigor, species, and stand prescription. Uneven-aged management is preferred as biodiversity-enhancing, as well as a TSI tool. In marginal areas and those managed with even-aged or regeneration strategies, a mature stand is approximately 50-years old. However, these strategies can be used earlier for species conversion or to remove diseased trees. Greater emphasis is being placed on low thinning management strategies and preserving uneven-aged natural stands. Timber harvesting management strategies are affected by natural disasters and construction salvage operations which will increase scheduled harvest acres and volumes.

5.6.5.1 Management Cycle

Fort Novosel timber compartments (**Figure 5-5**) are on a 10-year harvest management cycle, where the training areas in one compartment are evaluated by stand for harvest needs. The compartment organization consists of total acres and managed acres. The total acres represent forested, streamside management zones (SMZs), upland and bottomland hardwoods, and open areas. The managed acres are treated with the mentioned treatment prescriptions above. **Table 5-5** indicates timber management units within each compartment. It should be noted that timber management units share the numbering system of the training areas. The schedule for 2023-2032 is listed below.



LEGEND

Timber Compartment/Management Unit	Color
ONE/FY 23	Orange
TWO/FY 24	Red
THREE/FY 25	Teal
FOUR/FY 26	Purple
FIVE/FY 27	Green
SIX/FY 28	Cyan
SEVEN/FY 29	Yellow
EIGHT/FY 30	Dark Purple
NINE/FY 31	Blue
TEN/FY 32	Light Green

FARP - Forward Arming
and Refueling Point
FY - Fiscal Year
TA - Training Area



Figure 5-5.
Timber
Compartments
at Fort Novosel⁹²

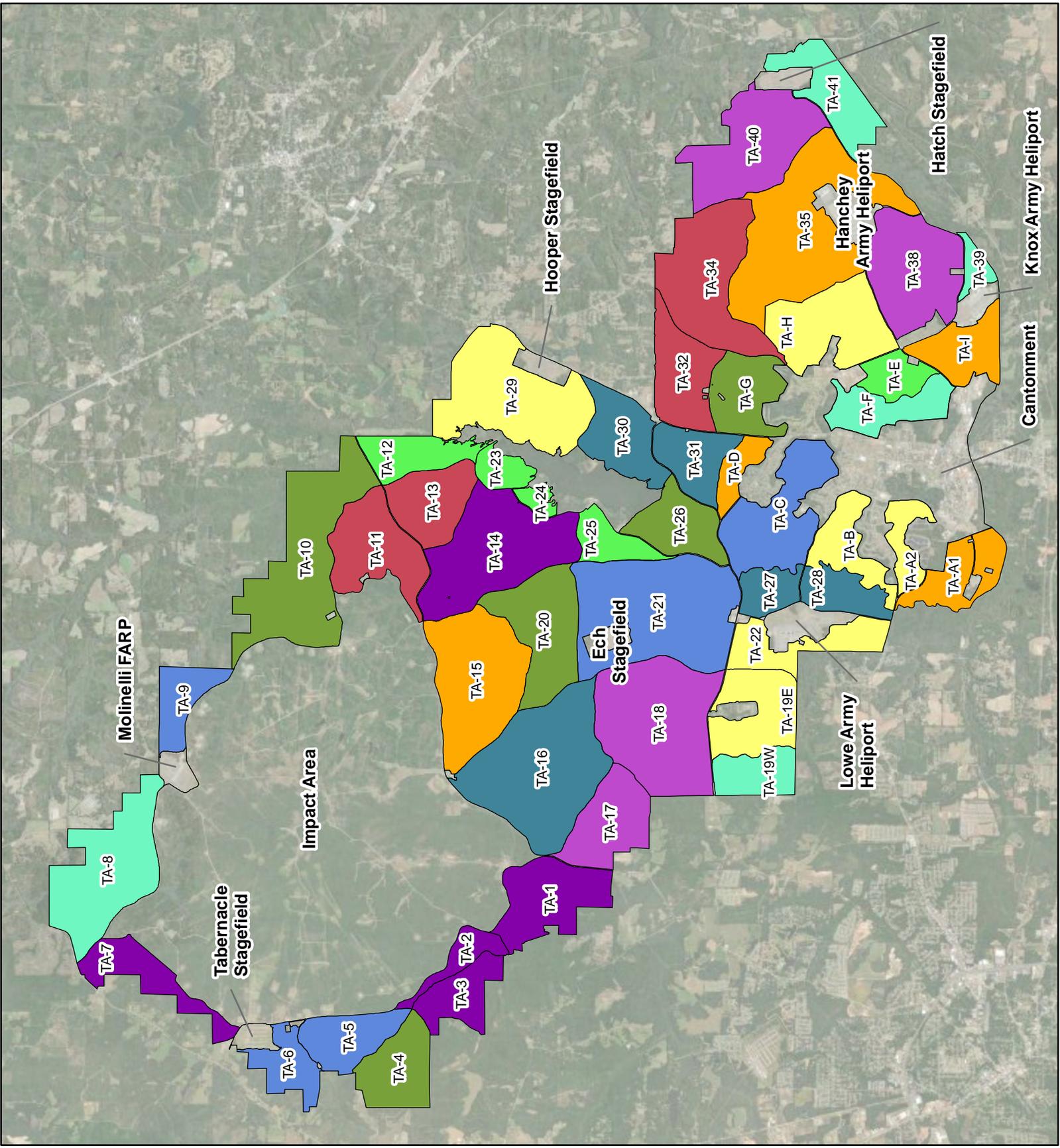


Table 5-5. Timber Compartment Organization

Compartment Number / Fiscal Year	Management Units	Managed Acres	Total Acres
ONE/ FY 2023	15/35/A1/D/I (Cairns AAF, Hanchey AHP)	2,826	4,004
TWO/ FY 2024	11/13/32/34 (Hooper Stagefield)	2,515	3,540
THREE/ FY 2025	16/27/28/30/31 (Lowe AHP)	2,394	3,744
FOUR/ FY 2026	17/18/38/40	3,297	5,496
FIVE/ FY 2027	4/10/20/26/G	2,989	4,609
SIX/ FY 2028	8/19W/39/41/F	2,545	3,290
SEVEN/ FY 2029	19E/22/29/A2/B/H	3,166	5,414
EIGHT/ FY 2030	1/2/3/7/14	2,343	3,564
NINE/ FY 2031	5/6/9/21/C	2,905	4,483
TEN/ FY 2032	12/23/24/25/E	938	1,431

AAF Army Airfield
 AHP Army Heliport
 FY Fiscal Year

5.6.5.2 Harvest

Commercial timber harvesting on Fort Novosel involves the removal of standing trees from forested areas. The trees are processed into various forest products including poles, ply-logs, sawtimber, chip-n-saw, canterwood, and pulpwood. Site condition and overall strategy for managing a particular type of stand are considered prior to determining the type of harvest. Harvest may be performed using single-tree selection, row-thinning, or clearcut. In mature, thinned longleaf stands shelterwood or seedtree cuts may be utilized, but clearcuts are also possible. Damage due to natural disasters, insects/disease, or construction projects may require salvage or sanitation cuts.

The decision to regenerate a stand will be based on the following factors:

- Stands in areas which have been identified as prime locations for longleaf pine re-establishment.
- Understocked stands which will never achieve the site's optimum wood producing potential, due to environmental factors such as storm damage, insects, or disease.
- Stands consisting of predominantly low-quality timber that will never meet end-of-rotation objectives.
- Unit training needs and objectives within the training area.

Reforestation harvesting by clearcuts will not normally exceed 50 acres in a continuous management unit in order to maintain age diversity and a high edge (ecotone) effect. However, these harvests may sometimes be larger if stands are to be converted to longleaf pine or if other silvicultural, construction, or military factors such as airfield

safety dictate. This type of harvest is aimed at 10 percent of applicable stands in the compartment each harvest management cycle and should be able to be maintained indefinitely.

Fort Novosel received notification from the United States Army Aeronautical Services Agency that during their periodic review of the installation airfield's instrument procedures they found new obstructions (trees) that impact the 20:1 approach/departure slope for various runways. Airfield Safety requested Natural Resources to identify areas that could be cleared by timber harvest around installation airfield runways 8:1 departure slope areas out to a 1,600-foot perimeter.

A strategy was developed to clear the stands in these areas (other than SMZs) by clearcut and reforestation in short rotation loblolly pine that would not exceed 40 feet before harvest. This was done to maintain management and avoid grubbing and mowing of these areas. This action reduces maintenance costs while maintaining the allowable height of growth and resulting in some forestry income.

Cairns AAF and Hanchey AHP were cleared during the 2022-2023 period. Hooper Stagefield and Lowe AHP perimeters are scheduled to be cleared in the next two fiscal years. The remaining airfield perimeters will be cleared as safety priorities and harvest scheduling allow.

Timber Sales

Fort Novosel will conduct timber sales in accordance with current regulations and/or guidance approved by the DA. The total timber sale process may take up to 2 years and includes stand selection, installation approval process, volume calculation, timber marking, ROA submittal, contract development, bid solicitation, contract award, and physical harvest. A MOU has been executed between USACE, Mobile District and the U.S. Army Garrison Fort Novosel for the specific division of duties for the actual timber sale process.

All timber sales are reviewed and coordinated directly with Training Division, Range Branch; DPTMS; G3; Outdoor Recreation; and other organizations throughout the installation. This is staffed and approved formally for record.

Inspections of sale areas are performed daily to ensure that harvest operations are conducted in an orderly manner and that compliance with contract specifications is maintained. Post-harvest inspections are performed to determine if goals of harvests have been met.

At the beginning of each fiscal year, Fort Novosel submits a ROA to the USAEC for each planned timber harvest. An end-of-year report is sent to USAEC summarizing annual forestry activities that were implemented.

Timber sales indirectly benefit training activities by providing trails and low water crossings that are used post-harvest as training trails. Log landing openings built for timber harvests are beneficial to wildlife and tend to be used as safe landing zones, refueling areas, and/or staging areas for ground training missions.

Planning and Coordination

NEPA documentation is required for timber harvests and is performed on an annual or multi-year basis prior to the submission of the ROA for that year to the IMCOM Region Office forestry point of contact. Cultural records are also checked prior to planning for timber sales. Planning timber harvests gives priority to environmental and cultural impacts. Coordination is maintained between Natural Resources and USAEC in planning all timber sales. Harvest areas are assessed by the Forester and the Installation Range Officer to ensure safe conduct of harvesting operations. Coordination is also maintained, as necessary, with the Training Division, Range Branch to avoid conflict with training exercises and other activities occurring near the proposed timber sale areas.

Best Management Practices

Timber is most commonly harvested and removed by means of heavy equipment (i.e., wheeled skidders, tracked feller-bunchers, forwarders, etc.). One of the most challenging aspects of removing timber from the forest is ensuring that water resources are protected at all times. Typical timber industry stream crossing techniques, such as log bridges, corduroys, fords, and culverts, can result in unwanted fill, excessive temporary sedimentation, erosion, and alteration of stream banks if not installed properly. In order to help minimize negative impacts on water quality and ensure implementation of BMPs during harvesting operations, the Forest Management Section follows *Alabama's Best Management Practices for Forestry* (Alabama Forestry Commission 2007). These BMPs are included within contracts for forest harvest on Fort Novosel. BMPs include recommendations for SMZs, stream crossings, access roads, timber harvest, site preparation, reforestation, prescribed burning, wildfire suppression, chemical treatments, and wetland management.

5.6.5.3 Timber Stand Improvement

TSI includes all forest management activities where the objective is to improve the quality of a forest stand. These activities include, but are not limited to, chemical and mechanical treatments to reduce competition, and intermediate commercial harvest or non-commercial thinning. These are important tools, not only to improve the quality of the training land and forest health, but also to increase biodiversity and wildlife habitat.

Thinning

A thinning is a harvesting operation intended to increase the growth of remaining, desirable timber, improve biodiversity, foster higher quality habitat, improve spacing, and promote sanitation. Suppressed and intermediate trees which compete with the most desirable trees in the stand are removed. Trees that are 6-16 inches diameter at breast height, measured 4.5 feet above the ground, are thinned as necessary to allow additional growing space for more desirable trees. Larger, mature trees are selected individually for removal based on local commercial mill specifications.

TSI thinning on Fort Novosel is traditionally accomplished using low thinning methods, row thinning, and single-tree selection. In pine/hardwood stands, the following criteria are used to mark trees for removal:

- Sanitation trees: Trees in which the presence of wood-destroying fungi, such as fusiform rust or other pests are unmistakably evident. Trees infected with fusiform rust are removed when multiple infections are present. Trees heavily infested with bark beetles are also marked for removal.
- Poor risk trees: Trees in which the loss of marketable wood exceeds the annual growth of new wood, those which have reached maximum growth potential, are unhealthy due to insect or fungus attack, weakened mechanically and subject to wind throw, and those damaged by fire, lightning, logging, or insects.
- Pine wolf trees: Pine trees with large, heavy limbs or spreading crowns that occupy a large area and suppress light from penetrating to young understory trees.
- Poorly formed trees: Trees not suitable for saw timber because of form.

Chemical Treatments

Chemical treatments are sometimes the most economical means to remove undesirable tree and brush species that compete with preferred species. Sweetgum, laurel oak, turkey oak, and red maple (*Acer rubrum*) are the primary undesirable hardwood species found on pine sites. Preferred mast producers, as listed in Section 5.6.4.2, are very valuable to wildlife on Fort Novosel, thus they are protected from herbicide use. Chemical treatments in the form of herbaceous spraying are commonly used for TSI. The preferred chemicals are triclopyr or a mix of imazapyr, glyphosate, and non-ionic methylated seed oil (MSO) surfactant applied at the recommended rates and with sufficient amounts of carrier.

Chemical treatments in the form of herbaceous spraying are commonly used for site preparation prior to seedling planting. The preferred chemicals are a mix of imazapyr, triclopyr, glyphosate, and non-ionic MSO surfactant applied at the recommended rates and with sufficient amounts of carrier.

Chemical treatments are the primary form of site preparation and/or pine release due to the high cost and ineffectiveness of mechanical methods alone. Chemical site preparation typically has less potential for negative environmental degradation than mechanical methods. Natural Resources has occasionally selected drum chopping as a mechanical method that is less invasive to existing sites and is also compatible with herbicide application when needed.

Natural Resources has DoD and state-certified pesticide applicators and all chemical applications are coordinated with the pest management personnel on Fort Novosel.

5.6.5.4 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 at a small scale.

5.6.6 Restoration and Reforestation

Restoration includes enhancing wildlife habitats and providing a natural ecological community to prevent erosion and reduce maintenance costs. Reforestation is the appropriate regeneration of harvestable material of desired species for the ecological community. Reforestation does not occur every year because of the manpower limits in preparing land and contracts. Fort Novosel intends to conduct reforestation where harvested the previous year by clearcut.

5.6.7 Site Preparation

Chemical site preparation is the primary method of site preparation. Mechanical site preparation may be used in conjunction with chemical methods in areas that retain high volumes of biomass and standing trees following the harvest. Types of mechanical site preparation include drum chopping, shearing, raking, subsoiling/plowing, bedding, or combinations of these, depending on site requirements.

Site prepared areas will be planted in the next 5 years using containerized longleaf and/or containerized loblolly pine seedlings originating from an acceptable seed source as appropriate. Containerized longleaf pine seedlings are normally planted at 605 trees per acre and loblolly pine seedlings are normally planted at 726 trees per acre. Seedlings will have sufficient size root plugs and will come from nurseries that are recommended and approved by The Longleaf Alliance. Spacing will vary depending on the desired stocking levels. Both hand and machine planting will be used, but most planting will be performed by hand. Planting will occur during December through February. Small reforestation projects may be accomplished in-house while the bulk of the tree planting will be accomplished through outside contracts.

5.6.7.1 Wildlife Considerations

As discussed in Section 5.2, forest management is one of the management activities that have the greatest impacts on wildlife habitat. Many forest management practices are beneficial to wildlife habitat. 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.

Dense pine stands provide poor habitat for most wildlife species other than escape cover. Thinning of pine stands is primarily a forest management tool; however, it 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 encourages growth of desirable vegetation.

Reforestation harvests can offer temporary improvements in wildlife habitat for deer, rabbits, and other species that benefit from the early stages in forest succession. Reforestation harvests are most productive the first several years following harvests, see Section 5.6.6 for details on reforestation information. As the stand matures and thickens, many valuable understory species grow above a height which is usable by

wildlife. Grasses and legumes are shaded out by the maturing forest. However, the canopy of longleaf pine stands is much less dense, allowing for greater browse in the understory. Mechanical thinning in the pole stage increases the productive period by encouraging re-sprouting, disturbing the soil, and allowing light to penetrate to the ground. To be most effective for wildlife management, the new reforestation harvest should be irregular in shape, average less than 50 acres, and not adjoin recent cuts or non-productive habitat. All timber sale plans are reviewed by Natural Resources biologists in advance to adjust for protecting habitats.

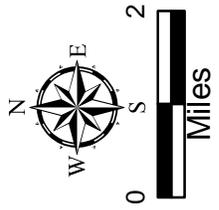
5.6.7.2 Prescribed Burning

Prescribed burning is the most important and the most cost-effective tool for managing and improving forested ecosystems. The trend to exclude fire over the last 50 years has played a key role in the reduction of biodiversity in forested ecosystems in the area. Fire serves to eliminate shrubby competition, return nutrients to the soil, and aids in seed germination of certain species. These fire-maintained ecosystems enhance biodiversity by supplying significant browse for wildlife. Present settlement patterns make wildfires highly undesirable. Prescribed burning provides a mechanism for the reduction of fire fuel loads in forested areas, reducing the likelihood that wildfires will occur.

At Fort Novosel, the prescribed burning program is under the Forest Management Section. This section includes a summary of the program as it relates specifically to forest management; refer to Section 5.10 and the IWFMP (Fort Novosel 2022) for additional detail on prescribed fire and wildfire support activities. Normal burning is on a 3-year rotation. Burning rotation during 2024-2029 is shown on **Figure 5-6**.

Because of the potential impact of prescribed burning on helicopter training, coordination must be accomplished between the Forestry Section and Airfield Air Space Management and Range Operations. The Fire Department must be informed daily prior to ignition for planned prescribed burning activities and when securing from a burn area. An extensive list of other local agencies and individuals are informed of the burn and given copies of the burn and smoke maps for planning purposes and situational awareness. Prescribed burning is conducted within the impact area by the Range Branch and is coordinated by them.

Prescribed burning is a scheduled and approved forest management activity budgeted for and funded by the Forestry Reimbursable Account. With the exception of a small number of growing season burns and site preparation burns, the prescribed burning program at Fort Novosel is predominately dormant season burning which begins around the first of September and continues through April. Some of the September, October, March, and April burns occur during the growing season. An increase in growing season burns is anticipated during the next 5 years to promote stand conversion to longleaf pine and to improve gopher tortoise habitat. Due to weather and military training constraints acceptable burn days are limited.

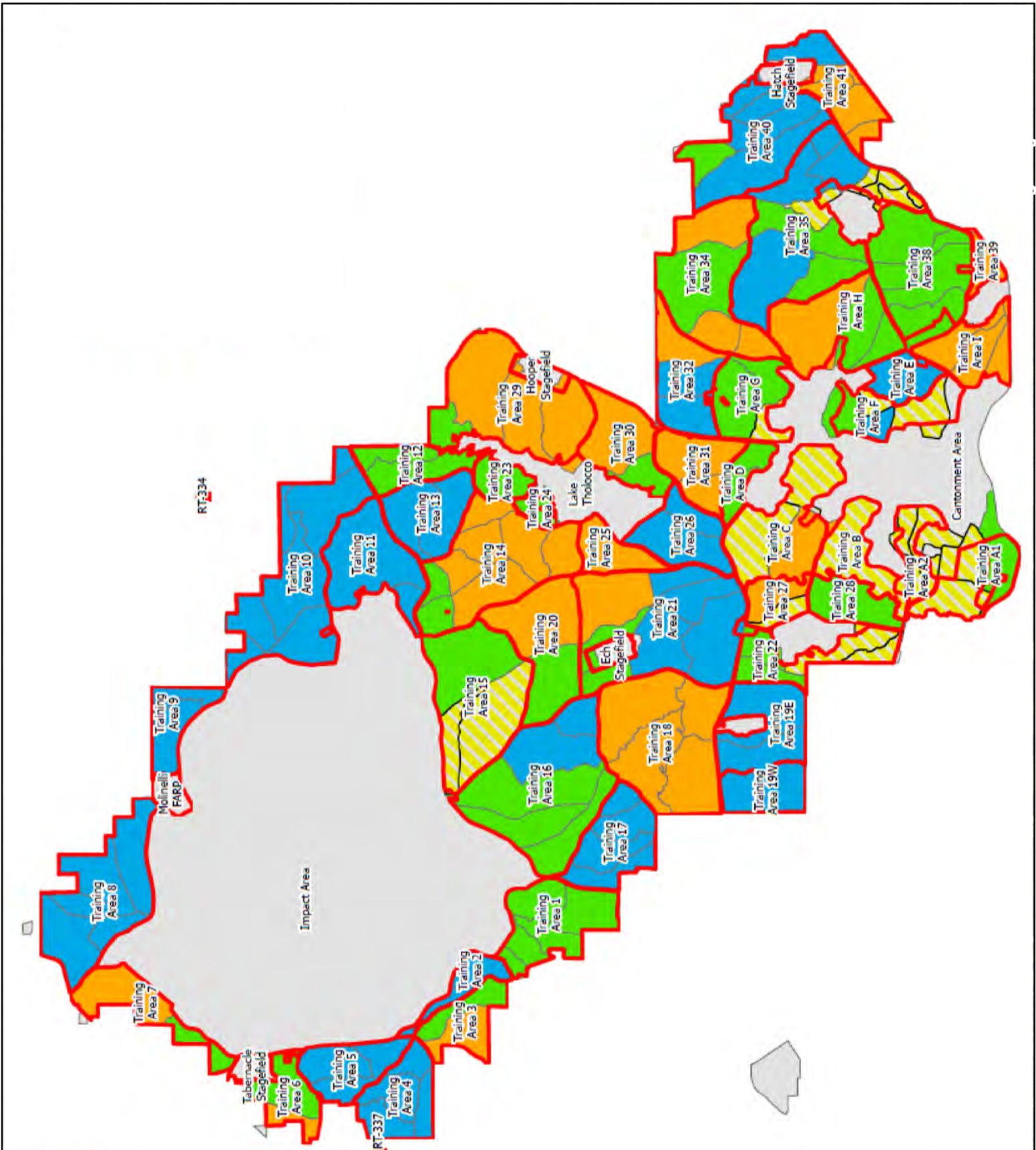


LEGEND

- 2024, 2027
- 2025, 2028
- 2026, 2029
- Excluded
- Training Boundary



**Figure 5-6.
Burn Unit
Rotation at
Fort Novosel**



5.6.8 Forest Diseases and Pests

Fort Novosel forests have relatively minor forest disease and insect problems. The greatest economic damage is caused by bark beetles, primarily those in the genus *Ips* (*Ips avulsus*, *I. grandicollis*, and *I. calligraphus*) and the southern pine beetle (*Dendroctonus frontalis*).

Disease losses are subtle, but occasionally significant. Fusiform rust affects slash and loblolly pines, and 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 pine.

5.6.9 Offset Loss of Managed Forest Lands

Loss of forested acreage due to construction projects or training requirements has had a notable impact on the Natural Resources Program, as less land is available for wildlife habitat, outdoor recreational opportunities, and the production of commercially valuable timber. The following actions will be taken to offset the impact of construction projects on forest management:

- Convert low quality, upland hardwood sites to commercially valuable pine sites
- Convert non-productive land (i.e., eroded fields, landfills, inactive borrow pits) to pine plantations

5.6.10 Biodiversity Conservation and Longleaf Pine Restoration Sites

The greatest potential returns in biodiversity will be a result of the re-introduction of longleaf pine on a measurable scale on Fort Novosel, with attendant management strategies including growing season burns. The areas below have the greatest potential for development of the longleaf pine habitat. As part of the *Integrated Forest Management Plan* completed with the previous INRMP, a Vegetative Community Survey was completed in 2009, which used Light Detection and Ranging (lidar) to determine suitable habitat for gopher tortoises and other related species. ArcGIS will be the record keeping format for forest management activities on Fort Novosel. This will allow up-to-date record keeping that can be stored in text and map formats. All information recorded with ArcGIS will also be stored using Excel™ spreadsheets and other documentation.

5.6.10.1 Impact Area

The impact area contains the most natural forested habitat on Fort Novosel. Prescribed burning is conducted in the impact area between December-January annually. Additionally, fire breaks are created based on aviation line of site cutting, which assists in preventing large scale forest fires that could have negative impacts on timber stands. In addition to longleaf pine, the impact area contains many hardwoods and a relatively good mixture of other pine species. The impact area offers the greatest biological diversity opportunity for mature longleaf pine communities on Fort Novosel.

5.6.10.2 Bivouac Sites

Fort Novosel has bivouac sites, which are not managed except for removal of storm-damaged trees and other special treatments. These areas include TAs 6, 14, 15, 16, 17, 18, 21, 32, 34, 38, A1, H, and G. These sites offer considerable potential for management of a mature longleaf pine community. Fort Novosel is experimenting with mature pine management on some bivouac sites. Areas are thinned to allow release of preferred pine trees (longleaf will be favored) using individual tree marking. Longleaf will be managed for mature timber, with no intended harvest except required thinning. The end goal will be longleaf in the 150- to 200-year class. Where possible, a 3-year, growing season burn regime will be instituted. Results will be monitored, and the program will be adjusted as needed to meet biodiversity objectives, consistent with adaptive management. An additional benefit of this management will be the improvement of the bivouac area for military use. The park-like condition in old age pine areas that are regularly thinned and burned is ideal for many military training activities.

5.6.10.3 Survival, Evasion, Resistance, and Escape Training

SERE training has increased significantly at Fort Novosel, and currently affects TAs 13, 14, 15, 16, 17, 18, 20, 21, 25, 26, and 38, for a total acreage of 13,092 acres. At the request of SERE trainers, these areas were excluded from forest management practices until 2008 when Fort Novosel Natural Resources personnel, SERE personnel, and Training Division personnel agreed that forest management should be conducted within SERE training areas to ensure sustainability and longevity of the timber resources. Since that time, TAs 5, 6, 35, E, H, and I have been added and TA-26 has been removed from this footprint. Regeneration or clearcuts are minimized to the greatest extent practicable, as they are the most non-conductive activity, with major impacts to the SERE training criteria and course lengths. Coordination is conducted between Natural Resources, Range Operations, USAACE, G3, and 1AB to ensure all forestry activities within these training areas are scheduled and carried out appropriately.

5.7 Integrated Pest Management

The primary objective for pest management in this INRMP is to coordinate with Pest Management to clarify when Natural Resources support for pest management is needed. Pest management activities on Fort Novosel are conducted in accordance with the provisions of the Fort Novosel Installation Pest Management Plan. Oversight of pest management activities on the installation is the responsibility of the Installation Pest Management Coordinator (appointed by the Commander). The Forest Management and Fish and Wildlife sections of Natural Resources, Game Warden personnel assigned to the Provost Marshal's office, and Golf Course maintenance personnel have outdoor pest management activities included as a part of their responsibilities.

Natural Resources uses an IPM approach in planning all pest management actions to ensure impacts to existing ecosystems are reduced to the greatest extent possible. At Fort Novosel, IPM is a planned program that incorporates continuous monitoring, education, record keeping, and communication to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, materiel, or the environment. The IPM strategy uses targeted, sustainable, economical, and

environmentally sound methods, including education, habitat modification, biological control, genetic control, cultural control, mechanical control, physical control, regulatory control, and where necessary, the judicious use of the least hazardous pesticides. AR 200-5 and the Fort Novosel Installation Pest Management Plan (2018) mandate the use of IPM practices on the installation.

5.7.1 Pest Management Priorities

Resources, if limited, are allocated to pest management activities on the installation according to the following set of priorities:

1. Disease vectors and medically important arthropods (mosquitoes, fire ants, wasps and bees, and spiders)
2. Stored products pests
3. Animal pests
4. Real property pests (structural/wood destroying pests such as termites, powder-post beetles, and carpenter ants)
5. Household and nuisance pests
6. Ornamental plant and turf pests
7. Undesirable vegetation and microbial organisms
8. Other pest management requirements
9. Quarantine pests
10. West-Nile virus
11. Zika virus

5.7.2 Installation Pest Management Plan

The Installation Pest Management Coordinator is responsible for the development and maintenance of the Installation Pest Management Plan. Review and approval of the plan is by the staff of the USAEC, Fort Sam Houston, Texas. All pest management activities at the installation are covered by this plan. Revisions of the plan are conducted periodically and per directive of higher headquarters. Updates (reflecting changes in staffing, training, equipment, etc.) are conducted annually. Approval for use of pesticides is obtained on an annual basis via the submittal of a U.S. Army Pesticide Use Proposal for the installation. Any pest management requirements not specifically detailed in the plan must receive approval in writing from higher headquarters before implementation and must subsequently be incorporated into the Installation Pest Management Plan.

Natural Resources is responsible for control of nuisance wildlife on training land, such as beaver, pigeons, feral swine, coyotes, and the American alligator. The Game Warden is the animal control officer for the installation, with responsibility for control of feral cats and dogs and other household pets as well as nuisance wild animals, such as snakes, armadillos, and raccoons.

5.7.2.1 Use of Pesticides, Growth Regulators, and Other Chemicals

Herbicides are used to manage undesirable and competing vegetation on food plots and to improve the quality and quantity of crops produced in fish and wildlife operations. Herbicides and other pesticides may also be used to control undesirable vegetation and

other pests in aquatic habitats. Golf course personnel use pesticides to manage and control turf pests and diseases and undesirable vegetation on the course. All chemicals used on Fort Novosel must be USEPA-approved and approved for use by incorporation in the Installation Pest Management Plan. The Office of the President (1994) called upon heads of federal agencies to reduce the amount of pesticide use by IPM practices because pesticides involve health and safety risks; target pests have developed resistance to many pesticides; and many pesticides have been used to excess and in violation of product labels.

In addition, in 1994 and in response to the directive of the Office of the President, the DA approved three Measures of Merit designed to address the problems of pesticide abuse and overuse. Measure of Merit 1 required the development of pest management plans for all installations. Measure of Merit 2 directed that the quantity of pesticides used, measured as pounds of active ingredient applied, be reduced by 50 percent from FY-1993 baseline levels by the year 2000. Measure of Merit 3 required that all DoD installation pesticide applicators be properly certified (certification is DoD or state as appropriate). Direct hire employees have a maximum of 2 years to become certified after initial employment. Contract employees must have the appropriate state certification when the contract is let. Fort Novosel is currently in compliance with Measures of Merit 1, 2, and 3.

Pesticide Certification

Personnel who select, mix, or apply pesticides which are defined by regulation as controlled or restricted-use pesticides must be certified. Pest management activities on the installation are conducted by a combination of contractor and government employees. Contractor personnel who apply pesticides must be State of Alabama certified while government employees who apply pesticides must be DoD certified in the operational categories in which they work. DoD (appropriated fund [APF] and non-appropriated fund [NAF]) employees must complete a correspondence course, *Basic Pest Control Technology* and 1 year of on-the-job training under the supervision of a certified DoD employee. Training records and copies of certifications are part of the Installation Pest Management Plan. At the time of this writing, the contractor-operated Pest Management Section of the DPW, most of Natural Resources, and the Golf Course all have personnel certified as pest controllers.

Environmental Considerations

Wetlands, water bodies, and recreational areas may require special precautions during the application of pesticides. Compliance with precautionary statements on pesticide labels and safety data sheets is mandatory. Recreational areas are well known, and special requirements for their protection and the protection of users of these areas are implemented as needed. Wetlands are restricted to prevent recreational vehicle traffic and soil disturbing activities. Natural Resources is responsible for maintaining maps of wetlands on the installation. These maps must be consulted whenever planning and/or conducting pesticide applications. If pesticide application in a wetland or other aquatic site is deemed necessary, only products approved for application in aquatic environments will be used.

Use of pesticides and herbicides in and around wetlands or streams in which endangered mussel species listed in Section 5.4.2.1 are known to exist involves extra care and precaution. If use of these chemicals could potentially impact mussel species, special coordination with, and approval by, the USFWS would be required.

5.8 Invasive Species Management

EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, was established to prevent the invasion and introduction of invasive species and provide control for these species on federal lands. Control efforts are aimed at reducing the ecological, economic, and human health impacts that invasive species cause. Invasive species control includes control of insect pests, invasive plant species, and noxious weeds through treatment and prevention measures. Invasive species management strives to implement an IPM strategy that will aid in control by changing routine practices, or making habitat and structural alterations. The integration of IPM strategies will reduce the use and need for application of chemical controls. However, chemical controls may be required and would be applied carefully to kill only targeted pests, with minimum use of the least toxic effective product available. Objectives of invasive species management include:

- Identify, map, and prioritize areas with invasive non-native plant and animal species for initial and follow-up control treatments.
- Treat 800 acres of invasive vegetation annually using TSI treatment methods.
- Submit annual REC for NEPA review of upcoming invasive non-native species control activities.
- Expand a cooperative cost-share program with USDA-APHIS-WS targeting feral swine and coyotes in all training areas.
- Closely monitor all aquatic habitats for spreading invasive species and develop action plan for control.
- Request annual environmental funding appropriations for invasive species management and utilize all available resources.
- Utilize USDA-APHIS-WS services to provide assistance with removal of invasive species, when possible.

Invasive species require management under EO 13751; DoDI 4150.07, *DoD Pest Management Program*; and DoDI 4715.03. The Sikes Act details cooperation between the USFWS, state conservation agencies (ADCNR), and DoD to effectively manage such resources. The Armed Forces Pest Management Board has published the *DoD Commanders Guide on Invasive Species*.

5.8.1 Invasive Plant Species

Kudzu (*Pueraria montana*), cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*), and fanwort are the primary exotic invasive plant species that are of concern on Fort Novosel due to their rapid expansion and density. Yaupon is an aggressive

native species that also is invasive on Fort Novosel. Without control, these species have the potential to negatively affect military training and native species and habitats.

As of 2015, cogongrass has been positively identified and treated with herbicide on approximately 4 acres annually on Fort Novosel. It is likely that further investigation will lead to the identification of more cogongrass-infested areas. It is a high priority of Natural Resources to quickly treat these areas, as soon as possible. This species has the greatest potential of any non-native invasive plant to negatively affect military training on Fort Novosel and to eliminate wildlife habitat.

Kudzu currently occupies approximately 3,000 acres on Fort Novosel. These infestations have little to no use for any type of activity or wildlife habitat. Kudzu infestations alongside rights-of-way are being treated to limit spread. Additional funding will be required to effectively eradicate these infestations. Approximately 400 acres are treated annually.

Chemical treatments for invasive species are conducted at present and will continue to be considered in future land management planning. Transline®, Tordon®, Arsenal®, and Glyphosate 4 Plus are all used as dictated by site conditions.

Chinese privet and yaupon are prevalent throughout most of the installation and are spread by birds eating the berries and seeds. The rapid growth and expansion of these species create extremely dense forest understory and reduce accessibility for ground training, forest maintenance, and recreational activities. Herbicide application equipment was obtained in 2014 to begin treatment with Natural Resources manpower and contracted treatments are applied when funding is available. The Natural Resources staffing is normally capable of treating approximately 800 acres of woodland each year.

Fanwort is an aquatic vegetative plant that grows from a lake bottom upward to the surface and can grow at depths in excess of 10 feet. This vegetation can become very dense in Lake Tholocco and may require reoccurring treatments with herbicide. If not properly controlled, boating, fishing, swimming, and many other recreational activities may become severely impacted. In 2015 Natural Resources obtained a new airboat to begin eradication treatments of these invasive plant communities within targeted areas of Lake Tholocco with a high recreational use.

5.8.2 Invasive Animal Species

5.8.2.1 Coyotes

Coyotes have been a growing concern and have been identified as a limiting factor of white-tailed deer and eastern wild turkey population growth and recruitment on Fort Novosel lands over the past 8 years as the coyote population continues to remain high. This expansion can be attributed to the coyote's nonspecific needs in habitat and food, large litter size and short generation time, decreased competition across its range from other predators, and the coyote's ability to adapt and benefit from human activities. Coyotes present several areas of concern to the installation. The white-tailed deer population has been severely reduced due to increased fawn mortality caused by coyote predation. Field analysis conducted by Auburn University indicates nearly 80 percent of all newborns are being killed by coyotes. This survival rate is not capable

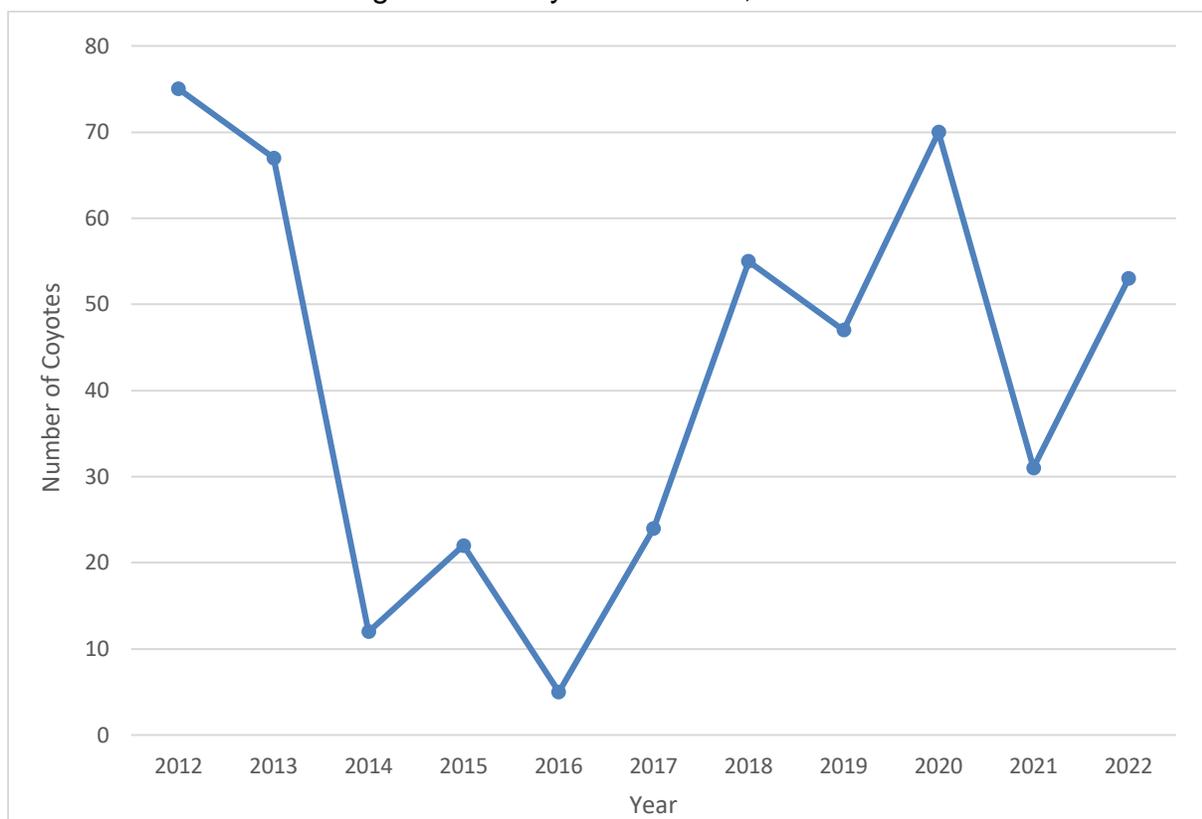
of sustaining a healthy white-tailed deer herd on the installation. Nest depredation by coyotes also impacts turkey populations.

Safety threats include the threat of attack to Soldiers, occupants and/or residents of housing and cantonment areas, and recreational users, as well as the threat of disease and parasite spread to SERE students and instructors. Disease threats to humans include rabies and salmonellosis. The threat of coyote predation on livestock such as horses and pets that are housed or pastured on installation lands are also a concern of owners. Coyote hunting is allowed on Fort Novosel year-round due to no closed hunting season; however, trapping by individuals is limited to the state furbearing trapping season.

To assist with the reduction in the number of coyotes that are present on the installation, trapping efforts were expanded through a cost sharing program with the USDA-APHIS-WS. The intention for this cost share program is to work in conjunction with Fort Novosel's current trapping processes.

Over 400 coyotes have been removed between 2012 and 2022 (**Figure 5-7**). To maximize effectiveness of coyote trapping and increase the survival rate of white-tailed deer fawns, trapping efforts are prioritized annually to occur prior to the fawning season which is normally during the months of July, August, and September. Due to the nonspecific habitat needs of coyotes, their mobility, and ability for immigration and emigration, an ongoing removal program must be employed. Coyote movement patterns are cyclic and sometimes difficult to identify. It is essential for trapping success that a trap location remain active for at least a 2-week interval without disturbance other than checking trap integrity, removing, and dispatching captured coyotes, and rebaiting. Trap sets are typically placed along forest road rights-of-way, forest edges, and along open fields, marked with a pole covered with red tape at its top. As such, they pose little threat or conflict with other activities that may be taking place in the training area/areas being utilized.

Figure 5-7. Coyote Harvests, 2012-2022



Since inception, the coyote trapping program has proven to be beneficial, as white-tailed deer camera surveys are beginning to show higher surviving white-tailed deer recruitment. However, the white-tailed deer population numbers are still well below carrying capacity for installation lands. This planned trapping strategy is a major component in recovering this resource.

5.8.2.2 Feral Swine

Feral swine have been identified as an invasive species requiring management under EO 13751. DoDI 4715.03 directs installations to address invasive species management. The Armed Forces Pest Management Board has published the *DoD Commanders Guide on Invasive Species* which also specifically addresses feral swine.

Although sporadic minor damage to habitat from feral swine has occurred over the span of 35 years, habitat is quick to heal and less invasive than logging activities. There have been no training impacts based on feral swine damage to training lands. There have been issues on the main cantonment and the golf course in which minor land repairs have been conducted to correct minor feral swine damage. The feral swine population has exceeded the carrying capacity of desirable wildlife species. Annual camera surveys conducted for white-tailed deer show numerous feral swine sounder groups throughout the entire installation, and sightings by troops, hunters, recreational users, and natural resources personnel continue to increase in all areas.

Feral swine present several areas of concern to the installation. This species causes damage to ecosystems through decreased water quality, propagation of exotic plant

species, increased soil erosion, modification of nutrient cycles, damage to native plant species, competition for resources with native wildlife, direct predation of native wildlife, and spread of disease and parasites to native wildlife. Damage to infrastructure includes damage to roads, aircraft landing areas, solid waste management unit caps, and to recreational facilities (golf course and recreational trails). Damage to crops includes timber damage, open field damage (airfields), and destruction of planted areas (lawns, food plots, and erosion control sites).

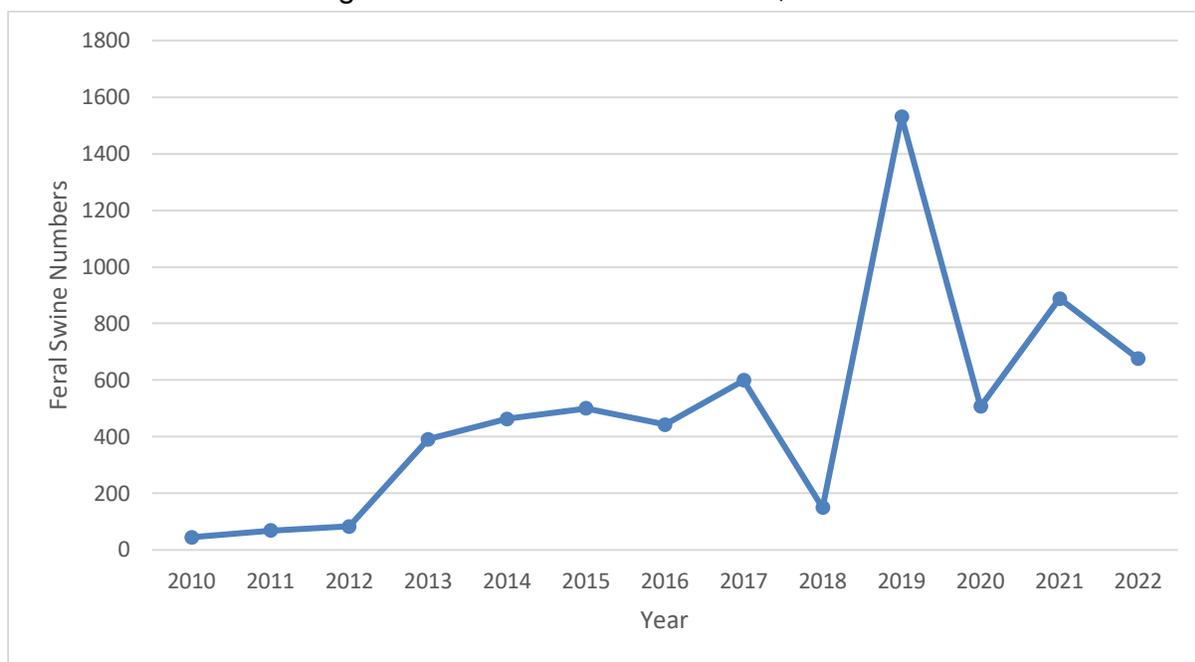
Disease threats to humans include brucellosis, leptospirosis, salmonellosis, toxoplasmosis, sarcoptic mange, *Escherichia coli*, and trichinosis. Safety threats include the threat of attack to Soldiers involved in dispersed ground training, occupants of the cantonment area, recreational users of the installation, and disease/parasite threat to SERE students.

Additionally, landowners on adjoining lands have reported increasing damage to pastures, crop fields, lawns, forested areas, and wildlife habitats. The widespread damage currently being done to local farms, timber, and land as well as the safety concerns have resulted in continuous complaints by surrounding landowners and local farming communities.

Feral swine hunting has been allowed on Fort Novosel during the last 35 years, and was recently expanded to a year-round open season with free hunting permits offered as an incentive. In 2010, Natural Resources personnel began training and using a small number of traps. In 2011, USDA-APHIS-WS was consulted for guidance and a cooperative project was developed to increase trapping feral swine on the installation. USDA-APHIS-WS stated in a 2013 letter that, to trap the greatest numbers of feral swine, other hunting pressures should be decreased during trapping seasons. The trapping effort was expanded to include volunteer trappers, as manpower and accessibility are the major limiting factors for the program. A depredation permit was obtained from the ADCNR to expand permit trapping of feral swine year-round by designated permittees. Fort Novosel Natural Resources provided the traps and bait, and helped construct the traps in select trapping locations. This program was discontinued in 2019 when a cost-share program was begun with USDA-APHIS-WS. This program provides three full time employees on Fort Novosel conducting feral swine control. This has resulted in a more efficient operation with few training conflicts.

Although more than 6,300 feral swine have been removed between 2010 through 2022 (**Figure 5-8**), the rate of feral swine reproduction and population have not decreased. With no natural predators and prolific reproduction, the population growth rate is exponential. Population growth models for these animals indicate that once they are established in an area, it is necessary to remove 80 percent of the established population to prevent further growth.

Figure 5-8. Feral Swine Removal, 2010-2022



Currently, Fort Novosel is being funded by IMCOM to manage and remove nuisance and invasive plant and animal species on all installation lands. There are plans to expand the number of traps each year and to continue the cost-share project with USDA-APHIS-WS. In addition to these actions, Natural Resources has worked directly with ADCNR and Auburn University to develop and implement a holistic trapping strategy. This strategy will provide greater feral swine control if it is fully implemented. Utilizing remote-control traps, it is possible to trap areas without the need for visiting the traps daily. Traps only need be visited for periodic rebaiting using feeders and when feral swine have been caught in the traps. This can be scheduled for a time of day when the area is clear, or if necessary, an escort can be provided. This should result in reduced conflicts with training.

5.9 Land Management

Land management is the use of programs and techniques for management of lands, wetlands, and water quality. Techniques include soil conservation, erosion control, nonpoint source pollution prevention, protection of surface and subsurface waters, habitat restoration, control of noxious weeds and poisonous plants, agricultural outleasings, range management, identification and protection of wetlands and watersheds, floodplains management, landscaping, and grounds maintenance.

Land management objectives include:

- Coordinate with ITAM to provide expertise and support for erosion control projects and stabilization plantings.
- Work with Grounds Maintenance Section to ensure only native plants are used in landscaping.

5.9.1 Integrated Training Area Management

5.9.1.1 ITAM Overview, Elements, and Organization

The ITAM program is a core component of the Sustainable Range Program (SRP) and is responsible for maintaining training lands to help the Army meet its training requirements.

Subordinate Elements of ITAM

Land Rehabilitation and Maintenance. LRAM provides the mechanism for Fort Novosel to maintain and repair impacts (maneuver damage) to natural resources caused by training. It also allows for upgrades and improvements to natural resources that benefit training. LRAM resources cannot be used to combat routine erosion from infrastructure failures. The objectives of LRAM are to implement improvements and repairs of disturbed land and water crossings, improve vegetation cover and concealment for training activities, and repair other landscape damage for safety and continued availability of lands for training. A summary of LRAM projects based on the ITAM Work Plan is provided in **Appendix 12**.

Range and Training Land Assessments. RTLAs monitor the condition of natural resources associated with sustained use of training lands. Resulting data supports land management decisions that maintain the integrity of training areas for present and future generations of Soldiers. Short-term monitoring efforts are directed toward supporting restoration activities, monitoring natural recovery in areas experiencing intensive military training, monitoring encroachment of noxious weed species which inhibit training, and protecting cover and concealment resources.

Twice yearly (April and October) the LRAM Coordinator inspects all training areas by performing an RTLA of heavily used areas in order to assess the effectiveness of current erosion control prevention measures in place to protect the range complex and perpetuate training realism, and to identify remediation requirements.

RTLA areas are: six bivouac training sites, two leadership reaction courses, four land navigation courses, 15 field artillery firing points, 18 government-owned remote training sites, 15 stagefields, one test site (Highfalls AHP), one FARP, and approximately 83 miles of LRAM-maintained maneuver trails. The inspections of these areas become the basis for annual LRAM projects to be completed by the Colorado State University's CEMML LRAM support team.

Sustainable Range Program Geographic Information System. The SRP GIS mission is to create, analyze, manage, and distribute authoritative standardized spatial information, products, and services for the execution of training strategies and training activities on U.S. Army ranges and training lands. Through information excellence, one of the three tenets upon which the SRP was founded, the SRP GIS program strives to provide trainers and Soldiers with the ability to leverage the most accurate and complete datasets through easily accessible and user-friendly products and applications.

SRP GIS includes:

- Geospatial data development/sustainment and management.
- Geospatial data analysis, which includes: LRAM project siting analysis; military live fire range siting, reconfiguration, and analysis; unit training suitability analysis; and development and execution of model parameters for overall program budgeting and execution.
- Cartographic/map support, which includes: military installation map development/sustainment; training mission support products; range modernization and reconfiguration mapping support; range planning maps; constraints to training maps; range operations map products (Range Facility Management Support System, Range Safety); and ITAM mapping support.

Sustainable Range Awareness. This component of the ITAM program educates Soldiers and other land users about Fort Novosel's training environment and what their responsibilities are in order to comply with various environmental laws, regulations, and policies. Fort Novosel ITAM has SRA products that enhance awareness of cultural and environmental resource issues that affect training activities, and reduce the potential for inflicting avoidable impacts on range and training land assets. These products are as follows:

- Fort Novosel Soldier Field Card. A 16.5-inch by 16.5-inch 1:50,000 map that is focused on ground training areas and ranges of the most heavily utilized training sites. Important contacts, phone numbers, safety, environmental, cultural, and range information are printed on the opposite side of the map. The Soldier Field Card is distributed at the Range Operations Firing Desk, Range squaring meetings, the Aviation Technical Library, as well as individual Soldier encounters at the ITAM office.
- SERE (Guyon) Soldier Field Card. A 16.5-inch by 16.5-inch 1:50,000 map that is focused on ground training areas used in the evasion phase of the SERE course. Important contacts, phone numbers, safety, environmental, cultural, and range information are printed on the opposite side of the map. The SERE (Guyon) Soldier Field Card is distributed by SERE cadre to students.
- SERE (Sermeya) Soldier Field Card. A 16.5-inch by 16.5-inch 1:50,000 map that is focused on ground training areas used in the survival phase of the SERE course. Important contacts, phone numbers, safety, environmental, cultural, and range information are printed on the opposite side of the map. The SERE (Sermeya) Soldier Field Card will be distributed by SERE cadre to students. It is currently under development; production/use is anticipated to begin in 2023.
- Fort Novosel SRA Slideshow: SRA message slides follow the theme of environmental and cultural awareness. These slides are displayed on TV monitors strategically located at the Soldier Service Center, Aviation Learning Center, and Range Operations Firing Desk.

Training Requirements Integration. TRI provides a means of direct interaction between trainers and environmental staff to work through land use issues in an effective manner. TRI also includes follow up monitoring and evaluation of training areas after training events to determine impacts and the level of LRAM effort required to make any training area repairs. Assisting trainers with successful accomplishment of their mission activities is an important aspect of the TRI program. Additionally, ensuring that land use constraints and limitations are appropriately considered and included in training plans is vital toward maintaining the long-term sustainment of Fort Novosel as an excellent training location.

Other ITAM functions that can support or impact cultural and natural resource management include:

- Establishing slow-go/no-go signs, Seibert stakes, or other exclusion areas around sensitive resources in order to facilitate maneuver capability. ITAM funds may be used for the purchase of and placement of Seibert stakes around threatened and endangered species sites/habitats.
- Cultural site capping in order to enable uninhibited maneuverability. Capping archaeological/cultural sites for the purpose of providing maneuver, movement, and tactical training is an eligible ITAM project. Design specifications for protective caps need to be made in coordination with the installation Cultural Resources staff to ensure efforts are approved by the Alabama SHPO, and where applicable, federally recognized Native American Tribes and other groups with vested interests.

Organization

The Fort Novosel ITAM office is comprised of a DA Civilian ITAM Coordinator and a small workforce provided through an IMCOM-centrally managed cooperative agreement between USACE and CEMML. The CEMML workforce includes a GIS analyst, a LRAM coordinator/lead, and LRAM heavy equipment operators. CEMML provides the vehicles, heavy equipment, and materials required to accomplish the IMCOM-approved and TRADOC Proponency Office (Ranges)-validated SRP GIS, LRAM, and RTLA projects contained in the ITAM Work Plan (embedded in the annual Range Complex Master Plan).

5.9.1.2 LRAM Best Management Practices

The ITAM program at Fort Novosel uses a variety of BMPs to mitigate erosion and control or eliminate sedimentation (**Appendix 13**). All BMPs must comply with the standards set forth in the Alabama Soil and Water Conservation Committee's *Handbook for Erosion Control, Sediment Control and Storm Water Management on Construction Sites and Urban Areas*. The LRAM Coordinator ensures corrective actions are completed within the regulatory time periods.

Project site conditions and objectives are the determining factors for the applicable BMPs to stabilize and sustain the sites over the long term. The BMPs are sometimes modified to address the installation site conditions (e.g., soil type, slope, and vegetation).

Commonly used BMPs include the following:

- Cable concrete helicopter slope landing surface reinforcement
- Riprap flumes and riprap check dams
- Excelsior wattles for drainage inlet protection and temporary check dams
- Silt fencing
- Straw mulch with mulch tucking
- Reseeding
- #4 stone/topsoil mixture to reduce erosion at government-owned helicopter training sites
- Geoweb filled with #1 stone at stream crossings
- Yearly application of fertilizer and biannual application of lime at government-owned helicopter training sites
- Wood mulch on foot paths between Leadership Reaction Course training stations
- Clearing debris from culverts and maintaining turn-outs on maneuver trails
- Applying rock to maneuver trail surfaces to inhibit erosion

The erosion control efforts employed by LRAM for use on, but not limited to, maneuver trail projects include the construction of terraces, excess water diversions, sediment control structures with culverts, hardening the trails with stone, installation of channel and slope stabilizing geo-synthetics, geotextile filter fabric and riprap, check dams, geoweb, hay mulch, and other erosion control structures and materials as needed.

5.9.1.3 LRAM Vegetation Management Techniques

Fort Novosel's helicopter training sites are subjected to significant maneuver damage-causing factors during daily USAACE training activities. Rotor wash, engine exhaust, aircraft landings, and aircraft movement while in contact with the ground can kill ground cover and leave bare earth exposed to the erosive effects of continuous training activities and weather.

Prevention. The late winter/early spring annual application of fertilizer and biennial application of lime are preventive measures taken to fortify the ground cover at government-owned stagefields and remote training sites, thus reducing the need for maneuver damage repairs. Lime is applied at a rate of 2 tons per acre; fertilizer (13-13-13) is applied at 250 pounds per acre. LRAM normally contracts with local fertilizer-spreading agencies (i.e., farmers co-ops) to furnish and spread the products. LRAM personnel coordinate for site access and provide escort to each site.

Remediation. Specific locations requiring remediation are determined through reports of damage from using units and RTLAs. LRAM personnel are responsible for maintaining vegetative cover and correcting erosion and bare areas. LRAM fills, grades, and shapes indentations, depressions, and bare areas caused by training

helicopter rotor wash during protracted hovering, sling load surface scarring, aircraft skid and wheeled landing gear contact with non-paved surfaces, and ground vehicles. A mixture of top soil and #4 stone (70/30 mix), seed (bahia / Bermuda / brown millet / rye), and fertilizer (13-13-13) as required to match surrounding grades is used to aid recovery and reinforce the ground cover.

Bare soil areas caused by tactical vehicle traffic/maneuvers in training areas are immediately repaired to maintain vegetative cover and prevent erosion. Repairs use top soil or #4 stone and crusher run, as required. Seed (bahia / Bermuda / brown millet / rye / fescue), fertilizer (13-13-13), hay mulch and/or matting will be applied, as required, to stabilize the areas of repair. Bahia grass at 40 pounds per acre and common Bermuda grass at 10 pounds per acre are the preferred warm season species in the seed mixes and are normally applied during the warm growing season (March 15 - September 30). A nurse crop of browntop millet at 5 pounds per acre may be included with the blended seed to obtain immediate stabilization. In the cool season months temporary seeding of rye and fescue is applied for stabilization until the warm season returns.

Vegetation Control. With a normal growing season from early March into October, and abundant rainfall and sunlight, training areas and maneuver trails can quickly be overrun by vegetation. Uncontrolled vegetation growth would create mobility issues and unsafe operating conditions for training. LRAM cuts vegetation on trails and shoulders (trail edge to tree line) on all maneuver trails in training areas south and north of Alabama Highway 27 in their entirety three times per year (October-November, March-May, and July-September). Vegetation control includes mowing with bush hog type equipment and delimiting of trees and branches overhanging the trails with chainsaw/pole saw, skid steer forestry cutter, tractor mounted boom cutter, excavator with brush cutter, and/or other mechanical methods.

5.9.1.4 Project Approval, Environmental Coordination, and Compliance Procedures

Currently, all of Fort Novosel's LRAM projects are maintenance projects that fall under Categorical Exclusion G-1, pursuant to Appendix B, 32 CFR Part 651 and RECs are completed prior to project execution. However, when the project scope goes beyond the scope of approved projects (routine maintenance and repair), the ITAM Coordinator coordinates with appropriate DPW offices and agencies to ensure ITAM actions are compliant with NEPA, the Clean Water Act, ADEM requirements, and any other applicable laws and regulations prior to project execution. The ITAM Coordinator initiates the project by completing and submitting a work order (DA form 4283) and a request for a REC, in conjunction with the statement of work, design drawings, and specifications. All of which are submitted to DPW.

DPW conducts a project review which sometimes includes a site visit. ENRD completes the REC and places any necessary restrictions, limitations, or requirements on the project (e.g., a disturbance permit will be required if the project disturbance exceeds 1 acre).

For work conducted either through the IMCOM-centrally managed cooperative agreement or a local contract, the following processes are followed to ensure regulatory compliance:

- Conduct project site evaluation to determine NEPA applicability. (Note: DPW ENRD personnel are invited to the project site evaluation, when project scope is beyond routine maintenance [e.g., vegetation control, blading/shaping established maneuver trails, maneuver damage repairs at helicopter training locations, etc.]).
- Request a dig permit for all projects requiring digging to depths over 12 inches.
- Work with DPW ENRD to write and submit additional environmental regulatory documentation, as required (e.g., wetland permit application, industrial storm water pollution prevention plan, Notice of Intent, etc.).

5.10 Wildland Fire Management

Fort Novosel's IWFMP was developed to ensure that the fire management program and military activities are integrated and comply with federal stewardship requirements (**Appendix 14**). The four major functions involved in the forest management program involve fire detection, fire suppression, prescribed burning, and trail/firebreak maintenance. Objectives for wildland fire management include:

Wildfire Suppression

- Maintain staff that is properly trained and properly equipped with the latest technology in personal protective equipment and vehicles.
- Use the National Fire Danger Rating System in fire management planning.
- Monitor and reevaluate areas of special consideration periodically.
- Maintain firebreaks (50 miles) on an annual basis and trails (200 miles) on a 2- to 3-year basis.
- Evaluate the effectiveness and take corrective actions as needed of Alabama's BMPs on forest roads, trails, and firebreaks.
- Detect and suppress fires near the installation boundary promptly to prevent fires encroaching on adjoining landowner property.
- Use Alabama's forestry BMPs when installing firebreaks.
- Whenever feasible allow wildfires to burn to avoid unacceptable smoke management risks, but suppression of some fires will be necessary to protect personnel and facilities.
- Establish and develop a strategy for the management of wildfires defining what fires are suppressed and what fires are allowed to burn.
- Monitor the impacts of fire on hardwood communities.

Prescribed Burning

- Maintain a realistic training environment and support the habitat needs of listed and other species of conservation concern using prescribed burns.
- Restore and maintain longleaf pine communities, enhance overall plant community diversity, and support habitat management needs of the gopher tortoise.
- Prioritize prescribed burns to the extent achievable within a military training environment to best reflect the goals of longleaf pine ecosystem restoration and listed species recovery or maintenance.
- Prioritize prescribed burns based on concerns and recommendations for forest decline management with regards to frequency, timing, and intensity of prescribed burns.
- Monitor the effects of prescribed burns on hardwood control, longleaf pine regeneration, rare plants, and native herbaceous species recovery.
- Monitor the effects of prescribed burn frequency, timing, and intensity on forest decline.
- Develop an educational program to increase the public's awareness of the benefits of prescribed burns within the framework of sound silvicultural practices.
- Apply prescribed burns to top kill small hardwoods that consistently encroach into pine dominant stands, to reduce fuel loads and fire intensity (thus providing a safer environment for military training), prepare sites for tree planting and timber marking, enhance wildlife habitat by improving the quality and quantity of food, and promote a longleaf pine ecosystem with biological diversity.
- Maintain open understories and improve accessibility for troop training and recreational opportunities through prescribed burns.
- Restore grasses and other native plants characteristic of the understory of the longleaf ecosystem by introduction or by the use of prescribed burns.
- Use an adaptive management approach to introduce fire to other hardwood communities that depend on fire for maintenance and do not purposely burn bottomland hardwood communities.
- Maintain and/or restore natural ecotones between wetlands and uplands using prescribed burns.
- Use prescribed burns and other silvicultural activities as the primary management tools to conserve ecotones between pine and hardwood communities in upland, slope, and bottomland sites.
- Use existing natural and previously constructed, human-made firebreaks as much as possible; if new firebreaks are needed, avoid placing them in ecotones. Let fire determine the characteristics of ecotones, except when detrimental to listed plant species or native plant communities.

- Maintain trails, firebreaks, and roads consistent with Alabama’s forestry BMPs.
- Promote public acceptance and, in cooperation with the USFWS, develop and implement a public relations campaign to inform the public of the benefits and necessity of prescribed burns.

5.10.1 Responsibilities

As required by IMCOM, Fort Novosel has an IWFMP that was approved on 13 January 2022. The IWFMP coordinates plans and actions between the Forestry Section, the Fire Department, and Emergency Services. The prescribed burning program is an integral and essential part of this INRMP, as an aggressive prescribed burning program is the most important and effective tool in minimizing wildfire potential. The IWFMP was developed to reduce wildfire potential, effectively protect and enhance valuable natural resources, and implement ecosystem management goals and objectives. The IWFMP directly supports installation mission activities and is consistent with installation emergency operations plans. Additional safety information can be found in the 3Rs Explosives Safety Guide (**Appendix 15**).

Currently, the DPS Fire Department and Natural Resources share responsibility for prevention and suppression of wildfires. Natural Resources is responsible for prescribed burning and the establishment and maintenance of firebreaks. Section 5.2.1.3 describes prescribed burning activities for wildlife management and forest management. As outlined by Army Wildland Fire Policy Guidance, the Garrison Commander will appoint a Wildland Fire Program Manager who is responsible for updating the IWFMP. Currently, the Wildland Fire Program Manager is the DPS, Fire Chief. The Wildland Fire Program Manager reviews and approves burn plans for prescribed burns to ensure consistency with the IWFMP, INRMP, and any other applicable operating instructions.

5.10.2 Forest Fire Record

Table 5-6 indicates the forest fire (wildfire) record on Fort Novosel since 1950. Forest fires have become almost inconsequential since 1988, largely due to the controlled burning program. The table below does not include fires within the impact area unless they required suppression response (a rare occurrence).

Table 5-6. Forest Fire (Wildfire) Record

Timeframe	Average Number of Fires Per Year	Average Acres Burned Per Year
1950-1959	9.56	376.89
1960-1969	19.9	116
1970-1979	16.1	112
1980-1989	8.7	127.91
1990-1999	1.5	3.15
2000-2009	2	14.9
2010-2014	2	14.9
2015-2022	1	2.64

5.10.3 Fire Prevention and Suppression

March through October is the main wildfire season. The primary wildfire prevention technique is using controlled (or prescribed) burns to reduce fuel. Early detection and creating firebreaks are also used to limit the extent of wildfires on Fort Novosel.

The firebreak system is maintained on a 3-year rotation, in conjunction with the 3-year prescribed burning program. Boundary firebreaks are 12-feet wide and timber plantation firebreaks are about 10-feet wide. Firebreaks are maintained with a fire plow or dozer blade. Many roads, wetlands, trails, and streams act as firebreaks.

5.11 Agricultural Outleasing

Agricultural outleasing generates funds that are primarily allocated for agricultural outlease improvements. These funds may also be used for natural resources management and stewardship projects, including INRMP stewardship projects, once the primary objective is met. Agricultural outleasing funds should be considered as a potential funding source for Fort Novosel INRMP projects that are not classified as environmental compliance projects. Management objectives for agricultural outleasing are:

- Annually evaluate agricultural outleases for needed changes.
- Conduct site visits to ensure leaseholder is abiding by requirements in the lease.

Agricultural outleasing is used on Fort Novosel to maintain forced landing zones around airfields and stagefields. Prior to agricultural outleasing, these areas required an annual expense of fall mowing to reduce fire hazards, control weedy growth, and provide a safer landing area in the event an aircraft experienced engine failure. Outleasing to local farmers for hay production eliminates the annual expense of mowing and generates revenue. The fields are planted with Tifton 78 hybrid Bermuda grass. Fort Novosel's leased hay land totals 106 acres.

The lessee is responsible for the application of required fertilizers, based on soil test recommendations (done by lessees). Lessees may apply additional fertilizer to improve the growth of grass. However, the lessee is responsible for reporting and using only approved chemical herbicides and methods on Fort Novosel. Lessees generally cut leased areas 2-3 times each growing season. At the discretion of the government, additional work requirements, such as soil and water conservation projects and wildlife habitat improvements, may be required of the lessee. In this case, lessees may be reimbursed for a portion of the cost by abatement of rental fees due to the government.

Fort Novosel itself does not receive funds from agricultural leases. The agricultural leasing program is handled through the USACE, Mobile District. Typically, administrative costs associated with the program consume all revenue generated as a result of the leases. All funds generated are moved to the DA Agriculture Account.

Fort Novosel continues to evaluate other potential lease sites, such as inactive airfields and stagefields, Molinelli FARP, and the northern and southern sides of Hanchey AHP. However, as a result of installation physical security requirements, local farmers and landowners have expressed no interest in bidding on the remaining available hayfields that are within the security zone.

5.12 Wildlife Aircraft Strike Hazard (WASH)

Birds and wildlife have the potential to cause millions of dollars in damage to aircraft as well as the loss of human life of aircrews and passengers. USAACE G3 is the office of primary responsibility for monitoring and implementing the WASH Plan. Natural Resources provides support as requested with bird and wildlife issues at the airfields.

The purpose of the WASH Plan is to minimize aircraft exposure to potentially hazardous bird strikes or strikes with other wildlife. The plan is designed to:

- Establish procedures to identify high-hazard situations and to aid supervisors and pilots in altering/discontinuing flying operations when required.
- Establish aircraft and airfield operating procedures to avoid high-hazard conditions.
- Provide for disseminating information to all assigned and transient pilots on bird hazards and procedures for bird avoidance.
- Establish guidelines to decrease airfield attractiveness to birds.
- Provide guidelines for dispersing birds when they occur on the airfield.
- Establish a Bird Hazard Working Group and designate responsibilities to its members.
- Address hazards from resident and migratory bird species.

5.13 Coastal/Marine Management

Not Applicable. The Alabama coastal zone extends inland to the continuous 10-foot contour in Mobile and Baldwin counties (NOAA 2023).

5.14 Floodplains Management

Floodplains management is the use of preventative measures to limit encroachment into floodplains and to reduce the risk of flooding. Floodplains are lowland areas adjacent to surface water bodies (i.e., lakes, wetlands, and rivers) that are periodically covered by water during flooding events. These areas are protected under EO 11988, *Floodplain Management*, and must be considered during NEPA reviews. Areas classified as wetlands or riparian areas are delineated and avoided during timber sales and construction activities. These ecosystems are protected as undisturbed. All timber sale operations are conducted with strict adherence to the Alabama BMP requirements. Objectives for floodplain management include:

- Coordinate with ITAM to provide expertise and support for projects that protect and restore wetlands and floodplains.
- Protect the water regime of the “bay swamp” below the beaver dam on Brooking Mill Creek, south of the southeastern perimeter road (TA-38).

5.15 Outdoor Recreation

The Sikes Act requires that the public be allowed access to military lands for recreational purposes and encourages access to hunting, fishing, and other outdoor recreation opportunities for disabled veterans. However, DoD policy grants authority to the local military commander to decide the extent of public access on the installation based on security and safety considerations.

Objectives for management of outdoor recreation include:

- Evaluate effectiveness of process for coordinating with Range Operations to ensure that an up-to-date roster of closed areas and areas designated for hunting and fishing is always available.
- Encourage the development of facilities that improve use and enjoyment of fishing, hunting, and other natural resources-based recreation, and increase the use of underutilized areas.

Fort Novosel's open space and the outdoor recreation opportunities associated with it are perhaps the installation's best attributes in terms of community quality of life. Most outdoor recreation programs within this INRMP are the responsibility of the Outdoor Recreation Branch, but other branches within the Community Recreation Division also assist with implementation. Recreation activities at Fort Novosel are classified according to their essential nature in supporting the military mission as described below.

Category "A" Mission - Sustaining Activities. These activities are considered essential to sustaining readiness and generally enhance and promote the physical and mental wellbeing of Soldiers. Activities in this category have little or no capacity for generating NAFs income and are supported by APFs. The only Category A activities affected by this plan are parks and picnic areas on Fort Novosel at Lake Tholocco, Parcours Lake, Ech Lake, Buckhorn Lake, and Beaver Lake.

Category "B" Mission - Community Support Activities. These activities are closely related to those in Category A, in terms of supporting the military mission. They satisfy the basic physiological and psychological needs of Soldiers and their families and provide, to the extent possible, the community support systems that make military installations temporary hometowns for a mobile military population. These support programs should receive substantial amounts of APF support, but differ from those in Category A, in part, because of their ability to generate NAF revenues. That ability to generate revenue is limited; however, in no case may they be sustained without substantial APF support. Most outdoor recreation activities, including hunting and fishing, are Category B.

Category "C" Mission - Revenue-Generating Activities. These activities have less impact on readiness. They offer desirable social and recreational opportunities. Activities in this group have the capability of generating enough income to cover most of their operating expenses, but they lack the ability to sustain themselves based purely on their business activity; consequently, they receive limited APF support. The riding stables are a Category C activity affected by this plan.

Fort Novosel is required to have an Outdoor Recreation Plan, which is a joint responsibility between DFMWR and DPW. This INRMP, especially this chapter, is that Outdoor Recreation Plan.

5.15.1 Military Mission Considerations

The military mission has priority over all outdoor recreation with respect to range access. The Fort Novosel Outdoor Recreation Manager, Chief GLE Officer, and Fish and Wildlife Administrator help resolve conflicts between military mission requirements and hunting and fishing aspects of outdoor recreation. The impact area is off-limits for all recreation programs.

5.15.2 Lake Tholocco

The Outdoor Recreation program at Fort Novosel was originally organized around Lake Tholocco when it was constructed around 1940 by the communities of Daleville, Ozark, and Enterprise. With the establishment of Camp Rucker in 1942 came the need for outdoor recreation for troops based and trained at the new installation. From the 1940s to 1990s, various structures were built to improve recreational activities around the lake including piers, picnic pavilions, a marina, a rental facility, a snack bar, storage areas, and the Wildlife Administration Building. Accountable money invested for construction of facilities from 1946 through 1990 totaled \$505,870. Lake Tholocco flooded and the emergency spillway eroded through to the reservoir and drained the lake on March 17, 1990.

On October 22, 1999 a ground restoration ceremony was held to mark the beginning of the reconstruction of Lake Tholocco. Major General Anthony R. Jones, Commander of the USAACE, led the effort to ensure the restoration of the lake and its surrounding recreational facilities. In preparation to reopen the lake, during 2000-2001, improvements were made around the lake which included two fishing piers, three floating boat docks, three boat ramps, restrooms, and renovation of two facilities costing \$750,000. A boat launching was held in April 2002 to reopen Lake Tholocco. In September 2003, DFMWR contracted with Parsons Engineering and Plans Company to complete developmental tasks and prepare a Lake Tholocco Area Development Plan. The development plan covered five general recreation areas based upon location (East Beach, Lake Tholocco Marina, West Beach, Singing Pines, and Engineer Beach Recreational Vehicle [RV] Park), with a proposed trail system for hiking and jogging. This plan was reviewed and updated by PBS&J from Panama City, Florida with the USACE, Mobile District office.

The proposed East Beach recreational area contained 33 cottages, a lodge, pavilion, fishing pier, and infrastructure. The Lake Tholocco Marina area included a new marina on the water, support building, boat storage, paving, two pavilions, playground, and infrastructure. The proposed West Beach area improved the designated swimming area, added three pavilions, two playgrounds, and infrastructure. The proposed Singing Pines area developed an area for 10 to 12 cabins, a multipurpose building, and infrastructure. The proposed Engineer Beach RV Park area added 30 RV camp sites and infrastructure. The hiking/jogging trail is proposed to connect the five recreation areas by circling all of Lake Tholocco.

DFMWR utilized this plan to justify projects and to improve the area for outdoor recreation needs of Soldiers and their families. DFMWR began receiving approval for funding to begin construction. In 2004, 30 campsites, with electricity, water, RV camping pad, and a new sewage drain field and disposal area, were added to the Engineer Beach RV Park area for a cost of \$750,000. In May 2004, Lake Tholocco opened for fishing. In 2006, DFMWR received approval and funding for \$1,500,000 to begin construction on 12 cabins, infrastructure, and all aspects of utilities for the Singing Pines area. The facilities opened in February 2008.

Multiple projects took place from 2008-2009. In 2008, playground equipment was installed at West Beach, Singing Pines, and Engineer Beach RV Park areas for a cost of \$112,000. In 2008-2009, the Lake Tholocco Marina was constructed on the west side of the lake for a cost of \$348,000. In 2009, a gazebo was constructed in the West Beach park area for a cost of \$90,000. Also, the West Beach swimming area was enclosed for a cost of \$115,000. During this time, a renovation project began to pave driveways and correct erosion issues at the Singing Pines cabin location. This project cost \$29,000. Singing Pines park was also provided a boat slip dock for a cost of \$52,000. Cabins were built on East Beach in 2011-2012 costing \$1,500,000. The Outdoor Recreation and Lake Lodging facility was built in 2014 costing \$750,000 as a headquarters for better oversight of lake operations. In 2018, a Wounded Warrior cabin was donated by Wiregrass Wounded Veteran's Committee costing \$175,000. Currently under construction is an East Beach Lodge and Banquet Facility which will have a 150-person capacity banquet area, patio, deck, and 20 lodge rooms all with lake views.

Lake Tholocco is critical to Fort Novosel fishing, important to hunting, and very important to the conservation of biological diversity in general. Outdoor Recreation operates and oversees patron use of four additional lakes on the installation: Parours, Ech, Buckhorn, and Beaver. These areas are also open for fishing and park activities.

5.15.3 Hunting, Fishing, and Trapping Program

Hunting, fishing, and general outdoor recreation programs are the responsibility of the DFMWR, Community Recreation Division, and Outdoor Recreation. FN Reg. 215-1 is the primary source of information regarding regulations for these activities (**Appendix 16**).

Hunting pressure has been dropping in recent years. FN Reg. 215-1 requires every hunter to contact Hunt Control to reserve a hunting area at Fort Novosel. The hunter is also required to check in and out of his assigned hunting area and report his kill for the day during all seasons except during the month of February, the end of quail and rabbit seasons.

One-page flyers are frequently used to inform the Fort Novosel angling and hunting public of opportunities for participation. Examples of materials available at the Outdoor Recreation Customer Service Center include:

- *Alabama Tree Stand Safety*, published by ADCNR
- Alabama hunting and fishing regulations
- 10 Commandments of Firearms Safety
- Archery range information sheet

- Skeet and Trap Club information sheet
- Certified Hunter Education Course information sheet
- Map of fishing lakes, ponds, and streams with directions

DFMWR updates its website <https://novosel.armymwr.com/programs/outdoor-recreation> regularly to provide current information to patrons. During 2024-2028, Fort Novosel will update and improve methods of informing outdoor enthusiasts of the opportunities available on the installation, as appropriate.

Deer hunting is the most popular consumptive-use activity. Deer hunting on Fort Novosel occurs from October 15 through January. The early part of the season through November 20 is archery-only, with gun or bow hunting authorized the rest of the season. Some areas are archery-only for the entire season due to safety concerns. Fort Novosel follows State of Alabama guidelines on harvest dates and bag limits, with the exception of the QDM program restrictions.

Fishing is the second most popular consumptive-use activity, although there is no accurate means of recording man-days. All lakes, streams, and rivers on Fort Novosel are available for recreational fishing, provided they are not closed due to military training, fisheries management, renovation, or other activity. Fish harvest for each body of water is designated by creel, possession, and length limits for each game fish species. Possession and length limits are posted at each managed lake.

Turkey hunting is the third most popular, followed by small game hunting. The early turkey season is from mid-March through the end of April and the late turkey season is approximately 10 days during the latter part of October with a limit of five gobblers per year. A walk-in wild turkey hunting program has been instituted, with assistance from the National Wild Turkey Federation, to provide hunters with areas where vehicles do not interfere with hunting. These areas are closed to vehicle traffic from March 1 through July to decrease nest disturbance.

Hunting is allowed in TAs A1, E, F, G (North Creek), H (East Creek) and I with shotguns in accordance with FN Reg. 215-1. All hunters must verify the areas are open by checking with Range Operations and contact Outdoor Recreation to sign into the approved hunting areas. Trapping has low participation; although the feral swine program has had widespread participation.

Feral swine numbers are increasing on Fort Novosel, as reflected in the 2022 harvest of over 600 feral swine. Since feral swine are considered an invasive species, there is no closed season on feral swine except during spring turkey season for safety purposes. During deer archery season, swine hunters must also use archery equipment. There is no daily bag limit. Fort Novosel has instituted a successful feral swine trapping program. Due to competition with native wildlife species, it is the strategy to harvest as many feral swine as possible from the installation. Feral swine control is discussed in further detail in Section 5.8.2.2.

Some fields have been planted and are managed specifically for mourning dove. Outdoor Recreation uses these fields to sponsor special dove hunts. The installation also uses Alabama duck seasons and bag limits, which are within limits established by the USFWS. Fort Novosel follows the state established seasons and bag limits for the

eastern cottontail and swamp rabbit. There is very little demand for rabbit hunting on Fort Novosel.

Computer-generated records at Outdoor Recreation show sales of various hunting, fishing, and trapping permits for each sales year. Also recorded are sales organized by each of the 14 types of purchasers. These include active duty, retired, and civilian communities. Individuals meeting the Alabama criteria as totally disabled and possessing a special annual State of Alabama fishing license for totally disabled persons are permitted to fish on Fort Novosel at no cost. Personnel 65 years of age and older are permitted to hunt, fish, and trap on Fort Novosel at no cost.

5.15.3.1 Hunting, Trapping, and Fishing Regulations

The ADCNR Wildlife and Freshwater Fisheries Division issues regulations for hunters, anglers, and trappers in Alabama, including those who use Fort Novosel. AR 200-1 and FN Reg. 215-1 are the primary means of establishing controls on hunting, trapping, and fishing, as well as other natural resources-related activities on Fort Novosel. When hunters purchase their permits, as discussed in Section 5.15.3.2, they are also given a copy of FN Reg. 215-1. AR 215-1 provides the regulatory framework for managing recreational aspects of hunting and fishing on Army installations.

5.15.3.2 Fort Novosel Permits

To participate in hunting, fishing, or trapping on Fort Novosel, individuals must obtain appropriate post permits and stamps from Outdoor Recreation. Costs of these permits and stamps are subject to change. In accordance with DoDI 4715.03, the installation must use the same fee schedule for all participants except for senior citizens, children, and people with disabilities. Permit fees are used for fish and wildlife management by Natural Resources in compliance with the Sikes Act, with 10 percent of these fees going to Outdoor Recreation to offset the cost of selling permits. Tree stand fees are collected by Outdoor Recreation as a rental service. The use of permit funds for fish and wildlife management (90 percent of Sikes Act fees) is described in Section 6.6.2.

5.15.3.3 State License Sales

Participants are responsible for obtaining Alabama hunting, fishing, or trapping licenses before obtaining post permits. Outdoor Recreation sells state licenses, but it does not sell federal or state waterfowl stamps. The sale of state and installation licenses/permits/stamps is facilitated electronically, which reduces sales cost, administrative overhead, and printing costs as well as provides immediate access to records for safety and law enforcement purposes. Outdoor Recreation receives a \$0.25 fee for each state license sold.

5.15.3.4 Check-out and Clearing Procedures

FN Reg. 215-1 outlines specific check-out and clearing procedure requirements of hunters, anglers, and trappers. This regulation can change frequently; the most current version is available at the Fort Novosel DFMWR website:

<https://novosel.armymwr.com/programs/hunting-and-fishing>. All hunting is controlled through the automated iSportsman system. No hunting is allowed on Thanksgiving, Christmas, or New Year's Day. Range Operations notifies Outdoor Recreation of areas

open or closed to hunting daily, subject to aircraft/training changes. Hunters are required to use the iSportsman system before and after hunting to clear the area. Hunters are also required to call Range Operations prior to hunting to confirm areas are open at times other than during deer season. Harvested deer and turkey must be registered through the weigh-in stations.

Anglers are not required to check-in or check-out. When ponds or streams are closed for any reason, notices will be placed on the Outdoor Recreation website.

Trappers are required to check with Range Operations and use the iSportsman system prior to entering areas for trapping. Trapping is only allowed in open training areas. Trappers must check with Range Operations and iSportsman each day to determine if areas with traps are open the following day. If they will be closed for training, all traps must be removed prior to that day. FN Reg. 215-1 includes additional trapping provisions including the requirement to report take to the Fish and Wildlife Section.

5.15.3.5 Hunting and Fishing Maps

Fort Novosel maps are essential for hunter and angler use of range areas. Updated hunting and training area maps are available on iSportsman. These maps are included in FN Reg. 215-1 and are distributed to hunters and anglers upon purchasing a Fort Novosel permit. These maps feature off-limits areas, hunting areas, fishable ponds and streams, and training areas. In addition, Outdoor Recreation has a single-page map of ponds and streams open to fishing.

5.15.3.6 Safety Considerations

Hunters born on or after August 1, 1977 must satisfactorily complete a state-certified hunter education course before being authorized to purchase a Fort Novosel hunting permit. In addition, all persons who hunt on Fort Novosel are required to review the 3Rs slide deck posted on iSportsman pertaining to UXO safety prior to purchasing installation permits. Dogs may not be used on Fort Novosel for deer drives. FN Reg. 215-1 contains many references to hunting, fishing, and water safety practices and requirements. Magnet fishing is prohibited on Fort Novosel.

Privately Owned Weapons Security

The Army, in general, is concerned over the security of privately owned weapons. Many of these are used for hunting. At Fort Novosel, FN Reg. 190-31, *Crime Prevention Program*, and FN Reg. 600-1, *Prohibited and Regulated Conduct*, provide means for commanders to designate where Soldiers store their privately owned weapons. Military hunters who live on the installation must abide by these designations for weapons storage.

Organized Hunts and Fishing Tournaments

Group hunts will be coordinated with the Outdoor Recreation Manager, Chief GLE Officer, and Fish and Wildlife Administrator as necessary. In addition, Range Control will be consulted for area availability, and if warranted, the Garrison Commander would be consulted. Fort Novosel hunters participate in the annual Buckmasters Project Venison. Through this program, hunters provide extra game meat to persons in need of assistance.

5.15.3.7 Growth Potential of Hunting and Fishing Program

Hunting, fishing, and trapping programs are ultimately tied to the success of the game management program (discussed in Section 5.2.3). Potential to increase the use of some hunting, fishing, and trapping programs exists, but fulfilling that potential is not easy in most cases.

There is potential for increases in deer hunting, especially for archery and black powder hunting. In 2011 a recovery program was started for the white-tailed deer as the population was well below carrying capacity. An antlerless harvesting restriction was imposed along with QDM guidelines and aggressive coyote/feral swine trapping. After 4 years, harvest weights increased by an average of 20 pounds and high quality bucks were being harvested with increasing numbers. Turkeys are also increasing throughout Fort Novosel, and there are growth potentials for hunting. Turkey hunters require considerably more space than other hunters, thus the potential for increase is not as great if quality hunting conditions are to be maintained. There is potential for increased feral swine hunting that could help keep their numbers reduced. There is especially room for additional tree stand hunters for feral swine. Most small game populations vary considerably from year to year due to factors largely out of the control of Fort Novosel wildlife managers. Potential for growth of hunting small game is relatively unpredictable, and some of these species have little demand.

5.15.3.8 Lake Tholocco and Other Ponds

From the 1940s to 1990s, various structures were built to improve recreational activities around Lake Tholocco, including piers, picnic pavilions, a marina, a rental facility, a snack bar, storage areas, and the Wildlife Administration Building. Lake Tholocco flooded and the emergency spillway eroded through to the reservoir and drained the lake in 1990. In 1999, a ground restoration ceremony was held to mark the beginning of the reconstruction of Lake Tholocco. The restoration project included numerous fishery improvements, including construction of 10 islands and two jetties, installation of fish attractors, and the construction of ditches with adjacent concrete rubble piles. In the upper portion of the lake, where trees were not removed, navigation paths and openings were created for access and structure. Spawning areas have been created using pea gravel in 4 to 6 feet of water.

In 2001, the gate to the lake was closed and the process of refilling the lake began. The installation rebuilt facilities within and surrounding the lake, including renovations to the East and West Beach gatehouses, Engineer Beach bathhouse, Singing Pines cabins, restrooms on East and West beaches, Outdoor Recreation Office and Equipment Issue facility, boat ramps, and the Snack Bar/Game Room Facility. New additions included a new restroom facility built in the marina area, poles for erosion on East and West beaches, two new fishing piers with lights (one at East Beach and one at West Beach), three new finger piers (two in the Marina area and one at East Beach), swimming enhancements, and the creation of a development plan.

The lake was restocked in 2002 with bream, bluegill, and shell cracker hatchlings along with largemouth bass, hybrid stripers, and channel catfish (*Ictalurus punctatus*), and was reopened April 2002. The 640-acre lake provides opportunities for outdoor activities including fishing, wind surfing, jet skiing, canoeing, swimming, and hunting.

The 2003 Lake Tholocco Area Development Plan covered five general recreation areas based upon location (East Beach, Lake Tholocco Marina, West Beach, Singing Pines, and Engineer Beach RV Park), with a proposed trail system for hiking and jogging. Over the years, this plan has been used as the basis for projects around the lake.

Four lakes (Parcours, Ech, Buckhorn, and Beaver) are also open for fishing. Parcours is limited for people 15-years old and under. Outdoor Recreation operates and oversees patron use of the four lake/park areas.

5.15.4 Other Natural Resources-Oriented Outdoor Recreation

Fort Novosel has a plethora of natural resources-related recreational activities other than hunting, trapping, and fishing. These range from more passive activities such as picnicking, wildlife watching, nut and berry picking, and nature photography to more active recreational outlets such as hiking, horseback riding, recreational shooting, and camping.

5.15.4.1 Camping and Picnicking

Fort Novosel has one travel camp with 18 rustic and 30 modern campsites for RV or tent camping. Sites have water and electrical hookups. A restroom with showers and an RV dumpsite are also available at the camp.

There is a one-way loop access road that generally follows the existing outer loop of the facility. The existing latrine, pump-house, and lake-front pavilion are to be preserved. The RV sewage dump station will remain in the existing location with improved access (asphalt) and increased capacity (1,000 gallon). The park includes 16 drive-through and 14 back-in campsites.

The installation has five picnic and playground areas with an annual usage by 120,000 military and civilian personnel. Areas around fishing lakes are maintained and mowed. There are plans for latrines at Beaver and Buckhorn lakes, both of which are popular recreation sites.

5.15.4.2 Boating and Canoeing

Boating and associated water activities are important aspects of the outdoor recreation program and have increased tremendously with the restoration of Lake Tholocco. Four concrete boat launch ramps are located at Lake Tholocco. Repairs to the ramps were completed in 2001 by the 46th Engineers prior to the refilling of the lake. Ramps at the Marina and Engineer Beach were extended for improved access. A canoe trail has been developed along Claybank Creek and Blacks Mill Creek. This canoe trail still needs work, but it can be used following rainfall.

Since the restoration of the lake, Outdoor Recreation has added four pontoon boats, four fishing boats, and four wakeboards to the fleet that are available for issue. An 18-boat covered slip marina, with electricity is available for customers for boat storage.

5.15.4.3 Nature Trails and Watchable Wildlife

Although there are many opportunities to observe wildlife at Fort Novosel, there are some special projects planned to facilitate the observation of wildlife. A nature trail on

the banks of Claybank Creek allows people to observe many native species of birds and game animals. Numerous eastern bluebird houses were constructed and placed in the rough areas of the golf course and various other locations throughout Fort Novosel. In addition to the nature trails, there are numerous locations where one might observe or photograph wildlife.

Fort Novosel has also established a Watchable Wildlife area on a former 9-hole golf course. The project consisted of tree planting, construction of wildlife feeders, development of supplemental feed plots, an interpretative nature trail, and observation blinds. Artificial nest structures and plantings designed to benefit wildlife may be established and maintained at appropriate areas near campgrounds and outdoor recreation areas.

5.15.4.4 Outdoor Equipment Checkout

Outdoor Recreation operates an outdoor equipment checkout center. For reasonable fees personnel may obtain camping, boating, jet skiing, and other assorted outdoor recreation equipment for designated time periods. Funds received from the Army Community of Excellence were used to acquire new equipment and needed items for the checkout facility. Equipment is now updated each year with items desired by Army patrons. Boats are available for patron use at Lake Tholocco. Boats, camping equipment, and canopies are the most requested items.

5.15.4.5 Recreational Shooting

Recreational shooting is an important aspect of the Fort Novosel outdoor recreation program. The post has a skeet range and an archery range. The skeet range is the responsibility of DFMWR, but it is rented and operated by a private organization, the Fort Novosel Skeet and Trap Club. The facility includes six skeet ranges, two trap ranges, and a clubhouse. In FY 1995, the post spent \$7,000 for new trap machines for this facility. It is generally open weekends and holidays.

The archery range is operated and maintained by an approved private organization, the Southeast Alabama Archers Club. The facility has a National Field Archery Association style range with an 80-yard practice/zero range. The club has field, hunter, animal, and 3D shoots. The facility is located at Lake Tholocco.

5.15.4.6 Riding Stables

In 1986, the new Fort Novosel Riding Stables were opened under the auspices of DFMWR to replace an aged facility operated by a private association. The riding stables include 80 stalls with paddocks, 18 box stalls, three transient barns with 72 stalls, a farrier shed with a double wash rack, two hay barns, a clubhouse with office and kitchen, three lighted arenas, three pastures, two round pens, and over 50 miles of trails. About 2,000-3,000 trips on the horse trails are made annually.

Retirees and "other status" users of the riding stables are important to the cohesiveness, due to the transitory nature of active-duty Soldiers. It is open to virtually all members of the Fort Novosel community, and approximately half of the horse stalls are rented by active-duty personnel. The riding stables are operated by one full-time Program Manager and staff. Funds for operations come from patrons' fees for boarding.

5.15.4.7 All-Terrain Vehicles

All-Terrain Vehicles and other off-road vehicles (ORVs) have great potential to damage natural resources. AR 200-1 is very restrictive on the use of ORVs for recreation. No off-road driving is allowed on Fort Novosel. Vehicles commonly used as ORVs must remain on gravel or paved roads. Exceptions to this policy include hunters with disabilities, military use, law enforcement, and Natural Resources activities.

5.15.4.8 Recreation and Ecosystem Management

A basic tenet of ecosystem management is the “human values and use” component. Fort Novosel’s outdoor recreation program affects ecosystems in terms of both products (fish and game species harvested and plant products) and disturbance associated with recreational use. Fort Novosel is aware of the need to ensure these activities do not significantly impact overall ecosystem integrity. Activities, such as game harvest, horseback riding, recreational shooting, and water sports, are closely monitored by Natural Resources, Outdoor Recreation, GLE, and ENRD staffing for impacts on ecosystem integrity. Special consideration is given to protection of critical areas (nesting sites, highly erodible areas, etc.) from negative impacts due to outdoor recreation.

5.16 Conservation Law Enforcement

Many aspects of natural resources management require law enforcement to be successful, including programs such as harvest controls, protection of sensitive areas, water pollution prevention, hunting and fishing, and non-game species protection.

Objectives for conservation law enforcement include:

- Implement natural resources law enforcement program.
- Improve enforcement of natural resources laws and regulations at Fort Novosel by providing sufficient conservation law enforcement staffing.

5.16.1 Authority and Jurisdiction

GLE is the responsibility of the DPS. GLE officers also assist the DPS with remote area patrolling. GLE officers enforce post, state, and federal regulations involving wildlife, environmental concerns, and outdoor activities where safety rules are involved.

ADCNR enforcement officers independently patrol Fort Novosel as well as working with installation GLE officers. These officers have federal jurisdiction. Concurrent jurisdiction exists on most areas of Fort Novosel north of the cantonment area. This cooperation will continue during 2024-2028. Laws are enforceable by state and federally commissioned personnel. However, jurisdiction in the cantonment area is exclusive to federally commissioned personnel.

Fort Novosel officers use the Federal Magistrate Court to adjudicate civilian violators who are issued DD Form 1805 and Military Police Report citations. In most cases, DD Form 1408 citations are issued to military and civilian violators of regulations and administrative procedures. These violations are administratively handled by military commanders and civilian supervisors. More serious cases are handled using the Military

Police Report, DA Form 3975. State enforcement officers use district courts for case adjudication.

5.16.2 Enforcement Issues

Fort Novosel provides hunting and fishing activities, as well as other outdoor recreation, which may require enforcement activities. In addition, cultural resources and non-game species require protection. Related illegal activities include unauthorized dumping and unauthorized ORV operation.

Some users gain access through illegal entry of the installation, which may either directly or indirectly impact efforts to protect natural resources. While unauthorized entry is not a major issue at Fort Novosel, illegal dumping is a significant problem at specific, isolated sites. Signage, cabling, and local law enforcement patrols assist with these areas.

Although ORV operation is less of a problem than it has been in the past, ORVs can cause a great deal of damage to soils and vegetation where they are used. These vehicles tend to make use of places that are relatively unaffected by military vehicles, and can cause significant damage to wet and boggy areas as well as waterway embankments. Additionally, illegal use of ORVs on Fort Novosel could lead to other illegal activities such as theft, fish and wildlife violations, dumping, and others.

Game issues include poaching, failure to check game at check stations, and persons hunting or fishing without proper licenses. Poaching, especially deer, is a major problem at Fort Novosel. Check points have been effective in curbing night deer hunting, as evidenced by a lack of shootings of dummy deer, but there are concerns that the growing turkey population is vulnerable to road shooting during certain times of the year. Another significant issue is the lack of checking game at check stations. These numbers directly affect the capability of Natural Resources to make decisions regarding harvest regulations. Without accurate counts, it is difficult to set limits for the next season. Persons hunting or fishing without state or installation hunting or fishing licenses or permits present another challenge to enforcement on Fort Novosel. Creel limits are sometimes violated and water sports need additional GLE monitoring. Additional GLE positions are needed on the installation to reduce these infractions.

5.16.3 Training

GLE officers are selected from individuals with prior law enforcement backgrounds and they receive continuous on the job training. Military Police receive their training at the Military Police School, currently located at Fort Leonard Wood, Missouri. The current GLE force consists of one civilian and is augmented by Military Police resources during the swimming season.

Alabama State Game Wardens and Marine Police conduct continuous training upon requests from the DPS. DPS currently has memorandums of agreement with surrounding law enforcement agencies for any type of law enforcement support, including training. Enforcement personnel must qualify with their individually issued weapons twice annually. Additional in-house training includes the use of enforcement videos and cardiopulmonary resuscitation training. On the job training is the primary

means used by permanent civilian enforcement personnel to train Military Police personnel in game warden specific duties.

5.17 Geospatial Information Systems and Imagery

GIS is an integral part of natural resources and environmental protection and planning. This powerful management tool provides the installation and natural resource managers with a comprehensive database that includes a spatial component. Information such as aerial photographs, survey and monitoring data, and various other natural resource information are all tied to a geographical coordinate system which enhances the installation's ability to effectively coordinate and ensure that current and planned mission activities do not adversely impact natural resources that must be protected, conserved, and managed using an ecosystem approach. Additionally, efficient and effective land use planning supports military readiness and sustainability, while protecting and enhancing the natural resources for multiple use, sustained yield, and biological integrity.

5.17.1 GIS

The Fort Novosel GIS is managed by the Fort Novosel DPW Real Property office. An enterprise GIS data collection repository has been established and directorates throughout the installation are using and maintaining the data. A SQL Server/ArcSDE multi-user geodatabase connects users from locations at Range Operations, Environmental, Engineers, Forestry, ITAM, and Fish and Wildlife to the GIS.

Spatial data analysis and map presentation are the primary tasks of the GIS. GIS has become an integral part of many natural resources programs, and as databases are compiled and the GIS continues to aid the Fort Novosel natural resources program, use of GIS is expected to expand further. Programs such as hazardous materials management, spill response, and ground water quality monitoring are obvious applications for GIS support. Natural Resources used GIS to complete its Forestry Inventory and the Gopher Tortoise Habitat Suitability Survey, as well as to support NEPA documentation. The GIS can support other civilian and military programs on the installation, such as grounds maintenance, range road maintenance, utility corridor planning, and antenna siting. In the future, the enterprise GIS effort will be focused on increasing the information in the user database. **Appendix 17** includes geodatabases already developed for Fort Novosel.

5.17.2 Imagery

Aerial photographs are a useful survey tool to persons interested in managing relatively large pieces of land or analyzing long-term vegetation changes. Combined with GIS, these images can become even more powerful. The oldest known aerial photographs of Fort Novosel were taken in 1942. Since then, aerial photographs have been taken in 1979, 1988, 1995, 1998, 1999, and 2002. DigitalGlobe satellite imagery of Fort Novosel's entire flying area was collected in 2007, 2009, and 2013. In 1997, a contract with Kansas State University also provided aerial color photographs of five airfields and 18 stagefields. Fort Novosel had lidar data collected in 2009 at a resolution of 60 centimeters. This data has immensely improved Fort Novosel's elevation models.

During 2024-2028, Fort Novosel will use satellite imagery to enhance its ecosystem monitoring capabilities. Considering the size of the installation, this is the most economical means of regularly monitoring changes to the landscape. One of the ways in which this analysis will be performed is change detection. Change detection can be done by comparing, either by computer or by trained personnel, two images taken at different times. In the past, Fort Novosel has used DigitalGlobe (1:12,000) and Landsat (1:100,000) imagery for these comparisons. However, it is likely that the National Geospatial-Intelligence Agency has imagery that could be used by Fort Novosel. This agency is the nation's primary source of geospatial intelligence for the DoD and the U.S. Intelligence Community. The acquisition of imagery collected in past years from the National Geospatial-Intelligence Agency would facilitate change analysis over a period of time.

6.0 INRMP IMPLEMENTATION

6.1 INRMP Implementation

Fort Novosel depends on natural resources for the sustainability of installation training programs and will manage natural resources to ensure sustainable use. This INRMP is not intended to impair the ability of the installation to perform its mission activities but does identify usage restrictions on sensitive attributes such as wetlands, SAR, as well as threatened and endangered species.

Implementation of this INRMP will be realized through the accomplishment of specific goals and objectives as measured by the completion of projects described within this INRMP and is assessed based upon metrics established by the DoD. According to DoDM 4715.03, an INRMP is considered implemented if an installation does the following:

- Executes prioritized projects and activities in accordance with specific timeframes identified in the INRMP.
- Ensures sufficient professionally trained natural resources management personnel are available to perform the tasks required by the INRMP.
- Reviews the INRMP annually, updates goals and objectives, and coordinates changes with regulators, as appropriate.
- Documents specific INRMP accomplishments undertaken each year.

6.2 Process for Preparing Project Prescriptions

Management methodologies are prepared by the program managers and supporting staff. In addition to the actions listed in Section 5.0, additional documentation in the form of work plans, RECs, categorical exclusions, and NEPA documents may be created within the framework established by this INRMP. These projects are then reviewed by appropriate staff, approved by the DPW, and are coordinated with mission personnel. Once approved, projects may be accomplished as permitted by funding. The USFWS, Daphne, Alabama field office and ADCNR will have opportunities to review the project list approved by the DPW during annual INRMP reviews.

6.3 Achieving No Net Loss

The purpose of this INRMP is to ensure “no net loss” of military training capability on Fort Novosel’s lands as a result of Natural Resources restrictions or actions. At this time, there are no significant restrictions to training because of natural resource issues; however, there are constraints which may apply to specific projects or actions as stated in Section 3.1.3.2. These constraints are typically temporary in nature and can be avoided by proper communication and planning.

6.4 Natural Resources Staffing

Fort Novosel’s goals and objectives are primarily carried out as duties and responsibilities of the Natural Resources staff. When possible, other organizations, contractors, and volunteers are used to supplement Natural Resources staff efforts.

Efforts beyond the capabilities of the installation are carried forward as projects to IMCOM for inclusion in the budget review.

Fort Novosel Natural Resources has two direct funded and four reimbursable government positions. Due to current IMCOM staffing scenarios, the program supplements the completion of its goals and objectives through contractor support with current annual requirements equivalent to six man-years. Additionally, one man-year of volunteer labor is provided for invasive species control. The grand total of all direct, reimbursable, contract, and volunteer manpower for the current Natural Resources program is approximately 13 man-years. Analysis of labor, program costs, forestry income, and recreational income receipts for the current program compared to the desired program needs reveals a deficit of four man-years.

Current program staffing includes the following positions: one GS-12 Natural Resources Manager, one GS-12 Fish and Wildlife Administrator, one GS-11 Forester, two GS-09 Forestry Technicians, and six Natural Resources Technical Contractors.

6.4.1 Training of Natural Resources Personnel

Environmental staff should participate in periodic training courses and workshops to keep up-to-date on natural resource management issues and laws as they relate to natural resources management at military installations. Other environmental and natural resources training activities should be undertaken, as needed, to ensure that natural resources personnel are prepared to handle any land management issues that may occur.

Environmental staff should receive periodic training for implementation of erosion and sediment control measures; forestry management; outdoor recreation; and ground maintenance for identification of wetlands, plants, trees, and shrubs to avoid impacts to key vegetation species and wetland habitats identified in this INRMP for conservation and protection. Training of natural resources personnel is also applicable to fish and wildlife management at Fort Novosel. Other environmental and natural resources training activities should be undertaken, as needed, to ensure that natural resources personnel are prepared to handle any natural resource management issues that may occur and that they are trained in the use of effective BMPs. Training objectives include:

- Identify personnel with required training needs and schedule training.
- Establish tracking system for professional certifications, safety training requirements, wildland fire qualifications, herbicide/pesticide applicator certifications, and other training requirements to ensure they are maintained.
- Annually prioritize optional trainings and meetings in accordance with Natural Resources priorities.

6.5 Use of Cooperative Agreements

Implementation of this INRMP will require active assistance from Fort Novosel's partners, both signatory and otherwise. Section 1.4 indicates agencies, organizations, and others in this category. Specific needs from external organizations are indicated throughout this document. It is impossible for Fort Novosel to hire the specialized expertise needed for some projects within this INRMP. Fort Novosel will require

considerable expertise from universities, agencies, and contractors to accomplish some tasks within this INRMP. When possible, Fort Novosel will reimburse parties for this assistance. A Grants Officer is required to approve funding through cooperative agreements.

6.6 Funding

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.

6.6.1 Forestry Funds

Proceeds from the sale of forest products are commonly called P7 funds, and the account is called the Forest Reserve Account, which is centrally controlled. Funds are to be used only for items directly related to management of the forest ecosystem, including timber management, reforestation, TSI, 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. Fort Novosel is limited to recovering its approved expenses for forest management. The remainder of the money generated by the Fort Novosel forestry program is split 60:40 between the U.S. Treasury and the adjoining counties. Defense Financing and Accounting Service- Indianapolis Regulation 37-1, Chapter 25 outlines collection and expenditure systems.

The forestry program is projected to generate an average of about \$500,000 annually during 2024-2028. Of this income, about \$450,000 will be required to operate the forestry program and purchase equipment annually, with the remainder apportioned between the adjoining counties and the U.S. Treasury.

6.6.2 Sikes Act Funds

Sikes Act funds are collected via sales of hunting and fishing licenses. They are authorized by the Sikes Act and regulated via AR 200-1. These funds may be used only for fish and wildlife management on the installation where they are collected. They cannot be used for recreational aspects of fish and wildlife management. They are exempt from the base-level commercial equipment and have no year-end (unobligated funds carry over on October 1). Fee collection and administration (i.e., printing and issuing the State Sikes Act Permit) costs are authorized (not to exceed 10 percent of the annual Sikes Act revenue).

Monies accrued from the collection of Sikes Act Permit fees will be expended in support of the Natural Resources fish and wildlife program on Fort Novosel 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 (AR 37-100 and 37-108). Unobligated balances shall be accumulated with current fee collections, and the total amount accumulated at the installation will be available for obligation as apportioned by the Office of Management and Budget.

Army policy encourages financial self-sufficiency with regards to managing game populations on military lands. Fort Novosel is examining options to increase Sikes Act income to maintain the game base for its quality hunting and fishing program.

6.6.3 Agricultural Funds

Agricultural funds are derived from agricultural leases on installations. They are centrally controlled at both DA and Major Command levels with no requirements for spending in the same location where they were generated. AR 200-1 outlines procedures for collection and spending these funds. These funds are primarily intended to offset costs of maintaining agricultural leases, but they are also available for preparing and implementing INRMPs. These are the broadest use funds available exclusively to natural resources managers. They are exempt from base-level commercial equipment limits on the purchase of equipment.

AR-200-1 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 INRMPs
- Implementation of INRMPs

Services in lieu of payments must provide these same categories of services. Fort Novosel itself does not normally receive funds from agricultural leases. The agricultural leasing program is handled through the USACE, Mobile District, and their administrative costs in handling the program consume all monies that are generated as a result of the leases.

6.6.4 Environmental Funds

Environmental funds are a special subcategory of Operations and Maintenance (O&M) funds. Compliance with laws is the highest priority for environmental funding. The funding process heavily favors high priority funding projects to return to compliance with federal or state laws, especially if non-compliances are backed by Notices of Violation or other enforcement agency action.

“Must fund” classifications include mitigation identified within a Finding of No Significant Impact and items required within Federal Facilities Compliance Agreements. This INRMP is a requirement of a Federal Facilities Compliance Agreement, and some projects and programs within it are also used to mitigate various military activities.

The total Environmental Fund budget for this INRMP is estimated at \$19,651,222 for FY 2024-2028. This estimate will be adjusted, as needed, on a yearly basis.

6.6.5 Other Funds

The only other funding for natural resources programs on Fort Novosel is the use of O&M funds, generally obtained through DPW. These funds are used for erosion control and some fish and wildlife program support. For cost estimation purposes, annual costs of \$30,000 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 5 years.

NAF are used to defray the outdoor recreation costs associated with this INRMP. However, these funds are not specifically included within this plan.

Fort Novosel, IMCOM, USFWS, and ADCNR recognize that year-to-year congressional appropriations for the implementation of the Army's mission or changes in the Fort Novosel mission resulting from Base Realignment and Closure or Force Drawdown may reflect or necessitate different priorities. If these priorities require deferral, re-direction, or cancellation of anticipated projects or plans, Fort Novosel, in consultation with IMCOM, will determine which projects or plans should be implemented first. In every case, Fort Novosel and IMCOM will ensure that constraints on the military mission are minimized and avoided to the greatest extent possible.

6.6.6 Anti-Deficiency Act Statement

All requirements set forth in this INRMP requiring the expenditure of funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 USC § 131). No obligation undertaken by Fort Novosel under the terms of this INRMP will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

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APPENDIX 1. List of Acronyms

List of Acronyms

°F	degrees Fahrenheit
1AB	1st Aviation Brigade
110AB	110th Aviation Brigade
AAF	Army Airfield
ADCNR	Alabama Department of Conservation and Natural Resources
ADEM	Alabama Department of Environmental Management
AHP	Army Heliport
AO	Area of Operation
APF	Appropriated Fund
AR	Army Regulation
ARNG	Army National Guard
BMP	Best Management Practice
CEMML	Center for Environmental Management of Military Lands
CEQ	Council on Environmental Quality
CFR	<i>Code of Federal Regulations</i>
DA	Department of the Army
DFMWR	Directorate of Family and Morale, Welfare and Recreation
DoD	Department of Defense
DoDI	Department of Defense Instruction
DoDM	Department of Defense Manual
DPTMS	Directorate of Plans, Training, Mobilization, and Security
DPS	Directorate of Public Safety
DPW	Directorate of Public Works
EA	Environmental Assessment
ENRD	Environmental and Natural Resources Division
EO	Executive Order
ESA	Endangered Species Act
FARP	Forward Arming/Refueling Point
FN Reg.	Fort Novosel Regulation
FY	Fiscal Year
GERB	Garrison Environmental Requirements Build
GIS	Geographic Information System
GLE	Game Law Enforcement
GRMO	Garrison Resource Management Office
GSO	Garrison Safety Office
HQDA	Headquarters Department of the Army
ID	Identification
IMCOM	U.S. Army Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management

ITAM	Integrated Training Area Management
IWFMP	Integrated Wildland Fire Management Plan
Lidar	Light Detection and Ranging
LMU	Land Management Unit
LRAM	Land Rehabilitation and Maintenance
LRC	Logistics Readiness Center
MOU	Memorandum of Understanding
MSO	Methylated Seed Oil
NAF	Non-appropriated Fund
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOTAM	Notice to Air Missions
NRCS	Natural Resources Conservation Service
O&M	Operations and Maintenance
ORV	Off-road Vehicle
PAO	Public Affairs Office
QDM	Quality Deer Management
REC	Record of Environmental Consideration
ROA	Report of Availability
RPMP	Real Property Master Plan
RTLA	Range and Training Land Assessment
RV	Recreational Vehicle
SAR	Species at Risk
SERE	Survival, Escape, Resistance, and Evasion
SFC	Soldier Field Card
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Officer
SMZ	Streamside Management Zone
SRA	Sustainable Range Awareness
SRP	Sustainable Range Program
TA	Training Area
TRADOC	U.S. Army Training and Doctrine Command
TRI	Training Requirements Integration
TSI	Timber Stand Improvement
U.S.	United States
USAACE	U.S. Army Aviation Center of Excellence
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Command
USAPHC	U.S. Army Public Health Center
USC	United States Code
USDA	U.S. Department of Agriculture
USDA-APHIS-WS	U.S. Department of Agriculture-Animal and Plant Health Inspection Service-Wildlife Services

USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFR	Visual Flight Rule
WASH	Wildlife Aircraft Strike Hazard

APPENDIX 2. Specific Items of
Cooperation Between the
U.S. Fish and Wildlife
Service, Alabama
Department of Wildlife and
Freshwater Fisheries, and
Fort Novosel

Specific Items of Cooperation Between the U.S. Fish and Wildlife Service, Alabama Department of Wildlife and Freshwater Fisheries, and Fort Novosel

PURPOSE: The purpose of this document is to specifically list items to be provided by the Alabama Department of Wildlife and Freshwater Fisheries (ADWFF), U.S. Fish and Wildlife Service (USFWS), and Fort Novosel for cooperative implementation of the Fort Novosel Integrated Natural Resources Management Plan. Items not specifically listed will generally be the responsibility of Fort Novosel 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 Novosel 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, trapping, or fishing the lands or waters of Fort Novosel shall be required to obtain special Fort Novosel hunting, trapping, or fishing licenses unless exempt by Fort Novosel regulations. Funds derived from the sale of these licenses will be used exclusively for the implementation of the fish and wildlife management portion of the Fort Novosel 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).
- Up to 10% of the Sikes Act fee may be used by the Morale, Welfare, and Recreation (MWR) organization to defray the cost of selling permits. Revenues generated from these recreational activity fees will be deposited in the Fort Novosel MWR fund.
- Persons hunting, trapping, or fishing the lands of Fort Novosel must purchase State licenses, tags, and stamps as required by ADWFF, unless exempt by ADWFF regulations. ADWFF agrees that military personnel on active duty and permanently stationed in Alabama may purchase hunting, fishing, and trapping licenses at resident prices.
- A Federal waterfowl stamp is required for hunting waterfowl as prescribed by Federal laws.
- All hunting, fishing, and trapping on Fort Novosel will be in accordance with federal and state fish and game laws.
- Representatives of the ADWFF and the 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 non-reimbursable basis, to include aircraft, for wildlife related functions on Fort Novosel provided such transportation is available without detriment to the military mission.

- The ADWFF and USFWS shall furnish technical assistance for development and implementation of professionally sound natural resources programs on Fort Novosel provided funding for such support is available.
- Fort Novosel shall furnish assistance and facilities to ADWFF and/or USFWS for mutually agreed upon natural resources research projects. It shall be the policy of the Commanding General, Fort Novosel 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 Commanding General'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 Novosel lands without prior written approval of the Army, ADWFF, and the USFWS.
- ADWFF shall establish season and bag limits for harvest of game species on Fort Novosel. Fort Novosel may make special requests for such regulations according to procedures established by ADWFF. Requests for regulations not in accordance with those established statewide will be based on data specific to Fort Novosel or designed to meet Fort Novosel's training schedules.
- Hunting, trapping, and fishing on Fort Novosel will be authorized and controlled by the installation 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 Novosel will operate biological check stations to collect harvest data required by ADCNR and Fort Novosel. ADWFF may collect additional data on fish or wildlife resources at Fort Novosel with approval of Fort Novosel for access to training lands.
- Public access for hunting, trapping, and fishing is approved under a system of controls established by Fort Novosel in cooperation with ADWFF. Civilians will be considered on an equal basis with military and Army civilian employees for permits and access to hunting and fishing areas. Should there be a need for quotas on the number of hunters permitted on a daily or seasonal basis for reasons of safety or recreational carrying capacity, such quotas will not be instituted prior to consultation with ADWFF. Persons holding hunting, fishing, or trapping permits will stand at par with each other for use privileges.
- Hunting, trapping, and fishing will be allowed only on those areas where there is no conflict with military training activities and no unreasonable safety hazard to participants, military personnel and dependents, or Army civilian employees. Certain areas will be closed to hunting and fishing, including, but not limited to impact areas containing unexploded ordnance.
- Fort Novosel has concurrent jurisdiction with regard to law enforcement. In areas of concurrent jurisdiction, Alabama laws may be enforced by either federal or state commissioned enforcement personnel. Enforcement will be a joint responsibility of Fort Novosel, ADWFF, and the USFWS.

- Fort Novosel agrees to cooperate with USFWS and ADWFF 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.
- ADWFF and the USFWS will provide technical and professional advice on all matter concerning wildlife and fish management when necessary.
- Fort Novosel has the option to directly transfer funds to the ADWFF and 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 Novosel 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 Novosel 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 Novosel 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 to the new requirements within the Sikes Act if needed.

(2) This plan will be reviewed by ADWFF, USFWS, and Fort Novosel on a regular basis, but not less often than every 5 years.

(3) No land or forest products from land on Fort Novosel will be sold under Section 2665 (a) or (b), Title 10 USC and no land will be leased on Fort Novosel 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 Novosel 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 Novosel Integrated Natural Resources Management Plan is not, nor will be treated as, a cooperative agreement to which chapter 63 of title 31, United States Code applies.

APPENDIX 3. Soil Erosion and Sediment Control Plan

INRMP Update

Soil Erosion and Sediment Control Plan (SESCP)

The Fort Novosel installation is composed of lands within both Dale and Coffee counties. The Dale and Coffee County line almost centers the Aerial Gunnery Range Complex (AGRC) extending from Training Area (TA)-17 on the south to TA-8 on the north; therefore, placing more than half of the western AGRC into Coffee County and the remainder of the installation in Dale County. Both Alabama counties have published soil surveys; however, the Dale County soil survey was published in 1956 and does contain a different soil legend than the Coffee County survey.

Both soil surveys contain soil classifications that have been determined by the Natural Resources Conservation Service (NRCS) as being Highly Erodible Land (HEL). HEL classification identifies those lands that must not exceed precise soil loss tolerances if they are to remain productive. The HEL lands are identified through utilizing established NRCS components as percent slope, soil erodibility factors, slope length, and geographic rainfall accumulations along with various ground covers. Those lands having been determined as HEL should remain in permanent forest or grassland cover or have adequate best management practices (BMPs), crop rotations, and conservation practices installed on them in order to remain below the soil loss tolerance limits or "T" values. If these HEL lands are not properly maintained at or below their assigned "T" or soil loss tolerance limits, the productivity of that particular land base will rapidly diminish as the topsoil is depleted from sheet, rill, and gully erosion.

The following HEL soil classifications are identified for both Dale and Coffee counties as published in the soil surveys.

Coffee County HEL

Cowarts 5-10%
Dothan 2-8%
Luverne 5-25%
Lucy 5-25%
Orangeburg 1-15%
Troup 1-20%
Shady Grove 5-20%
Red Bay 5-8%

Dale County HEL

Americus 8-17%
Boswell 2-17%
Bowie 2-12%
Carnegie 2-5%
Cuthbert 8-30%
Eustis 1-30%
Lakeland 5-30%
Magnolia 2-12%
Norfolk 2-12%
Rains 5-20%
Plummer 5-20%
Red Bay 5-12%
Ruston 5-20%
Shubuta 2-12%
Angie 2-12%
Tifton 5-8%

The map referred to earlier in the INRMP (Figure 4-2) indicates the locations of all Fort Novosel HEL soils as represented in the two published soil surveys. All installation lands identified as HEL are maintained as permanent forest, wildlife lands, or training lands. Construction projects on these HEL sites are always discouraged and strict adherence to BMPs and Alabama stormwater permitting requirements are closely monitored. In those particular areas that may be inaccessible because of unexploded ordnance (UXO), the Natural Resources Branch has developed and completed a Sediment Control Plan to reduce turbidity and capture sediment from the surface waters.

APPENDIX 4. Burn Plan Form

BURN PLAN FORM

Area: _____ Dates: _____ Prescribed Fire: _____ Site prep: Overstory _____ ClrCut _____

Burn Unit Acres: _____ Burn Area Acres: _____ Previous Burn Date: _____

Location (Roads, Creeks, Training Sites): _____

BURN PLAN: FOR PRESCRIPTIONS, EVALUATION, AND RECORDS

Pre-Burn Reconnaissance Completed (Soldiers, Hunters, Assets, Etc.)? Yes: _____ No: _____

IGNITION TIME _____

IGNITION COMPLETE TIME _____

BURN OUT TIME _____

Burn Boss (BB)/Burn Crew: _____

Burn Objective: _____

Firebreaks Plowed? Yes: _____ No: _____ If Yes, Identify on photo

ASSETS PRESENT (Power Poles, Utility Boxes, Buildings, Railroads, Latrines, Etc.)? Yes: _____ No: _____

If Yes, Description: _____

PERSONNEL Assigned to Protect Assets: _____

Date Protected: _____

HAZARDS (Near Roads, Utility Lines, Railroads, Buildings, Reservation Boundary)? Yes: _____ No: _____

If Yes, Description (Snags, Green Trees, Number of Each and Location in Burn Unit): _____

PERSONNEL Assigned to Hazards: _____

Action Taken to Eliminate Hazards (felled w/saw or dozer, raked around, suppressed with water or dozer):

PROBLEMS: _____

STAND CONDITION:

Overstory (Forest Type Code: LOB/HWD__ LOB/PLAN__ LONGLEAF/PLAN__ MIXED/HWD__

DBH 0-2"__ 2-6"__ 6-10"__ 10+"__ ; BA: <50__ >50__)

Longleaf Pine Plantations Yes:____ No:____ If Yes, number of acres _____

Loblolly Pine Plantations Yes:____ No:____ If Yes, number of acres _____

Clearcut Yes:____ No:____

Midstory (Species: scrub oak __ sweetgum__ upland hardwood (red/white oak, hickory)__ other hardwood__)

Condition Class (__ 1 __ 2 __ 3)

Fuel Model (1 2 3 4 5 6 7 8 9 10 11 12 13)

Fuels (Rough: 1yr__ 2yr__ 3yr__ >3yr__ ; herbicide__)

Topography (Slope: 0-5%__ 5-10%__ 10-15%__)

FIRE WEATHER:

Preferred

Forecasted / Actual

SFC Wind / Direction

6-18 MPH

____ / _____

Air Temperature:

(40°-70° Winter, 60°-85° Spring, 75°-95° Summer)

____ / _____

Relative Humidity

20-60%

____ / _____

Mixing Height

> 1650 ft.

____ / _____

Transport Wind

> 9 MPH

____ / _____

Fuel Moisture

1 hr. (6-9%)

____ / _____

Days Since Rain

1 - 10 Days

____ / _____

Amount of Rain

Smoke Dispersion Index (SDI):

40-100

Drought Index (KBDI):

DORMANT__ <300

GROWING__ <450

SITE PREP__ <500

Point of Ignition (POI)

>70

In Stand Winds

1-5 mph

Low Visibility Occurrence Risk Index (LVORI) __ <6

EVALUATION (During, Post-Burn, and Day After Burn):

Date: _____

1) Time Burn Perimeter, Assets, and Hazards Checked?

During Burn: _____ **PATROLLED BY:** _____

Action Taken: _____

Post Burn: _____ **PATROLLED BY:** _____

Burn Perimeter, Assets, and Pre-Burn / Post-Burn Hazards Protected and Secured?

Yes: _____ No: _____ If No, Additional Action Taken: _____

2) Time of final Inspection (Next A.M.): _____ *INSPECTED BY:* _____

Burn Perimeter, Assets, and Pre-Burn / Post-Burn Hazards Still Protected and Secured?

Yes: _____ No: _____ If No, Additional Action Taken: _____

3) Signs Retrieved? Yes: _____ No: _____ N/A _____ If No, Why: _____

4) Stand Condition:

Crown Scorch: 0-25% _____ 25-50% _____ 50-75% _____ 75-100% _____

Hardwood Topkill: 0-25% _____ 25-50% _____ 50-75% _____ 75-100% _____

5) Smoke Problems / Impacts? Yes: _____ No: _____ Location: _____

If Yes, Action Taken: _____

6) Fire Behavior (ROS, Torching Out, Controlled, Intense, Subdued, Plume Trajectory):

Test Fire:

Rate of Spread: 1-2ch/hr _____ 2-4ch/hr _____ 4-6ch/hr _____ 6-8ch/hr _____ 8-10ch/hr _____ >10ch/hr _____

Torching Out _____ Controlled _____ Intense _____ Subdued _____

Plume Trajectory N _____ S _____ E _____ W _____ NE _____ NW _____ SE _____ SW _____

Actual Burn:

Rate of Spread: 1-2ch/hr _____ 2-4ch/hr _____ 4-6ch/hr _____ 6-8ch/hr _____ 8-10ch/hr _____ >10ch/hr _____

Torching Out _____ Controlled _____ Intense _____ Subdued _____

Plume Trajectory N _____ S _____ E _____ W _____ NE _____ NW _____ SE _____ SW _____

7) Were Objectives Met?

Fuel Reduction Yes: _____ No: _____

Hardwood Control Yes: _____ No: _____

Brownspot Control Yes: _____ No: _____

Site Preparation Yes: _____ No: _____

Other Yes: _____ No: _____

If Yes, Explain: _____

If No, Explain: _____

8) Erosion or Mineral Soil Exposed? Yes: _____ No: _____ (If Yes, Identify on Photo)

Location and GC: _____

9) Remarks, Problems, Adverse Impacts of Public Relations: _____

10) **FORM COMPLETED BY:** _____ **DATE:** _____

SMOKE MANAGEMENT SCREENING FORM

Step I: Direction and Distance of Possible Smoke Impact

- A. Smoke Dispersion Index (SDI): _____ Category: 3___ 4___ 5___ 6___
- B. (1) Burn Type: prescribed burn___ site preparation: overstory___ clearcut___
 (2) Fuel Type: rough 1yr___ 2yr___ 3yr___ >3yr___; herbicide___
 (3) If Prescribed burn, size of burn area >300 acres? Yes___ No___
 If Site preparation, size of burn area >200 acres? Yes___ No___
 (4) Firing Technique: backing___ strip-heading___ spotting___ flanking___
 (5) Possible Smoke Impact Distance (Miles):
 0.25___ 0.5___ ___ 2___ 3___ 4___ 6___ 8___ 12___
- C. Any smoke sensitive areas (SSA's) within 5 or 10 chains of burn? Yes*___ No___
- D. Any downwind smoke sensitive areas (SSA's)? Yes*___ No___
- E. Any down-drainage smoke sensitive areas (SSA's)? Yes*___ No___

*** If Yes to Step I: C, D, or E identify areas on smoke screen map and go to Step II.**

Step II: Identify and List SSA's (Smoke Sensitive Areas)

- A. List SSA's* within 5 or 10 chains.
 (1)
 (2)
 (3)
 (4)
- B. List SSA's* in downwind impact area.
 (1)
 (2)
 (3)
 (4)
- C. List SSA's* in down-drainage impact area.
 (1)
 (2)
 (3)
 (4)

***If any SSA's listed in Step II: A, B, or C above, continue screening system.**

Step III: Actions Taken or Changes Made to Eliminate, Minimize, and Mitigate Smoke Problems:

- A. SSA's adjacent to or within 5 or 10 chains? Yes___ No___
If yes, what action was taken or changes made to eliminate, minimize, and mitigate a smoke problem? _____

- B. SSA's in downwind impact area? Yes___ No___
If yes, what action was taken or changes made to eliminate, minimize, and mitigate a smoke problem? _____

- C. SSA's in down-drainage impact area? Yes___ No___
If yes, what action was taken or changes made to eliminate, minimize, and mitigate a smoke problem? _____

Step V: Interpreting Results

Were there any other actions taken or changes made in the prescription to eliminate, minimize, and mitigate a smoke problem? _____

APPENDIX 5. Management Guidelines for the Gopher Tortoise on Army Installations

REPLY TO
ATTENTION OFDEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
SOUTHEAST REGION
1593 HARDEE AVENUE SW
FORT MCPHERSON, GEORGIA 30330-1057

IMSE-PWD-E

11 MAR 08

MEMORANDUM FOR

Garrison Commander, U.S. Army Garrison Benning, 6751 Constitution Loop, Suite 550, Fort Benning, GA 31905-5000
Garrison Commander,, U.S. Army Garrison Gordon, Building 33720, Fort Gordon, GA 30905-5040
Garrison Commander, U.S. Army Garrison Stewart, 42 Wayne Place, Fort Stewart, GA 31314-5048
Garrison Commander, U.S. Army Garrison Rucker, 453 Novosel Street, Building 114, Fort Rucker, AL 36362-5105

SUBJECT: Management Guidelines for the Gopher Tortoise (GT) on Army Installations

1. Reference Army Regulation (AR) 200-1, Environmental Protection and Enhancement, dated 29 May 2007, paragraph 4-3.
2. Subject guidelines (enclosed) are distributed for implementation on all Installation Management Command-Southeast (IMCOM-SE) installations where Gopher Tortoises are present. The guidelines are meant to ensure there is standard management across IMCOM-SE installations, and to demonstrate pro-active concern for this Species at Risk (SAR) on Army installations throughout its range. The ultimate goal is to prevent restrictions on Army training were this SAR to end up listed as "endangered" under the Endangered Species Act.
3. These guidelines will be incorporated into the installation Endangered Species Management Components (ESMCs) of the Integrated Natural Resources Management Plan to meet (and supplement if required) installation specific Gopher Tortoise conservation needs and unique military mission requirements.
4. Periodically, installations will report GT and GT habitat conditions, GT cooperative conservation plans, and efforts with Federal and state agencies, private organizations, and individual landowners in support of GT recovery efforts that benefit our installations. Regional studies and research proposals on individual installations (best management practices, research results, lessons learned, etc.) will be conducted by or coordinated through the IMCOM-SE, as appropriate. Installation condition assessments are coordinated with the U.S. Fish and Wildlife Service (USFWS) Region 4 Office, and the Regional RCW/Longleaf Pine Recovery Coordinator (Section III, paragraph C and G of enclosure) as an IMCOM-SE function.

IMSE-PWD-E

SUBJECT: Management Guidelines for the Gopher Tortoise (GT) on Army Installations

5. The POCs for this action are Mr. Casey Newton, (404) 464-4090, casey.h.newton@us.army.mil, and/or Mr. Frank Lands, (404) 464-1645, frank.w.lands@us.army.mil.

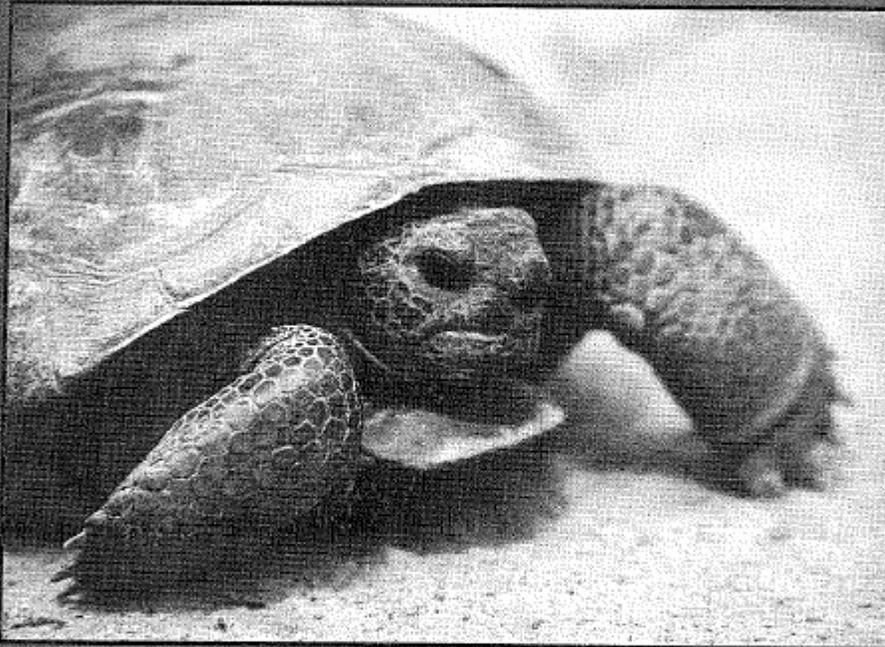
Encl


DAVIS D. TINDOLL, JR.
Director

CF:

Commander, U.S. Army Environmental Command (IMAE-CO), 5196 Hoadley Road, Aberdeen
Proving Ground, MD 21010-5401
HQDA (DAIM-ED), ODEP, 600 Army Pentagon, Washington DC 20310-0600

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS



February 14, 2008

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

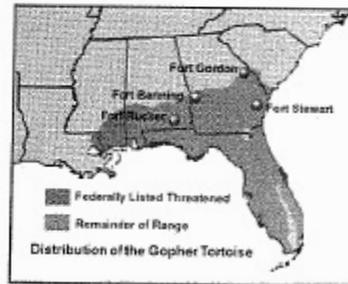
I. General**A. Purpose**

These guidelines establish baseline management standards for Army installations to support the conservation of the Gopher Tortoise (*Gopherus polyphemus*) and its habitat. Each installation's Integrated Natural Resources Management Plan (INRMP) may supplement these guidelines with measures tailored to meet installation-specific Gopher Tortoise conservation requirements and unique military mission needs.

B. Background

A 15 September 2006 Army policy memorandum, *Army Species at Risk Policy and Implementing Guidance*, specifically identifies the Gopher Tortoise as a priority Army Species at Risk. This policy encourages proactive management efforts for Species at Risk and their habitat, before federal protection under the Endangered Species Act is necessitated, and further encourages installations to capitalize on partnerships and agreements when managing for such species. Chapter 4 of AR 200-1 encourages installations to participate in regional/habitat-wide species conservation efforts with other federal and state agencies and provides authority for managing Army-designated Species at Risk and their habitats.

The Gopher Tortoise is Federally listed as threatened in parts of Louisiana, Mississippi, and southwest Alabama. In January 2006 the U.S. Fish and Wildlife Service was petitioned to list the Gopher Tortoise throughout the species' range in Florida, Alabama, Georgia, and South Carolina. If the eastern population becomes imperiled to the extent that Federal listing is warranted, listing will represent a regulatory and management challenge to military testing, training, silviculture, infrastructure development, and other land management activities at Forts Rucker, Benning, Stewart, and Gordon.



The Army will be a signator to the Candidate Conservation Agreement (CCA) for the Gopher Tortoise, which is in draft form as of February 2008. The guidelines provide management guidance to conserve the Gopher Tortoise and its habitat on those Army installations in the eastern portion of the species' range. The guidelines will incorporate and promote the local and landscape level conservation efforts described in the CCA, in accordance with the Army's mission. These guidelines will be incorporated as an appendix to the final CCA.

C. Applicability

The guidelines are developed specifically for those Army installations within the eastern, or non-listed range of the Gopher Tortoise: Fort Rucker (Alabama), Fort Benning (Alabama and Georgia), Fort Gordon (Georgia), and Fort Stewart (Georgia).

D. Revision

These guidelines will be reviewed every 5 years and revised as necessary to incorporate the latest and best scientific data available. The Army will establish a Gopher Tortoise Management Team (GTMT) that will meet annually, or as needed to review ongoing management actions, implementation of these guidelines and the revision of these guidelines. The GTMT will consist

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

of installation personnel and their higher headquarters organizations as identified in these guidelines.

E. Goal

The Army's goal is to implement these guidelines which will allow the Army to accomplish military readiness missions while concurrently ensuring the conservation of the Gopher Tortoise and to assist in the prevention of the need to list the Gopher Tortoise as an endangered or threatened species in its eastern range. The inclusion of Gopher Tortoise guidelines as a component to the INRMP should significantly contribute to the landscape-scale conservation of some of the largest existing Gopher Tortoise populations and habitats.

II. Army Policies Applicable to Gopher Tortoise Management**A. Conservation**

Implementation of Gopher Tortoise management strategies in accordance with these guidelines supports the Army's commitment and responsibility under the CCA to adopt a long-term approach to Gopher Tortoise conservation and habitat management consistent with the military mission.

B. Ecosystem Management

Conservation of the Gopher Tortoise and other species is part of a broader goal to conserve biological diversity on Army lands consistent with the Army's mission. Biological diversity and the long-term survival of individual species, such as the Gopher Tortoise, ultimately depend upon the health of the sustaining ecosystem. Therefore, installation-specific Gopher Tortoise management strategies should promote ecosystem integrity. Maintenance of ecosystem integrity and health also benefit the Army by preserving and restoring training lands for long-term use.

C. Education and Outreach

Soldiers and other personnel involved in "on the ground" activities frequently lack awareness of the presence and biology of Gopher Tortoises, their high conservation priority as a Species at Risk, and/or their vulnerability to certain training and land management practices. Although no training activities are restricted by these guidelines, soldiers and other personnel (including contractors) involved in field activities will receive training or literature on how to minimize impacts whenever practical while still accomplishing mission goals. Outreach and education materials will include Gopher Tortoise and Gopher Tortoise burrow identification, the relevance of Gopher Tortoise conservation to the Army mission, and information on how certain activities (e.g., heavy wheeled and tracked vehicle operation and mechanical digging) may directly harm Gopher Tortoises, damage burrows and nests, affect the ability of Gopher Tortoises to forage or nest, and have potential for significant habitat damage. Education and outreach materials may be developed in collaboration with the Gopher Tortoise Council (GTC) and Partners in Amphibian and Reptile Conservation (PARC).

D. Cooperation with the Gopher Tortoise Team

The Army will work closely and cooperatively with the Gopher Tortoise Team (GTT). The GTT is a group created to administer and periodically review the Candidate Conservation Agreement, and will consist of one or more designated representatives from the Army and each party to the CCA. Installations should routinely communicate with the Army's GTT representative(s) to ensure that proposed actions are consistent with CCA guidance.

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

E. Staffing and Funding

Garrison commanders are responsible for ensuring that adequate professional personnel and funds are provided for the conservation measures described in these guidelines. Gopher Tortoise conservation projects are important components of the Army Environmental Conservation program element of Base Support. Installations will program for funds to implement Gopher Tortoise conservation projects and develop methods to ensure all activities that have the potential to affect Gopher Tortoises are coordinated with all required elements of the installation staff.

F. Conservation on Adjacent Lands

Gopher Tortoise habitat components may be located entirely on installation lands. There may be instances, however, where a portion of a local Gopher Tortoise population is located on installation land, while another portion is located on adjacent non-Army land. Installations need to work with adjacent landowners through education and outreach, cooperative management efforts and/or information/data sharing, and/or help preclude the need to list the species. If needed to support mission sustainability on an installation, the Army Compatible Use Buffers (ACUB) program could incorporate the conservation of Gopher Tortoises through site selection and land management stipulations.

G. Regional Conservation

The interests of the Army and the Gopher Tortoise are best served by encouraging conservation measures in areas off the installation. A significant portion of Gopher Tortoise populations and habitat occur on private lands; therefore, engaging private landowners in the conservation of Gopher Tortoises is essential for the conservation of the species and in avoiding its potential listing under the ESA. In accordance with the landscape level conservation efforts identified in the CCA (Section 10.1.1), installations will identify and collaborate with landowners (private and public) on conservation/management efforts needed to sustain or minimize impacts to Gopher Tortoise habitat. Installations are also encouraged to develop and/or participate in cooperative Gopher Tortoise conservation plans, solutions, and efforts with other federal, state, and private organizations and landowners in the region. Examples of such programs include, but are not limited to, ACUB, regional prescribed fire councils, and regional translocation cooperation.

III. Guidelines for Installation Gopher Tortoise Management Strategies

Installations are to manage Gopher Tortoise populations according to the following guidelines.

A. Gopher Tortoise Management Strategy Development Process

Preparation of installation Gopher Tortoise management strategies requires a systematic, step-by-step approach. Gopher Tortoise populations, Gopher Tortoise habitat (current and potential), and training and other mission requirements (present and future) are to be identified. Analysis of these factors and their interrelated impacts are needed as a first step in the development of a management strategy. Installations are to use the following or a similar methodology in conducting this analysis:

1. Identify installation and tenant unit mission requirements. Overlay these requirements on the Gopher Tortoise distribution scheme. This is in direct support of a CCA Section 10.1.1 commitment - identify areas of potential agency mission – Gopher Tortoise habitat conflict. This is the first proactive step in identifying potential conflicts and developing

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

possible Gopher Tortoise avoidance, minimization or mitigation measures.

2. Develop a Global Information System (GIS) for the Gopher Tortoise population and its habitat on the installation. Based on current use, soils, and vegetation, designate non-fragmented¹ areas of occupied as well as potentially suitable habitat as Gopher Tortoise Habitat Management Units (HMUs). This supports CCA Section 10.1.1 commitments to identify suitable or potentially suitable habitat for and areas occupied by the gopher tortoise, 1st & 2nd bullets.
3. Determine current Gopher Tortoise population levels and demographics by conducting line transect distance burrow surveys using GIS land cover data and DISTANCE 5.0 software available on the web at <http://www.ruwpa.st-and.ac.uk/distance/> as described in the Gopher Tortoise Survey Handbook developed by the Jones Ecological Research Center. After an initial baseline survey is conducted, surveys using consistent and systematic re-sampling should be repeated every 2-5 years to monitor long term population trends.
4. Identify any isolated Gopher Tortoise burrows that are outside areas that realistically can be managed as HMUs. These may include residential lawns, roadsides or transmission line rights of way in areas where prescribed burning or mowing of adjacent habitat is not feasible, etc.
5. Identify HMUs that could support Gopher Tortoise translocation by serving as recipient sites. These must meet the criteria of III.F.2 and III.F. 3 below.
6. Identify HMUs with Gopher Tortoise densities and foreseeable conflict with present and projected mission activities that will adversely and permanently degrade/ fragment/ destroy occupied gopher tortoise habitat. In concert with Section 10.1.2 of the CCA, installations will consider translocating Gopher Tortoises from these HMUs to those identified in III.A.5 above.
7. Analyze the information developed above using the guidance contained in these guidelines.
8. In support of CCA Section 10.1.1, 6th bullet, and where permitted by law, assist in the identification of important Gopher Tortoise populations, habitats, cooperators, and partnership opportunities outside the installation boundaries.

B. Gopher Tortoise Population Goals

Installations will strive to establish no-net loss in the number of gopher tortoises identified as the baseline population of the installation. Efforts will be made to increase population numbers and available habitat, but at least maintaining baseline conditions will help to stabilize the species and prevent further decline. If current population levels cannot be maintained due to mission activities, installations will ensure that adequate habitat is available to replenish or enhance gopher tortoise numbers. Populations can be augmented on installations through translocation

¹ Non-gated paved roads or unpaved roads with significant traffic or high cut road banks that would interfere with Gopher Tortoise movement constitute fragmentation, and will divide otherwise contiguous HMUs.

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

of individuals from offsite locations. Any such translocation efforts must meet the criteria of III.F.2 and III.F. 3 below.

C. Habitat Management

Maintaining habitat conditions preferred by Gopher Tortoises and that meet military mission needs requires a commitment by resource managers to plan and initiate certain vegetation management practices.

1. Silviculture

Current silvicultural standards for Red-cockaded Woodpecker (RCW) management on installations is consistent with requirements for Gopher Tortoise habitat. Where RCW management is not an issue, forest management and timber harvest will be evaluated for compatibility with Gopher Tortoise habitat needs. Installations will use pine and hardwood timber harvest and various forms of mechanical and chemical vegetation control, as necessary, to achieve specific habitat and vegetation objectives or to enhance degraded habitat. In general, silvicultural practices in HMUs will employ ecosystem management including maintaining canopy closure at 60% or less, reducing midstory encroachment, and maintaining native grasses and forbs through prescribed burning, minimizing soil disturbance, and implementing appropriate timber management to promote adequate light at ground level. Roller-chopping and other intensive heavy equipment use in areas with high burrow concentrations will be avoided, unless there is no other alternative to reducing saw palmetto (*Serenoa repens*) or other shrub cover.

2. Prescribed Burning

Current prescribed burning standards for RCW management on installations is consistent with Gopher Tortoise habitat management. Frequent burning reduces shrub and hardwood encroachment, and stimulates growth of Gopher Tortoise forage plants such as grasses, forbs, and legumes. The physical result of fire on tree and shrub species is to reduce canopy cover. Heat stress caused by prescribed burning will trim the lower limbs of pine and hardwood trees and induce mortality among young, stressed, and diseased trees. This allows greater sunlight penetration to reach ground level which promotes establishment of understory species used by the tortoise as forage and is also important for proper egg incubation in gopher tortoises. Burning during the early growing season (April – June) causes even more pronounced vegetative responses when compared to burning conducted during the period of plant dormancy. These early growing season burns stimulate flowering in many warm season grasses, increase species composition among understory plants, and result in higher understory biomass production. For Gopher Tortoise HMUs that do not fall under RCW management, prescribed burning will be conducted at a frequency of one to five years, but preferably at least every three years. Burning should normally be conducted in the growing season, but winter burns may be appropriate to reduce high fuel loads.

3. Invasive Exotics

Invasive exotic plants can displace Gopher Tortoises, reduce native plant species composition, and interfere with the application of management practices such as prescribed burning. Infestations of such invasive plants in Gopher Tortoise HMUs will be identified and controlled through proper herbicide treatments or other acceptable means, as needed.

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

4. Predation

Predator populations, such as raccoons and crows, can be artificially high in some habitats because of anthropogenic factors. If Gopher Tortoise hatchling survival is greatly affected by induced predation pressure, installations will implement measures to control applicable predator populations. To assist with hatchling survival under such circumstance, installations will consider a head-start program where juveniles are protected until large enough to minimize the predation risk and then released back in the area where they were captured.

5. Corridors

Corridor(s) are to be maintained or, if necessary, established to allow movement of Gopher Tortoises among HMUs so they can fulfill essential life requirements (i.e., breeding) and sustain genetic and population viability. Care should be taken to prevent these corridors from becoming roads. Where corridors cannot be maintained in support of mission requirements and result in isolated populations or sub-populations of Gopher Tortoises that are not viable, installations will consider translocation of the tortoises to acceptable recipient sites on or off the installation.

D. Population Monitoring

Installations should conduct monitoring programs to scientifically determine demographic trends and to measure success.

1. Burrow Surveys

As stated in III.A.3 above, surveys for and monitoring of tortoise burrows in Gopher Tortoise HMUs will be conducted by qualified biologists at intervals of 2-5 years. Surveys in previously unoccupied areas are needed only if the installation biologist determines that improved habitat conditions have increased the likelihood of Gopher Tortoise occurrence.

2. Project Surveys

To identify Gopher Tortoises that may need to be avoided or possibly relocated prior to certain actions, the installation will conduct burrow surveys prior to timber harvesting operations, construction, or other significant land-disturbing activities, excluding prescribed fire. These surveys will be conducted within a year prior to project initiation by natural resources personnel or contractors trained and experienced in Gopher Tortoise biology. Burrows found prior to project activities should be marked with conspicuous caution flagging tied to adjacent shrubs or other vegetation. Avoidance, minimization, and/or mitigation measures will be implemented in areas where such activities will impact gopher tortoises, as necessary or as needed.

E. Burrow Marking

Installations may permanently mark or tag Gopher Tortoise burrows for monitoring and/or burrow protection. If permanently marking burrows, installations should use inconspicuous numbered metal tags on short wire stakes. Installations should also consider conspicuous tall stakes placed beside particularly vulnerable burrows to help vehicle operators avoid them. Where many burrows are near where tracked or wheeled vehicles are prone to disturbing them, appropriate signage may be deemed necessary, with language such as "Be Aware—Please Avoid Gopher Tortoise Burrows."

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

F. Translocation

Translocating Gopher Tortoises from populations threatened by habitat destruction to restore severely depleted populations on secure lands is an important management tool. Installation plans will provide for translocation to augment low density populations, where appropriate.

1. Installations will identify potential recipient translocation sites for Gopher Tortoises being displaced by development or other activities elsewhere on the installation and/or nearby private lands.
2. Recipient sites must have no (or limited) foreseeable conflict with present and projected mission activities.
3. In areas determined acceptable to receive Gopher Tortoises, habitat inspection and improvement work must be completed before translocation is attempted to ensure that translocation is successful. Potential recipient sites must have suitable habitat in good condition that is presently deemed to be either lacking or under-stocked with tortoises and will not be readily repopulated without human intervention. The reason(s) for deficient tortoise populations should be recognized or suspected (and no longer exist) before tortoises are stocked onto these lands. Reasons for low densities might include a past history of human harvest, disease die-offs, or unsuitable habitat (e.g., dense pine plantation, fire-suppressed habitat) that has been restored to favorable conditions for tortoises.
4. Any translocations will be undertaken in close coordination with the GTT.

G. Data Records, Reporting, and Coordination

1. Installations will record and retain permanently all survey, inspection and monitoring data for Gopher Tortoise populations and habitats for trend analysis.
2. Installation biologists and foresters will maintain close coordination and, at a minimum, will conduct an internal Gopher Tortoise installation progress review once a year.
3. Installation Management Command-Southeast (IMCOM-SE) will serve as integrator and facilitator for Gopher Tortoise management on Forts Rucker, Benning, Gordon, and Stewart.
4. IMCOM-SE will coordinate annual reporting to the GTT. IMCOM-SE will provide Gopher Tortoise oversight. IMCOM-SE will ensure that data collected will be evaluated for trend analysis.
5. Installations annually will report results of any Gopher Tortoise inventory and monitoring activity to IMCOM-SE. IMCOM-SE will provide data to the GTT in accordance with the CAA requirements. These data will include measures of population status and actions taken to improve habitat.
6. Gopher Tortoise maps will be developed using survey data to accurately depict the location of Gopher Tortoise colonies, burrows, and HMUs. Maps will be updated at least every 5 years. Maps used internally will be tailored to the users, e.g. trainers,

MANAGEMENT GUIDELINES FOR THE GOPHER TORTOISE ON ARMY INSTALLATIONS

foresters, etc. and will be widely distributed for use by those conducting land use activities on the installation, including military training, forest management, construction projects, and range maintenance.

APPENDIX 6. Descriptions of Habitats

Descriptions of Habitats

Steep, Forested, Ravine Slopes (Hardwood-dominated)

Slopes which are steep (greater than 45 degrees), forested, and dominated by mature hardwood trees provide habitat which is likely to support some of the less-frequently encountered plants and animals in southeastern Alabama. This is especially true of slopes that face northward and eastward and which have been minimally disturbed. Examples of this habitat can be found along several watercourses on Fort Novosel, for example, the steep slopes immediately south of Steep Head Creek. This forest type is of particular biogeographical significance within the East Gulf Coastal Plain, however it is being subjected to heavy clear-cutting on private lands in the Red Hills of southern Alabama.

Dominant large trees include American beech, white oak, diamondleaf (laurel) oak, southern magnolia, yellow poplar, water oak, and hickory. Spruce and loblolly pine are present, but their occurrences are relatively scattered and infrequent. Smaller trees include dogwood, sweet bay, hornbeam, sweetleaf, ironwood, and pyramid magnolia. Bigleaf magnolia also occurs infrequently. The shrub understory includes red buckeye, mountain laurel, sweet shrub, oak-leaf hydrangea, and Florida anise at lower slopes. Herbs include a wide variety of wildflowers and ferns, such as wild ginger, bloodroot, violets, trilliums, partridge berry, and Christmas fern. In areas with increased light penetration, greenbrier, Japanese honeysuckle, and poison ivy may grow profusely.

A variety of vertebrate fauna may utilize steep, forested, ravine slopes as habitat. The most common amphibians in this habitat type are salamanders, especially the southeastern slimy salamander, two-lined salamander, red salamander, and dusky salamander. The gray treefrog is also a frequent inhabitant. Common reptiles in this habitat include lizards such as the five-lined skink, ground skink, and green anole, as well as snakes such as the timber (canebrake) rattlesnake, copperhead, gray rat snake, and ringneck snake.

Common, nongame birds which breed in this type of habitat are the red-eyed vireo, Kentucky warbler, hooded warbler, wood thrush, brown thrasher, yellow-billed cuckoo, Carolina wren, Carolina chickadee, tufted titmouse, blue jay, chuck-will's widow, screech owl, and several woodpeckers. A wide variety of passerine birds also use this habitat type for over-wintering or during migration. The wild turkey is an important game species that utilizes this habitat, especially during winter.

Common small mammals include the cotton mouse, golden mouse, eastern chipmunk, southern flying squirrel, eastern gray squirrel, and several shrews. The armadillo, opossum, and gray fox also are frequent inhabitants. This habitat is valuable for white-tailed deer, an important game species at Fort Novosel.

Xeric Forest - Clay Hill

Xeric forests - clay hill type is uncommon on the reservation, and is usually interspersed as small inclusions within mixed pine-hardwood forest on mesic sites, most often on tops of ridges and hills where a sandy surface layer is absent, and soil is extremely dry

clay or clay-loam. Boundaries between this habitat and adjoining types are usually imprecise with broad ecotones between them.

Dominant trees in this type of forest are blackjack oak, longleaf pine, and, to a lesser extent, shortleaf pine. Loblolly pine may occur, but it is not as well adapted to this habitat as it is to other xeric habitat types. Other common tree species are post oak, southern red oak, persimmon, sourwood, white oak, dogwood, and sand hickory. Shrubs include members of the blueberry-huckleberry complex. Hornbeam may occur commonly on some sites. Grasses and herbs are neither particularly abundant nor diverse, with goat's rue and blazing star being the most typical.

Fauna supported by the xeric forest-clay hill habitat type is less diverse than that of the xeric sandhill forest, a condition that may be influenced by the greater difficulty of burrowing in clay soils. Fox squirrels thrive in fairly open stands. Flying squirrels and tree-cavity nesting birds, such as screech owls, may be common where mature hardwoods with cavities or dead pine trees are present. A variety of insectivorous birds feed on forest insects, but no one or two species are particularly characteristic of this forest type. The primary value of this forest type probably lies in the mast produced, which is important as winter food for a variety of wildlife.

Young Pine Plantations

Even-aged pine plantations, many less than 10 years old, are frequently encountered on Fort Novosel. Most of these plantations are 25 acres or less. Loblolly pine has been planted on most sites with heavy soils and mesic conditions. Younger stands planted on lighter, more xeric soils consist of longleaf pine.

The youngest of these plantations are comparable to an old field habitat until trees become taller and the canopy closes. Thus, they provide favorable habitat for species preferring open, shrubby areas with abundant ground cover, such as the cottontail rabbit and northern bobwhite quail. Sprouting hardwoods and forbs provide browse and grazing for white-tailed deer. Blackberry, wild plum, and numerous grasses and forbs provide food for a variety of birds. Some of these plants, along with grasshoppers and other insects, are important foods for wild turkey. In this type of regenerating habitat, populations of small rodents often increase greatly within the first 2-4 years, providing prey for mammals such as the coyote, fox, and bobcat, as well as raptors, such as the red-tailed hawk, barn owl, and American kestrel.

From three to five years of age, plantations with substantial floral diversity in the form of mixed forbs, hardwood sprouts, blackberry, and other shrubs may be used by wild turkeys for nesting. Once the pines and, if present, hardwood sprouts reach four to seven feet in height, usage by many ground-dwelling birds and mammals declines, and others such as the yellow-breasted chat, northern cardinal, white-eyed vireo, prairie warbler, and indigo bunting may be found in relative abundance. Forest and forest-edge dwellers, such as the summer tanager, yellow-billed cuckoo, red-eyed vireo, blue gray gnatcatcher, chuck-will's widow, and brown thrasher feed and sometimes nest in these habitats where they come into contact with forests consisting of larger trees.

Snakes found most commonly on these plantations include the black racer, eastern garter snake, and gray rat snake. Lizards most likely to be found are the green anole,

eastern fence lizard, and ground skink. The box turtle, and in places where soil conditions are suitable, the gopher tortoise, are the only turtles likely to be found in this type of habitat, which is well away from water. Amphibians generally are scarce in young pine plantations, except in cases where plantations are adjacent to or include wetlands. However, even well away from wetlands, southern toads and southeastern slimy salamanders are occasionally encountered, and on rainy nights, juvenile frogs of several other species may be encountered dispersing from breeding sites.

As is the case with other age classes of even-aged pine plantations, the ecological value of these habitats tend to vary with size, shape, tree spacing, and floral diversity. Large, regularly shaped plantations with low floral diversity are less desirable from an ecological standpoint than small, irregularly shaped ones with high floral diversity. Stands with closely spaced trees and closed canopies also tend to have lower floral and faunal diversity than those with good light penetration.

Agricultural Lands and Old Fields

Fort Novosel includes substantial cleared acreage that is devoted to grain, legumes, or grass, including fallow fields. This land is allowed to undergo natural succession for up to four years before being cleared again. Early successional woody invaders of abandoned fields in the area are determined by species of seed trees in the immediate vicinity and upon their dispersal capability. In most cases, loblolly pine and/or sweetgum are the dominant primary species. Oaks (particularly water oak), dogwood, and yellow poplar are common in marginal areas adjacent to forests containing mature trees. Sassafras and persimmon are also common primary woody succession species. Blackberries are common around some field edges. Among the most conspicuous, persistent, herbaceous primary species found at the interiors of abandoned fields are broomsedge and goldenrod.

These clearings can have substantial ecological value for their ability to enhance the carrying capacity many of the region's wildlife species. Game species that utilize these habitats include cottontail rabbit, northern bobwhite, white-tailed deer, wild turkey, and mourning dove. Nongame species preferring to feed and or nest in one or more of these habitats include numerous passerine birds, such as the eastern bluebird, eastern meadowlark, yellow-breasted chat, chipping sparrow, field sparrow, purple martin, common ground dove, and loggerhead shrike. Inhabitants of brushy areas include the northern mockingbird, gray catbird, dark-eyed junco (winter), and rufous-sided towhee. In addition, a wide variety of forest-dwelling birds spend much time in ecotones between fields and forests. Several raptors, including the American kestrel, red-tailed hawk, and northern harrier, use old fields as their primary hunting areas for prey such as insects and small rodents.

Reptiles which frequent old fields and field-forest ecotones include the eastern fence lizard, six line racerunner, glass lizard, eastern hognose snake, black racer, corn snake, eastern diamondback rattlesnake, Florida pine snake, and eastern coachwhip. Common small mammals in these habitats include the hispid cotton rat and oldfield mouse.

Eroded Sites, Waste Areas, and Quarries

Several badly eroded sites, waste areas, and quarry habitats occur on Fort Novosel. Most are less than five acres and are of ecological importance only to breeding populations of insects, small rodents, and the animals that feed on them, such as snakes and lizards. Active quarries have little or no ecological value unless they accumulate water and are left undisturbed for several months during the rainy season.

Some badly eroded, sparsely vegetated areas provide good habitat for lizards, such as the six-lined racerunner. Bare, high, vertical sides of road-cuts and vertical faces of some quarries might provide for nesting burrows of belted kingfishers or northern rough-winged swallows.

Developed Areas

Residential lawns, especially those with trees and shrubs, provide habitat for a number of native animals. The mockingbird, northern cardinal, rufous-sided towhee, Carolina wren, blue jay, brown thrasher, American robin, and ruby-throated hummingbird are among native birds that are well adapted to living in residential areas during the breeding season. Winter residents may include a variety of bird species, depending on the nature and amount of cover available and on whether bird feeding is practiced. Among mammals, the gray squirrel, eastern chipmunk, southern flying squirrel, eastern mole, cotton mouse, and opossum are frequent permanent residents or visitors to residential areas, especially if these areas are bordered by forested habitats.

Golf courses and similarly vegetated habitats are used frequently by a number of breeding birds, including the American robin, blue jay, orchard oriole, northern mockingbird, and brown-headed cowbird. If individual large trees and sufficient food are present, the gray squirrel may also utilize this habitat. The eastern bluebird and other cavity-nesting species, such as the purple martin may use these habitats if provided with nesting boxes.

When these habitats include permanent pools or ponds, watercourses, or depressions that contain rainwater for periods of four weeks or longer during the year, these habitats can be used by several species of toads and frogs such as the southern toad, squirrel tree frog, green tree frog, gray tree frog, upland chorus frog, narrowmouth toad, bronze frog, and bullfrog.

Undersides of bridges and overpasses are primary breeding sites for the barn swallow and the eastern phoebe. The Carolina wren also occasionally uses these structures for nesting. Small rodents and snakes of several species may take shelter in habitat provided by these structures as well.

Floodplain Forests

Floodplain forests occur along larger streams on Fort Novosel, such as Claybank and Steep Head Creeks. Fallen leaves and other organic matter in these forests are frequently washed away during flooding, and the soil is alluvial in origin. Deciduous hardwood species dominate with ash, tupelo gum, red maple, and river birch commonly present. Coniferous trees common in this type of forest include spruce pine and bald cypress, which usually is found at the edge of water. Characteristic shrubs and herbs

include palmetto, sebastiana, mountain laurel, atamasco lily, spindle lily, and partridge berry.

Depressions are often present in floodplain forests, and when filled with water, they provide important breeding habitats for amphibians, including frogs, toads, and salamanders. Floodplain forests also provide habitat for many other wildlife species. Mammalian inhabitants of these floodplain forests include the white-tailed deer, swamp rabbit, cotton mouse, southeastern shrew, southern flying squirrel, opossum, gray fox, and raccoon. Avian inhabitants which breed in this type of habitat include the white-eyed vireo, ruby-throated hummingbird, northern cardinal, summer tanager, prothonotary warbler, hooded warbler, Carolina wren, Carolina chickadee, tufted titmouse, and green-backed heron. Wild turkey utilize this habitat throughout the year, and numerous passerine birds use it for over wintering or during migration.

Bay Swamps

Bay swamps are thick, evergreen forests that occur near smaller streams that lack steep slopes and deep channels. The soil is wet, deep, has a high organic content, and is black in color. Roots of many trees are at or near the surface and are often covered with mosses and lichens. The dominant tree is sweet bay, with tupelo gum and yellow-poplar interspersed. Common shrubs and vines include white titi, sweet pepper bush, gallberry, and Jackson brier. Florida anise dominates some areas near drier slopes. Characteristic herbs of this habitat include golden club, green arum, and rein-orchid. Fauna in bay swamps include numerous amphibians; several reptiles; mammals such as the cotton mouse, southeastern shrew, and raccoon; and birds such as the white-eyed vireo, hooded warbler, Carolina wren, and northern cardinal.

Seeps, Bogs, and Wet Meadows

Seeps occur on moist clay, siltstone, or claystone at the base of steep bluffs or along creeks with deep channels. These seeps have little soil and areas where plants can attach. Water is constantly dripping over the surface except during extremely dry conditions, and these areas are subject to scouring by water after heavy rains. Most are located in the deep shade of hardwoods.

Bogs and wet meadows occur mostly on gentle slopes that remain wet for most of the year but seldom have standing water. The soil is sand or sand-over-clay hardpan. If such areas are periodically burned, they are dominated by various grasses and sedges. However, most bogs and wet meadows on Fort Novosel are in succession toward a habitat more likely to support woody vegetation.

Characteristic plant species in these habitats include white titi, wax myrtle, gallberry, yellow poplar, alder, and blueberries. Various grasses, sedges, and rushes are common, as well as yellow-eyed grass, meadow beauty, ludwigia, St. Johnswort, pipewort, sundew, lobelia, narrow-leafed sunflower, and clubmosses. Sphagnum moss also is often abundant in these habitats. Principal wildlife inhabitants of these habitats are amphibians, predominantly salamanders and frogs. Several snake species and raccoons may prey upon these amphibians.

Borrow Pits

Borrow pits occur in otherwise upland areas where soil has been removed to a depth that allows water to stand for varying periods of time resulting in wetland habitats. Similarly, roadside ditches and other depressions may hold water for extended periods. Flora in such isolated habitats often is scant and composed of a few wetland species and other species from surrounding upland areas. These habitats often experience extremes from wet to dry and often are in full sun and on nutrient-poor soils. Common species on such sites are various sedges and rushes, yellow-eyed grass, and ludwigia. These habitats may be of particular importance to amphibians requiring breeding sites free from fish predation.

Intermittent Streams

Intermittent streams are those which only flow during relatively wet periods. During dry periods, these streams may retain isolated pools of standing water that support aquatic organisms, such as amphibians, crustaceans, and insects. Vegetation supported by these streams is typically very limited. When vegetation is present, they may contain plants similar to those found in seeps, such as mosses and liverworts.

Oxbow Ponds

Oxbow ponds occur along Claybank and Steep Head Creeks where stream channels have changed due to silt deposition in bends. This deposition results in portions of former stream beds being cut off from channels to form ponds. Oxbow ponds either have permanent water or fill intermittently with rainwater or creek overflow. They usually are lacking in vegetation with exception of dayflowers and cardinal flowers growing on the drying mud and silt. Surrounding vegetation is characteristic of that growing along the main channel of the associated stream. The principal animal inhabitants of oxbow ponds are amphibians.

Beaver Ponds

Beaver ponds occur on several small streams, which have been dammed by beavers. These ponds vary in size and depth, but are usually small and shallow. Shoreline vegetation varies with location, but typically consists of species characteristic of floodplain forests and bay swamps. Beavers modify this environment not only by their impoundments but also by their selective harvesting of shoreline vegetation for use as food and construction materials. Such areas often support abundant floating, rooted-floating, and emergent aquatic vegetation. Common species include fragrant water lily, water shield, bladderwort, duck potato, green arum, golden club, yellow-eyed grass, and pondweed. Common shore plants include various sedges and rushes, panic grass, ludwigia, meadow beauty, and sphagnum moss. Common woody shrub species include wax myrtle, white titi, and willow. After beavers abandon an area and the dam is destroyed, these habitats slowly revert to their previous vegetational composition.

A wide variety of other wildlife species may utilize beaver ponds. Most species found in floodplain forests utilize the margins of beaver ponds, and the ponds themselves provide important habitat for species such as the wood duck, green-backed heron, and river otter as well as numerous species of reptiles, amphibians, and minnows.

Permanent Streams

Several permanent streams occur on Fort Novosel, with Claybank Creek being the largest. Due to shifting substrates and the scouring action of sand and water, larger streams lack vegetation in their channels. However, these streams are associated with oxbow ponds, seeps, beaver ponds, and floodplain habitats, as described above. Smaller streams are often vegetated with arum, golden club, yellow-eyed grass, duck potato, and alder. Some very small streams are almost filled with sphagnum moss. Animal inhabitants of these streams and their banks include invertebrates such as crayfish; amphibians such as salamanders and frogs; snakes such as the cottonmouth, eastern garter snake, and brown and midland water snakes; mammals such as the beaver, river otter, and raccoon; and birds such as the green-backed heron, great blue heron, and belted kingfisher.

Man-made Lakes

Man-made lakes have been formed on Fort Novosel by damming several small streams and Claybank Creek. Most of these lakes have a few floating, floating-leafed, or emergent plants. Common aquatic plants are bladderwort, ludwigia, yellow-eyed grass, green arum, duck potato, and various grasses, sedges, and rushes. Lake Tholocco, is the largest of these at 640 acres. Man-made lakes provide habitat for a variety of aquatic wildlife, including fish, amphibians, reptiles, mammals, and birds. Fish species found in lakes on the reservation include channel catfish and yellow bullhead, spotted and largemouth bass, and numerous species of minnows and sunfish. Amphibians include the bullfrog, bronze frog, and southern cricket frog. Reptiles include the common snapping turtle, common musk turtle, pond slider, brown and midland water snakes, and the American alligator. Mammals most likely to utilize man-made lakes are the beaver and the raccoon. Birds which commonly use these lakes include the pied-billed grebe, great blue heron, green-backed heron, great egret, cattle egret, wood duck, mallard duck, American black duck, green-winged teal, and ring-necked duck. These birds utilize this habitat primarily while over-wintering and during migration.

APPENDIX 7. Scientific Names of Flora on Fort Novosel

Scientific Names of Flora on Fort Novosel

Common Name	Scientific Name
American beech	<i>Fagus grandifolia</i>
American holly	<i>Ilex opaca</i>
American hornbeam	<i>Carpinus caroliniana</i>
American plum	<i>Prunus americana</i>
American white waterlily	<i>Nymphaea odorata</i>
Arrowhead species	<i>Sagittaria</i> spp.
Ash species	<i>Fraxinus</i> spp.
Atamasco lily	<i>Zephyranthes atamasca</i>
Atlantic poison oak	<i>Toxicodendron pubescens</i>
Bald cypress	<i>Taxodium distichum</i>
Bigleaf magnolia	<i>Magnolia macrophylla</i>
Black cherry	<i>Prunus serotina</i>
Black oak	<i>Quercus velutina</i>
Blackberry species	<i>Rubus</i> spp.
Blackgum	<i>Nyssa sylvatica</i>
Blackjack oak	<i>Quercus marilandica</i>
Bladderwort species	<i>Utricularia</i> spp.
Blazing star species	<i>Liatris</i> spp.
Bloodroot	<i>Sanguinaria canadensis</i>
Blueberry species	<i>Vaccinium</i> spp.
Bluejack oak	<i>Quercus incana</i>
Broomsedge bluestem	<i>Andropogon virginicus</i>
Cardinalflower	<i>Lobelia cardinalis</i>
Cinnamon fern	<i>Osmunda cinnamomea</i>
Clubmoss species	<i>Lycopodium</i> spp.
Coastal sweetpepperbush	<i>Clethra alnifolia</i>
Common persimmon	<i>Diospyros virginiana</i>
Common sweetleaf	<i>Symplocos tinctoria</i>
Darlington oak	<i>Quercus hemisphaerica</i>
Dayflower species	<i>Commelina</i> spp.
Devil's tongue	<i>Opuntia humifusa</i>
Devil's walkingstick	<i>Aralia spinosa</i>
Devilwood	<i>Osmanthus americanus</i>
Dwarf palmetto	<i>Sabal minor</i>
Eastern poison ivy	<i>Toxicodendron radicans</i>
Eastern red-cedar	<i>Juniperus virginiana</i>
Eastern sweetshrub	<i>Calycanthus floridus</i>
Evening trumpetflower	<i>Gelsemium sempervirens</i>
Finger rot	<i>Cnidocolus urens</i>
Florida anisetree	<i>Illicium floridanum</i>
Flowering dogwood	<i>Cornus florida</i>
White fringe tree	<i>Chionanthus virginicus</i>
Giant cane	<i>Arundinaria gigantea</i>
Goldenclub	<i>Orontium aquaticum</i>
Goldenrod species	<i>Solidago</i> spp.
Grasses	Poaceae spp.

Common Name	Scientific Name
Green arrow arum	<i>Peltandra virginica</i>
Greenbrier species	<i>Smilax</i> spp.
Hawthorn species	<i>Crataegus</i> spp.
Hazel alder	<i>Alnus serrulata</i>
Hickory species	<i>Carya</i> spp.
Hophornbeam	<i>Ostrya virginiana</i>
Inkberry	<i>Ilex glabra</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Laurel oak	<i>Quercus laurifolia</i>
Legumes	Fabaceae spp.
Littleleaf sensitive briar	<i>Mimosa microphylla</i>
Lobelia species	<i>Lobelia</i> spp.
Loblolly pine	<i>Pinus taeda</i>
Longleaf pine	<i>Pinus palustris</i>
Maple species	<i>Acer</i> spp.
Meadow beauty species	<i>Rhexia</i> spp.
Milkweed species	<i>Asclepias</i> spp.
Mountain azalea	<i>Rhododendron canescens</i>
Mountain laurel	<i>Kalmia latifolia</i>
Needle palm	<i>Rhapidophyllum hystrix</i>
Northern spider lily	<i>Hymenocallis occidentalis</i>
Oakleaf hydrangea	<i>Hydrangea quercifolia</i>
Orangegrass	<i>Hypericum gentianoides</i>
Panicgrass species	<i>Panicum</i> spp.
Partridgeberry	<i>Mitchella repens</i>
Post oak	<i>Quercus stellata</i>
Primrose willow species	<i>Ludwigia</i> spp.
Pyramid magnolia	<i>Magnolia pyramidata</i>
Rattlebox	<i>Sesbania punicea</i>
Red buckeye	<i>Aesculus pavia</i>
Red maple	<i>Acer rubrum</i>
River birch	<i>Betula nigra</i>
Sand hickory	<i>Carya pallida</i>
Sand post oak	<i>Quercus margaretta</i>
Sassafras	<i>Sassafras albidum</i>
Shortleaf pine	<i>Pinus echinata</i>
Silverbell species	<i>Halesia</i> spp.
Small green wood orchid	<i>Platanthera clavellata</i>
Sourwood	<i>Oxydendrum arboreum</i>
Southern magnolia	<i>Magnolia grandiflora</i>
Southern red oak	<i>Quercus falcata</i>
Sphagnum moss species	<i>Sphagnum</i> spp.
Spruce pine	<i>Pinus glabra</i>
St. John's wort species	<i>Hypericum</i> spp.
Sundew species	<i>Drosera</i> spp.
Swamp sunflower	<i>Helianthus angustifolius</i>
Swamp titi	<i>Cyrilla racemiflora</i>
Sweetbay	<i>Magnolia virginiana</i>

Common Name	Scientific Name
Sweetgum	<i>Liquidambar styraciflua</i>
Ticktrefoil species	<i>Desmodium</i> spp.
Trillium species	<i>Trillium</i> spp.
Tuliptree	<i>Liriodendron tulipifera</i>
Turkey oak	<i>Quercus laevis</i>
Violet species	<i>Viola</i> spp.
Virginia tephrosia	<i>Tephrosia virginiana</i>
Water oak	<i>Quercus nigra</i>
Water tupelo	<i>Nyssa aquatica</i>
Watershield	<i>Brasenia schreberi</i>
Wax myrtle	<i>Myrica cerifera</i>
White oak	<i>Quercus alba</i>
Wild ginger	<i>Asarum canadense</i>
Wild indigo species	<i>Baptisia</i> spp.
Willow oak	<i>Quercus phellos</i>
Willow species	<i>Salix</i> spp.
Yaupon	<i>Ilex vomitoria</i>
Yelloweyed grass species	<i>Xyris</i> spp.

For a complete list of flora confirmed on Fort Novosel, see Mount and Diamond (1992).

APPENDIX 8. Scientific Names of Fauna on Fort Novosel

Scientific Names of Fauna on Fort Novosel

Common Name	Scientific Name
Mammals	
Bobcat	<i>Felis rufus</i>
Common raccoon	<i>Procyon lotor</i>
Cotton mouse	<i>Peromyscus gossypinus</i>
Coyote	<i>Canis latrans</i>
Dog	<i>Canis familiaris</i>
Eastern chipmunk	<i>Tamias striatus</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
Eastern fox squirrel	<i>Sciurus niger</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Eastern mole	<i>Scalopus aquaticus</i>
Eastern red bat	<i>Lasiurus borealis</i>
Evening bat	<i>Nycticeius humeralis</i>
Feral swine	<i>Sus scrofa</i>
Fox squirrel	<i>Sciurus niger</i>
Golden mouse	<i>Ochrotomys nuttali</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Gray squirrel	<i>Sciurus carolinensis</i>
Hispid cotton rat	<i>Sigmodon hispidus</i>
House cat	<i>Felis catus</i>
House mouse	<i>Mus musculus</i>
Long-tailed weasel	<i>Neogale frenata</i>
Mink	<i>Mustela vison</i>
Nine-banded armadillo	<i>Dasypus novemcinctus</i>
North American beaver	<i>Castor canadensis</i>
North American least shrew	<i>Cryptotis parvus</i>
North American river otter	<i>Lontra canadensis</i>
Oldfield mouse	<i>Peromyscus polionotus</i>
Red fox	<i>Vulpes vulpes</i>
Seminole bat	<i>Lasiurus seminolus</i>
Southeastern pocket gopher	<i>Geomys pinetis</i>
Southeastern shrew	<i>Sorex longirostris</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Southern short-tailed shrew	<i>Blarina carolinensis</i>
Striped skunk	<i>Mephitis mephitis</i>
Swamp rabbit	<i>Sylvilagus aquaticus</i>
Virginia opossum	<i>Didelphis virginiana</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Woodland vole	<i>Microtus pinetorum</i>
Birds	
American black duck	<i>Anas rubripes</i>
American coot	<i>Fulica americana</i>
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Spinus tristis</i>
American kestrel	<i>Falco sparverius</i>

Common Name	Scientific Name
American woodcock	<i>Scolopax minor</i>
Anhinga	<i>Anhinga anhinga</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barn owl	<i>Tyto alba</i>
Barred owl	<i>Strix varia</i>
Belted kingfisher	<i>Megaceryle alcyon</i>
Blue grosbeak	<i>Passerina caerulea</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Brown creeper	<i>Certhia americana</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Brown-headed nuthatch	<i>Sitta pusilla</i>
Bufflehead	<i>Bucephela albeola</i>
Canada goose	<i>Branta canadensis</i>
Carolina chickadee	<i>Poecile carolinensis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Cattle egret	<i>Bubulcus ibis</i>
Chuck-will's widow	<i>Antrostomus carolinensis</i>
Clapper rail	<i>Rallus crepitans</i>
Common gallinule	<i>Gallinula galeata</i>
Common grackle	<i>Quiscalus guiscula</i>
Common ground dove	<i>Columbina passerina</i>
Common nighthawk	<i>Chordeiles minor</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Double-crested cormorant	<i>Nannopterum auritum</i>
Downy woodpecker	<i>Dryobates pubescens</i>
Eastern bluebird	<i>Sialia sialis</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Eastern screech-owl	<i>Megascops asio</i>
Eastern wood-pewee	<i>Contopus virens</i>
Fish crow	<i>Corvus ossifragus</i>
Gray catbird	<i>Dumetella carolinensis</i>
Great blue heron	<i>Ardea herodias</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Great egret	<i>Ardea alba</i>
Great horned owl	<i>Bubo virginianus</i>
Green heron	<i>Butorides virescens</i>
Hairy woodpecker	<i>Dryobates villosus</i>
Herring gull	<i>Larus argentatus</i>
Indigo bunting	<i>Passerina cyanea</i>
Killdeer	<i>Charadrius vociferus</i>
King rail	<i>Rallus elegans</i>
Little blue heron	<i>Egretta caerulea</i>
Mallard	<i>Anas platyrhynchos</i>

Common Name	Scientific Name
Mourning dove	<i>Zenaida macroura</i>
Northern bobwhite	<i>Colinus virginianus</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Northern flicker	<i>Colaptes auratus</i>
Northern harrier	<i>Circus hudsonius</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Northern parula	<i>Setophaga americana</i>
Orchard oriole	<i>Icterus spurius</i>
Osprey	<i>Pandion haliaetus</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Pine warbler	<i>Setophaga pinus</i>
Purple gallinule	<i>Porphyrio martinica</i>
Purple martin	<i>Progne subis</i>
Red-bellied woodpecker	<i>Melanerpes carolinus</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Ring-billed gull	<i>Larus delawarensis</i>
Ring-necked duck	<i>Aythya collaris</i>
Ruby-crowned kinglet	<i>Corthylio calendula</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Sora	<i>Porzana carolina</i>
Virginia rail	<i>Rallus limicola</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Wild turkey	<i>Meleagris gallopavo</i>
Wilson's snipe	<i>Gallinago delicata</i>
Wood duck	<i>Aix sponsa</i>
Wood thrush	<i>Hylocichla mustelina</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Yellow-breasted chat	<i>Icteria virens</i>
Yellow-crowned night heron	<i>Nyctanassa violacea</i>
Reptiles	
American alligator	<i>Alligator mississippiensis</i>
Broad-headed skink	<i>Plestiodon laticeps</i>
Brown water snake	<i>Nerodia taxispilota</i>
Common five-lined skink	<i>Plestiodon fasciatus</i>
Common snapping turtle	<i>Chelydra serpentina</i>
Corn snake	<i>Pantherophis guttatus</i>
Eastern box turtle	<i>Terrapene carolina carolina</i>
Eastern coachwhip	<i>Masticophis flagellum flagellum</i>
Eastern copperhead	<i>Agkistrodon contortrix</i>
Eastern coralsnake	<i>Micrurus fulvius</i>

Common Name	Scientific Name
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>
Eastern fence lizard	<i>Sceloporus undulatus</i>
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>
Eastern glass lizard	<i>Ophisaurus ventralis</i>
Eastern hognose snake	<i>Heterodon platirhinos</i>
Eastern mud turtle	<i>Kinosternon subrubrum</i>
Eastern musk turtle	<i>Sternotherus odoratus</i>
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>
Gopher tortoise	<i>Gopherus polyphemus</i>
Gray ratsnake	<i>Pantherophis spiloides</i>
Green anole	<i>Anolis carolinensis</i>
Little brown skink	<i>Scincella lateralis</i>
Midland watersnake	<i>Nerodia sipedon pleuralis</i>
Northern cottonmouth	<i>Agkistrodon piscivorus</i>
Pond slider	<i>Trachemys scripta</i>
Rainbow snake	<i>Farancia erythrogramma</i>
Ring-necked snake	<i>Diadophis punctatus</i>
River cooter	<i>Pseudemys concinna</i>
Rough earthsnake	<i>Haldea striatula</i>
Rough greensnake	<i>Opheodrys aestivus</i>
Scarlet kingsnake	<i>Lampropeltis elapsoides</i>
Scarletsnake	<i>Cemophora coccinea</i>
Six-lined racerunner	<i>Aspidoscelis sexlineatus</i>
Southeastern crowned snake	<i>Tantilla coronata</i>
Southern black racer	<i>Coluber constrictor priapus</i>
Southern ringneck snake	<i>Diadophis punctatus punctatus</i>
Amphibians	
American bullfrog	<i>Lithobates catesbeianus</i>
American toad	<i>Anaxyrus americanus</i>
Barking treefrog	<i>Hyla gratiosa</i>
Bird-voiced treefrog	<i>Hyla avivoca</i>
Eastern narrow-mouthed toad	<i>Gastrophryne carolinensis</i>
Escambia waterdog	<i>Necturus mounti</i>
Gray treefrog	<i>Hyla versicolor</i>
Green frog	<i>Lithobates clamitans</i>
Green treefrog	<i>Hyla cinerea</i>
Oak toad	<i>Anaxyrus quercicus</i>
Ornate chorus frog	<i>Pseudacris ornata</i>
Pine woods tree frog	<i>Hyla femoralis</i>
Red salamander	<i>Pseudotriton ruber</i>
Southeastern slimy salamander	<i>Plethodon grobmani</i>
Southern cricket frog	<i>Acris gryllus</i>
Southern leopard frog	<i>Lithobates sphenoccephalus</i>
Southern toad	<i>Anaxyrus terrestris</i>
Southern two-lined salamander	<i>Eurycea cirrigera</i>
Spotted dusky salamander	<i>Desmognathus conanti</i>
Spotted salamander	<i>Ambystoma maculatum</i>

Common Name	Scientific Name
Spring peeper	<i>Pseudacris crucifer</i>
Squirrel treefrog	<i>Hyla squirella</i>
Three-lined salamander	<i>Eurycea guttolineata</i>
Upland chorus frog	<i>Pseudacris feriarum</i>
Fish	
American eel	<i>Anguilla rostrata</i>
American gizzard shad	<i>Dorosoma cepedianum</i>
American pickerel	<i>Esox americanus</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Blackbanded darter	<i>Percina nigrofasciata</i>
Blackspotted topminnow	<i>Fundulus olivaceus</i>
Blacktail redhorse	<i>Moxostoma poecilurum</i>
Blacktip shiner	<i>Lythrurus atrapiculus</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluntnose darter	<i>Etheostoma chlorosoma</i>
Chain pickerel	<i>Esox niger</i>
Channel catfish	<i>Ictalurus punctatus</i>
Choctawhatchee darter	<i>Etheostoma davisoni</i>
Clear chub	<i>Hybopsis winchelli</i>
Eastern mosquitofish	<i>Gambusia holbrooki</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Green sunfish	<i>Lepomis cyanellus</i>
Gulf darter	<i>Etheostoma swaini</i>
Lake chubsucker	<i>Erimyzon sucetta</i>
Largemouth bass	<i>Micropterus salmoides</i>
Longear sunfish	<i>Lepomis megalotis</i>
Longnose shiner	<i>Notropis longirostris</i>
Pirate perch	<i>Aphredoderus sayanus</i>
Redear sunfish	<i>Lepomis microlophus</i>
Ruddy bowfin	<i>Amia calva</i>
Silverjaw minnow	<i>Notropis buccatus</i>
Speckled chub	<i>Macrhybopsis aestivalis</i>
Speckled madtom	<i>Noturus leptacanthus</i>
Spotted bass	<i>Micropterus punctulatus</i>
Spotted sucker	<i>Mirytrema melanops</i>
Spotted sunfish	<i>Lepomis punctatus</i>
Warmouth	<i>Lepomis gulosus</i>
Weed shiner	<i>Notropis texanus</i>
Western blacktail shiner	<i>Cyprinella venusta</i>
White bass	<i>Morone chrysops</i>
Yellow bullhead	<i>Ameiurus natalis</i>

Adapted from Mount and Diamond 1992

APPENDIX 9. Replacement Plantings

Replacement Plantings

The following species are used to replace damaged or removed trees and shrubs or groundcover on Fort Novosel:

Shade Trees

Scientific Name	Common Name
<i>Acer rubrum</i>	Red maple
<i>Catalpa bignonioides</i>	Catalpa
<i>Carya illinoensis</i>	Pecan
<i>Celtis occidentalis</i>	Common hackberry
<i>Cornus florida</i>	Flowering dogwood
<i>Cryptomeria japonica</i>	Cryptomeria
<i>Diospyros virginiana</i>	Persimmon
<i>Fagus grandifolia</i>	American beech
<i>Gleditsia tricanthos</i>	Honey locust
<i>Ilex opaca</i>	American holly
<i>Lagerstroemia indica</i>	Crape myrtle
<i>Magnolia grandiflora</i>	Southern magnolia
<i>Malus</i> spp.	Crabapples
<i>Morus alba</i>	White mulberry
<i>Morus rubra</i>	Black mulberry
<i>Pinus nigra</i>	Austrian black pine
<i>Pinus taeda</i>	Loblolly pine
<i>Platanus occidentalis</i>	American sycamore
<i>Populus deltoides</i>	Eastern cottonwood
<i>Populus nigra</i>	Black cottonwood
<i>Prunus sargentii</i>	Sargent's cherry
<i>Quercus alba</i>	White oak
<i>Quercus nigra</i>	Water oak
<i>Quercus palustris</i>	Pin oak
<i>Quercus phellos</i>	Willow oak
<i>Quercus rubra</i>	Northern red oak
<i>Quercus virginiana</i>	Live oak
<i>Ulmus americana</i>	American elm

Shrubs

Scientific Name	Common Name
<i>Abelia grandiflora</i>	Glossy abelia
<i>Azalea</i> spp.	Azalea
<i>Bogus sempervirens</i>	Boxwood
<i>Calycanthus floridus</i>	Eastern sweetshrub
<i>Camellia japonica</i>	Camellia
<i>Camellia sasangua</i>	Sasanqua camellia
<i>Cortaderia argentea</i>	Pampas grass
<i>Forsythia fortunei</i>	Forsythia
<i>Gardenia grandiflora</i>	Gardenia
<i>Hydrangea macrophylla</i>	Hydrangea
<i>Ilex cornuta burfordi</i>	Burford holly
<i>Ilex cornuta burfordi nana</i>	Dwarf burford holly
<i>Ilex aquifolia variagated</i>	Variiegated English holly
<i>Ilex crenata compacta</i>	Compact japanese holly
<i>Ilex crenata convexa</i>	Convex japanese holly
<i>Ilex crenata fastigiata</i>	Upright japanese holly
<i>Ilex crenata helleri</i>	Holly
<i>Ilex latifolia</i>	Lusterleaf holly
<i>Ilex vomitoria</i>	Youpon holly
<i>Ilex vomitoria nana</i>	Dwarf youpon
<i>Juniperus conferta litoralis</i>	Shore juniper
<i>Juniperus horizontalis</i>	Creeping juniper
<i>Lagerstroemia indica</i>	Crape myrtle
<i>Lonicera</i> spp.	Honeysuckle (However, use of <i>L. morrowii</i> [Morrow honeysuckle], <i>L. japonica</i> [Japanese honeysuckle], and <i>L. x bella</i> [showy fly honeysuckle or Bell's honeysuckle] are not allowed)
<i>Myrica cerifera</i>	Wax myrtle
<i>Prunus laurocerasus</i>	Cherry laurel
<i>Pyranantha</i> spp.	Pyranantha
<i>Rhododendron</i> spp.	Rhododendron
<i>Rosa</i> spp.	Rose (however, use of <i>R. bracteata</i> [McCartney rose], <i>R. laevigata</i> [Cherokee rose], and <i>R. multiflora</i> [multiflora rose] are not allowed)
<i>Spirea</i> spp.	Spirea
<i>Tamarix afrinicola</i>	Tamarix
<i>Viburnum</i> spp.	Viburnum

Ground Cover and Vines

Scientific Name	Common Name
<i>Vinca minor</i>	Vinca
<i>Liriope</i> spp.	Monkey grass
<i>Wisteria</i> spp.	Wisteria (However, use of <i>W. sinensis</i> [Chinese wisteria] is not allowed)

APPENDIX 10. FY23 Pesticide Use List

FY23 PESTICIDE USE LIST

Installation Name: US Army Aviation Center of Excellence and Fort Novosel

IPMC Name/Email: Brent Waters/334-255-2080

Approved as of: 25 Apr 23

PMC Reviewer: Dr. William B. Miller, william.b.miller@army.mil/210-466-1302; Telework 210-793-7893

Full Pesticide Trade Name	EPA Registration No.	Active Ingredients	Comments
Tomcat Rodent Repellent	25(b)	Sodium Lauryl Sulfate; Peppermint Oil; Cinnamon Oil; Garlic Oil	25(b) products are generally considered safe and do not require EPA registration
Talon-G Rodenticide Bait Pack Mini-Pellets	100-1050	Brodifacoum	
Demand CS Insecticide	100-1066	Lambda-cyhalothrin	
Reward Landscape and Aquatic Herbicide	100-1091	Diquat Dibromide	
Heritage Fungicide	100-1093	Azoxystrobin	
Monument 75WG Herbicide	100-1134	2-pyridinesulfonamide, N-[[[4,6-dimethoxy-2-pyrimidinyl]amino]carbonyl]-3-(2,2,2-trifluoroethoxy)-, monosodium salt, monohydrate; Trifloxysulfuron-sodium	
Resolute 4FL	100-1139	Proflamime	
Headway Fungicide	100-1216	Azoxystrobin; Propiconazole	
Optigard Ant Gel Bait	100-1260	Thiamethoxam	
Renown Fungicide	100-1315	Chlorothalonil; Azoxystrobin	
Daconil Action	100-1364	Chlorothalonil	
Briskway Fungicide	100-1433	Azoxystrobin; Difenoconazole	
Tandem Insecticide	100-1437	Thiamethoxam/Lambda-cyhalothrin	
Medallion SC Fungicide	100-1448	Fludioxonil	
Award II Fire Ant Bait	100-1452	Abamectin	
Advion Fire Ant Bait Insecticide	100-1481	Indoxacarb	
Advion Evolution Cockroach Gel Bait/Advion Cockroach Gel Bait	100-1484	Indoxacarb	
Advion Ant Gel	100-1498	Indoxacarb	
Arlion Insecticide	100-1501	Indoxacarb	
Velista Fungicide	100-1534	Penthiopyrad	
Heritage Action Fungicide	100-1550	Azoxystrobin	
Provaunt WDG	100-1636	Indoxacarb	
Cleary 3336 F Turf and Ornamental Systemic Fungicide	1001-69	Thiophanate-Methyl	
Princep 4 L	100-526	Simazine	
Endurance Herbicide or Barricade 65WG	100-834	Proflamime	
Resolute 65WG	100-834	Proflamime	
Vanquish Herbicide	100-884	Dicamba	
Avid 0.15EC Miticide/Insecticide	100-896	Abamectin	

Primo Maxx	100-937	Trinexapac-ethyl	
Pennant Magnum Herbicide	100-950	S-Metolochlor	
Anvil 10+10 ULV	1021-1688-8329	3-phenoxybenzyl-(1RS, 3RS; 1RS, 3SR)-2,2 dimethyl-3-(2methylprop-1-enyl) cyclopropane carboxylate	
Distance Fire Ant Bait	1021-1728-59639	2-[1-Methyl-2-(4-Phenoxyphenoxy) ethoxy] pyridine	
Speckoz Pyriocide Flusher	1021-1761-72113	Pyrethrins; Piperonyl Butoxide; MGK 264	
MGK Shockwave	1021-1810	MGK-264, PBO, Pyrethrins, Esfenvalerate, Pyriproxyfen	
Onslaught Fastcap Spider & Scorpion Insecticide	1021-2574	Esfenvalerate	
Vendetta Plus Cockroach Gel Bait	1021-2593	Penthiopyrad	
Vendetta Nitro Cockroach Gel Bait	1021-2796	Clothianidin	
Lesco Three-Way Selective Herbicide	10404-43	Isocyl (2-ethylhexyl) Ester of 2-Methyl-4-Chlorophenoxyacetic Acid (CAS No. 26544-220-7); Butoxyethanol Ester of 3,5,6-Tyrichloro-2-Pyridinyloxyacetic Acid (CAS No. 57213-69-1); 3,6-Dichloro-o-anisic Acid (CAS No. 1918-00-9)	
Contract Soft Bait	12455-146	Bromadiolone	
Ditrac Tracking Powder	12455-56	Diphacinone	
Contract All-Weather Blox	12455-79	Bromadiolone	
Liqua-Tox	12455-81	Diphacinone	
Fastrack Blox	12455-95	Bromothalrin	
Cornerstone Plus Herbicide	1381-192	Glyphosate	
Brash Herbicide	1381-202	Dicamba; 2,4-D	
Simizine 4L Herbicide	19713-60	Simazine	
De - Amine 4	19713-650	2,4-D, DMA	
Atra 5	19713-80	Atrazine	
Gordon's Amine 400 2,4-D Weed Killer	2217-2	2,4-D	
Gordon's Bensumec 4 LF Preemergent Grass & Weed Herbicide	2217-696	Bensulfide	
Gordon's Brushmaster Herbicide	2217-774	2,4-D; 2,4-D; Dicamba	
Weedestroy AM-40 Selective Weed Killer	228-145	2,4-D	
Triplet SF	228-312	Dicamba, 2,4-D DMA, MCPP-P	
Lesco Three-Way Ester II Selective Herbicide	228-317-10404	Isocyl (2-ethylhexyl) Ester of 2-Methyl-4-Chlorophenoxyacetic Acid (CAS No. 26544-220-7); Butoxyethanol Ester of 3,5,6-Tyrichloro-2-Pyridinyloxyacetic Acid (CAS No. 57213-69-1); 3,6-Dichloro-o-anisic Acid (CAS No. 1918-00-9)	
Aqua Neat Aquatic Herbicide	228-365	Glyphosate	
Riverdale Razor Pro Herbicide	228-366	Glyphosate	
Riverdale Manor Selective Herbicide or Mansion Turf Herbicide	228-373	Metsulfuron Methyl	
Aqua-Kleen	228-378-4581	2,4-D	
Patriot Herbicide	228-391	Metsulfuron Methyl	
Change Up	228-445	Dicamba, MCPA, Fluroxypyr-methyl	
Lesco Momentum FX2 Herbicide	228-447-10404	Trisopropandamine Salt of 2,4-Dichlorophenoxyacetic Acid	

Polaris Herbicide	228-480	Imazapyr	
Candor Herbicide	228-565	2,4-D, Triclopyr	
Polaris AC Herbicide	228-570	Isopropylamine salt of Imazapyr	
Lesco RegiMax PGR Plant Growth Regulator	228-635-10404	Trinexapac-ethyl	
Chopper Herbicide	241-296	Imazapyr	
Arsenal Herbicide Applicators Concentrate	241-299	Imazapyr	
Lesco Pre-M 3.3 EC Turf Herbicide	241-360-10404	Pendimethalin	
Plateau Herbicide	241-365	Imazapic	
Phantom Termiticide/Insecticide	241-392	Chlorfenapyr	
Pendulum AquaCap	241-416	Pendimethalin	
Journey Herbicide	241-417	Imazapic	
Chopper Gen2 Herbicide	241-430	Imazapyr	
Arsenal PowerLine Herbicide	241-431	Imazapyr	
Genitol IGR Concentrate	2724-351	Hydroprene	
Precor IGR Concentrate	2724-352	Methoprene	
Altosid XR Extended Residual Brigquets	2724-421	Methoprene	
Genitol Point Source Roach Control Device	2724-469	(S)-Hydroprene	
Extinguis Plus	2724-496	Hydramethylnon & S-Methoprene	
Zenprox EC	2724-804	Etofenprox, Piperonyl Butoxide	
Cynoff EC Insecticide	279-3081	Cypermethrin	
Talstar EZ Granular Insecticide	279-3168	Bifenthrin	
Talstar PL Granular Insecticide	279-3168	Bifenthrin	
Talstar P Professional Insecticide	279-3206	Bifenthrin	
Lesco Cross Check Plus Insecticide	279-3206-10404	Bifenthrin	
Dismiss Turf Herbicide	279-3295	Sulfentrazone	
Triple Crown Golf	279-3457	Bifenthrin/Zeta-cypermethrin/Imidacloprid	RUP due to Fish and Aquatic Organism Toxicity
Raynora	279-3633	Flutriafol	
Kalida	279-3641	Flutriafol/Fluindapyr	
OnyxPro Insecticide	279-4269	Bifenthrin	
Velpar L Herbicide	352-392	Hexazinone	
Krenite S Brush Control Agent	352-395	Fosamine	
Velpar ULW Herbicide	352-450	Hexazinone	
Velpar DF Herbicide	352-581	Hexazinone	
Oust XP Herbicide	352-601	Sulfometuron Methyl	
Oustar Herbicide	352-603	Hexazinone	
Oust Extra Herbicide	352-622	Sulfometuron Methyl, Metsulfuron Methyl	
TranXit Herbicide	352-643	Rimsulfuron	
Provaunt Insecticide	352-716	Indoxacarb	
Acelepryn Insecticide	352-731	Chlorantraniliprole	
Method 240SL Herbicide (Dupont)	352-786	Potassium salt of aminocyclopyrachlor & Potassium salt of 6-amino-5-chloro-2-cyclopropyl-4-pyrimidinocarboxylic acid	

Streamline Herbicide	352-848	Aminocyclopyrachlor; Metsulfuron methyl	
Steri-Fab	397-13	d-cis and trans Phenothrin; isopropyl alcohol; didecyl dimethyl ammonium chloride; n-alkyl dimethyl ammonium chloride and dimethyl benzyl ammonium chloride	
Lesco Quin Way 1.5L	42750-224-10404	Quinclorac	
Agri Star Butylrac 200 Broadleaf Herbicide	42750-38	2,4-D	
Cornerstone Herbicide	42750-60-1381	Glyphosate	
Gly Star Pro	42750-61	Glyphosate	
Lesco Quin Way 75DF	42750-90-10404	Quinclorac	
Topchoice Insecticide	432-1217	Fipronil	
Prostar 70 WG Fungicide	432-1223	Flutolanil	
Lesco Sevin Brand SL Carbaryl Insecticide	432-1227-10404	Carbaryl	
Finalte Herbicide	432-1229	Glufosinate-ammonium	
Maxforce Roach Killer Bait Gel	432-1254	Hydramethylnon	
Maxforce Complete Brand Granular Insect Bait	432-1255	Hydramethylnon	
Maxforce FC Professional Insect Control Ant Bait Stations	432-1256	Fipronil	
Maxforce Select Professional Insect Control Roach Killer Bait Gel	432-1259	Fipronil	
Maxforce FC Professional Insect Control Ant Killer Bait Gel	432-1264	Fipronil	
Revolver Herbicide	432-1266	Foramsulfuron	
Tempo WP Ultra Insecticide	432-1304	β -Cyfluthrin	
Lesco Bandit 2F	432-1312	Imidacloprid	
Quail-Pro Imidacloprid 75WSB Insecticide	432-1318-73220	Imidacloprid	
Lesco Bandit 0.5G	432-1328	Imidacloprid	
Premise Pre-Construction Insecticide	432-1331	Imidacloprid	
Masterline I MaxPro 2F Insecticide	432-1331-73748	Imidacloprid	
Tempo SC Ultra Insecticide	432-1363	β -Cyfluthrin	
Premise Granules	432-1385	Imidacloprid	
Premise Foam	432-1391	Imidacloprid	
Maxforce FC Fire Ant Bait	432-1433	Fipronil	
Maxforce Fly Spot Bait	432-1455	Imidacloprid	
Maxforce FC Magnum Roach Killer Bait Gel	432-1460	Fipronil	
Sencor 75% Turf Herbicide	432-1469	Metribuzin	
ProStar 70 WDG Fungicide	432-1477	Flutolanil	
TempriD SC Insecticide	432-1483	Imidacloprid; β -Cyfluthrin	
Celsius WG Herbicide	432-1507	Thiencarbazono-methyl	
Nortica Biological Agent	432-1512	Bacillus thuringiensis	
EspLanade 200 SC Herbicide (Bayer)	432-1516	Indaziflam	
Spect(y)cle FLO Pre-emergent Herbicide	432-1518	Indaziflam	
Tribute Total	432-1519	Thiencarbazono-methyl//Foramsulfuron/Halosulfuron-methyl	
TempriD ReadySpray Insecticide	432-1527	Imidacloprid	

Maxforce Impact Roach Gel Bait	432-1531	Clothianidin	
Dergio Herbicide	432-1533	Foramsulfuron, Iodosulfuron-methyl, Thien carbazole-methyl	
Signature Xtra Stressgard	432-1541	Aluminum tris	
Indemity Fungicide	432-1543	Fluopyram	
Temprid FX Insecticide	432-1544	Imidacloprid	
Escort XP	432-1549	Metsulfuron Methyl	
Oust XP Herbicide (Bayer)	432-1552	Sulfometuron methyl	
Tetrino	432-1591	Tetraniliprole	
Specticle Fio	432-1608	Indaziflam	
Densicor	432-1612	Prothioconazole	
Celsius Xtra	432-1614	Thiencarbazone-methyl/Iodosulfuron-methyl-sodium/Halosulfuron-methyl	
Scourge Insecticide with SBP-1382/PB Formula II	432-716	Resmethrin	Product cancelled on 31 Dec '15 at company's request with no end of use date
Suspend SC Insecticide	432-763	Deltamethrin	
DeltaDust Insecticide	432-772	Deltamethrin	
Bayer 26 GT Fungicide	432-888	Iprodione	
Chippoc@ Choice™ Insecticide	432-896	Fipronil	
Banol Turf and Ornamental Fungicide	432-942	Propamocarb hydrochloride	
Drione Insecticide	432-992	Pyrethrins; Piperonyl Butoxide; Silica	
Raid Wasp & Hornet Killer 33	4822-553	Prallethrin; Cypermethrin	
Quall-Pro TM 4.5 Turf & Ornamental Fungicide	48234-12-73220	Thiophanate	
Whitnire PT 565 + XLO	499-290	Pyrethrins	
Cy-Kick@ CS Controlled Release Cyfluthrin	499-304	Cyfluthrin	
Prescription Treatment Brand PT565 + XLO	499-310	Pyrethrins; d-trans Allethrin; Piperonyl Butoxide; n-octyl bicycloheptone dicarboximide	
Prescription Treatment Brand Wasp-Freeze Wasp & Hornet Killer	499-362	d-trans Allethrin; Phenothrin	
Prescription Treatment Perma-Dust Pressurized Boric Acid Dust	499-384	Boric Acid	
Prescription Treatment Brand Tri-Die Pressurized Silica + Pyrethrin Dust Formula 1	499-385	Pyrethrins; Amorphous Silica Dioxide	
Cy-Kick@ Crack & Crevice@ Pressurized Residual Prescription Treatment Brand 388B Advance Ant Gel Bait	499-470	Cyfluthrin	
Prescription Treatment Brand 388B Advance Ant Gel Bait	499-492	Sodium Tetraborate Decahydrate	
Advance 360A Dual Choice Ant Bait Stations Prescription Treatment Brand Alpine Dust Insecticide	499-496	Abamectin	
Terimidor Dry Termiticide	499-527	Dinotefuran	
PT Phantom II Pressurized Insecticide	499-546	Fipronil	
Alpine WSG Water Soluble Granule Insecticide	499-548	Chlorfenapyr	
	499-561	Dinotefuran	

Alpine Pressurized Fly Bait	499-568	Dinotefuran	
Fendona CS Controlled Release Insecticide	499-570	Alpha-Cypermethrin	
Daconil Ultrex Turf Care Fungicide	50534-202-100	Chlorothalonil	
Daconil Weather Stik Flowable Fungicide	50534-209-100	Chlorothalonil	
Roundup Pro Herbicide	524-475	Glyphosate	
Ranger Pro Herbicide	524-517	Glyphosate	
QuikPro	524-535	Glyphosate	
Lesco Prosecutor Non-Selective Herbicide	524-536-10404	Glyphosate	
Roundup ProMax Herbicide	524-579	Glyphosate	
Scotts Bonus S Southern Weed & Feed, 29-1-10, Water Smart Formula	538-18	Atrazine	
Tekko Pro Insect Growth Regulator Concentrate	53883-335	Pyriproxyfen, Novaluron	
Surrender Brand Pestabs Insecticide	53883-70	Lambda-cyhalothrin	
Orthene 97 Soluble Insecticide	5481-8978	Acephate	
CRC Wasp & Hornet Killer Plus	55809-3	Tetramethrin; D-Phenothrin	
Snake-a-way Snake Repellent	58630-1	Naphthalene; Sulfur	
Treflan EC	5905-532	Trifluralin	
Clipper Herbicide	59639-161	Flumioxazin	
Select 2 EC Herbicide	59639-3	Clethodim	
PrimaOne Proflamline 65 WDG Herbicide	60063-26	Proflamline	
Lesco Stonewall 65WDG Herbicide	60063-26-81943	Proflamline	
Knighthawk Herbicide	60063-7-10404	Chlorothalonil	
Lesco Manicure 6FL Turf and Ornamental Fungicide	61842-11	Fluridone	
Whitecap SC Aquatic Herbicide	62719-145	Isoxaben	
Gallery 75 DF Herbicide	62719-259	Clopyralid	
Transline Specialty Herbicide	62719-260-1381	BTE 2,4-D, BTE triclopyr	
Crossbow	62719-324	Glyphosate	
Rodeo Herbicide or Accord Concentrate Herbicide	62719-37	Triclopyr	
Garlon 3A Specialty Herbicide	62719-396-10404	Mancozeb	
Lesco 4 Flowable Mancozeb Broad Spectrum Fungicide	62719-4	Sulfury Fluoride	
Vikane Specialty Gas Fumigant	62719-40	Triclopyr	
Garlon 4 Specialty Herbicide	62719-402-10404	Manganese; Zinc	
Mancozeb DG Turf and Ornamental Fungicide	62719-426	Dithiopyr	
Dimension EC Specialty Herbicide	62719-463	Myclobutanil	
Eagle 20EW Specialty Herbicide	62719-5	Picloram; 2,4-D	
Tordon 101 Mixture	62719-517	Glyphosate	
Accord XRT Herbicide	62719-519	Aminopyralid	
Milestone Specialty Herbicide	62719-527	Triclopyr	
Garlon 4 Ultra Specialty Herbicide	62719-542	Dithiopyr	
Dimension 2EW	62719-542	Dithiopyr	
Dimension 2EW	62719-552	BTE triclopyr	
Remedy Ultra			

Forestry/Garlon XRT Specialty Herbicide	62719-553	Triclopyr-butyl	
Accord XRT II Herbicide	62719-556	Glyphosate	
Kerb SC Herbicide	62719-578	Pronamide	
Cleantraxx Herbicide (Dow)	62719-702	Penoxsulam	
TerraVue	62719-738	Aminopyralid;florpyrauxifen-benzyl	
Combat Source Kill Max Small	64240-33	Fipronil	
Combat Source Kill Max Large	64240-34	Fipronil	
Combat Max Roach Killing Gel	64240-45	Fipronil	
Bora-Care Termiticide, Insecticide and Fungicide Concentrate	64405-1	Disodium Octaborate Tetrahydrate	
Niban Granular Bait	64405-2	Orthoboric Acid	
Tim-bor Professional Insecticide and Fungicide	64405-8	Disodium Octaborate Tetrahydrate	
Prentfish Toxicant Liquid Emulsifiable	665-422	Rotenone	
Impose	66222-141	Imazapic-ammonium	
Alligare Panoramc 2SL Herbicide	66222-141-81927	Imazapic	
Quail-Pro MSM Turf Herbicide	66222-146	Metsulfuron Methyl	
Quail-Pro Chlorothalonil DF Fungicide	66222-149-73220	Chlorothalonil	
Quail-Pro Chlorothalonil 720 SFT Fungicide	66222-154-73220	Chlorothalonil	
Quail-Pro Glyphosate Plus Herbicide	66222-176	Glyphosate	
Quail-Pro Bifenthrin Golf & Nursery 7.9F	66222-192	Bifenthrin	
Quail-Pro T-NEX 1 AQ for Turf Growth	66222-212	Trinexapac-ethyl	
Quail-Pro Proflamline 65 WDG Herbicide	66222-89-73220	Proflamline	
Lesco T-Storm Flowable Turf & Ornamental Fungicide	66330-293-10404	Thiophanate-Methyl	
Lesco 18 Plus Turf and Ornamental Fungicide	66330-305-10404	Iprodione	
Aloft GC SC Insecticide	66330-367	Clothianidin; Bifenthrin	
Disarm C Fungicide	66330-379	Fluoxastrobin; Chlorothalonil	
Disarm M Fungicide	66330-388	Fluoxastrobin; Myclobutanil	
Disarm 480 SC Fungicide	66330-64	Fluoxastrobin	
Cutless 0.33G Landscape Growth Regulator	67690-13	Flurprimidol	
Junction Fungicide/Bactericide Dry Flowable	67690-35	Mancozeb	
Sonar A.S. Aquatic Herbicide	67690-4	Fluridone	
Tengard SFR One Shot Termiticide Insecticide	70506-6	Permethrin	
SureGaurd SC	71368-114	Flumioxazin	
Weedmaster Herbicide	71368-34	Dicamba; 2,4-D	
Segway Fungicide	71512-13-279	Cyazofamid	
Take Down Soft Bait (Alpha Tech)	7173-304	Bromethalin	
Glyphosate Pro 4 Herbicide	72112-4	Glyphosate	
BayerAdvanced Concentrated Lawn Weed Killer	72155-4	Dicamba; 2,4-D, MCPP	
DIPel ES Emulsifiable Suspension	73049-17	Bacillus thuringiensis kurstaki	
InTice perimeter bait	73079-6	Orthoboric Acid	
Amdro Fire Ant Bait	73342-1	Hydramethylnon	
Gourmet Ant Bait Gel	73766-1	Disodium Octaborate Tetrahydrate	
Trim-tec	74779-7	Paclbutrazol	

MultiGuard Protect EC	75753-1		Furfural	
Overdrive Herbicide	7969-150	Sodium Diflufenzopyr; Dicamba		
Insignia Fungicide	7969-184	Pyraclostrobin		
Terimidor 80 WG Termiticide/Insecticide	7969-209	Fipronil		
Terimidor SC Termiticide/Insecticide	7969-210	Fipronil		
Prescription Treatment Brand Phantom Pressurized Insecticide	7969-285	Chlorfenapyr		
Encartis	7969-348	Chlorothalonil/Boscalid		
Xzemplar Fungicide	7969-349	Fluxapyroxad		
Lexicon Intrinsic Brand Fungicide	7969-350	Fluxapyroxad; Pyraclostrobin		
Navicon	7969-403	Pyraclostrobin/Mefenflufenconazole		
Maxtima	7969-404	Mefenflufenconazole		
Alucion 35WG	7969-467	Dinotefuran/alpha-Cypermethrin		
Poast Herbicide	7969-58	Sethoxydim		
Sedgehammer Turf Herbicide	81880-1-10163	Halosulfuron-Methyl		
Alligare Imazapyr 4 SL	81927-24	Imazapyr		
Alligare Glyphosate 4 Plus	81927-9	Glyphosate		
Dakota Herbicide	83100-38-83979	Clethodim		
Zenprox Xtend Aerosol	89459-12	Etofenprox; Tetramethrin; Pyrethrins; Piperonyl Butoxide; S-Methoprene		
Gentrol Complete Aerosol	89459-84	Lambda-Cyhalothrin; (S)-Hydroptrene		
Cutrine-Plus	8959-10	Triethanolamine; Ethanolaniline; Copper		
Spectracide Bug Stop Flying & Crawling Insect Killer ²	9688-111-8845	Deltamethrin; S-Bioallethrin		
Spectracide Fire Ant Killer Plus Preventer Bait	9688-217-8845	Indoxacarb		
Detex with Lumitrack Blox	N/A	Non-Toxic Rodent Monitoring Bait		
Advance Carpenter Ant Bait	499-370	Abamectin		
Envy	89168-17-89391	Glyphosate		
Honcho K6	524-539	Glyphosate		
Imiotator Plus	19713-526	Glyphosate		
Round Up Custom	524-343	Glyphosate		
Polaris Herbicide	228-534	Imazapyr		
Arsenal	241-346	Imazapyr		
Freelex	62719-634	2,4-D Choline Salt		

APPENDIX 11. Wildlife Food Plot Information

Wildlife Food Plot Information

Grain sorghum: About 50 acres are planted in 5-10-acre plots during April-May each year. These plots target dove and quail.

Winter green crop mixture: Approximately 200 acres are planted in a mixture of winter wheat or rye, crimson clover, Austrian winter pea, and hairy vetch. This mixture is planted in 28 separate utility rights-of-way, totaling 100 acres. . This mixed planting provides a high quality supplemental feed for deer, turkey, and many small game species during winter.

Bicolor lespedeza: Numerous patches have been planted throughout Fort Novosel. Each patch is 1/8th to 1/4th acres. Bicolor is primarily planted for quail; however, mourning dove and turkey also find the fruit highly desirable. A three-year maintenance cycle has been established. Cutting and fertilizing every third year aids bush growth, seed production, and overall development of bicolor. Fort Novosel realizes that bicolor lespedeza is a non-native species and can become a problem if allowed to spread unchecked. The value of this heavy seed producing legume to bobwhite quail and the fact that plots can be controlled if maintained offset this risk in our opinion.

Chufa: Twenty acres of chufa are planted throughout Fort Novosel. Fields vary from 3/4th to two acres. Chufas are planted as a supplemental food for wild turkey, although deer and other wildlife are known to feed on them.

Browntop millet: One hundred acres of brown millet are planted throughout Fort Novosel. Fields are 1-10 acres. Primarily planted to attract quail and dove, other species are known to benefit from this planting. These fields provide excellent dove hunting during the early portion of the hunting season. Browntop is also added to mixtures planted for erosion control outside of the cantonment area. In this manner, an additional 150-200 acres of wildlife feed are provided.

Kobe lespedeza: Kobe lespedeza is planted annually in strips comprising 15 acres of wildlife openings. This plant is a highly preferred food of bobwhite quail and is also used by rabbits and deer.

Egyptian wheat: This variety of sorghum is planted in 1/8-1/4 acre plots, totaling 50 acres. Bobwhite quail, mourning dove, and various songbirds utilize this food supplement.

Chickasaw plum: Plum tree seedlings are planted within wildlife openings and open areas to create travel corridors and escape cover. Additionally, Chickasaw plum produces a fruit that is widely used by game and non-game birds and other wildlife species.

Lab lab: Lab lab, an annual tropical legume, has shown considerable promise as high quality supplemental forage for deer. This legume has 31% crude protein, available in later summer, an important wildlife stress period. This species has been recommended by Auburn University. Fort Novosel is planting about three 4-acre plots to experiment with this species. This project will continue, depending upon results, during 2001-2005.

DQP: DQP is a perennial legume, which shows promise as deer forage and a seed producer for birds. Fort Novosel is experimenting with DQP, planting about five acres annually in strips.

Austrian winter pea; Austrian winter pea is a vine-like cool-season annual legume. It has a high nutritional value and is very attractive to whitetail deer, providing excellent fall, winter, and early-spring forage. Doves, quail and turkey will also feed on seed. This has been added to the cool season mixture for planting on Fort Novosel.

Chicory: Chicory, a perennial herb, has been proven to provide an excellent late winter early-spring forage for whitetail deer. It begins rapid growth in the spring and is planted as a companion plant for white and ladino clovers.

Iron & Clay Pea: Iron and Clay pea is an annual, vine-like, summer legume. It is planted to provide forage from July to until the first frost and is highly preferred forage of deer and rabbits. Quail, doves, turkeys and a variety of other bird species feed almost exclusively on the seed when available. It is planted as a companion plant for lab lab and is used as a warm season planting.

Sunflower: Sunflowers are an important summer annual. They are planted on Fort Novosel to provide cover and food for a variety of game and non-game birds as well as providing attractive summer forage for whitetail deer.

Dove proso millet: Dove proso millet is an annual panic grass native to central Asia. It is planted on Fort Novosel as a summer wildlife planting. The seeds produced are a choice food for upland game and non-game birds and waterfowl.

Soft mast trees: Soft mast seedlings such as Callaway Crab Apple, Yates Apple, Common Persimmon, and Arkansas Black apple are planted within open areas, wildlife openings, and in larger (> 2 acres) food plots containing both cool and warm season plantings. These trees create travel corridors, escape and screening cover. The masts produced by these trees also provide an abundant and natural food source for a variety of wildlife and bird species.

Hard mast trees; Hardwood seedlings such as ; Gobbler Sawtooth oak, Sawtooth oak are also planted within open areas, wildlife openings and larger food plots. These seedlings when planted with various soft mast species provide a permanent food source as well as creating travel corridors, escape and screening cover for a variety of wildlife and bird species (game and non-game). Fort Novosel realizes that these oaks are non-native and only uses them in upland food plots as travel corridors. The fast growing, speedy mast production characteristics of this tree provide excellent cover as well as a food source that is not matched by native hard mast producers.

The table below indicates seeding rates and planting dates for wildlife feed planted on Fort Novosel. Fertilizer rates vary by site and are based on soil tests.

Wildlife Planting	Seeding Rate (In pounds per acre)	Planting Date
Egyptian wheat	8	April-July
Grain sorghum	20	June-July
Browntop millet	25	May-July
Florida beggar weed	12	April-June
Chufa	40	Mid-June
Alfalfa	25	October 1
Lab lab	10	March 1 - April 1
Bicolor lespedeza	8	1 March-15 April
DQP	8	1 March – 1 April
Winter mixture:		
Winter wheat	40	September-October
Crimson clover	15	September-October
Hairy vetch	15	September-October
Austrian winter pea	25	September-October
Chicory	10	September-November
Summer mixture:		
Iron and clay peas	25	May
Lab lab	15	May
Grain Sorghum	15	May
Upland bird Mixture:		
Mammoth Sunflower	15	May-June
Brown top Millet	15	May-June
Dove Proso	15	May-June
Grain Sorghum	15	May- June

APPENDIX 12. Fort Novosel Land
Rehabilitation and
Maintenance (LRAM)
Projects Summary
(Recurring Projects)

Fort Novosel Land Rehabilitation and Maintenance (LRAM) Projects Summary (Recurring Projects)

Fort Novosel, AL recurring Land Rehabilitation and Maintenance (LRAM) Projects supporting the Integrated Training Area Management (ITAM) component of the Army's Sustainable Range Program (SRP) are the following:

1. Helicopter Training Sites Maintenance and Repair *(performed annually).*

Purpose: Remediate maneuver damage caused at/vicinity 5 helicopter training base fields (including Hanchey AHP Hover Areas), 15 helicopter training stage fields (SFs) *(excludes TAC-X and includes Highfalls)*, 1 Forward Arming and Refuel Point (FARP), and up to 15 government-owned Remote Training sites (RTs) used to conduct initial entry and advanced helicopter flight training *(excludes RTs 68, 331, 334, and 337 - which are not used)*. Maneuver damage is caused by helicopter pilot student training requiring helicopter landings, takeoffs, and hovering.

Description: Repair maneuver damage at helicopter training sites based on semi-annual Range and Training Land Assessments (RTLAs) and/or observations. This project maintains vegetative cover; corrects erosion; seeds and fertilizes bare areas; and fills, grades, and shapes indentations, depressions, and bare areas caused by training helicopter rotor wash during protracted hovering, sling load surface scarring, aircraft skid and wheeled landing gear contact with non-paved surfaces, and ground vehicles. Remediation normally involves applying a mixture of topsoil and #4 stone (70/30 mix), seed, and fertilizer as required to match surrounding grades to aid recovery and reinforce surface; normally less than 1 acre per repair site. The slope landing pads at the stage fields are bladed, as needed, and surface vegetation curtailed. Rock encroachment onto articulated cable-concrete pads is removed.

2. Helicopter Training Sites Sustainment - Apply Fertilizer *(performed annually).*

Purpose: Fortify ground vegetation as preventive measure to minimize maneuver damage at 15 helicopter training stage fields (SFs) *(excludes TAC-X and includes Highfalls)*, 1 Forward Arming and Refuel Point (FARP), and up to 15 government-owned Remote Training sites (RTs) used to conduct initial entry and advanced helicopter flight training *(excludes RTs 68, 331, 334, and 337 - which are not used)*. Maneuver damage caused by helicopter pilot student training requiring helicopter landings, takeoffs, and hovering.

Description: Apply granular fertilizer (annually) on up to 32 helicopter training sites totaling approximately 1,706 acres. Application rate for fertilizer (13-13-13) is 250 lbs per acre.

3. Helicopter Training Sites Sustainment - Apply Lime *(performed biennially).*

Purpose: Fortify ground vegetation as preventive measure to minimize maneuver damage at 15 helicopter training stage fields (SFs) *(excludes TAC-X and includes Highfalls)*, 1 Forward Arming and Refuel Point (FARP), and up to 15 government-owned Remote Training sites (RTs) used to conduct initial entry and advanced helicopter flight training *(excludes RTs 68, 331, 334, and 337 - which are not used)*. Maneuver damage caused by helicopter pilot student training requiring helicopter landings, takeoffs, and hovering.

Description: Apply granular lime (biennially [even-numbered fiscal years]) on up to 32 helicopter training sites totaling approximately 1,706 acres. Application rate for lime is 2 tons

per acre.

4. Maneuver Trail Maintenance (27 South - Vegetation Control) *(performed annually)*.

Purpose: Control vegetation growth/encroachment on maneuver trails and shoulders.

Description: Cut vegetation on trails and shoulders (trail edge to tree line) on up to 65 miles of maneuver trails in training areas south of Alabama Highway 27 in their entirety 3 times per year (October-November, March-May, and July-September). Vegetation control includes mowing with bush hog type equipment and delimiting of trees and branches overhanging the trail to a minimum height of 12 feet with chainsaw/pole saw, skid steer forestry cutter, tractor mounted boom cutter, excavator with brush cutter, and/or other mechanical methods. Cleared vegetation will be placed in the wood line off the trails and out of the ditch line.

5. Maneuver Trail Maintenance (27 South - Grade/Shape/Assess/Repair/Maintain) *(performed annually)*.

Purpose: Maintain and repair up to 65 miles of maneuver trails within Fort Novosel training areas south of Alabama Highway 27.

Description: Grade and shape trail surfaces to match surrounding grades; repair, clean out, and/or shape turn-outs; repair, replace, clear debris from, and/or install culverts/headers/footers to facilitate drainage; reinforce slopes and water crossings with stone; maintain trail crowns sufficient to facilitate drainage but not impede vehicular traffic; add stone to trail surfaces; remove downed trees/deadfall; and replace/install hazard delineators at hazardous trail locations.

6. Maneuver Trail Maintenance (27 North - Vegetation Control) *(performed annually)*.

Purpose: Control vegetation growth/encroachment on maneuver trails and shoulders.

Description: Cut vegetation on trails and shoulders (trail edge to tree line) on up to 25 miles of maneuver trails in training areas north of Alabama Highway 27 in their entirety 3 times per year (October-November, March-May, and July-September). Vegetation control includes mowing with bush hog type equipment and delimiting of trees and branches overhanging the trail to a minimum height of 12 feet with chainsaw/pole saw, skid steer forestry cutter, tractor mounted boom cutter, excavator with brush cutter, and/or other mechanical methods. Cleared vegetation will be placed in the wood line off the trails and out of the ditch line.

7. Maneuver Trail Maintenance (27 North - Grade/Shape/Assess/Repair/Maintain) *(performed annually)*.

Purpose: Maintain and repair up to 25 miles of maneuver trails within Fort Novosel training areas north of Alabama Highway 27.

Description: Grade and shape trail surfaces to match surrounding grades; repairs, clean out, and/or shape turn-outs; repair, replace, clear debris from, and/or install culverts/headers/footers to facilitate drainage; reinforce slopes and water crossings with stone; maintain trail crowns sufficient to facilitate drainage but not impede vehicular traffic; add stone to trail surfaces; remove downed trees/deadfall; and replace/install hazard delineators.

8. Improve / Harden Maneuver Trails *(performed annually)*.

Purpose: O/O, improve and harden up to 2.5 miles of existing unimproved trails - when/if required IOT support POI/training requirements. *(Location[s] to be determined based on unit*

requirements.)

Description: Clear vegetation on trails and shoulders (trail edge to tree line) on unimproved trails being improved and/or hardened. Shoulders are defined as trail edge to tree line. Vegetation clearing includes mowing with bush hog type equipment and delimiting of trees and branches overhanging the trail with chainsaws/ pole saws, skid steer forestry cutter, tractor mounted boom cutter, excavator with brush cutter, and/or other mechanical methods. Trees overhanging the maneuver trails and ditch lines will be delimited to a minimum height of 12 feet. Trail surfaces will be graded and shaped to match surrounding grades; slopes and crossings reinforced with stone as required; trail crowns established sufficient to facilitate drainage but not impede vehicular traffic; turn outs formed and culverts added if required; hazard delineators installed at hazardous trail locations; and up to 6 inches of crushed stone (4 inches compacted) added to trail surfaces. Improved/hardened trails will be generally 10-foot wide on average.

9. Training Area Maintenance *(performed annually).*

Purpose: Control vegetation, remove downed trees and deadfall, repair maneuver damage, and prevent erosion caused by maneuver training activities at recurring and high use training area locations including 6 bivouac sites, 4 Land Navigation Courses, 2 Leadership Reaction Courses (LRCs), survival, evasion, resistance, and escape (SERE) training sites, and, potentially, a limited visibility environment landing zone *(to be designated)*.

Description: Perform training area maintenance activities including:

- o Cutting, trimming, and/or mowing and removing encroaching vegetation, downed trees, and deadfalls which impede training.
- o Repairing maneuver damage using topsoil, or #4 stone and crusher run, as required. Seed, fertilizer, hay mulch and/or matting is applied, as required, to stabilize the areas of repair.
- o Wood mulch is maintained around each LRC station, and wood mulch on the interior paths between TA G LRC stations.
- o If needed in support of USAACE training requirements – disk and maintain landing sites (up to 2,000 square feet) providing a limited visibility environment for pilot training.
- o Install and maintain Seibert stakes where designated to mark off-limits-to-training locations within and adjacent to training areas.

10. Maintain and Repair Artillery and Mortar Firing Points *(performed annually).*

Purpose: Remediate maneuver damage caused by training activities, control erosion, and clear woody stemmed vegetation encroachment at 15 Field Artillery Firing Points (FAFPs).

Description: Repair maneuver damage using topsoil or a mixture of crushed stone and topsoil (70/30 mix) to minimize erosion and apply seed, fertilizer, hay mulch and/or matting as required to stabilize the areas of repair. Woody stemmed vegetation is reduced/cleared using a skid steer forestry cutter, tractor mounted boom cutter, excavator with brush cutter, and/or other mechanical method(s).

APPENDIX 13. Fort Novosel Integrated
Training Area Maintenance
(ITAM) Sediment and
Erosion Control Plan for
Training Lands

Fort Novosel

Integrated Training Area Management (ITAM)

Sediment and Erosion Control Plan for Training Lands

1. The ITAM program at Fort Novosel utilizes a variety of best management practices (BMPs) in order to mitigate erosion and control or eliminate sedimentation caused by training activities. All BMPs must comply with the standards set forth in the Alabama Department of Environmental Management (ADEM) *Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas*. The Land Rehabilitation and Maintenance (LRAM) Coordinator, with oversight from the ITAM Coordinator, ensures BMPs are employed and any corrective actions are completed within the regulatory time periods.
2. Project site conditions and objectives are the determining factor for the applicable BMPs to stabilize and sustain the sites over the long term. BMPs are based on the principles in the *Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas*. The BMPs may be modified to address the specific site conditions (e.g., soil type, slope, vegetation).
3. Twice yearly (April / October) the ITAM Office inspects all training areas by performing Range and Training Land Assessments (RTLAs) in heavily used areas located within the range and training lands of Fort Novosel in order to assess its erosion control prevention measures in place to protect the range complex and perpetuate training realism. Areas included in the RTLA are:
 - Six (6) Bivouac Sites
 - Two (2) Leadership Reaction Courses
 - Three (3) Land Navigation Courses
 - Fifteen (15) Field Artillery Firing Points
 - Eighteen (18) Government Owned Remote Training Sites.
 - Fifteen (15) Stagefields
 - One (1) Test Site (Highfalls)
 - One (1) Forward Arming/Refueling Point (Molinelli)
 - Approximately 83 miles of Maneuver Trails
4. The inspections of these areas become the basis for sediment and erosion control tasks performed under the LRAM component of ITAM. These become subordinate tasks supporting the LRAM projects approved via the annual ITAM Work Plan (IWP). These tasks and LRAM projects are performed by a workforce provided through a cooperative agreement between the US Army Corps of Engineers and Colorado State University's Center for Environmental Management of Military Lands (CEMML).

5. Commonly used BMPs:

- Cable concrete helicopter slope landing surface reinforcement
- Riprap flumes and riprap check dams
- Excelsior wattles for drainage inlet protection and temporary check dams
- Silt fencing
- Straw mulch with mulch tucking
- Reseeding
- #4 stone / topsoil mixture to reduce erosion at government-owned helicopter training sites
- Geoweb filled with #1 stone at stream crossings
- Yearly application of fertilizer and biannual application of lime at government-owned helicopter training sites
- Wood mulch on foot paths between Leadership Reaction Course training stations
- Clearing debris from culverts and maintaining turn-outs on maneuver trails
- Applying rock to maneuver trail surfaces to inhibit erosion

6. Bare soil areas discovered during RTLAs, whether caused by wheeled vehicle traffic or aircraft rotor wash, are immediately repaired in order to maintain vegetative cover and prevent erosion. LRAM applies a mixture of top soil and crushed stone (70 / 30 mix), seed, and fertilizer to aid in remediation and reinforce the surface. Bahia grass at 40 pounds per acre and common Bermuda grass at 10 pounds per acre are the preferred warm season species in the seed mixes and are normally applied during the warm growing season (March 15 - September 30). A nurse crop of browntop millet at 5 pounds per acre may be included with the blended seed in order to obtain immediate stabilization. In the cool season months temporary seeding of rye, wheat or oats is applied for stabilization until the warm season returns.

7. As a part of its regular efforts to mitigate erosion and promote sediment control on government-owned helicopter training sites (stagefields, test site, FARP and remote training sites - approximately 1,767 acres), LRAM applies granular fertilizer (13-13-13) at a rate of 250 pounds per acre annually in the late winter/early spring. During even-numbered fiscal years, lime is applied to these helicopter training sites at a rate of 2 tons per acre.

8. The erosion control efforts employed by LRAM for use on, but not limited to, maneuver trail projects include the construction of terraces, excess water diversions, sediment control structures with culverts, hardening the trails with stone, installation of channel and slope stabilizing geo-synthetics, geotextile filter fabric and riprap, check dams, geo-webbing, hay mulch, and other erosion control structures and materials as needed.

APPENDIX 14. Integrated Wildland Fire Management Plan

INTEGRATED WILDLAND FIRE MANAGEMENT PLAN

FORT NOVOSEL, ALABAMA

APPROVAL

ROBERT J. HOLCOMBE
COL, AVN
Garrison Commander

This Wildland Fire Management Plan has been prepared in accordance with regulations, standards and procedures of Army Regulation (AR) 200-1, AR 420-1, and Army Wildland Fire Policy Guidance.

The signature above indicates approval of the Plan for Implementation.

The completion of this plan alone does not satisfy the requirements of a Prescribed Fire Plan.

Integrated Wildland Fire Management Plan (IWFMP)

Fort Novosel Army Installation

Fort Novosel, Alabama

Executive Summary

Purpose

The primary purpose of Fort Novosel's Integrated Wildland Fire Management Plan (IWFMP) is to ensure that fire management program area and military activities on Fort Novosel mission land and cantonment areas are integrated and consistent with federal stewardship requirements. As a result, the IWFMP serves as the Garrison Commander's comprehensive plan for deliberately managing fire-related activities to attain and sustain stewardship requirements while optimizing primary activities on mission land and, where compatible, conducting secondary activities.

Mission land is defined as the area—typically unimproved acres outside the cantonment area—where military operations are, or could be, conducted. The execution of mission operations represents the primary activity and provides the justification for the Army having land at Fort Novosel, which is the Nation's premier training facility for the U.S. Army Aviation. All other activities that have the potential to compete with the primary activity, either by using needed space or by the additional consumption of natural resources, represent secondary activities (except when they directly contribute to the sustainable use of mission land by the primary activity). Secondary activities can include production of commercial forest products, fishing and hunting, other forms of outdoor recreation, etc.

Authority

-Army Wildland Fire Policy Guidance is provided in Army Memorandum DAIM-ZA (200-3), 4 September 2002 and DAIN-IS, Army Installation Wildland Fire Program Implementation Guidance, 15 March 2021. This policy guidance has the same applicability as AR 420-1, Fire and Emergency services and AR 200-3,

Natural Resources – Land, Forest, and Wildlife Management. This policy guidance supplements these Army Regulations. In addition, it is applicable under Transformation of Installation Management. This policy guidance requires that installations with unimproved grounds that present a wildfire hazard and / or installations that utilize prescribed burns as a Natural Resources tool will develop and implement an Integrated Wildland Fire Management Plan (IWFMP) that is compliant and integral with the Integrated Natural Resources Management Plan (INRMP), the installation's existing fire and emergency services program, and the Integrated Cultural Resources Management Plan (ICRMP).

Program Authority

Program Authority and responsibilities for the Assistant Chief of Staff for Installation Management (ACSIM), the Garrison Commander or appropriate designee, the installation Wildland Fire Program Manager, and the Director of Military Support are discussed in the following excerpt from Army Wildland Fire Policy Guidance, Army Memorandum DAIM-ZA (200-3), 4 September 2002:

4.0 Program Authority

4.1 The Assistant Chief of Staff for Installation Management (ACSIM) is responsible for oversight of the program, updating policy, and resolving policy questions through the Facilities and Housing Directorate in coordination with the Environmental Programs Directorate.

4.2 The ACSIM, through the HQ Installation Management Agency, Regions and the Headquarters, National Guard Bureau (HQ, NGB) will provide information to installations necessary to perform wildland fire management in accordance with this guidance. The ACSIM and HQ, NGB will assure that wildland fire program reviews are incorporated into Fire and Emergency Services Operational Readiness Inspections and Environmental Compliance Assessment Screenings.

4.3 The garrison commander, or appropriate designee, defines the roles and responsibilities for wildland fire management on the installation, plans and programs resources, and will designate

an installation Wildland Fire Program Manager in either the Fire and Emergency Services or Natural Resources organization.

4.4 The garrison commander, or appropriate designee, approves the installation IWFMP.

4.5 The garrison commander approves the deployment of Army civilian firefighters to any off installation incident.

4.6 The installation Wildland Fire Program Manager is responsible for development of the IWFMP. Additionally, the Wildland Fire Program Manager reviews and approves burn plans for prescribed fires to insure consistency with the IWFMP, the INRMP, and other applicable operating instructions such as State and local regulations.

4.7 The Director of Military Support is responsible for deployment of military firefighters and equipment.

Management Philosophy

Fort Novosel's approach to natural resources management is embodied in its vision of the relationship between the military mission and natural resources upon which that mission depends. The installation also has developed a natural resources management mission statement for how Fort Novosel will manage its lands.

Fort Novosel's Vision—Support the military mission while promoting the ecological integrity of the Fort Novosel landscape.

Fort Novosel's Natural Resource Management Mission—through a collaborative effort between natural resource professionals and military personnel, Fort Novosel will strive to promote the long-term ecological sustainability of its lands for multiple-use opportunities. Fort Novosel will apply sound fire management practices and adaptive management strategies that conserve ecological integrity through the restoration, maintenance, and preservation of natural biotic communities and otherwise promote the health of installation ecosystems through rehabilitation and maintenance. This ecosystem management approach will encompass stakeholder interests, regulatory requirements, and fiscal constraints.

The underlying theme of this vision and mission statement is an ecosystem-based approach to management. Ecosystem management represents a proactive approach for federal agencies such as the Department of Defense (DoD) to make important contributions to sustaining healthy ecosystems and conserving ecological integrity (INRMP, 2001).

Scope

Fire affects the landscape in a positive way promoting ecological integrity and biodiversity. The fire management program consists of four major functions: fire detection, fire suppression, prescribed burning, and trail/firebreak maintenance. The fire detection function includes locating wildfires, coordinating fire suppression activities, and dispatching personnel and equipment to the fire scene. The fire suppression function is synonymous with fire-fighting and includes containing, controlling, and mopping up wildfires. The trail/firebreak maintenance function includes maintaining unimproved roads, trails, and firebreaks to ensure access for natural resource management activities, military training, recreation, and research. The fourth function is prescribed burning, which includes planning, coordinating, executing, evaluating, and monitoring the effects of prescribed burns.

The purposes for prescribed burning are numerous and include the following: (1) reduce levels of hazardous fuels; (2) prepare sites identified for reforestation for seeding and/or planting; (3) improve and maintain listed (threatened and endangered) species habitat; (4) improve other native species habitat, especially forage for game species; (5) manage understory hardwoods; (6) control disease; (7) improve access; (8) enhance appearance; and (9) provide a safe military training environment.

Planned Initiatives

The underlying theme of the INRMP and the IWFMP, in support of the INRMP, is an ecosystem-based approach. Ecosystem management principles and ecosystem-based approaches have slowly entered the governmental, scientific, and resource management vocabularies over recent years. The Department of Defense was a cosigner, along with other federal agencies, of a December 15, 1995 "Memorandum of Understanding to Foster the Ecosystem Approach." A critical assumption of the INRMP is that the availability of future training lands at Fort Novosel depends on a sustainable natural resource base and that sustainability is achievable through ecosystem-based approaches.

To implement an ecosystem-based approach at Fort Novosel through the INRMP, desired future conditions are necessary to provide natural resource managers with target conditions and long-term goals for ecosystem management. Ecosystem-level targets include the upland longleaf pine ecosystem, slope hardwood ecosystem, seepage bogs, depressional wetlands, and Fall Line streams and bottoms. Species-level targets include longleaf pine, gopher tortoise, and relict trillium. All programs within natural resources management are aligned to attain the desired future conditions.

A key principle of ecosystem management is that management must be adaptive; that is, the response of natural systems to management actions must be monitored and subsequent management actions modified accordingly. As a result, fire management practices and monitoring outlined below are expressed in terms of an adaptive management framework.

Fire management practices – Prescribed fire will be used at the frequencies and intensities appropriate to maintain the longleaf pine communities and overall plant community diversity at Fort Novosel. Prescribed burns, like timber harvest prescriptions, will be planned and will account for potential impacts to the floral and faunal resources present. In striving to meet the goal of the INRMP's desired future conditions of ecological integrity and biodiversity across the landscape, the application of prescribed fire will also continue to contribute to the sustainability of Fort Novosel's training lands by controlling understory vegetation; thereby, improving training visibility, training accessibility, and promoting a safe training environment.

Monitoring.—Without monitoring, adaptive management and an ecosystem approach in general are not achievable. Monitoring activities must be appropriate to the management objectives they are designed to support, repeatable, statistically analyzable, and scientifically rigorous. The results of monitoring must translate into information that resource managers can use to craft appropriate management responses to changing resource conditions.

The INRMP implementation strategy builds in part on the preexisting Range and Training Land Assessment (RTLA) component of ITAM to develop an ecosystem-based monitoring program. Resource condition is evaluated on a watershed basis to help direct management actions at that level and is assessed with respect to the ecological group(s) or ecologically unique areas present in a particular watershed. Additional monitoring activities are conducted in support of specific programs, e.g., monitoring of listed species and post-burn effects of a prescribed fire.

The relationship between fire management and military training has been locally addressed by a variety of studies as well as regional and national efforts. Local studies indicated that periodic burning (three year cycle) of areas with high levels of disturbance, near complete disruption of vegetation associated with tracked vehicle training, resulted in significantly slowed recovery. Other studies found that plant growth and productivity as well as already hindered soil processes in the moderate to heavily disturbed areas were further altered by periodic burning. In studied recovery areas, these processes were only affected by burn frequencies less than a three year rotation. Finally, the rate of recovery in these

areas as well as the magnitude of combined effects of training disturbance and fire management was also affected by soil type and topographic setting. In moderately disturbed training areas, those areas that are forested to partially forested and less frequently used, forest and fire management practices have been proposed to affect forest health and susceptibility and likelihood of the establishment and magnified effects of forest pathogens. Various studies addressing these issues are on-going, but early results indicate that frequent or intense burning may serve as a short term stressor on poor soils, heavily trained areas, or during periods of drought. Other studies elsewhere, suggest that vehicle traffic (military, forest management) combined with burning may result in brief periods of high levels of fine root mortality, particularly if the area has a limited history of past burning. Again, the level of fine root damage appears to be associated with other stressors as well as site quality and season of activity. Future research initiatives involving fire and the assessment of fire impacts are focused toward forest health questions.

Benefits of Implementation or Desired Outcomes

Over the course of its implementation, the IWFMP, like the INRMP will (1) enable Fort Novosel to make progress toward achieving a sustainable natural resource base and a safe, realistic training environment in support of the military mission; (2) establish appropriate stewardship policies that serve to protect both natural and cultural resources; (3) facilitate compliance with environmental laws; (4) provide a continuity of direction and effort that can accommodate changes in personnel and leadership; (5) promote cost-effectiveness through improved planning and coordination and by adapting management actions to changes in resource condition; (6) improve the quality of installation life by enhancing recreational opportunities consistent with the military mission and natural resource management goals; (7) promote good public relations by demonstrating the installation's commitment to air quality and smoke management; (8) accommodate multiple uses; and (9) make use of innovative strategies to accomplish specific management objectives (INRMP, 2009).

WILDLAND FIRE MANAGEMENT

1. Goals and Objectives:

- a. **Wildfire Suppression Goal:** Prevent, Detect, and Suppress Wildfires Occurring On Woodlands and Ranges while Managing Sustainability and Ecological Integrity of the Natural Resources. By meeting the following wildfire suppression objectives the wildfire suppression goal may be achieved:
 - 1) Objective 1: Maintain a trained staff that is equipped with latest technology in PPE, vehicles, and equipment.

- 2) Objective 2: Utilize the National Fire Danger Rating System in fire management planning.
 - 3) Objective 3: Reevaluate and monitor areas of special consideration periodically.
 - 4) Objective 4: Maintain firebreaks on an annual basis (50 miles) and trails on a two to three year basis (200 miles).
 - 5) Objective 5: Evaluate the effectiveness of Alabama's BMPs on forest roads, trails, and firebreaks and take corrective action as needed.
 - 6) Objective 6: Detect and suppress fires near the installation boundary promptly to prevent fire trespasses on adjoining land owners property.
 - 7) Objective 7: Use Alabama's BMPs for Forestry when installing firebreaks.
 - 8) Objective 8: Allow wildfires to burn whenever feasible, but suppression of some fires will be necessary to protect personnel and facilities, to avoid unacceptable smoke management risks.
 - 9) Objective 9: Do not plow firebreaks in (USFWS Biological Opinion, September 2002).
 - 10) Objective 10: Develop a strategy for the management of wildfires that defines what fires are suppressed and what fires are allowed to burn.
 - 11) Objective 11: Monitor the impacts of fire on hardwood communities.
- b. **Prescribed Burning Goal:** Use Prescribed Burns as Part of an Adaptive Management Approach that Focuses on the Ecological Integrity of the Landscape as Its Primary End State. By meeting the following prescribed burning objectives the prescribed goal may be achieved:
- 1) Objective 1: Use prescribed burns to maintain a realistic training environment and to support the habitat needs of listed and other species of conservation concern.
 - 2) Objective 2: Use prescribed fire at the frequencies, timing, and intensities appropriate to restore and maintain longleaf pine communities, to enhance overall plant community diversity, and to support habitat management needs of the Gopher Tortoise.

- 3) Objective 3: Prioritize prescribed burns on an annual basis such that (to the extent achievable within a military training environment) the priority best reflects the goals of longleaf pine ecosystem restoration and listed species recovery or maintenance.
- 4) Objective 4: Monitor the effects of prescribed burning on hardwood control, longleaf pine regeneration, rare plants, and native herbaceous species recovery.
- 5) Objective 5: Prioritize prescribed burns based on forest decline management concerns and recommendations to include frequency, timing, and intensity of prescribed burns.
- 6) Objective 6: Monitor the effects of prescribed burn frequency, timing, and intensity on forest decline.
- 7) Objective 7: Develop an educational program to increase the public's awareness of the benefits of prescribed fire within the framework of sound silvicultural practices.
- 8) Objective 8: Apply prescribed fire to top kill small hardwoods that consistently encroach into pine dominant stands, to reduce fuel loads and fire intensity (thus providing a safer environment for military training), to prepare sites for tree planting and timber marking, to enhance wildlife habitat by improving the quality and quantity of food, and to promote a longleaf pine ecosystem with biological diversity.
- 9) Objective 9: Apply prescribed fire to maintain open understories and to improve accessibility for troop training and recreational opportunities.
- 10) Objective 10: Restore by introduction and / or by the use of prescribed fire, those pyrophytic grasses and other native plants characteristic of the understory of the longleaf ecosystem.
- 11) Objective 11: Do not purposely burn bottomland hardwoods communities. Use an adaptive management approach to introduce fire to other hardwood communities that depend on fire for their maintenance.
- 12) Objective 12: Use fire to restore and / or maintain natural ecotones between wetlands and uplands.
- 13) Objective 13: Conserve ecotones between pine and hardwood communities in upland, slope, and bottomland sites by using fire and other silvicultural activities as the primary management tools.

- 14) Objective 14: Use existing natural and previously constructed, human-made firebreaks as much as possible; if new firebreaks are needed, avoid placing them in ecotones. Let fire determine the characteristics of ecotones, except when detrimental to listed plant species or native plant communities.
- 15) Objective 15: Use Alabama's BMPs for Forestry when maintaining trails, firebreaks, and roads.
- 16) Objective 16: In order to promote public acceptance, in cooperation with the USFWS develop and implement a public relations campaign to inform the public of the benefits and necessity of prescribed burning.

The IWFMP prescribed burning objectives support and supplement the INRMP fire management goals and objectives. It is essential that the following IWFMP prescribed burning objectives are met in order to achieve the INRMP prescribed burning goal with supporting objectives:

2. Military Training:

- 1) Burn training compartments to improve access and training activities. For example, training sites over grown with dense undergrowth can be burned to improve visibility and movement.
- 2) Burn to improve and maintain safe training conditions by reducing potentially hazardous fuels loads in training sites.

3. Fuel Reduction:

- 1) Reduce hazardous fuel loads in training compartments and cantonment areas by burning every three to 4 years or as needed ("as needed" means burning prior to a problematic fuel load buildup).
- 2) Burn during winter months (dormant season) to reduce high fuel loads before conducting growing season burns to avoid mortality of pine and pine/hardwood stands.
- 3) Burn during winter/dormant season months in stands that are in the maintenance stage with respect to hardwood control and preponderance of herbaceous ground cover.
- 4) Burn during winter/dormant season months in stands that were recently harvested and where a considerable amount of logging slash is present to avoid unnecessary mortality.

4. Forest Management:

- 1) Conduct growing season burns (April through September) as frequently as weather conditions/logistics (fuel load, drought index, humidity, wind direction, smoke dispersion, air quality, and site access/military training) allow to maximize the control of invasive hardwoods that hinder pine (especially longleaf) regeneration.
- 2) Burn pine stands in need of extensive hardwood control after hardwood leaves have fully emerged.
- 3) Frequently update information on locations of marked timber, timber harvest operations, and longleaf pine restoration projects (e.g. planted longleaf pine seedling sites, longleaf pine plantations, and uneven-age stand management sites.
- 4) Coordinate burn activities to identify high pine cone productivity sites, marked timber stands, pine plantations, and harvested sites so that proper burn time frame is prescribed.
- 5) Use timber management data concerning cone crop and pine regeneration to determine proper burn time frame.
- 6) Conduct site preparation burns for longleaf pine restoration during the growing season.
- 7) Burn planted pines during cooler/winter months to minimize stress.
- 8) Burn to control brown spot needle blight so longleaf pine seedling survival is maintained.
- 9) Consider burning stands identified as high-to-extreme forest decline risk in the dormant season when fires are less intense, thus preventing damage and stress to root systems that makes them less vulnerable to *Leptographium* spp. attacks.
- 10) Burn to improve timber-marking efficiency and to increase paint visibility by loggers.
- 11) Burn to improve accessibility to and visibility within timber stands to facilitate harvests.

5. Fire Ecology:

- 1) Whenever possible, vary the season, frequency, and intensity of burns in training compartments to maximize overall floristic diversity.
- 2) Restore and/or maintain native pyrophytic grasses (such as *Andropogon* spp., *Sorghastrum* spp., etc.) and other native plants characteristic of the understory of the longleaf pine ecosystem by burning during strategic months. Strategic burning (e.g. burning during a specific season/window such as during the growing season) can induce or increase flowering of many grass species, resulting in increased regeneration.
- 3) Allow burns to create, maintain, and restore natural ecotones between hardwood bottoms and pine uplands. For example, burn so that a fire will back into a drain. (Per Dr. Van Lear there may be cases when you want a head fire to go into a drain to change the ecotones vegetative composition while favoring fire tolerant hardwoods.)
- 4) If possible, avoid burning Unique Ecological Areas known to be fire intolerant or when burn conditions are not within prescribed parameters. Set fires downwind or upslope from these areas to minimize fire intensity.

6. *Threatened and Endangered Species/Species of Conservation Concern:*

- 1) Conduct prescribed burning to enhance and maintain Gopher tortoise habitat as required by the Memorandum regarding Management Guidelines for the gopher tortoise on Army installations distributed in March 2008.
- 2) Burn to control hardwood midstory and regeneration in pine uplands and to reduce problematic ground fuel buildup so that an open pine/park-like landscape can be maintained.
- 3) Monitor the effects of prescribed burning on rare plants such as incised groovebur, flyr's nemesis, Baltzell's sedge and Alabama angle pond that may occur on Fort Novosel Military Reservation resulting from survey by A.R. Diamond and M. Woods of Troy State University, November 2002.

7. *Game Management*

- 1) Burn to increase the yield and quality of herbaceous cover and to produce new sprouts for browse for target game species.

8. Monitoring:

- 1) Evaluate proposed burn sites to develop strategic and prioritized burn prescriptions (e.g. prioritized hardwood control and fuel reduction needs). Such evaluations can take place on an annual basis.
- 2) The Installation Forester will revise/modify post burn evaluations to improve evaluation efficiency. For example, the assessment of remaining crown scorch can be achieved using broad categories (e.g., 0, <1/3, 1/3, 2/3, >2/3 crown scorch) and evaluated at a large scale (burn compartment level) with fewer plots.
- 3) Monitor the effects of burning on forest decline, specifically, *Leptographium* spp.

9. Compliance with Policy

It is the intent of the IWFMP to be in compliance with the following regulations, policies and guidelines:

- 1) DoD Instruction 6055.6, 10 Oct 00, *DoD Fire and Emergency Service Program*.
- 2) Army Regulations 200-2, 200-3 and 420-1.
- 3) Army Memorandum (04 September 2002), *Army Wildland Fire Policy Guidance*.
- 4) Installation INRMP, ICRMP, fire and emergency services plan.
- 5) Review and update of the 1995 Federal Wildland Fire Management Policy, Jan 01.
- 6) NWCG Wildland Fire Qualifications Subsystem Guide,
- 7) PMS 310-1/NFES 1414, October 2012.
- 8) State and local laws and ordinances for burning and air quality.

10. Location and Description

Fort Novosel is located on the East Gulf Coastal Plain in southeastern Coffee and southwestern Dale counties, Alabama, some 25 miles northwest of Dothan between the cities of Daleville, Enterprise and Ozark. This is the “Wiregrass” region of southeast Alabama, so named for the wiry appearance of Pineland three-awn (*Aristida stricta*), that once grew profusely in the area. The main military reservation extends northwestward from the floodplain of the Choctawhatchee River. The main reservation comprises 57,772 acres (63,251 acres, including satellite and leased lands) (Directorate of Plans, Training, Mobilization, and Security [DPTMS], 2009) and is nearly rectangular in shape, averaging 17 miles long by 9 miles wide.

Cairns Army Airfield (AAF), located east of State Highway 85 in Dale County, 2.8 miles south of Fort Novosel’s main reservation, comprises an additional 1,326 acres. The airfield is situated on a ridge top extending from the main reservation on the north through Daleville and Cairns AAF on the south. The main runway complex is at elevations 305-325 feet mean sea level (msl) with forested slopes dropping gradually both eastward and westward to floodplains (164 feet msl) of Claybank Creek and the Choctawhatchee River, respectively (McGee, 1987; 1204th Engineer Co., 1995; Rust Environment and Infrastructure, 1999).

Fort Novosel uses 64 leased sites to support its military mission. These sites total 1,734 acres and are located in Alabama and Florida. Leased sites are not included within this INRMP in terms of management of natural resources. These sites are maintained in accordance with the lease agreements.

Many of the principal aviation training facilities are located off the Fort Novosel main reservation. The following paragraphs provide a description of these facilities and their current uses at the time this plan was written.

Allen Stagefield. Allen stagefield (114 acres) is located in Houston County, 13 miles southeast of Fort Novosel’s cantonment area. Principal aircraft using this facility are TH-67 training helicopters.

Brown Stagefield. Brown stagefield (176 acres) is located 2.5 miles west of New Brockton, southeast of Fort Novosel’s cantonment area. Principal aircraft using this facility are OH-58 AC scout helicopters.

Cairns Army Airfield. Cairns AAF (1,326 acres) is situated three miles south of Fort Novosel's cantonment area. Principal aircraft using this facility are TH-67 training helicopters and fixed wing aircraft assigned to the Army Aviation Center of Excellence.

Goldberg Stagefield. Goldberg stagefield (101 acres) is located in Dale County, four miles south of Echo. Principal aircraft using this facility are CH-47D cargo helicopters.

High Bluff Stagefield. High Bluff stagefield (190 acres) is located in Geneva County, 3.75 miles northwest Hartford. Principal aircraft using this facility are TH-67 training helicopters.

Highfalls Stagefield. Highfalls stagefield (40 acres) is located in Geneva County, 5.7 miles west of Hartford. Principal aircraft using this facility are helicopters used in test and research activities conducted by the U.S. Army Aviation Development Test Activity.

Hunt Stagefield. Hunt stagefield (153 acres) is located east of Fort Novosel, near Highway 231 and five miles (8 km) north-northeast of Newton in Dale County. Principal aircraft using this facility OH-58D scout helicopters.

Louisville Stagefield. Louisville stagefield (105 acres) is located near Louisville, Alabama approximately 35 miles north of Fort Novosel. Louisville stagefield is currently inactive.

Lucas Stagefield. Lucas stagefield (180 acres) is located in Coffee County, 25 miles southwest of Fort Novosel between Highway 87 and Phillips Creek. Principal aircraft using this facility are TH-67 training helicopters.

Runkle Stagefield. Runkle stagefield (235 acres) is located in Coffee County, 28 miles west of Fort Novosel on the east side of the Pea River

Shell Army Heliport. Shell Army Heliport (296 acres) is located in Coffee County, 4 miles west of the Installation boundary and 5 miles north of downtown Enterprise within the Enterprise city limits. Principal aircraft using this facility are OH-58AC scout training helicopters.

Skelly Stagefield. Skelly stagefield (194 acres) is located in Coffee County, 35 miles west of Fort Novosel on the north side of Highway 134 and just west of the Pea River. Principal aircraft using this facility are UH-1/UH-60 utility helicopters.

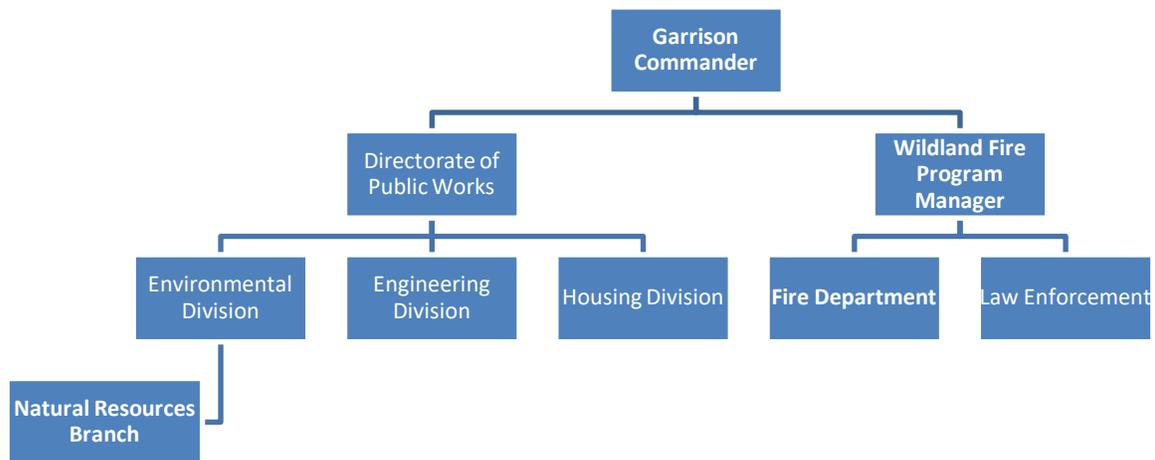
Stinson Stagefield. Stinson stagefield (191 acres) is located in Coffee County, west of Fort Novosel and three miles southeast of Elba. Principal aircraft using this facility are UH-60 utility helicopters.

TAC-X Stagefield. TAC-X stagefield (111 acres) is a special-use facility located 30 miles south of Fort Novosel in Geneva County, on the west bank of Double Bridges Creek and about 2 miles north of Highway 52.

Toth Stagefield. Toth stagefield (128 acres) is located 10 miles southeast of Fort Novosel, on the south side of Highway 84 in Houston County. Principal aircraft using this facility are AH-64 attack helicopters.

Organizational Structure and Responsibilities

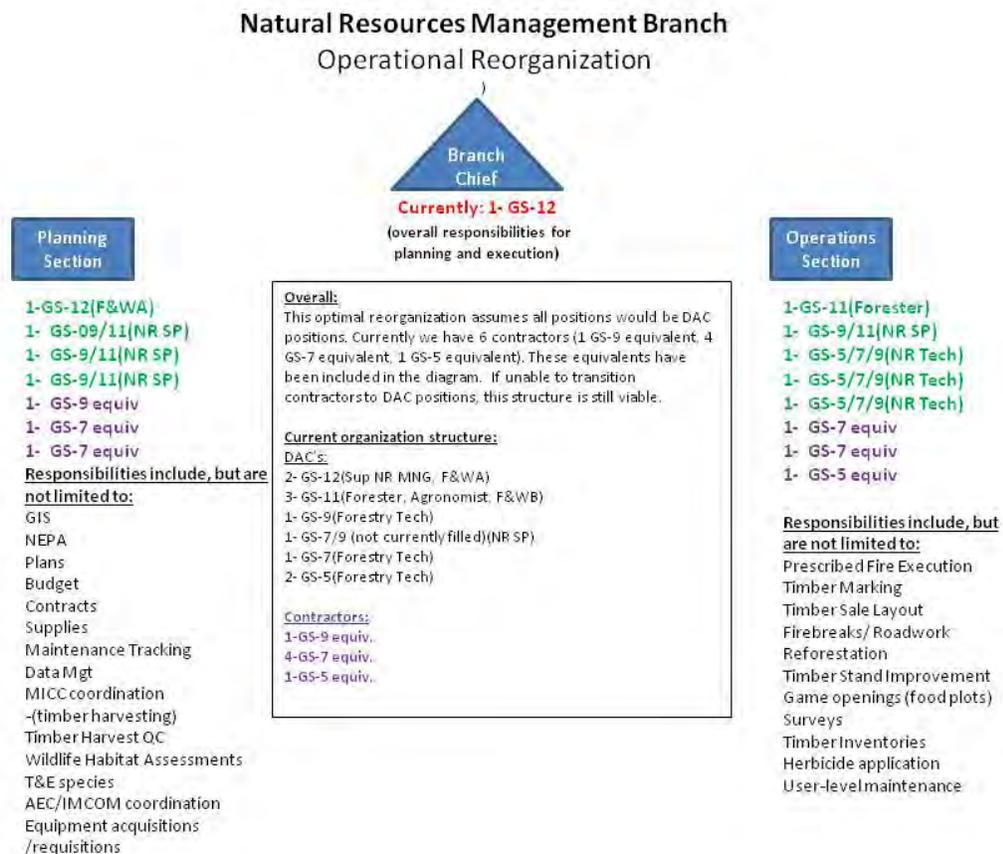
1. The Command Structure



- a. The **Garrison Commander, or appropriate designee**, defines the roles and responsibilities for Wildland fire management on the installation, plans and programs resources, and will designate an installation Wildland Fire Program Manager in either the Fire or Emergency Services or Natural Resources organization. The Garrison Commander, or appropriate designee also approves the installation IWFMP, assures the maintenance of training records (e.g., through the Civilian Personnel Office, Wildland Fire Program Manager, or Fire Chief), and approves the deployment of Army civilian and Military firefighters to any off installation fire incident.
- b. The **Wildland Fire Program Manager** (Installation Fire Chief) develops the IWFMP, reviews and approves burn plans for prescribed fires to insure consistency with the IWFMP, the INRMP, and other applicable operating instructions such as state and local regulations.

The installation fire department responds to fires on ranges and in cantonment area woodlands. Generally, the fire department is the first responder to fire incidents occurring in cantonment area woodlands.

2. Natural Resource Branch (NRB) Structure



The Installation Fire Chief serves as the installation's Wildland Fire Program Manager and sets policy with respect to the fire management program. The NRB team leaders serve in an administrative capacity with respect to fire management activities performing fire planning (Planning Section team leader) and implementation functions (Operations Section team leader). The Operations Section team leader also provides guidance and oversight of the fire management program.

The NRB forest technicians perform duties in all four of the fire management program areas: Wildland fire suppression, fire detection, prescribed burning, and trail/firebreak maintenance. Forest technicians serve as additional fire

suppression support to the fire department and respond to Wildland fires and emergencies during and after regular duty hours. In addition to performing fire management duties forest technicians perform timber management duties including forest stand typing, timber marking, reforestation, and timber sale preparation.

Current staffing in the NRB is inappropriate to meet the objectives in the IWFMP. The NRB is currently understaffed by four positions annually. In addition to positions needed to be filled there is the need to create one Wildland Fire Manager. This position's responsibility is to coordinate all prescribed fires with the program manager and assist in the management of this plan.

3. Range Fires During Military Training

In the event of a fire on the ranges, it is the responsibility of the unit to promptly report the fire to Training Division. Range Operations will make notification to E911 for fire department response. Commanders of troops using training areas will not order their personnel to extinguish fires in their locality. Fires in impact areas will be reported only.

Fire suppression and prescribed burning are discussed in the Environmental Awareness Training Course. The target audience for this course is military leadership. The required training can be accomplished by the military unit's trained Environmental Compliance Officer or by Fort Novosel's Environmental Awareness Trainer, Environmental Management Division, and Directorate of Public Works.

4. Interagency Cooperation and Mutual Aid Agreements

Currently there are no written agreements in place with Fort Novosel for federal interagency cooperation or mutual aid for Wildland fire incidents occurring off the installation. Fort Novosel maintains cooperative verbal agreements with the Alabama Forestry Commission (AFC) when fires occur adjacent to the installation boundary. Fort Novosel does have an MOU and contract with the AFC for fire detection services off the installation. Fort Novosel Fire Department has mutual aid agreements with all surrounding fire departments in the event of a large scale incident (structural and HAZ-MAT emergencies).

Wildland fires that occur on the installation are suppressed by in-house firefighters from the installation fire department and/or the NRB. Due to the three

to four year fire return interval and low fuel loads Wildland fires are manageable by installation personnel and resources. Therefore, it has not been necessary to request outside assistance or support from other agencies to suppress fires. If the fire return interval is lengthened due to internal or external constraints on prescribed burning a situation may develop where in-house personnel can no longer manage fire suppression activities and outside assistance from other agencies is required. If this situation were to develop over time the installation would need to become a member of the National Wildfire Coordinating Group. Currently, Fort Novosel is not a member of the National Wildfire Coordinating Group (NWCG). Therefore, there are no mutual aid agreements planned and there is no plan to request firefighting assistance from other agencies in the NWCG. In addition, there is no plan to deploy civilian firefighters from NRB to off-installation fires through the Geographic Area Coordinating Center.

5. Smoke Management and Air Quality

It is Fort Novosel's mission to eliminate or minimize the adverse impacts of fire related activities on the environment. Prescribed burning will be accomplished in accordance with NWCG publication PMS 420-2, NFES 1279, Smoke Management Guide for Prescribed and Wildland Fires, 2001 Edition. Currently, a prescribed burn plan is prepared for each burn unit prior to executing the burn. This plan includes preferred fire weather parameters as well as a smoke screening form (Mobley, 1991). Prescribed burning is conducted within the preferred fire weather parameters. The smoke screening forms and maps identify smoke impact distances, zones, and smoke sensitive areas (SSAs) within the zone. The goal is to eliminate or minimize smoke that may impact the SSAs. In order to mitigate smoke on roads and highways smoke signs with lights are posted to warn motorists of the impending danger from low visibility. In addition, SSAs such as range control, all airfields, state forestry, surrounding cities fire departments, etc. are notified prior to executing the burn so they can take the necessary precautions. In addition, the Public Affairs Office and Military Police are notified concerning the location of burn areas.

SSAs that occur on and near Fort Novosel include but are not limited to the following: Main Post cantonment area, Ech, Molinelli, Tabernacle, Shell, Cairns, Hunt, Lowe, Hatch, Hanchey airfields, East Beach, Engineer Beach, schools, hospitals, Ozark, Enterprise and Daleville municipalities, Ammunition Supply Point, Highway 27, Highway 51, Highway 84, Highway 167, Highway 134, Highway 123, Highway 248 and Highway 249.

GIS or ArcGIS is used in preparing smoke screening maps which identify smoke impact distances and zones, SSAs, creeks and drainages, creek and drainage crossings, railroad crossings, and the location of smoke signs. GIS is also used to show the primary SSAs on the installation.

Currently there are no smoke models being utilized that show smoke plume effects or direction.

Safety and Emergency Operations

1. INSTALLATION SPECIFIC SAFETY AND EMERGENCY OPERATIONS PROTOCOLS (REQUIRED).

Currently there are an undetermined amount of dud (UXO) areas located on Fort Novosel. They are located around the Silver Wings Golf course and in the impact area. The impact area is a restricted area and off limits to firefighting activities. Currently there is an undertaking to remove all UXO from around the golf course. Dud areas are surrounded by roads, creeks, or firebreaks. For this reason fires occurring in these areas are allowed to burn. Firefighting activities involve back setting the natural or artificial firebreaks around the dud areas to prevent a spot over and burning the area out in order to disperse the smoke sooner rather than letting it linger for several days causing an air quality problem. The only exception to the “off limits” policy is when firefighters are escorted by EOD personnel. Fires in the impact area will have a standing “let burn” policy unless there is an immediate life hazard.

In addition to dud areas there are other dangerous areas and conditions to consider when fighting fires. Steep slopes, gullies, wetlands, and darkness magnify the hazards of fighting wildfires. For this reason, all fires are suppressed with a two-person crew. All fires are thoroughly reconnoitered and sized-up before any attack is initiated. Steep slopes, ravines, and gullies are encountered in almost all of the training areas. Extra caution is critical to prevent the roll-over of a crawler tractor. Scouting the terrain and proper equipment speed reduces the threat of this hazard. In addition, steep terrain increases the fire's rate of spread uphill. For this reason, personnel must exercise caution when working uphill from a fire. Wetlands and bogs are also found throughout Fort Novosel. Scouting and sound judgment reduces the possibility of equipment becoming bogged down or stuck. Due to darkness fighting fires at night is hazardous. The limited visibility from darkness compounds firefighting efforts making steep slopes, gullies, wetlands, and obstacles, such as concertina wire and foxholes, difficult to see. Extreme caution must be exercised when fighting fires in the dark. Proper lighting, communications, scouting, and judgment are required to fight fires safely at night. Lights on equipment, especially crawler tractors, must be checked for operability before leaving the motor pool at night.

Supervisors, incident commander, and burn bosses will ensure that personnel involved in firefighting and prescribed burning activities are properly equipped with personal protective equipment and clothing in accordance with the National Fire Protection Association (NFPA) 1977 – *Standard on Protective Clothing and Equipment for Wildland Fire Fighting*.

Firefighters need to be aware of the 10 Standard Firefighting Orders and fight all fires safely (**Box 1**).

Box 1. Ten Standard Firefighting Orders

1. Keep informed on fire weather conditions and forecast.
2. Know what your fire is doing at all times.
3. Base all actions on current and expected behavior of fire.
4. Have escape routes for everyone, and make them known.
5. Post lookouts when there is possible danger.
6. Be alert, keep calm, think clearly, act decisively.
7. Maintain prompt communication with your crew, your boss, and adjoining forces.
8. Give clear instructions, and be sure they are understood.
9. Maintain control of your personnel at all times.
10. Fight fire aggressively, but provide for safety first.

When firefighting in cantonment areas and along highways or main roads firefighters ensure warning lights on vehicles are operational and turned on to warn motorists. Smoke signs are utilized to warn motorists of the smoke ahead and to exercise caution. The military police are notified when smoke reduces visibility on roads or highways. If necessary, they can direct traffic and utilize their warning lights and signals to alert motorists.

A certified prescribed burner serves as burn boss, providing instructions and guidance on all prescribed burns on Fort Novosel. All burn bosses are required to have formal training and experience in Wildland firefighting and smoke management.

2. Risk Assessment / Decision Analysis Process

The AFC Forestry Weather and Smoke Management Forecast is the primary source of information used in deciding whether to implement a prescribed burn because it takes into account the fire weather parameters that will effect smoke direction and dispersion, fire intensity, rate of spread, and fog potential. This forecast is used in conjunction with the Air Quality Index (AQI), ozone forecast and Keetch-Byram Drought Index (KBDI) (F). The AQI, ozone forecast, KBDI, Smoke Dispersion Index (SDI), mixing height, transport wind speed, surface wind

speed, canopy wind speed, relative humidity, fuel moisture, and fog potential must be considered before a prescribed burn is considered a “Go” or “No Go”. These parameters must fall within a predetermined range prior to ignition / execution of a prescribed burn. A “Prescribed Burn Checklist” has been developed to aid burn bosses in making prescribed burn decisions.

Cold fronts, droughts, and tropical development affect fire behavior on the installation. Cold fronts affect fire behavior because they are accompanied with increased wind speeds and gusts which increase a fire’s rate of speed (ROS). Cold fronts can also cause sudden wind shifts from southerly wind directions to northerly wind directions turning backing fires into heading fires. Firefighting conditions can be hazardous with the passage of a cold front and firefighters must stay alert for approaching cold fronts. Droughts reduce fuel moisture increasing fuel loads and making more fuel available to the fire. Fires occurring during drought conditions will burn more intensely making suppression activities more difficult and hazardous.

1. Wildland Fire History

Wildfire season refers to the time of year when most wildfires occur in a particular state or region. In Alabama the main fire season is during the dry and windy months of February through May. Changes in annual weather conditions can make the season earlier, later, or longer. Fires can occur any time after the first killing frost in late fall because more fine fuels are added to the dead fuel load making these fuels available to the combustion process.

Cold front systems dominate the weather patterns in the southeast during the winter months. These systems move from west to east or northwest to southeast. Burn bosses and firefighters must be aware of these frontal systems due to the abrupt change in wind direction that accompanies these fronts. Cold fronts move faster than warm fronts and have higher wind speeds after they pass. Wind speed movement is always clockwise with the passage of a cold front. Generally winds are southwesterly prior to the passage of a cold front shifting to the northwest as the front passes. During the summer months Bermuda highs dominate the weather patterns unless there is tropical development. Bermuda highs are warm dry air masses that are generally not displaced by frontal systems during the summer. Due to moisture out of the Gulf afternoon thunderstorms are common with the day time heating of the land mass.

2. Fire Management Zones / Units

Fire management units consist of training areas (TAs) as identified by Training Division. Utilizing TAs as burn units facilitates scheduling with Training Division, military units, and other users. NRB, Training Division, military units, and other users of the installation’s training lands, schedule or reserve their TAs by entering their requests in RFMSS (Range Facility Management Support System). The TAs

are compatible with fire management units because they are surrounded by natural (creeks, stream, and drainages) and artificial firebreaks (trails, roads, and railroads). Although management objectives will vary from one TA to another fire suppression activities will be the same.

The fire history will vary from one TA to another depending on the fuel type. Those TAs that are predominantly longleaf pine will preferably have a two year fire return interval while those TAs that are mixed pine (loblolly and shortleaf) and mixed pine-hardwood will have a three year fire return interval. In addition, TAs located on the installation boundary will have a two year return interval regardless of forest type. The goal is to keep the fuel load low near the installation boundary to eliminate fire trespasses off the installation.

3. Fuel Models

The fuel models that best characterize the fuel on Fort Novosel are fuel models 7 and 9. Fuel model 7 includes southern rough under a southern yellow pine overstory. The rough is dense and averages two-three feet in height. This rough carries the fire very well. Expected rate of spread and intensity are both moderate. Total fuel loading for this model is 4.9 tons per acre. Fuel model 9 includes both long-needled conifers and hardwood stands, especially the oak-hickory type with loosely compacted litter. This model also includes southern pine plantations. Fire spread is primarily in surface litter such as concentrations of dead, dry, leaves or needles in the fall or spring. Stands can be long needle conifers, hardwoods, or mixed hardwoods-conifers. One hour time lag fuels strongly predominate. Surface fuels are mostly loosely compacted long needle pine or hardwood foliage litter. Total fuel loading for this model is 3.5 tons per acre.

With respect to the Fort Novosel Title V. Air Emissions Inventory 65% of the area burned annually is considered short needle pine and 35% is long needle pine.

There are seven principal fuel characteristics that influence fire behavior: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content and chemical properties.

Fuel loading is the oven dry weight of fuels in a given area. Natural fuel loadings vary greatly by fuel model or vegetative type. Fires will move quickly and burn less intensely through the light fuel loads found in grasslands. These fuels are exposed to the wind and sunlight and dry out faster than fuels under a forest canopy. On the other hand, fires will burn with moderate rates of spread but more intensely through the heavy fuel loads found in slash and dense brush. These fuels are less exposed to the wind and sunlight and dry out more slowly. Fuel loads will dictate the type of suppression methods used. A small grass fire may be fought directly while a slash fire will be fought indirectly due to the intense radiant heat. Since Fort Novosel is on a three to four year fire return interval fuel loads consist of three

to four year roughs. Therefore, fires can be suppressed from one TA to another utilizing the same fire suppression techniques or methods. Generally, under normal weather conditions fires across the installation may be suppressed using the direct attack method due to the low fuel loads. Pumper trucks and crawler tractors are capable of suppressing all fires on the installation as long as the fire return interval remains at three to four years.

Size and shape of fuels affects the surface area to volume ratio of fuels. There are five fuel size classes: 1) 1-hour timelag fuels are $< \frac{1}{4}$ inch in diameter (grass, pine needles, hardwood leaves, and small twigs); 2) 10-hour timelag fuels are $\frac{1}{4}$ to 1 inch in diameter (twigs and small stems); 3) 100-hour timelag fuels are 1 to 3 inches in diameter (branches, pine cones); 4) 1,000-hour timelag fuels are 3 to 6 inches in diameter (large stems and branches); 5) 10,000-hour timelag fuels are > 6 inches diameter (logs and snags). Timelag is the time needed under specified conditions for a fuel particle to lose about 63 percent of the difference between its initial moisture content and its equilibrium moisture content. Small fuels (1-hour and 10-hour timelag fuels) and flat fuels have a greater surface area to volume ratio than large fuels. Less heat is required to ignite small fuels. The burnout time required for small fuels is less than large fuels. Fuel moisture content changes more rapidly in small fuels than in large fuels. Small fuels dry out faster and ignite sooner than large fuels. Small fuels produce short range spotting because they can only sustain combustion for a short time. Large fuels, on the other hand, like tree branches can produce long range spotting because they sustain combustion much longer than small fuels. Burning tree branches when lifted into a fire's convection column may be deposited miles downwind from the fire. Spotting distance is critical to a firefighter's safety because embers and firebrands can set fires on the opposite side of firefighters trapping them between two fires.

In addition to size, fuel shape is a significant factor in spotting. For example, flat fuels (hardwood leaves and bark plates) have a greater aerodynamic quality. Therefore, they are more easily lifted in fire convection columns to greater altitudes. In addition, round shaped fuels (pine cones and logs) have a tendency to spot downhill as a rolling firebrand.

Spotting is short range on the installation and usually occurs close to the firebreak within view of firefighters. It may be aerial spotting or surface spotting (rolling firebrand). For this reason, firefighters patrol their firebreaks with a backpack pump or fire rake looking for a spot over to suppress.

Fuel compaction influences fire behavior. Fuel compaction is the space that occurs between fuel particles. Fuel compaction affects the rate of combustion. Loosely compacted fuels have more surface area exposed to air circulation. They usually have lower fuel moisture contents. For this reason they require less time for ignition and combustion resulting in a faster rate of spread. Therefore, loosely compacted fuels contribute to more hazardous firefighting conditions. Generally,

the longer needle pine stands have more loosely compacted fuels. Therefore, these stands require additional caution during firefighting activities.

Fuel horizontal continuity is another condition that influences fire behavior. It is the extent of horizontal distribution of fuels. Fuels may be continuous or patchy. For example, open areas may have patches of fuel making it difficult for the fire to spread from one patch to another unless there is sufficient wind to cause spotting. Horizontal continuity influences where a fire will spread, how fast it will spread, and whether the fire travels through surface fuels, aerial fuels, or both. Fuels on the installation can be classified as continuous except on firing ranges (patchy grass), recent Clearcut (scattered slash) and herbicide and planted stands (sparse and patchy fuel). Generally, fires occurring in patchy fuels are safer to suppress than fires occurring in continuous fuels. The bare patches occurring between islands of patches of fuel act as firebreaks slowing the fire down. It is difficult for fires burning in patchy fuels to gain momentum under normal weather conditions.

Vertical arrangement of fuels is another important fuel condition influencing fire behavior. Vertical arrangement is the relative heights of fuels above the ground as well as vertical continuity. This influences whether or not the fire reaches the various fuel levels within the stand. When a fuel is vertically continuous it is a ladder fuel. A ladder fuel can transport the fire from the surface level to the canopy level. When fuels are both horizontally and vertically continuous it poses a dangerous situation for firefighters. Fires will torch out and crown out in these conditions. Depending on the wind speed and terrain these fires may become dangerous crown fires with downwind spotting. Young pine plantations with drape or ladder fuels present such a situation. Firefighters must exercise additional caution when fighting fires under windy conditions in young pine plantations on the installation.

Fuel moisture content is an important fuel condition that influences fire behavior. Fuel moisture is the amount of water in fuels, especially dead fuels, expressed as a per cent of the oven-dry weight of that fuel. Larger fuels retain their moisture longer than small fuels which dry out sooner and become more available to the combustion process. The moisture content in fine, dead fuels can change very rapidly. For this reason, smaller fuels will be available for burning sooner than large fuels after a precipitation event. This is the reason fires occur on ranges sooner than they occur in the woodlands. The range grasses (1-hour timelag fuels) are exposed to the wind and sunlight which lowers the moisture content faster. Due to the two to three year fire return interval the majority of the stands on the installation consist of small fuels < 1 inch in diameter (cured grasses, pine needles, small twigs, and herbaceous vegetation). These fuels are 1 hour and 10 hour timelag fuels. For this reason, most prescribed burns on the installation have a moderate to fast rate of spread (3-5 chp).

Chemical properties of fuels are the last fuel condition that influences fire behavior. Chemical properties include such volatile substances as oils, resins, wax, and pitch. Certain fuels have high amounts of these substances that contribute to rapid rates of spread and high fire intensities. Shrubs such as gall berry, wax myrtle, deerberry, and huckleberry are good examples in the southeast. On the other hand, certain fuels may have a high mineral content such as phosphorous or calcium which can reduce fire spread and intensity. Dogwood leaves have high calcium content and burn poorly.

4. Wildland Fuel Factors

The forest cover type contributes to the type of dead fuels that exist on the forest floor. Although the dead fuels consist of cured grasses and herbaceous vegetation, it also consists of pine needles, hardwood leaves, dead twigs, branches, and logs from the forest canopy and logging slash from timber harvest operations. The fuel loading on the installation can fall into one of two categories: 1) Fire behavior fuel model seven consisting of a southern rough with privet and other species under a pine overstory. The total fuel load for this model which includes the dead fuel load (1.1 tons / acre), the live fuel load foliage (0.4 tons / acre), and fuel bed depth (2.5 tons / acre) equals 4.9 tons per acre; or, 2) Fire behavior fuel model nine consisting of long needle conifer stands, southern pine plantations, and the oak-hickory forest type. This model is also a good second choice for fuel model C which is typical of Alabama. The total fuel load for this model which includes the dead fuel load (2.9 tons / acre), the live fuel load foliage (0.4 tons / acre), and the fuel bed depth (0.2 tons / acre) equals 3.5 tons / acre. The dead fuels on the installation may be classified according to the following generic forest types: 1) Hardwood; 2) Hardwood / Pine; 3) Longleaf Pine; 4) Longleaf Pine Plantations; 5) Mixed Pine / Longleaf Pine; 6) Pine / Hardwood; and 7) Pine.

The **hardwood** forest type consists of upland hardwood, bottomland hardwood, and scrub oak. These hardwood types contribute hardwood leaves, twigs, branches, and logs to the dead fuel component. The scrub oak type is found on sandy soils and the dead fuels consist of patchy areas of cured grass, twigs, and scrub oak leaves. This type will not carry fire well due to lack of horizontal continuity and light fuel loads making suppression efforts less difficult and hazardous. The bottomland hardwood forest type can be found on the wetter soils along streams and creeks. Dead fuels consist of hardwood leaves, twigs, branches, and logs. The grass and herbaceous component are minimal in this forest type. This forest type will not carry fire well due to the high fuel moisture content of the dead fuels. Fires rarely occur in these types unless there is a drought. Bottomland hardwood forest types serve as good natural firebreaks. Fires occurring in these types usually burn themselves out. Suppression efforts in these types are minimal. The biggest hazard in suppressing these fires is getting equipment stuck. The upland hardwood forest type can be found in hardwood drains on the upper slopes. The main upland hardwood type consists of the oak-hickory type. Dead fuels consist of hardwood leaves, twigs, branches, and logs, as well as, cured grasses and herbaceous vegetation to a lesser extent. This type

is generally open and located on upland soils on steeper slopes. This forest type will carry fire well due to the size and shape of the leaves (mainly oaks), horizontal continuity, lower moisture content, and terrain. Fires occurring on this forest type can be difficult to suppress due to the steeper slopes. Dozer operators must exercise extra caution when suppressing fires on this terrain. Fires occurring on these types can become intense when burning uphill. Spotting across firebreaks and trails can be a problem.

The **hardwood / pine forest** type generally consists of mixed hardwoods or scrub oak with a mixed yellow pine component. This type occurs on uplands, bottomlands, and drains. This type contributes hardwood leaves, pine needles, twigs, branches, and logs to the dead fuel component. The bottomland hardwood / pine forest type can be found on the wetter soils along streams and creeks. The grass and herbaceous component are minimal in this forest type. This forest type will not carry fire well due to the high fuel moisture content of the dead fuels. Fires rarely occur on this type unless there is a drought. The hardwood / pine bottomland type serves as a good natural firebreak. Fires occurring on this type usually burn themselves out. Suppression efforts on this type are minimal. The biggest hazard in suppressing these fires is getting equipment stuck. The upland hardwood / pine forest type can be found in hardwood / pine drains on the upper slopes. Dead fuels consist of hardwood leaves, pine needles, twigs, branches, and logs, as well as, cured grasses and herbaceous vegetation to a lesser extent. This type is generally open and located on upland soils on steeper slopes. This forest type will carry fire well due to the size and shape of the hardwood leaves and pine needles, horizontal continuity, lower moisture content, and terrain. Fires occurring on this forest type can be difficult to suppress due to the steeper slopes. Dozer operators must exercise extra caution when suppressing fires on this terrain. Fires occurring on these types can become intense when burning uphill. Spotting across firebreaks and trails can be a problem. The scrub oak / pine (mainly longleaf) forest type is found on sandy soils and the dead fuels consist of patchy areas of cured grass, pine needles, and scrub oak leaves. This type will not carry fire well due to lack of horizontal continuity and light fuel loads making suppression efforts less difficult and hazardous.

The **longleaf pine** forest type occurs on loamy soils and sandy soils. This type is found on moderately well-drained and well-drained soils on flat terrain and hilly terrain (sand hills). This type contributes long pine needles, pine cones, twigs, branches, and logs to the dead fuel component. The grass and herbaceous component is more prevalent in this forest type. The fuels under this forest type burn readily. Fuel loads are higher under this forest type due primarily to the long needles. Shedding of needles occurs throughout the year with heaviest shedding occurring between September and October. This forest type is found in association with grasses, bracken fern, and other herbaceous vegetation. Because of the abundance of pine straw, grasses, and herbaceous vegetation (fine fuels) fires can occur throughout the year in this forest type. Fires occurring in this forest type can be intense and difficult to control due to the conditions that contribute to the fire's fast ROS such as the abundance of fine fuels, horizontal

continuity of fuels, and open park-like conditions exposing the fuels to the wind which promotes fast drying conditions. Fires occurring in this forest type move quickly making fire suppression by direct attack difficult and hazardous. This is especially true on hilly terrain. Dozer operators must exercise extreme caution when suppressing fires on the steeper slopes. Fires occurring on this forest type can become intense when burning uphill. Spotting across firebreaks and trails can be a problem. Because this type burns readily with a fast ROS making suppression efforts difficult and hazardous the goal is to maintain this forest type on a two year fire return interval.

The **longleaf pine plantation** forest type occurs on loamy and sandy soils on both flat and hilly terrain. The longleaf plantations on the installation are < 25 years old. This type contributes mainly pine needles to the dead fuel component. The grass component is more prevalent in the older plantations. The primary carrier of fire in this type is the long pine needles and grass when it is cured. Fires occurring in this type may be intense and hazardous to control. Fires in this type move quickly due to the abundance of pine straw from the density / stocking of the saplings. Depending on the wind speed and time of year these fires can become dangerous crown fires. Firefighters must look for torching and crowning out in longleaf pine plantations and take the necessary precautions if this fire behavior is observed. This forest type should be burned biennially in the dormant season.

The **mixed pine / longleaf pine** forest type consists primarily of loblolly pine and short leaf pine with scattered longleaf pine or patches of longleaf pine throughout. It occurs on flat to sloping terrain on sandy and loamy soils. This type contributes pine needles, pine cones, twigs, branches, and logs to the dead fuel component. Although grasses and herbaceous vegetation is prevalent, where burning has controlled the woody vegetation, there may be a woody component in the form of shrubs and weed trees mainly sweet gum. The primary carrier of fire is pine straw, cured grasses, and herbaceous vegetation. This forest type is prescribed burned on a three year fire return interval. Generally, fires occurring in this forest type can be suppressed directly with crawler tractors. The ROS is usually moderate (2-3 chp) under normal weather conditions. Dozer operators need to exercise caution on steeper terrain.

The **pine / hardwood** forest type consists predominantly of mixed yellow pine with a hardwood component. This type can be found across the installation on flat to sloping terrain on a variety of soils. This type contributes pine needles, hardwood leaves, pine cones, twigs, branches, and logs to the dead fuel component. The primary carrier of fire is pine straw, cured grasses, and herbaceous vegetation. This type is prescribed burned on a three year fire return interval. For this reason, fires occurring in this forest type are not as intense and can be suppressed directly with crawler tractors. The ROS is usually moderate (2-3 cph) under normal weather conditions. Dozer operators need to exercise caution on steeper terrain.

The **pine** forest type includes loblolly pine, shortleaf pine, slash pine or a mixture of loblolly pine and shortleaf pine. This forest type can be found across the installation on flat to rolling terrain on a variety of soil types. This is the most prevalent forest type on the installation. This type contributes pine needles, pine cones, twigs, branches, and logs to the dead fuel component. The primary carrier of fire is pine straw, cured grasses, and herbaceous vegetation. This type is prescribed burned on a three year fire return interval. For this reason, fires occurring in this forest type are not as intense and can be suppressed directly with crawler tractors. The ROS is usually moderate (2-3 cph) under normal weather conditions. Dozer operators need to exercise caution on steeper terrain.

Because the fire return interval is three to four years for the TAs across the installation fuel surveys are not collected. Prescribed burners and firefighters are working with a three to four year rough or fuel load. This fuel load will be consistent for each of the above forest types from one burn rotation to the next. As discussed above the fuel load will vary from one forest type to the other.

5. Natural and Cultural Resource Considerations

Sensitive natural and cultural resources occur across the installation. The following sensitive resources are given consideration prior to conducting any Wildland fire management activity: 1) Gopher tortoises, 2) Plants of special concern, 3) Bald eagle, 4) Archeology sites, 5) Cemeteries, 6) Unique Ecological Areas (UEAs), 7) Streams and creeks.

The **gopher tortoise** is listed as a threatened species in Alabama. Most gopher tortoises reside on the majority of the installation. Gopher tortoise management is normally in the form of protection of burrows and habitat. Sensitive Areas are defined as places on the installation where the soil must be protected. They may contain archaeological sites, protected plant species, or gopher tortoise colonies. Digging and off-road driving is prohibited in Sensitive Areas. No heavy equipment will be operated or firebreaks installed within 15 feet of a burrow (INRMP, September 2001).

The **bald eagle** is listed as federally threatened, Georgia endangered, and Alabama protected. There will be no prescribed burning within the primary zone (1500 feet radius from the nest) or the secondary zone (1 mile radius from the nest) during the breeding season from December 1 to June 1.

There are numerous **archeology sites** across the installation. Archeological sites are the material remains of past human activity, regardless of ethnic, race, or otherwise culturally defined origin. The Rust Environmental and Infrastructure, (1999) summarizes the 16 cultural resources surveys on Fort Novosel. Brockington and Associates, Inc. (1995) also summarize (pages 32-36) the 15

surveys prior to their survey. Fort Novosel has completed 100% of its Phase I surveys including leased lands. Five sites on Fort Novosel are eligible for inclusion on the National Register of Historic Places, and ten sites on Fort Novosel and eight sites on leased lands remain eligible. Only one structure on Fort Novosel is potentially eligible for the National Register. The inventory includes 315 archeological sites on Fort Novosel and 27 sites on leased lands (Harvey *et al.*, 1996). Brockington and Associates, Inc. (2008) reported that there are no Cold War-Era Resources (1955-1965) or Military Landscapes at Fort Novosel that are eligible for inclusion on the National Register of Historic Places. Headquarters, Department of the Army has adopted a Cultural Landscape Planning Approach as outlined in AR 200-4.2-1.b. This approach uses the principles of ecosystem management for planning and management of cultural resources within a context of the integrated management of land, resources, and infrastructure.

There are numerous **streams and creeks** across the installation. Water quality protection begins with recognizing watercourses and water bodies. According to the federal Clean Water Act, “waters of the U.S.” include lakes, rivers, perennial and intermittent streams, wetlands, sloughs or natural ponds. Identifying stream types (perennial, intermittent, or ephemeral) is important in prescribing the level of protection through the implementation of Alabama’s BMPs (Alabama’s Best Management Practices for Forestry, Buffer strips, also known as streamside management zones (SMZs), are located adjacent to streams and creeks and should be managed with special considerations to protect water quality. The width of SMZs will vary depending on the slope of the land and the erosive potential of the soil. The steeper the slope and more erosive the soil the wider the SMZ should be. NRB personnel will comply with Alabama’s BMPs to protect and preserve water quality when suppressing fires or prescribed burning near streams and creeks. NRB personnel will comply with the following BMPs in the performance of fire management activities:

- 1) Where used, firebreaks should be installed parallel to streams and outside SMZs.
- 2) Minimize the intensity of prescribed fires in SMZs to maintain forest floor cover and protect the soil surface.
- 3) Exclude high intensity site preparation fires from the SMZ. Cool, low intensity hazard reduction fires that do not consume the duff layer are allowed.
- 4) Repair wildfire suppression firebreaks as soon as practical after the fire is under control to meet BMPs for pre-suppression firebreaks.
- 5) When possible use existing man-made and natural barriers such as roads, trails, streams, creeks, and fields as firebreaks.

- 6) Install firebreaks on the contour if possible. If not, use a gradual grade.
- 7) Use bladed or harrowed firebreaks NOT plowed firebreaks when possible.
- 8) On slopes exceeding 3%, install waterbars with water turnouts in firebreaks according to BMPs for skid trail retirement

(Exhibit 1).

Grade of Skid Trail or Firebreak (percent) Distance Between Water Bars (feet)

2	250
5	135
10	80
15	60
20	45
30	35
40*	30

**Use grades of 40% and steeper only for short stretches.*

(Exhibit 2). *Spacing of Water Bars on Skid Trails and Firebreaks*

- 1) Use hand tools or back blade firebreaks away from the edge of streams, creeks, roads, and gullies.
- 2) Install water bars and water turnouts at approaches to streams, roads, and gullies, to prevent channeling water from firebreaks into these areas.
- 3) Treat active gullies the same as streams, using appropriate buffers and plowing practices.
- 4) Avoid installing firebreaks that channel surface runoff into streams, roads, or gullies.
- 5) Avoid plowing firebreaks inside the SMZ.

The INRMP is the fundamental document or interagency strategy for all natural resource management programs, including fire management, with the goal of achieving ecosystem sustainability. This document was prepared by incorporating the expertise and knowledge of subject matter experts from universities, state and federal agencies, and research organizations.

Fire management through the use of prescribed burning will enhance public use of the installation's woodlands. Prescribed fire will remove dense woody vegetation and increase the amount of herbaceous vegetation for wildlife. This will improve visibility and access for public use whether it is hunting, fishing, hiking, or bird watching. Smoke management will be critical when prescribed burning in the vicinity of Sensitive Smoke Areas throughout the Installation. Smoke will have an adverse effect on campers, boaters, and fishermen. Prescribed burners will also have to keep up-to-date on special events and take the necessary smoke management precautions.

Recreational Areas and the cantonment areas which include housing areas, administrative buildings, schools, medical clinic, recreational buildings, barracks, warehouses, motor pools, and other structures are at risk from wildfire. Although wildfires occur in cantonment areas they are infrequent. These fires have posed a threat to housing areas in the past. Due to the quick response time of the Fort Novosel Fire Department and NRB personnel these fires were suppressed while they were still small in size before they could spread into the living quarters. Currently, it is the responsibility of the fire department to suppress fires in the cantonment areas. The fire department contacts the NRB if they are unable to suppress a fire because of its location, size, and intensity.

6. Mission Consideration

The mission of the IWFMP is to prevent, detect, and suppress wildfires occurring on woodlands and ranges while managing sustainability and ecological integrity of the natural resources; and, to use prescribed burns as part of an adaptive management approach that focuses on the ecological integrity of the landscape as its primary end state while maintaining a realistic training environment. Fires will be suppressed when necessary to protect mission lands and resources whether they are military or natural. Prescribed fire will be used to maintain open understories by top-killing hardwoods and promoting herbaceous vegetation. These open understories are not only characteristic of desired future conditions (DFCs) of the ecological landscape but also improve visibility and accessibility for military training promoting a realistic training environment. In addition, prescribed burning will reduce fuel loads and fire intensity thus providing a safer environment for military training. Lower fuel loads will make fire suppression more manageable for troops and NRB personnel. Therefore, prescribed burning is compatible with maintaining the ecological integrity of the landscape as well as maintaining a realistic training environment.

The military mission affects the implementation of the IWFMP mission by limiting the opportunities to prescribe burn due to scheduling conflicts. Military units can schedule 13 weeks out. Depending on the unit or the FTX numerous TAs may be scheduled for days at a time. This makes these TAs unavailable for prescribed burning even if all the fire-related weather parameters are ideal for prescribed burning. Scheduling conflicts become more critical to the burn manager as weather variables such as, precipitation, relative humidity, fuel moisture, surface wind speed, wind direction, Smoke Dispersion Index (SDI), transport winds, mixing height, KBDI, fog potential, ozone forecast, and PM 2.5 levels. For example, all of the weather variables may signal a “Go” for prescribed burning but the TA scheduled for burning may be closed due to training. It is not uncommon for units to schedule over TAs scheduled for prescribed burning. Occasionally the burn manager can work out a co-location with the unit for burning the TA. But, this is only possible after thorough on-the-ground coordination. In other cases burning is not compatible with training when units are bivouacked in the TA. On other hand, when units are engaged in movement to contact exercises without fixed fighting positions, command posts, or encampments co-location may be possible. In addition, it is not uncommon to mobilize prescribed burn personnel and equipment to a TA to execute a prescribed burn only to find the TA occupied with troops. Another observation is that units may schedule TAs for days and weeks at a time and not remove them from the schedule when they complete their FTX or cancel it. Many suitable burning days are lost due to this. In addition, units may schedule several TAs and only utilize one TA. Scheduling conflicts are the single most important factor that effects the accomplishment of the prescribed burning mission. To reconcile these conflicts, subdivision of training areas would facilitate any reduction to training along with maintaining prescribed burn plans.

UXO does not present a problem in the implementation of IWFMP. Areas with UXO are designated dud areas and off limits to fire suppression activities. These areas are treated as no plow, indirect attack zones. Fires occurring in these areas may be back set along the permanent firebreak, trail, or road and allowed to burn out. Occasionally UXO is found in an area that is not a designated dud area. Should this occur, NRB and personnel contact Training Division. EOD is notified and the UXO is removed or detonated in place.

As discussed previously military missions can and do restrict the opportunity to conduct prescribed fire operations. Most military missions are not compatible with prescribed burning due to the fixed nature of the training such as bivouacs, encampments, fixed fighting positions, command posts, staging areas, etc.

As discussed above the implementation of the IWFMP affects the military mission in a positive way. Prescribed burning improves visibility and accessibility for military training promoting a realistic training environment. Prescribed burning will

reduce fuel loads and fire intensity thus providing a safer environment for military training. Lower fuel loads will make fire suppression more manageable for troops and NRB personnel. Fire suppression protects troops, supplies, and equipment from fire.

The military mission can limit suppression activity when mission critical or essential training is being conducted on a live fire range. Normally range fires occur during the peak fire weather from 1300 to 1400 hours or later. Should a fire occur on a range and the unit is close to completing a firing exercise they may wait until firing is completed (1600-1700 hours) to report the fire and obtain a closing code. Occasionally this occurs in the TAs on the last day of a unit's FTX just prior to their departure. This is understandable as the unit's goal is to complete their mission, but it is not practical when the fire danger rating is a class four or five.

7. Military Training Restrictions

The major causes of Wildland fires on the installation are incendiary training aids such as flares, blanks, simulators, pyrotechnics, and smoke grenades. There are 59 live fire ranges located across the installation. The use of tracers on live fire ranges is another major cause of fires.

Wildfires occur in direct correlation with the fire danger rating and the intensity and type of military training. The fire danger rating is computed from weather conditions, such as humidity, wind speed, and rainfall. The fire danger rating consists of five classes with class 5 being extreme fire weather (**Exhibit 3**).

(Exhibit 3) Fire Danger Rating

Spread Index	Class	Behavior Pattern
0-5 - Low	1	Fire will spread slowly and tend to die.
6-9 - Moderate	2	Fire will spread in grass and leaves until extinguished.
10-19 - High	3	Fire burns briskly and spreads rapidly. Short distance spotting may occur. Young conifer stands are at risk to fire damage.
20-39 - Very High	4	Fire spreads rapidly and tends to crown in young conifer stands. Long distance spotting is common. Intense convection activity may develop. Torching occurs in older timber.
40 - Extreme	5	Fire burns very briskly and above spreads very rapidly. Where heavy vegetation occurs, fires may be unmanageable. Long distance spotting is common. Fire behavior is unpredictable and crown fires in older timber are common.

Training Division notifies units of the fire danger rating. Units will report all forest fires or range fires to Training Division. Training Division will notify the NRB. Units will appoint a non-commissioned officer as the unit fire marshal daily while in the field or on the range to ensure all personnel have been indoctrinated concerning the safe use of incendiary devices and to supervise the immediate suppression of fires. Units will attempt to suppress fires until NRB personnel arrive at the scene. Units will assist NRB personnel as needed.

When a fire danger rating four (very high fire danger) is reached, the use of tracers and incendiary training aids such as flares, simulators, pyrotechnics, smoke grenades, firecrackers, and open fires will cease effective that day. Blanks may be used. Exceptions to policy must be requested through Training Division. Exceptions may be granted to that training which is most critical to unit mission. Training Division will notify NRB of exceptions to policy.

When a fire danger rating five (extreme fire danger) is reached, the use of all incendiary type ammunition will cease effective that day. Blanks may be used. Exceptions to policy must be requested through Training Division. Exceptions may be granted to that training which is most critical to unit mission. Training Division will consult with NRB prior to granting an exception to policy (USAIC Regulation 210-4).

“The destructive force of a class 5 Wildland fire”



Monitoring and Evaluation Requirements

- 1. Monitoring Requirement:** Refer to **Prescribed Fire Management**.
- 2. Evaluation Requirement:**

The NRB Chief, Operations Section forester, prescribed burn bosses, and Wildland fire incident commanders will ensure that the safety of all personnel

involved in fire-related activities is upheld to the highest degree IAW the INRMP, IWFMP, safety SOPs, risk assessments and the National Fire Protection Association (NFPA) 1977 – *Standard on Protective Clothing and Equipment for Wildland Fire Fighting*. Personnel will be equipped with proper PPE clothing.

The Operations Section forester, team leader and lead fire technician will ensure that fire-related activities, including trail and firebreak maintenance, are implemented in compliance with prescribed burn plans, smoke management plans, BMPs for water quality, air quality guidelines and restrictions (ozone, PM 2.5, burn bans), burn permits, and NEPA compliance in general.

The NRB Chief, Operations Section forester / team leader, and lead fire technician will ensure that all fire-related activities are in compliance with the following:

- 1) DoD Instruction 6055.6, 10 Oct 00, *DoD Fire and Emergency Service Program*.
- 2) Army Regulations 200-2 and 200-3.
- 3) Army Memorandum (04 September 2002), *Army Wildland Fire Policy Guidance*.
- 4) Installation INRMP, IWFMP, ICRMP, fire and emergency services plan.
- 5) Review and update of the 1995 Federal Wildland Fire Management Policy, Jan 01.
- 6) NWCG Wildland Fire Qualifications Subsystem Guide,
 1. PMS 310-1/NFES 1414.
- 7) State and local laws and ordinances for burning and air quality.
- 8) Biological Opinions.

The NRB Chief, Operations Section forester, team leader, and lead fire technician will ensure that goals, objectives, and procedures set forth in the INRMP, Biological Opinions, IWFMP are met (Section I. Goals and Objectives and Section II Wildland Fire, a. Suppression and Prevention).

3. Public Relations

Smoke management and water quality will most likely be the NRB's biggest forest management concerns throughout the next decade. Prescribed burning is by far the most useful forest management tool, so the development and

implementation of a good public relations strategy to address smoke management will play an important role in preserving the ability to burn.

Ozone and particulate matter are air quality concerns from an Environmental Protection Division legal standpoint, but smoke obstructing driver visibility on highways and roads and smoke affecting the health of the local public may even be of greater concern. Not much can be done as far as public relations from a legal standpoint, but there are many ideas to minimize complaints resulting from the adverse affects of residual smoke on the general public.

Educating the public as to the safety benefits as well as ecological benefits that are gained by prescribed burning is the most effective public relations strategy. Also, soliciting and considering input from those persons potentially affected by the smoke could foster good public relations. Addressing wildfire smoke is also a major public relation concern. Most complaints are due to wildfires, which are mainly started by military training activities. Since military training is Fort Novosel's primary mission, wildfires will continue to be an ongoing situation NRB, and the fire department will have to deal with. Wildfire occurrence is unpredictable. Therefore, unlike smoke from prescribed burning which can be predicted and managed, the smoke associated with wildfires is uncontrollable and unexpected by the public. However, prescribed burning on a regular basis (3-4 year fire return interval) reduces fuel loads, which in turn minimizes the potential smoke problems and safety problems when wildfires do occur. Also, through good fire detection the capability to respond to and suppress wildfires in a timely manner can minimize potential smoke problems.

There are several ways to educate the public on prescribed burning: (1) media news outreach such as local television and newspaper coverage concerning the benefits of prescribed burning, (2) flyers distributed to potentially impacted residents describing the benefits of prescribed burning and the specifics with respect to what residents can expect and what precautions they can take during the installation's prescribed burning operations, (3) local school presentations can provide information that can be carried home with each child to share the lessons learned with their families, (4) presentations at installation and local group gatherings, such as the Environmental Quality Control Council (EQCC), the Commanding General's Fish and Wildlife Advisory meetings, housing area town hall meetings, and other interested groups can be affective, (5) developing outdoor classrooms for the institution of environmental programs such as Project WILD, Project Learning Tree, and Project WET, and (6) even one-on-one informal sessions with interested groups or inviting persons to witness a prescribed burn could be very helpful.

The same outreach opportunities described above are available and should be used as educational opportunities. Reaching the potentially impacted source up

front is usually the key to minimizing a negative response by the public to the activity. It is necessary to get those potentially affected involved early and make them feel recognized in their concerns and also a beneficiary from the natural resource management activity. Again presentations at Fort Novosel Schools and spots on local television are the primary methods of public outreach. On-site field trips for local interested parties, similar to the wildlife schools and forestry field trips that are already given, may also be a good public relations tool. An on-site field trip to a prescribed burn-in-progress could be an exciting and educational opportunity (INRMP, September 2001).

4. Wildland and Community / Urban Interface

1. Prescribed burning is the most important and the most cost effective tool for managing and improving forested ecosystems. The trend to the exclusion of fire over the last fifty years played a key role in the reduction of biodiversity in our forested ecosystems. In the past, fire served to eliminate shrubby competition, return nutrients to the soil, and aid in some seed germination. These fire-maintained ecosystems supply significant browse for wildlife thereby enhancing biodiversity. Present settlement patterns make wildfires highly undesirable. Prescribed burning provides a mechanism for the reduction of fire fuel loads in forested areas, reducing the likelihood wildfires will occur.

Because of the potential impact of prescribed burning on helicopter training, coordination must be accomplished between the Forestry Section and Airfield Air Space Management and Range Operations. The Fire Department must be informed, on a daily basis, of prescribed burning activities prior to commencing a burn, the location of the burn area, and when securing from a burn area.

These parameters do not apply to burning in conjunction with chemical and mechanical site preparation. Prescribed burning is carried on as a range fire control activity when necessary and is coordinated through the Range Operations Officer. Normal burning is on a three-four year rotation.

Prescribed burning is a scheduled and approved forest management activity budgeted for and funded by the Forestry Reimbursable Account. With the exception of a small number of growing season burns and site preparation burns, the prescribed burning program at Fort Novosel is predominately dormant season burning which begins around the first of December and continues through April. Some of the March and April burns are technically growing season burns. An increase in growing season burns is anticipated during the next five years to promote stand conversion to longleaf pine and to improve gopher tortoise habitat. Due to weather and military training constraints there are typically 20 to 24 acceptable burn days within each year.

This integrated plan will coordinate plans and actions between the Forestry Section and the Fire Department and Emergency Services. The prescribed burning program will be an integral and essential part of this plan as an aggressive prescribed burning program is the most important and effective tool in minimizing wildfire potential.

Wildfire Suppression: Fires that occur at the Wildland / urban interface are fought aggressively because of the imminent threat to life and property. NRB personnel work closely with the Fort Novosel Fire Department and AFC in suppressing fires that occur adjacent to the installation boundary. Although fire trespasses that burn off the installation on to private land are rare, they do occur. When a fire burns across the installation boundary on to private land, NRB personnel assist state and local firefighters in suppressing the fire. Good fire detection, through the manning of fire towers on and off the installation, is critical in spotting a fire near the installation boundary so fire suppression crews can respond promptly containing the fire before it crosses the installation boundary.

5. Fire Reviews

If the fire is caused by the use of incendiary devices on a fire danger class 4 or 5 day Training Division is notified. A range technician is dispatched to the fire scene to investigate the situation and remind the unit of their responsibilities on fire class 4 and 5 days. Normally exceptions are not granted for field training on fire class 4 and 5 days.

6. Funding Requirements

Forestry funds are generated from sale of forest products. Forestry Funds are centrally controlled, and Fort Novosel is limited to recovering its approved expenses for forest management. The remainder of the money generated by the Fort Novosel forestry program is split 60:40 between U.S. Treasury and the counties.

These funds are commonly called P7 funds. 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. Army Regulation AR 200-1 and DFAS- IN Regulation 37-1 Chapter 25 outline collection and expenditure systems.

7. Personnel Training and Certification Standards and Records

Natural Resources Branch personnel that perform Natural Resources duties to include timber management, Wildland fire management, and support activities are listed in **Table 3**.

Table 3. Natural Resources Branch Personnel

Position	Name
Chief, Natural Resources Branch	Marty Daniel
Lead Forester	James Jennings
Lead Forester Timber Mgt	Brent Waters
Forest Technician	Vacant
Forest Technician-Fire	Vacant
Forest Technician	Vacant
Forest Technician (Contract)	Roger Yarbrough
Forest Technician (Contract)	Austin Arnett
Fish and Wildlife Administrator	Danny Spillers
Wildlife Biologist	Vacant
Wildlife Biologist (Contract)	J. B. Bruner
GIS (Contract)	Andrew Baumhauer
Wildlife Technician (Contract)	Kerwin Gullede

All NRB personnel, including the branch chief, are involved in Wildland fire management activities. In addition, NRB personnel perform Wildland fire management duties such as prescribed burning and fire suppression. All personnel involved in Wildland fire management activities, including prescribed burning and firefighting, receive formal training. Natural Resources personnel have the following required training.

Basic Firefighter Training:

Introduction to ICS (ICS-100)

Human Factors on the Fireline (L-180)

Firefighter Training (S-130)

Introduction to Wildland Fire Behavior (S-190)

National Incident Management System (NIMS): An Introduction (IS-700)

Annual Fireline Safety Refresher (RT-130)

Alabama Prescribed Burn Manager's Course

Training/qualification of personnel will follow the following IMCOM Wildland Fire Training Transition Plan:

FY22 – Initiate approved Training Transition Plan

Training Requirements complete for FFT2 (All personnel)

Qualification Reviews completed and approved for ENV personnel by IMCOM

FY23 – IQS/IQCS fully populated for IMCOM ENV personnel

- Complete training requirements for FFT1 and ICT5.
- All personnel current in First Aid and CPR certifications
- Personnel serving as Burn Boss certified within state (as available)

FY24

- Moderate Work Capacity Test and RT-130 (annual safety refresher) required
- Agency Qualifications met for FFT2, FFT1, ICT5, FAL3, and ATVO/UTVO

FY25-FY27 14

- Agency Qualifications met for ENOP, ENGB, FIRB, ICT4 and NWCG met for TPOP/DZOP

FY29

- NWCG Qualifications met for all positions, including RXB2

Training records will be maintained by the Operations Section team leader. The team leader will ensure that training records are current and up-to-date. Training update requirements and any new training will be scheduled by the team leader. The NRB chief and team leader will ensure that new fire management technology is integrated into the work force and that personnel are properly trained.

WILDLAND FIRE

1. Suppression and Prevention

The IWFMP wildfire suppression goal is equivalent to the INRMP wildfire suppression goal which is to prevent, detect, and suppress wildfires occurring on woodlands and ranges while managing sustainability and ecological integrity of the natural resources.

The following wildfire suppression procedures will be followed, evaluated, and monitored in order to achieve the IWFMP wildfire suppression objectives:

a. Routine Procedures:

- 1) Inspect fire suppression equipment on a daily basis and address defects as soon as possible.
- 2) Operation of heavy fire suppression equipment may be conducted only by certified/licensed technicians or operators.
- 3) The fire crew is the primary fire crew during any regular duty hours.

b. Fire Response Procedures:

- 1) If possible and manpower is available, respond to a wildfire with no less than two persons outfitted with appropriate suppression equipment.
- 2) Contact the Fort Novosel Fire Department for assistance with wildfire suppression in all areas.
- 3) Alert motorists of possible smoke presence in cantonment areas by posting warning signs with flashing lights along roads.
- 4) Natural Resource Branch technician is the fire incident boss.
- 5) Identify hazardous conditions and sites (gullies, steep slopes, wet and boggy areas) by conducting thorough reconnaissance of wildfires before suppression.
- 6) Let wildfires burn (i.e., no suppression but treat as a prescribed burn) if fire weather conditions are within the required parameters, wildfires are contained by appropriate boundaries (scraped roads, creeks, wet drains, already established fire breaks), and they do not jeopardize fire intolerant ecologically unique areas (unless it is a low intensity fire causing minimal damage), civilian or military assets on and off post (equipment, buildings, and structures), military and civilian personnel (hunters and contractors), and smoke-sensitive areas (roads, highways, housing areas, hospitals, Army Airfields, etc.) .
- 7) "Let Burn" decisions are to be made only by personnel with knowledge of fire weather conditions, fire behavior, boundaries suitable for containment, location of environmentally sensitive areas, civilian/military assets, civilian/military personnel, smoke-sensitive areas, and stands with marked timber.
- 8) Let wildfires in DUD areas burn, while monitoring perimeter for a potential spot over.
- 9) Contain wildfires in DUD areas by scraping existing roads or re-plowing firebreaks that surround them.
- 10) Contact Explosive Ordnance Disposal (EOD) if unexploded ordnance is found on or off training ranges and outside DUD areas while suppressing a fire.
- 11) Extinguish fuels that may potentially spot over control lines and minimize smoke hazards along the fire perimeter by extinguishing smoldering fuels such as snags, stumps and cat-faces.
- 12) Contact the local Fire Departments and/or Alabama Forestry Commission if a wildfire burns across the Installation boundary onto

private land. Assist city, county, and state firefighters in fire suppression on such fires.

13) Document all wildfires on GIS map, and master fire map and wildfire summary database.

14) Notify Directorate of Public Safety and Environmental Management Division Chief of property damaged by wildfires.

Currently, NRB personnel suppress fires occurring in TAs, cantonment area woodlands, and ranges following prescribed burns. Fire department personnel are the primary firefighters / responders. NRB personnel may be requested during and after duty hours because they have the class A or B commercial driver's license required to operate equipment transport trucks. The transport truck and tractor unit is the single most important piece of firefighting equipment in the suppression of Wildland fires. The pumper trucks serve as back up units due to their limited access. Pumper trucks are used primarily to suppress fires occurring in the cantonment areas, near roads and trails, or on ranges. Military aircraft such as helicopters are not used to accomplish fire management activities including prescribed burning and fire suppression.

The installation fire department suppresses structural fires, accessible fires in cantonment area woodlands, and on ranges. If a fire is inaccessible the fire department will contact the NRB. The NRB will assist the fire department in suppressing any fire they cannot access that requires a crawler tractor.

Fires occurring off the installation but adjacent to the boundary are suppressed jointly in cooperation with the local Fire Department or AFC.

Training Division addresses fire prevention in TAs and on ranges (USAIC Reg. 210-4) at the weekly Training Division safety briefings. Fire prevention is elevated at these meetings when the fire danger rating reaches a class four. Units are informed that the use of incendiary devices and tracers must cease until further notice, although exceptions may be granted by Training Division. The fire danger class is also announced regularly over Training Division's radio frequency.

c. Equipment

The NRB is equipped with two transport trucks, 2 crawler tractors with front mounted 6-way blades, three 250 gallons 4 x 4 pumper trucks, 4 ATVs with burn units, 4 SxS UTV's with 70-90 gal pumper units and various hand tools (fire rakes, chainsaws, etc.) to suppress fires.

d. Detection Procedures

The following fire detection procedures will be followed, evaluated, and monitored in order to achieve the IWFMP wildfire suppression objectives:

- 1) Obtain the Alabama Forestry Commission fire danger rating for Fort Novosel from <http://www.forestry.alabama.gov>. The fire danger rating will determine the level of fire detection and suppression readiness needed.
- 2) Maintain communication with Range Operations and Alabama Forestry Commission during fire detection activities.

e. Dispatch Procedures

Fires may be reported to the NRB personnel, AFC, Training Division, Military / DOD police, and the Fort Novosel Fire Department.

f. Communications Plan

Fires may be reported by phone to the NRB, Training Division, Fire Department, or Military Police frequencies. When a range fire occurs NRB personnel coordinate range access with Training Division. Both ingress and egress from a range are coordinated when responding to a range fire. Cell phones are another means of communication used to coordinate firefighting activities.

g. Extended Attack Procedures

Unless fires are located in a dud area or the "Let Burn" policy is in effect installation fires do not burn beyond one burning period. This is the result of the two to three year fire return interval. Due to the low fuel loads fires are more manageable and suppressed in a timely manner while they are still small in size. Early fire detection, timely dispatch, and the rapid response of fire suppression personnel are the keys to keeping fires small without extended suppression times beyond one burning period. Dud areas are restricted and off limits to fire suppression activities unless NRB firefighters are escorted by Explosive Ordinance Disposal Detachment personnel.

h. Rehabilitation Needs and / or Procedures

Rehabilitation procedures will be incident specific depending on the location, slope, soils, and forest type. Sensitive areas (plants, gopher tortoises, and archeological sites), SMZs, and gullies are treated with caution when firebreaks are installed. Firebreaks are only utilized in these areas in emergency situations. BMPs are used on all firebreaks installed on sloping terrain. Firebreaks installed in SMZs and active gullies may require seeding or planting on sloping terrain after BMPs are installed.

i. Records, Reports, and Monitoring

Burned areas will be monitored in accordance with The Nature Conservancy's monitoring protocol (**Prescribed Fire Management, e. Monitoring**). Fires are recorded in a data base file by fiscal year. An access data base report is prepared summarizing the fires by fiscal year. The fires are also mapped on a 1:25,000 scale Training Division Training Area map. Because the installation is not a participant in the NWCG, Wildland fire reports are not submitted to the National Fire Incident Reporting System (NFIRS) through the Emergency Reporting System (ERS).

PRESCRIBED FIRE MANAGEMENT

1. Prescribed Fires

The IWFMP prescribed burning goal is equivalent to the INRMP prescribed burning goal which is to use prescribed fire as part of an adaptive management approach that focuses on the ecological integrity of the landscape as its primary end state. The following prescribed burning policies and procedures will be followed, evaluated, and monitored in order to achieve the IWFMP prescribed burning objectives:

2. *Prescribed Burning Training:*

- a. Natural Resources Branch personnel who perform prescribed burns must complete an inter-agency prescribed burning course before conducting prescribed burning.
- b. Natural Resources Branch personnel who conduct fire suppression activities must complete S130/S190 "Basic Wild land Firefighting Course."
- c. Personnel who direct prescribed burns (burn boss/crew leaders) must complete the Alabama Forestry Commission Prescribed Burn Manager Certification Program. It is recommended that personnel who direct fires also attend Rx 300 "Rx Burn Boss" and Rx 410 "Smoke Management".

3. *Procedural Documents:*

- a. Follow the procedures and policies as stated in the Fort Novosel Prescribed Burning Standard Operating Procedure (PBSOP).
- b. Follow smoke management guidelines (Mobley, 1990, 1996) for the Smoke Dispersion Index (SDI) and prescribed weather parameters for wind direction, humidity, surface wind speed, mixing height, and

transport wind speed before conducting a prescribed burn.

4. *Pre-Burn Reconnaissance:*

- a. Conduct pre-burn reconnaissance for asset identification and protection, such as buildings, utilities, equipment, railroads, and private property adjacent to the Installation boundary.
- b. Conduct pre-burn reconnaissance for hazard identification and elimination (snags and green trees with cankers next to roads, buildings, power lines, and railroads).
- c. Conduct pre-burn reconnaissance on day of burn to ensure troops, hunters, and contractors are not in the area.

5. *Coordination with Natural Resource Personnel and Army:*

- a. Initial coordination between Natural Resources Branch regarding proposed burns should take place no less than two months prior to the beginning of the burn season. (Note, some training and cantonment areas are burned starting after Thanksgiving.)
- b. Review planned burn activities with forestry and wildlife sections to avoid possible management conflicts or to further identify needed burn activities.
- c. Schedule training compartments for prescribed burning with Range Operations as early as possible in order to avoid reduction in training. Weather, NRB staffing and training area usage are the major factors contributing to scheduling.
- d. Co-locate with military units that plan to use training compartments scheduled for burning, so training and burn activity conflicts are avoided.

6. *Firebreaks:*

- a. Construct firebreaks to protect human life; urban / private property (especially private property along boundary and smoke sensitive areas such as hospitals, cantonment areas, highways and airfields); military resources; training exercises; marked timber; and timber harvest operations.
- b. Install firebreaks using a six-way blade rather than a fire plow so that the operator can minimize the depth of soil disturbance and apply best management practices (BMP).
- c. Use existing natural fire breaks such as creeks, wet drains, gullies, and ditches in addition to cleared trails and roads. If new firebreaks are

needed, avoid placing them in sensitive areas, ecotones, wetlands, or other riparian areas susceptible to soil erosion.

7. Soil Conservation:

- a. Coordinate with the Integrated Training Area Manager (ITAM) and/or SEMP Liaison before burning areas where land rehabilitation and/or research projects are being conducted so that erosion control structures, equipment, and research sites can be protected.
- b. Obtain updated information on the location of soil erosion control structures and projects as well as projected dates projects will be complete, from the soil conservationist before the beginning of the burn season.
- c. Minimize the intensity of prescribed fires in Streamside Management Zones (intermittent and ephemeral drains included) to maintain groundcover and avoid soil erosion. Set upslope low intensity backing fires.

8. Fire Ecology:

If possible, avoid burning Unique Ecological Areas known to be fire intolerant or when burn conditions are not within prescribed parameters. Set fires downwind or upslope from these areas to minimize fire intensity.

9. Threatened and Endangered Species /Species of Conservation Concern:

Obtain updated information on locations (GIS maps) and status of threatened and endangered species and other species of conservation concern (e.g., relict trillium, woody golden rod, sweet pitcher plant, bald eagle, gopher tortoise, gopher frog), and necessary timing (season) of burns from the threatened and endangered species biologist before the beginning of the burn season.

10. Game Management:

Obtain updated information on the location of wildlife openings to be burned or protected (e.g. saw tooth oak protection), and specific month these areas should be secured (disked) from the conservation branch chief or game and sport fish management biologist.

11. Geographic Information System:

- a. Continuously update the GIS burn database so that timber and wildlife management personnel can use burn information for ArcGIS overlays.

- b. Maintain data storage (to include geo-spatial data layers) in a format that is compatible with the needs of all appropriate users on the installation. For example, maps showing training compartments burned during the growing season.

12. Educational Program:

Initiate an educational program to increase the public's awareness of the benefits of prescribed fire. Such a program can include field trips for schools, articles in local newspapers, and television coverage.

13. Let Burn Policy:

In accordance with the USFWS Biological Opinion for habitat management wildfires will be allowed to burn whenever feasible and safe. This "Let Burn" policy will apply to wildfires that meet specific criteria. Wildfires will be allowed to burn if none of the following are in jeopardy: sensitive areas (plants), UEAs, buildings and structures, equipment, railroads, training sites, research sites, recreation sites, troops, hunters, installation boundary, or smoke sensitive areas. Fires will not be allowed to burn if there are air quality concerns or burn bans. Smoke sensitive areas include highways, roads, cantonment areas, populated areas, creek or railroad crossings on roads, hospitals, schools, airports, housing areas, barracks, army heliports, stage fields, etc. Delayed mortality can be directly correlated to the KBDI. Therefore, caution must be exercised when the KBDI reaches 500. The "Let Burn" policy will allow wildfires to naturally determine the characteristics of the historical pine-hardwood ecotones. A good rule of thumb to use for letting fires burn is to use the same fire weather parameters and conditions that would apply to a prescribed burn in the same area.

14. Regulatory Requirements:

In 1995 the Alabama legislature passed the Alabama Prescribed Burning Act. The primary purpose of this law is to reduce liability associated with prescribed burning. Although it is recommended to conduct a safe prescribed burn, in that, a certified burner is in charge of the burn, a written prescription is prepared and witnessed / notarized, a burning permit is obtained, and the burn is implemented pursuant to state laws and rules applicable to prescribed burning. As recommended by the Alabama Prescribed Burning Act all of NRB's fire managers and burn bosses, as well as, several prescribed burners from NRB are Alabama Certified Prescribed Burn Managers. The Alabama Prescribed Burning Act also requires that a burning permit be obtained from the AFC prior to conducting any burn.

Alabama has a reciprocity agreement with Georgia, Florida, and Mississippi concerning prescribed burn certification. If you are certified in one state you can be certified in the other states by providing proof of certification and a processing fee.

In accordance with the AFC's "Guidelines for Issuing County Burning Authorization" the U. S. Government military installations are NOT required to obtain a burning permit. They will be urged, however, to make their intent to burn known to the appropriate AFC office. The NRB lead forest technician, Operations Section team leader, or designated burn boss notifies the AFC of all prescribed burning, including the location, size, and ignition times of each burn. All phone calls, including the POC and time of call, are documented on the "Coordination List" – Prescribed Burning.

Any city or county ordinances with more restrictive requirements for outdoor burning take precedence over the AFC's state permitting law. Burn bans, due to drought or poor air quality, issued by the state, county, or city will be strictly complied with.

15. Constraints

Constraints on prescribed burning may be due to the following: 1) military training, 2) unhealthy ozone levels, 3) unhealthy PM 2.5 levels 4) burn bans 5) weather conditions outside the preferred parameters, 6) special events, 7) testing, 8) research projects, 9) timber harvesting, 10) timber marking, 11) recreation areas, and 12) smoke problems in general.

The number one constraint on prescribed burning is **military training**. Prescribed burning is the only forest management practice that is not compatible with military training, i.e., they cannot occur at the same time in the same place. Co-location may occur if there are no troops, bivouac sites, vehicles, or equipment in the training area. Military training that may constrain prescribed burning includes, ground training, aerial training, range firing, and company to brigade level exercises.

Ground training includes movement to contact training. This type of training may be conducted by any unit although it is primarily conducted by the SERE in the training areas 38, G, and 16. These areas may be scheduled for weeks at a time. This type of training precludes prescribed burning activities because soldiers maneuver through the woods on foot from one objective to the next. Another type of ground training is land navigation. This training occurs in the training areas 13, 14 and 34. This training also precludes prescribed burning because soldiers maneuver through the woods from one land navigation point to the next. Co-location of prescribed burning in these areas is highly unlikely. Another type of ground training includes bivouac sites and encampments. Generally, this training is fixed with minimal movement, e.g., medical units. Because this training involves minimal movement co-location with prescribed burning may be possible.

Aerial training includes high/low altitude helicopters occur throughout the installation. Stage fields and airfields also impacts prescribed burning in the training areas located on the installation. The smoke produced from prescribed burning operations in these training areas causes reduced visibility on the runway.

Ozone level is a constraint on prescribed burning when it reaches the unhealthy level. The ozone monitoring season starts on 1 May and ends on 31 October. When the ozone AQI (Air Quality Index) forecast exceeds 100 the air quality is considered unhealthy. When this occurs prescribed burning near Fort Novosel and the installation cantonment areas is suspended. This would preclude prescribed burning on that portion of the installation. In addition, Wildland fires would have to be suppressed and the “let burn” policy would be suspended.

Weather conditions are a constraint on prescribed burning when outside the preferred parameters for burning. There may be too much precipitation resulting in high fuel moisture and humidity making prescribed burning impractical. Under these conditions the moisture of extinction will not allow ignition or combustion to take place. On the other hand conditions may be too dry to burn. When the KBDI reaches 500, understory burning is limited. Site preparation burning may be conducted in non-stocked areas, regeneration cuts, other openings, or treated southern pine beetle areas. Other weather conditions such as the surface wind, wind direction, transport wind, mixing height, SDI, and fog potential may be outside the preferred parameters listed on the “Prescribed Burn Checklist”. These parameters, with the exception of fog potential, are listed on the “Burn Plan Form”. If this is the case, the burn is considered a “No Go” for the selected TA. On the other hand, these same weather conditions may be within parameters for another TA on the installation. It is critical that NRB personnel schedule TAs that are compatible with all wind directions, i.e., east, west, north, and south. This will provide prescribed burners with an option to burn a scheduled TA on any suitable burn day regardless of wind direction. Wind direction is the most important weather related condition that determines where burning will occur on the installation.

Timber harvesting constrains prescribed burning because it is incompatible with prescribed burning and cannot occur in the same place at the same time. Timber harvesting operations may occupy a TA from 12 to 18 months, making the area inaccessible for burning.

Timber marking constrains prescribed burning because it cannot be accomplished in the same place at the same time. In addition, after the timber is marked the TA is inaccessible to prescribed burning until the timber has been harvested. This process may take two years to complete.

Smoke problems are a constraint to prescribed burning because smoke is the common source of complaints. In the event that complaints become too numerous the Command Group may be compelled to suspend prescribed burning until the smoke settles and air quality improves. For this reason smoke management is critical. The prescribed burn program cannot afford to sacrifice any suitable burn days during the burn season while trying to implement the burning of 10,000 acres annually.

16. Site Specific Burn Plans

Site specific burn plans will be implemented on the installation in order to accomplish the following objectives: (1) reduce levels of hazardous fuels; (2) prepare sites identified for reforestation for seeding and planting; (3) improve and maintain listed (threatened and endangered) species habitat; (4) improve other native species habitat, especially forage for game species; (5) manage understory hardwoods; (6) control disease; (7) improve access; (8) enhance appearance and recreational opportunities; and (9) provide a safe training environment.

Prescribed burning addresses **fuels management** needs by reducing hazardous fuel accumulations in pine and pine / hardwood stands. Forest fuels accumulate rapidly in pine stands of the Coastal Plains and Piedmont areas of the South. Over a four to five year period, a heavy rough can build up that poses a serious and potentially destructive threat to all forest resources from wildfire. A fire return interval, rotation, or cycle of two to three years is usually adequate to fire proof pine stands and reduce this threat.

Prescribed burning addresses **reforestation needs**. Fire exposes adequate mineral soil and controls plant competition until seedlings become established. Burning consumes vegetation that has been treated mechanically or chemically. Burning also improves visibility, which increases the efficiency and safety of tree planting.

Prescribed burning addresses the **management needs of listed species**. Many species, such as gopher tortoises, pitcher plants, and RCWs, are typically associated with the fire-dependent longleaf pine (*Pinus palustris*) / wiregrass (*Aristida stricta*) ecosystem or the pine / bluestem (*Andropogon* spp.) ecosystem. Prescribed burning on a regular basis enhances and maintains the habitat preferred by these species.

Prescribed burning addresses **game management needs** for deer, turkey, quail, and dove. Burning increases the yield and quality of herbage, legumes, and browse from hardwood sprouts and creates openings for feeding, travel, and dusting.

Prescribed burning **manages understory hardwoods** by controlling undesirable hardwood species that will eventually encroach into the mid-story and compete with pines. Hardwood stands also act as natural firebreaks on the landscape.

Prescribed burning **controls diseases** such as brownspot disease, which is a fungal infection that weakens and eventually kills longleaf pine seedlings. A correlation also exists between prescribed burning and decreased incidence of *Fomes annosus* root rot.

Prescribed burning **improves accessibility** and appearance for timber sales. Burning off the underbrush before the sale of forest products improves the efficiency of timber marking and harvesting. Removing the underbrush also makes paint marks more visible to harvesting crews. Improved visibility and accessibility often increase stumpage value of forest products.

Prescribed burning **improves aesthetics and recreational opportunities**. Burning maintains open park-like stands, favors plant community diversity, and increases numbers and visibility of flowering annuals and biennials. These conditions are aesthetically pleasing to hikers, hunters, bird watchers, and the general public. Burning also increases hunting opportunities by maintaining the habitat preferred by game species. Hunters and hikers alike benefit from easier travel and increased visibility. Burning reduces fuel accumulations, thereby reducing the risk of a campfire escaping and becoming a dangerous conflagration.

Prescribed burning on a regular basis provides a **safer training environment**. By reducing fuel accumulations, burning makes the use of incendiary training devices safer. Wildfires burn with less intensity and spread more slowly, making them easier to control. Additionally, burning reduces the frequency of range fires by removing fuel from ranges. This results in less downtime on ranges because of fires. Burning also improves access and visibility for training exercises. Depending on the time of year, burning can be used to establish appropriate stand conditions in which to conduct various types of training. Growing season burning also reduces the tick population.

The site specific burn plan consists of a Burn Plan Form that lists the **preferred weather parameters** to follow before conducting a prescribed burn. It is essential to follow these parameters in order to meet the aforesaid management objectives, as well as, smoke management objectives. The preferred weather parameters as they appear on the Burn Plan Form are as follows:

Surface Wind Speed (SFC) Wind/Direction	6-18 miles per hour
Air Temperature	40-70°F Winter, 60-85°F Spring, 75-95°F Summer
Relative Humidity	20-60 percent
Fuel Moisture	1 hour equals 6.5-15 percent
Days Since Rain	1-10 days
Transport Wind	Greater than 9 miles per hour
Mixing Height	Greater than 1,650 feet

The **number of personnel** required to execute a prescribed burn may vary from two to twelve based on the task size. The task size depends on the location (training or cantonment area), size of burn area, the number of resources to protect (buildings and structures, utilities, railroads, training sites, etc.).

The current work force consists of personnel from Natural Resource Branch. Personnel that participate in prescribed burning from the NRB include the team leader forester, one lead fire technician, two forest technicians, and five URS employees.

Equipment available for prescribed burning includes two transport truck-crawler tractor units, three 250 gallon 4 x 4 pumper trucks, four ATVs with burn units, four SXS UTV's with 70-90 gal pumper units and five 4 x 4 pick-up trucks. The pumper trucks and pick-up trucks are fire ready with drip torches, fire rakes, shovels, chainsaw, chainsaw PPE, smoke signs and lights.

The **burn area map** is a GIS map created using ArcMap 10. This map delineates the burn unit, training areas, longleaf plantations, roads and trails, wetlands, creeks, streams, resources (buildings and structures, utilities, railroads, training sites, etc.), hazards, threatened and endangered species, wildlife areas firebreaks, and firing lines / ignition pattern.

Prescribed burning helps achieve many INRMP resource goals and objectives, but it nevertheless pollutes the air. Prescribed burners have an obligation to minimize adverse environmental effects. If this obligation is disregarded prescribed burners can be held liable for damages from accidents or problems resulting from their actions. For this reason a smoke management plan is critical in eliminating smoke related problems or accidents. A **smoke management plan** is prepared for each burn unit prior to implementing the burn. The smoke management plan consists of the smoke management screening form and the smoke screening map.

The objective of the smoke management plan is to manage the production and dispersion of smoke from prescribed burns in order to prevent adverse impacts on areas sensitive to smoke such as highways, airports, cities, hospitals and some farms. The smoke management screening process will give the prescribed burner an idea of how far the smoke produced from a specific burn will travel and cause a potential problem. The screening process is based on the Smoke Dispersion Index (SDI), the size of the burn area (< 300 or > 300 acres), and the firing technique used (backing or heading). The smoke screening process consists of the following: 1) plotting the direction and distance of the smoke plume / impact based on the SDI and wind direction, 2) identifying SSAs within 5-10 chains of the burn area perimeter, identifying SSAs within the downwind impact area, and identifying SSAs within the down-drainage impact area, 3) determining the fuel type and age of the rough (depending on the fuel type smoke impact distances could be increased or decreased), and 4) minimizing risk, e.g., choosing a different wind direction that will cause the smoke to miss SSAs occurring in the smoke impact area or postponing the burn until a better SDI is forecasted that will decrease the smoke impact distance and miss the SSA.

Safety is of utmost concern when implementing a site specific prescribed burn. The work of a prescribed burner is not far removed from that of a firefighter. Therefore, similar demands require similar safety precautions. Of all the problems that can occur while executing a prescribed burn personal injury can be the most devastating and the most preventable. Burn bosses who feel they do not have adequate time to worry about every aspect of the prescribed burn need to delegate the safety aspect to a responsible subordinate. Safety must not be overlooked in the pre-burn round table meetings. Burn bosses must ensure that personnel executing a prescribed burn are properly equipped and expected to use the required PPE. Safety is everyone's responsibility, not just the burn bosses'.

Another aspect of safety during the execution of a prescribed burn is communication. Personnel executing a prescribed burn must be properly equipped with a hand-held radio and back-up battery; and / or a vehicle with a remote mounted radio. Personnel must maintain radio contact with the burn boss throughout the prescribed burn, including mop up of the burn perimeter.

Vehicle safety is also critical during the execution of a prescribed burn. All personnel involved in executing a prescribed burn will follow the vehicle safety procedures.

Prescribed burning safety is addressed annually during a safety meeting prior to the onset of the prescribed burning season. During this safety meeting the NRB

Chief, Operations Section team leader, or lead fire technician discusses the prescribed burning process.

The prescribed burning and wildfire suppression composite risk assessment is required reading. This is an annual requirement per the installation safety office. The NRB safety officer will circulate the risk assessments for all activities throughout both branches annually.

In addition, firefighters and prescribed burners are exposed to the following hazards: smoke, carbon monoxide, heat stress, tripping or falling, stinging insects, ticks, poisonous snakes, and poisonous plants. Burn bosses or incident commanders will ensure that firefighters and prescribed burners receive prompt medical attention when exposed to these hazards. The implementation team leader and lead fire technician will ensure that all vehicles are properly equipped with the necessary first aid items, including first aid kits, eyewash bottles, and sting kill swabs, and snake bite kits.

Pre-burn authorization / notification is required on the day the prescribed burn is to be implemented. Pre-burn authorization / notification includes, but is not limited to, contacting the following organizations: Training Division Public Affairs Office, AFC, and Airfield space. After notification has been completed with the appropriate organizations, a copy of the notification checklist is given to the NRB Chief.

Coordination procedures on the day a burn unit / training area is to be prescribed burned are discussed above. In addition to coordinating prescribed burning on the day a prescribed burn is to be implemented, coordination among NRB personnel occurs prior to the start of the prescribed burning season. Two months prior to the start of the burn season the NRB planning section begins the coordination process for the upcoming fiscal year's prescribed burns. NRB personnel will brief the annual prescribe burning plan with the Wildland Fire Program Manager. The NRB planning section circulates the prescribed burn plans throughout the NRB for comments / input.

- a. Timber Management - the overall stand management (restoration/maintenance) objectives related to ecological integrity and the location of timber harvesting/marketing areas.
- b. Soil Conservation - location of watershed restoration projects and the approximate month these areas will be stabilized (must plan and schedule these projects around burning schedule).
- c. Fish and Game Management - specific game species needs, location of sawtooth oak and other wildlife plots where fire must be excluded, and specific month these areas will be secured by disking.
- d. Reforestation – the location of longleaf plantations that require dormant season burns.

17. Alternative plans when a wind shift occurs

During a prescribed burn may be necessary depending on the location of the burn unit with respect to man-made resources, housing areas, city limits, airports, highways, or other smoke sensitive areas. Generally, wind shifts are not a problem because they are considered in the planning process prior to burning by viewing the hourly forecast. The hourly forecast provides information on wind speed and direction over a 48 hour period. This tool is utilized when planning all prescribed burning.

Wind shifts occur when a cold front passes through. They can turn a backing fire into a heading fire during a prescribed burn. This is problematic in that wind gusts may exceed 30 MPH causing the head fire to burn too intensely with a rapid Rate of Speed (ROS). In this event control efforts will be difficult and hazardous. The only safe option may be to let the unit burn out and secure the perimeter of the burn unit by patrolling the perimeter looking for a spot over. It will be necessary to locate a spot over quickly because a spot over will spread rapidly under these conditions. When a cold front is forecasted the AFC forecast will include the wind shift that accompanies it. The forecast will include the wind speed and what direction the wind will shift to. The forecast will also predict what burn period the wind shift will occur. Generally, wind shifts can be forecasted and the implementation team leader and lead fire technician can plan for them accordingly. It may be possible to complete the prescribed burn prior to the arrival of the cold front. If not, postponing the burn to another day may be the reasonable and prudent thing to do. It is the safe and sound option. Therefore, AccuWeather.com, Weather.com, and the AFC can forecast surface wind shifts making it possible for prescribed burn managers to plan for them accordingly and take the necessary precautions. Local wind shifts, on the other hand, are not forecasted. These wind shifts may be caused by solar heating, convection columns, the microclimate, or the terrain. Generally, the duration of these wind shifts is transitory and temporary in nature. In any event, they should be monitored when burning near smoke sensitive areas. In addition, when prescribed burns are executed early in the day, e.g., 0930-1000 hours (due to forecasted low humidity and high surface wind speed), winds may be variable because forecasted prevailing surface winds may not occur until later in the morning or early afternoon (peak fire weather). Prescribed burn bosses need to be aware of this when planning burns near smoke sensitive areas such as highways and Airfields.

Planning for analysis of burn success and identification of lessons learned is included under Evaluations of the Burn Plan Form. The First Evaluation on page two of the Burn Plan Form discusses post-burn stand conditions (crown scorch), erosion potential, management objectives, fire behavior, smoke problems, adverse impacts, and public relations. Further analysis of burn success with respect to INRMP goals, objectives, and DFCs will be accomplished by the TNC forest ecologist's monitoring protocol.

The **Prescribed Burn Plan** is a document that provides the Prescribed Burn Boss with all the information needed to implement the project. Prescribed burn projects are to be implemented in compliance with the written plan. The burn plan includes information related to the burn unit (physical characteristics, threatened and endangered species, wildlife areas, and burn location), personnel, preferred weather parameters, resources to protect, and hazards, location of firebreaks, KBDI, SDI, ozone forecast, burn objectives, and evaluations. The success of a prescribed burn depends on a calculated approach / plan to the project. The plan serves as a checklist to ensure that every aspect of the burn has been considered. The plan is justification to conduct the prescribed burn. The written plan may also serve to satisfy a court of law that the prescribed burn was conducted in a professional manner. The burn plan would not be complete without a burn map of the burn unit identifying the burn unit, roads and trails, creeks, streams, drainages, firebreaks, T and E species, longleaf plantations, natural and man-made resources (utilities, training sites, buildings, railroads, etc.), and firing lines / ignition pattern.

18. Monitoring

Post-burn monitoring information dictates further management actions that may be required as a result of the burn. For example, trees that show cambium damage, insect or beetle attack, and mortality will be salvaged. This information will be provided to the Operations Section team leader. Also, if the burn was conducted on a marginal day and the objective for hardwood control was not met, the area may be rescheduled in two years rather than three years. If the cover type in the burn area is predominantly grasses, lespedezas, and perennial plants, dormant season or maintenance burning should be considered in the future. In addition, erosion may be a problem if the burn removed the duff layer and exposed mineral soil on steep slopes or above ephemeral drains. These areas should be considered for establishing a temporary vegetative cover with fast growing seedlings.

After each burn, Natural Resources Branch personnel have conducted an initial evaluation of burn results within 24 hours of the prescribed burn. This information is documented on the prescribed burn plan form. Fire technicians document general fire behavior (ROS, fire intensity, torching out, crowning, spotting, fire whirls, and flame length), the amount and extent of crown scorch, any adverse smoke problems, current and future erosion potential, whether or not burn objectives were met, and any actions taken during the burn or required after the burn due to smoke problems, fire escapes, or mop up activities.

NRB forest technicians conduct traditional forestry activities such as timber inventory and cruises during other parts of the year and during those times regularly conduct surveys of burn compartments to determine fire effectiveness. These surveys are informal and qualitative but are useful for locating hardwood

control problems, erosion problems, and trees damaged by fire and consequently vulnerable to insect or beetle attacks. This information feeds-back to Natural Resources by (1) directing when and where salvage timber operations should be conducted, (2) determining areas that should be burned on a two year rotation rather than every three years (in the case of hardwood control issues), (3) likewise determining which units have favorable fuels composition such as grasses, legumes, and other perennial herbaceous plants and can be managed with dormant season or maintenance fire, and (4) determining which areas may be susceptible to erosion and should be considered for establishing a temporary vegetative cover with fast growing seedlings.

19. Project Planning

The forest planning section prepares prescribed burn folders for each burn unit scheduled to be prescribed burned on the 3 to 4 year fire return interval. The planning team leader and planning forest technician prepare approximately 50 burn folders annually. Burn folders include the following: burn plan form, burn unit map, prescribe burn checklist, coordination checklist, field fire weather form, smoke management screening form, and smoke screening map. The burn folders require 3 to 4 months to complete. Two months prior to the start of the burn season (1 October), the forest planning section begins the coordination process for the upcoming fiscal year's prescribed burns by circulating the burn folders within the NRB for review, comments, concerns, and issues.

Timber management technicians will provide information on a bumper longleaf pine seed crop and the timing of a seed bed preparation burn. This information will help prioritize the timing of prescribed burning with respect to winter, spring, and summer. For example, if a bumper seed crop is expected, a summer burn prior to seed fall in October would be conducted. This removes the litter layer and exposes the mineral soil, facilitating germination of longleaf pine seeds.

In order to prioritize burning, the following information will be required during the coordination process:

- a. Timber Management - the overall stand management (restoration / maintenance) objectives related to ecological integrity and the location of timber harvesting / marking areas.
- b. Soil Conservation - location of watershed restoration projects and the approximate month these areas will be stabilized (must plan and schedule these projects around burning schedule).
- c. Fish and Game Management - specific game species needs, location of sawtooth oak and other wildlife plots where fire must be excluded, and specific month these areas will be secured by disking.

The NRB Chief and / or the Operations Section team leader reviews and approves all prescribed burn plans to insure consistency with the IWFMP, INRMP, and applicable state and local laws / regulations.

A prescribed burning Standard Operating Procedure (SOP) has been developed for prescribed burning (**Appendix A**). The SOP were developed to ensure that prescribed burning is accomplished safely, efficiently, and in accordance with IWFMP and INRMP procedures and policies focusing on the ecological integrity of the landscape as its primary end state. It is important that all personnel involved in fire-related management activities review these SOPs annually prior to the start of the prescribed burning season.

The installation of permanent firebreaks on the installation boundary and around impact areas will be in compliance with the Alabama's BMPs for forestry. BMPs will also be followed when installing firebreaks for prescribed burning and fire suppression. When installing firebreaks roads, trails, creeks, drainages, and railroads will be used as firebreaks whenever possible to minimize additional site disturbance. Firebreaks will not be installed in sensitive areas such as archeological sites, threatened and endangered plant sites, and certain UEAs. Firebreaks must not be installed within a specific distance of RCW cavity trees and gopher tortoise burrows. Firebreaks will not be installed in wetlands with crawler tractors. Hand lines or wet / foam lines will be the normal course of action when installing firebreaks in wetland areas. Reference **Section I. Wildland Fire Management, m. Natural and Cultural Resource Considerations** for specific guidance on sensitive areas, threatened and endangered species, and BMP practices concerning firebreaks.

20. Training Requirements

All prescribed burners and burn bosses / crew leaders receive formal training and/or certification in prescribed burning and Wildland fire suppression. The following training, certification, and licenses may be required:

- a. Wildland Firefighters Course S-130 / S-190 - (mandatory for prescribed burners and burn bosses)
- b. Inter-Agency Prescribed Burning Short Course Which Includes the S-390 Fire Behavior Independent Study Course - (mandatory for prescribed burners and burn bosses)
- c. Alabama Forestry Commission Prescribed Burn Manager Certification Program - (mandatory for burn bosses)
- d. CPR and First Aid – (mandatory for all personnel)

NRB personnel who may be candidates for the Prescribed Burn Manager Certification Program must have been in charge of five prescribed burns and have two years work experience in a forestry related field, or, have completed

a university sponsored prescribed burning course prior to enrolling in the Prescribed Burn Manager Certification Program.

21. Use of Firebreaks

The size of a specific burn area is dictated by existing man-made and natural firebreaks. New firebreaks will not be plowed specifically to limit burn area size or to protect hardwood drainages and scrub oak communities as this would require plowing many miles of firebreaks. It would be logistically impossible to plow this many firebreaks and comply with best management practices (BMP). In addition, the potential for erosion would be substantial. Another point to consider when contemplating the use of firebreaks is damage to the ecotones where threatened and endangered species, such as pitcher plants and relict trillium, may occur. Therefore, the benefits of reducing burn area size, or excluding a hardwood drain or scrub oak community, are more than offset by the soil disturbance and damage to the ecotones, as well as the costs incurred by plowing firebreaks and correcting the subsequent soil erosion.

Construction of new firebreaks is required for fire suppression and prescribed burning activities when there are no artificial or natural firebreaks to take advantage of. Firebreaks may be required during fire suppression to protect threatened and endangered species or unique ecological areas. When firebreaks are required, erosion control practices are used in accordance with Alabama's BMPs for forestry. Reference **Wildland Fire Management, Natural and Cultural Resource Considerations** for specific guidance on installing new firebreaks in the proximity of sensitive areas and threatened and endangered species. This section also discusses the BMP practices to comply with when installing new firebreaks. BMPs will also be applied to existing permanent firebreaks.

22. Contingencies for an Escaped Burn

A prescribed burn is considered escaped when it is burning outside the perimeter of the burn unit that the prescribed burn plan was written for. An escaped burn may be caused by the following: a spot over from a burning ember, a spot over from a burning snag, a spot over from a snag falling across the firebreak, a spot over from the fire burning across fuel (pine straw or grass) in the firebreak, crossing a drain designated as a firebreak, igniting the wrong side of the firebreak, and arson. Escaped burns will be located when prescribed burn crews patrol the perimeter of the burn unit in accordance with the Prescribed Burning SOP and the Burn Plan Form. Patrolling of the perimeter on foot with backpack pumps and fire rakes and pumper trucks should be conducted throughout the burn, including the mop up phase. Patrolling the perimeter of the burn unit for a spot over is critical. A spot over may occur on the downwind side of the burn unit creating a head fire that may be difficult to control depending on the ROS, type of fuel, and fuel load in the adjacent burn unit. This could jeopardize the safety of troops, equipment, buildings and structures. Escaped burns must be handled with the same sense of

urgency as a wildfire. In addition, the mop up phase of the prescribed burn process is crucial in ensuring that the fire remains contained.

Escaped burns are suppressed in-house with those NRB personnel participating in the prescribed burn. The installation has not had a prescribed burn escape and burn off post requiring outside fire suppression assistance. However, this has not been the case with wildfires which have burned off the installation and required assistance from the local Fire Department or AFC.

Escaped prescribed burns are not reviewed / investigated unless buildings (e.g., training classrooms, latrines, and storage areas) or structures (railroad trestles), vehicles, or threatened and endangered plants are destroyed in the fire. Reviews may consist of the following: preparing memorandums, statements, formal letters (USFWS), and Reports of Survey.

23. Computer Fire Models

Currently, the NRB is not using any fire management computer programs or models such as BEHAVE.

Appendix A.

FORT NOVOSEL PRESCRIBED BURNING STANDARD OPERATING PROCEDURE

PURPOSE: The purpose of this Standard Operating Procedure (SOP) is to establish procedural guidance / policy for the application of prescribed fire during the dormant and growing season.

IMPORTANCE: All Natural Resources Branch (NRB) personnel involved in prescribed burning will adhere to this SOP to ensure the following occurs: the safety of prescribed burners, troops, general public, vehicles / equipment, and natural and man-made resources, management objectives are achieved, and high standards of quality are maintained. This SOP will be revised by the team leader of the implementation section of NRB, as needed, to reflect changes in policies, procedures, regulations, or technology. Revisions in the SOP will be coordinated with personnel in the NRB and the Wildland Fire Program Manager.

GENERAL INSTRUCTION

1. Prior to the Burn Season:

- a. Six to seven months before burning, the planning section will provide the forest technicians that directs trail / firebreak maintenance with a list of training areas and cantonment areas scheduled for burning in the following fiscal year. This will allow sufficient time to complete trail/firebreak maintenance work (about 50 miles) on burn units, training area boundaries, installation boundaries, and impact areas before the start of burn season. The majority of this work is accomplished with motor graders, although crawler tractors are used to install best management practices (BMP).
- b. Four months before the start of the burn season, the planning section prepares a burn plan folder for each burn unit. Two months prior to the start of burn season these folders are coordinated with other program specialists within the NRB for their input or concerns with respect to threatened and endangered species, stand management objectives, timber marking, timber harvesting, soil restoration projects, and game management areas. This process identifies areas that require fire exclusion. It also serves as a reminder for NRB personnel to protect game areas (sawtooth oak sites) by disking around them. Areas requiring fire exclusion must be protected before the start of burn season on the Monday following Thanksgiving.

- c. Four to six weeks before the burn season, the lead fire technician begins scheduling training areas for burning from the prioritized list. Scheduling is coordinated with Range Operations Division, and training areas are entered into the Range Facility Management Support System (RFMSS) scheduling system.
- d. On the burn plan form and orthophoto, identify and document the assets/resources within the burn area that must be protected (such as utility poles and boxes, latrines, bleachers, buildings, and railroad trestles). The burn boss must coordinate the location of these assets with burn crews to ensure their protection before conducting the burn. Protect these assets by raking pine straw, leaves, and grass to a distance of three feet. Remove dead branches and limbs that produce radiant heat. Ignite the raked fuel, allowing it to burn away from the assets. Extinguish flare ups or hot spots with a backpack pump or pumper truck. Ensure the fire has burned a sufficient distance away from the assets before leaving the area. Look for ladder fuels (vines) near buildings or other assets and avoid igniting them because they have a tendency to emit burning or smoldering embers that may fall on top of the building and ignite it. If ladder fuels catch fire, suppress them with a backpack pump or pumper truck. When burning around assets, always use a fire rake, backpack pump, or pumper truck. If logging debris or other flammable material is adjacent to the asset, it will be necessary to either remove it with a dozer or saturate with water from the pumper truck, in order to eliminate radiant heat that may cause the asset to ignite. If accessible, a pumper truck should be used to apply water to the asset (buildings, railroad trestles, utility poles and boxes, etc.) before lighting the fire around it.

2. On the Burn Day, Before Leaving Office:

- a. The designated burn boss will ensure that the burn plan, smoke management plan, and all other burn forms are completed and the SOP is followed. The burn boss will bring the burn plan folder, aerial photographs, and a 1:50,000 map. The burn boss will appoint crew members to ensure that trucks are properly prepared and equipped. The burn boss and crew members will be familiar with the equipment list.
- b. Notify individuals, offices or agencies on the Coordination List – **Appendix C** Prescribed Burning of intentions to burn and burn locations. Get final concurrence from Range Operations on those areas previously scheduled for burning in RFMSS and on the Range Operations maps (Scale 1:25,000). Fax the call list to the Chief, EMD.

Ensure that the NRB Chief and Installation Forester are aware of the burn locations. Coordinate the fire weather forecast and burn plan parameters with the Burn Boss. Exceptions to burning outside the plan parameters must be granted by the NRB Chief.

Box 2. Prescribed Burning Equipment Checklist

Item	Quantity
First aid kit	1
Fire extinguisher	1
Drip torches	2
Chain saw	1
Chain saw PPE	1
Chain saw wedge kit and files	1
Chain saw fuel can	1
Fire flaps	1
Fire rakes	2
Shovel	1
Smoke caution signs	2
Lights for smoke signs, if necessary	1
Batteries for lights	4

Crew members will travel two to a vehicle. Each burner will ensure that they have the following equipment:

Ignition source	1
Fire rake	1
Drip torch (filled with fuel)	1
Leather safety boots	1
Nomex clothing	1
Leather gloves	1
Water Cooler (1/2-1Gal.)	1
Hard hat w/ shroud	1
Safety goggles	1

3. At the Burn Location:

- a. The burn boss will make the final decision on whether to burn and whether any adjustments are necessary to the burn plan. Set a test fire to observe fire behavior, smoke dispersion, and plume trajectory.
- b. Refer to orthophotos or aerial photographs to ensure burning is in the designated location. Communicate and work as a team to safely

and effectively execute the burn plan. Follow the procedures in **Box 3** throughout the burn to ensure that no vehicles are lost to fire:

Box 3. Vehicle Safety

1. Leave ignition key in a designated location, out of sight, but familiar to other crew members.
2. Park vehicle only within areas that are noncombustible (e.g., bare soil, pavement, burned out area).
3. Roll up windows.
4. Do not spill burning fuel in the truck bed.
5. Do not fill drip torches in truck bed.
6. Keep truck bed free of trash, litter, and fuel spills.
7. Do not park vehicles near burning snags.
8. Do not park vehicles near ladder fuels, such as vines.
9. Extinguish torch wick prior to placing in truck.
10. Close torch breather valve.
11. Put torch in rack or torch bracket.
12. Ensure fuel cans are secured in rack in truck bed.
13. Ensure fire extinguisher is accessible and operable.

- c. Secure the baseline and then the flanks. Use the AFC-forecasted winds and field observations to decide which side of the perimeter will become the baseline as the burn progresses. Backfire the baseline and then ignite the flanks. Due to the high temperatures in the summer season, burning should begin as soon as the dew and fog burn off and the fuel reaches an ignitable state (15 percent fuel moisture or less than 60 percent humidity).
- d. When using drains as firebreaks between burn units a crew member must make a final inspection of the drain perimeter to ensure the fire did not cross over into another burn unit or compartment. Igniting the stand uphill from the ecotones, before peak fire weather, should prevent the fire from crossing the drainage.
- e. If smoke may be a problem, extinguish the wood that is generating smoke with water or cover it with dirt. Use a dozer or a pumper truck. If there is an abundance of smoldering logs/snags on the burn unit perimeter—adjacent to roads, power lines, or the boundary—extinguish them ASAP after the fire passes. If necessary, rake around them to keep from igniting. If smoke will not be a problem, let the wood burn. If necessary, smoke-warning signs will be posted on highways and paved roads. Two signs will be posted in each direction. If smoke will be a problem at night, lights should be placed on the signs to warn motorists. It may be necessary to leave the signs out for several days if residual smoke from 1,000 hour and 10,000 hour timelag fuels is a problem.

- f. Hazards such as burning snags and green trees that are within 1-1½ tree lengths of firebreaks, roads, highways, reservation boundaries, power lines, or assets must be suppressed by one or a combination of the following methods:
- g. Fell the snag/tree with a chainsaw and suppress it with water or dirt. Before felling the snag/tree, it will be necessary to put the lower portion of the bole out with a pumper truck (if possible). This will allow the sawyer a safer working area to make the cut.
- h. Push the snag or tree down with a dozer and suppress it with water or dirt.
- i. Suppress the snag/tree with a pumper truck if it is accessible and within pumper's range. Before leaving the burn unit, the burn boss will inspect the burn perimeter to ensure the fire is contained and all hazards suppressed/eliminated. Hazards will be checked the following morning to ensure that they are still out. This post-burn inspection is especially important for hollow trees that may still be burning inside. Hollow trees may burn for several days before falling. If hazards are still burning the following day, coordinate any additional mop-up action with the burn boss.

4. Following the Burn:

- a. Complete the initial burn evaluation on the BURN PLAN FORM (for prescriptions, evaluations, and records of fire).
- b. Enter the burn data in the prescribed burn database and update the ArcGIS prescribed burning map.

APENDIX B.

The Prescribed Burning Process on Day of the Burn Revised 06 February 2014

Pre-burn Meeting:

1. The burn boss designates the approximate time of ignition based on the hourly forecast for humidity. RH should be <55% and >20%.
2. Burn bosses identify and assign firing lines.
3. Burn bosses identify man-made objects (RR trestles, buildings, utility poles, etc.) and assign crew members to protect them. Document this on page 1 of the burn plan form. When you have been assigned a task **YOU** are responsible. Use a fire rake, backpack pump, or pumper truck.
4. Burn bosses identify hazards (snags and green trees next to roads, power lines, and buildings) and assign crew members to take appropriate action and document this on page 1 of the burn plan form. When you have been assigned a task **YOU** are responsible. Use a fire rake, backpack pump, chain saw, or pumper truck.
5. Burn bosses assign trucks and equipment (ATV's) to crew members. Ensure trucks are properly fueled, equipped, and ready IAW with the prescribed burn SOP check list. Crew members assigned to vehicles complete the following: fuel trucks, check fuel in pumper engine, check oil in pumper engine, start pumper engine and open water hose nozzle to ensure working properly, top off water tank on pumper truck, check hose reel and hose, check fire rakes, check backpack pumps, check signs, check lights, and check chain saw.
6. Burn bosses identify the location of smoke signs / lights as shown on the smoke screening maps and assign crew members to post signs at designated locations in SSAs. Use sand bags on signs placed on roads, especially highways. Use lights on main roads and highways.
7. Burn bosses check crews to ensure personnel are properly equipped with required PPE IAW with burn SOP and risk assessments. Make sure you have your PPE on hand daily.
8. Burn bosses assign personnel to perform pre-burn reconnaissance of the burn area prior to ignition. Look for hunter's vehicles, troops, researchers, contractors, etc.

9. Ask questions if you are confused or don't understand what the burn boss has assigned you to do (such as where to go, what to do, when to do it, how to do it, etc.). In any event, don't override or disregard the burn boss's instructions. These instructions have been given to you based on many years of on-the-job **EXPERIENCE** (not reading books or watching television). Ask questions if you disagree, or, have what you think may be a better idea based on your burning **EXPERIENCE**.

During the Burn:

1. Set lines according to the burn boss's instructions. Ignition lines may be set at the same time on some burns, but most burns will utilize a firing sequence.
2. Make sure man-made objects such as, buildings, utility poles and boxes, railroad trestles and ties, latrines, etc. have been secured per the burn boss's instructions.
3. If a snag and / or green tree on the perimeter ignites you are responsible for suppressing it. Notify the burn boss of the problem and the location, so he can check it out and / or give you help. It is unlikely that you will be able to put out a snag or green tree that has been burning for an hour or more with a backpack pump. You will need to fell it with a chain saw. The best method is to prevent it from igniting in the first place by raking around it, sawing it down, or wetting it down and then lighting your fire. It is a lot easier to prevent it from catching fire than dealing with it after it catches fire.
4. Should a spot over occur suppress it and notify the burn boss so he can check it and make sure it's out.
5. Wear your PPE while burning and / or operating the ATV's.
6. Park trucks, equipment, trailers, and ATV's on mineral soil, opposite the firebreak, or in a blackened area. If it is necessary, blacken an area and then drive your truck into the black after you cool it down w/ water.

After the Burn:

1. Mop up the burn perimeter per the burn boss's instructions. Don't assume somebody else is going to do it for you or it won't get done.
2. Check snags and / or green trees you suppressed during the burn and check for new ones that may have ignited and suppress them.

3. Whatever you do don't leave a burning snag and / or green tree burning on the perimeter assuming it will be alright, i.e., don't assume it will go out at night, fall the other way, or won't reach the road or power line. Notify your burn boss and let him make the final decision on what to do. Ask for help if you must leave your burn early and you know there is still mop-up work to be done.
4. The burn boss will make the final inspection of the burn perimeter to ensure the fire is contained and there are no snags and /or green trees burning near the perimeter, although you may also be assigned these duties during the burn. Don't be surprised if you are called back for additional mop-up action, especially on stumps and snags emitting large quantities of smoke in SSAs. If necessary, make arrangements with your family to inform them you will be late for dinner.
5. After burning put drip torches in the truck racks or torch holders. Close the breather valves.
6. Check with the burn boss before you leave your burn and ask if anything else needs to be done to secure the perimeter and address potential smoke problems.
7. When you return top off the pumper truck water tank in case the fire crew needs it that night for additional mop-up or gets called on a wildfire.
8. Retrieve smoke signs per the burn boss's instructions on day of the burn if there is no residual smoke, or, the following a.m. if residual smoke is present from snags, stumps, and log decks.
9. The following a.m., per the burn boss, check the burn perimeter including snags and green trees that caught fire during the burn. Make sure the fire is still contained and snags and green trees are completely out. Contact the burn boss if you have a problem. Contact the burn boss if everything is okay. Attempt to handle problems on your own, because burn bosses will be pre-occupied with setting up and coordinating the burning for that day, as well as, completing burn plan forms and smoke screening forms.
10. Burn bosses complete page 2 of the burn plan form after the burn is completed.

APENDIX C.**PRESCRIBED BURNING- Coordination List**

DATE _____ BURN UNIT _____

Contact	Phone	Time Notified	Person Notified
Range Operations	255-4978		
Fire Dept	255-0248/0279		
Shaw Work Order In/Out	255-9041/9042		
Station One (If Needed)	255-2217/3487		
Airfield Airspace	255-9244/9764/2680		
Sere Training	255-9866		
DCFA	255-2100		
PAO Office	255-2252/1239		
AL. Forestry Commission	1-800-922-7688		
USACE Office	797-1100/255-2407		
MWR	255-4305		
Provost Marshall	255-2511		
ASP	255-4224		
Alabama DOT	334-670-2420		
City of Ozark (Mayor's Office)	334-774-3300		
City of Enterprise (Mayor's Office)	334-348-2602		
City of Daleville (Mayor's Office)	334-598-4442		



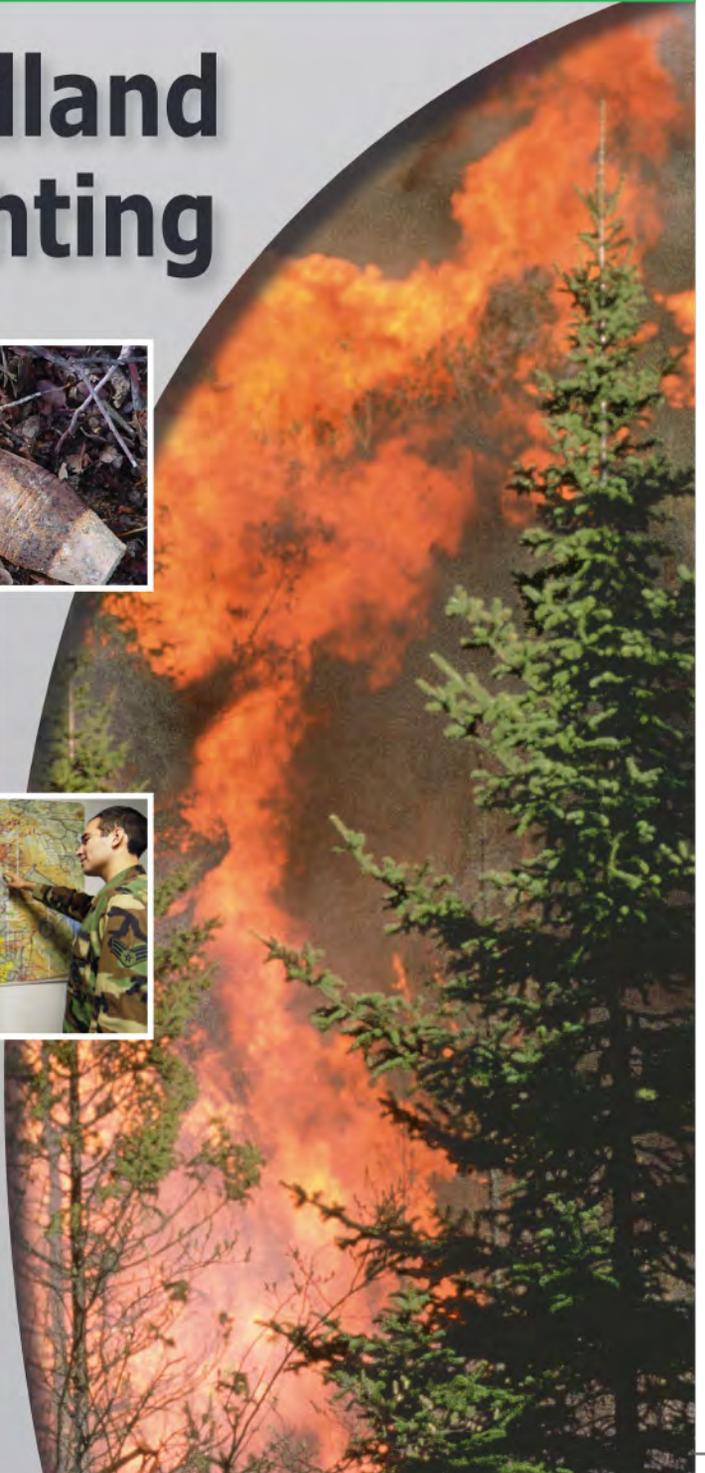
“Adaptive Ecosystem Management Sustains Training Lands and the Military Mission”.



APPENDIX 15. 3Rs Explosives Safety Education

3Rs Explosives Safety Guide

Wildland Firefighting



FIREFIGHTING IS HAZARDOUS ENOUGH WITHOUT THE COMPLICATION OF MUNITIONS PRESENT IN WILDLAND AREAS.

The potential presence of munitions can have a major impact on acceptable fire management activities. To reduce the potential explosive hazards posed to firefighters from munitions, it is essential that firefighting protocols for operations within or near areas known or suspected to contain munitions be planned and coordinated in advance. This need includes current and former military munitions operating facilities (e.g., munitions plants and depots).

The United States has always maintained a highly trained and ready military to protect its national interests. Because of the training and testing required to maintain this force, millions of acres in the United States are known or suspected to contain military munitions in the form of unexploded ordnance (UXO), or discarded military munitions. Lands where munitions may be present include, but are not limited to operational ranges on active military installations, former ranges on installations affected by Base Realignment and Closure (BRAC) decisions, Formerly Used Defense Sites (FUDS), and other lands released by the Department of Defense (DoD) for public uses.

Knowing the history of an area's use, particularly any military uses, is vital for determining the potential presence of munitions. Departments that are responsible for firefighting at either active military installations or on property that was once used by the military should become familiar with any areas known or suspected to contain munitions. This information can be obtained:



- For active installations - from the commander, fire department, director of safety, or facilities engineer.
- For FUDS – from the US Army Corps of Engineers' District Commander.
- For BRAC installations – from the installation commander, BRAC Environmental Coordinator, or local reuse authority, if established.

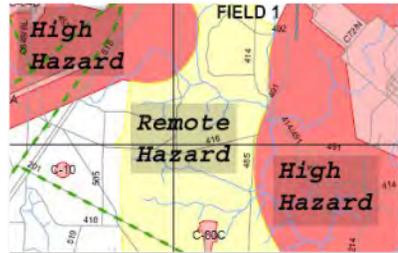
MOST MUNITIONS ARE DESIGNED TO HAVE LETHAL EFFECTS

Camp Hale, now a public recreation area, was used for live-fire training and testing during World War II. A lightning strike caused a small fire in a portion of the Camp that contained munitions. Extensive coordination between state and federal agencies was required to extinguish the fire while protecting the firefighters from explosive hazards. Following this incident, the agencies worked to create procedures to distinguish areas where munitions are present from other areas, and that allow the incident commander to immediately identify the appropriate response based on the potential explosives safety risks in a particular area. These procedures clarify the roles and responsibilities of the parties involved making efforts more effective and improving firefighter safety.

Preplanning

The potential for encountering munitions varies by location. Preplanning allows firefighters to:

- Become familiar with areas where munitions may be present.
- Determine, based on historic usage, the likelihood (e.g., high, low, remote) that they may encounter such explosive hazards while firefighting.
- Establish firefighting restrictions, where needed.



Using maps developed during preplanning, an incident commander can readily evaluate the potential risk and determine appropriate firefighting procedures across the entire property.

Local explosives safety specialists (e.g., UXO-qualified personnel), bomb squads, or the nearest military explosives ordnance disposal (EOD) unit may be contacted and used as a resource during development of firefighting procedures, including assessing the risk of using radios or cell phones within areas known to contain munitions.

Because heat may cause a detonation, fires that involve areas where munitions are known to be present are normally:

- Left to burn, with only indirect firefighting procedures used
- Fought using indirect firefighting techniques, such as aerial attacks and setting backfires or back burns from established munitions free areas
- Monitored rather than fought during periods of low fire danger, if the fire is small

Fires near areas known to contain munitions should be fought to prevent them from engulfing areas that contain munitions; however, once such areas are engulfed, firefighters should move a safe distance (1/2 mile plus) away.

Heavy equipment (e.g., bulldozer) should not be used to create fire breaks, unless the operator is protected from fragmentation, or UXO-qualified personnel pre-clear the footprint of any effort.

Where the potential risk of a detonation is considered low or remote:

- Ground resources may be allowed on roads and fire breaks that have been cleared of munitions
- Direct attack of small fires near cleared roads may be allowed, but the risk should be assessed
- The use of hand tools should be limited

When determining the potential hazards associated with munitions, consult explosives safety resources (e.g., the DoD Explosives Safety Board, bomb squad or EOD personnel).

Prescribed Burns

Prescribed burns in areas known or suspected to contain munitions should be conducted in same manner as firefighting activities. Aerial ignition should be used in areas known to contain munitions, with holding crews confined to roads and established firebreaks. Once roads and firebreaks are established in areas known to contain munitions; care must be taken to ensure that erosion or other natural phenomena have not caused munitions to surface or migrate onto them. Regular maintenance, including periodic surface sweeps for and removal of munitions from access roads and firebreaks should be conducted.



Recognize

Recognize that munitions may be encountered on lands currently or once used by the military for live-fire training or testing. Doing so will allow the incident commander and firefighters to plan for and take appropriate action to mitigate the explosives safety risks. Mitigation measures can help reduce the potential for serious injury or death of firefighters, and loss of critical firefighting resources.

Those who use, manage or make decisions concerning firefighting in areas known or suspected to contain munitions need to recognize the explosive hazards associated with munitions, options for eliminating or reducing the potential risks to people and resources, and other considerations in the decision-making process.

Prior to initiating a response, the first step is reviewing documents (e.g., maps and plans) developed during the preplanning.

The ability to recognize munitions is also important in reducing risks. Although the potential explosives hazards vary based on the type of munitions, the presence and armed status of fuzing, and the condition of the munition, all munitions should be considered extremely dangerous. Some of the most common munitions encountered are:

- bombs
- mortars
- grenades
- artillery shells or projectiles
- pyrotechnics, including simulators
- warheads from rockets and guided missiles



Munitions can be located on the surface or partially or fully buried in soil or submerged in water. They may be:

- Complete or in parts
- Deteriorated or look like new
- Rusty or encrusted with dirt

The location and condition of the munitions will depend on the munitions-related activities that occurred (e.g., live-fire testing, demilitarization); the weapon systems employed; the type of munitions used; the geology and environmental conditions of the area; and any activities (e.g., development) that occurred since DoD last used the area.



Recognize the potential explosive hazards associated with all munitions regardless of whether they are intact or in fragments, new or old (e.g., civil war cannon balls), or deteriorated. Recognition is the critical first step in protecting people and equipment.

Retreat

Avoid death or injury by recognizing when you may have encountered a munition or when a fire may involve an area where munitions are present and carefully retreat from the area.

- Immediately stop all activities in the area.
- Do not approach a munition or suspected munition.
- Do not touch, disturb, or move a munition. (Munitions can become very unstable over time.)
- If possible, determine the coordinates or mark the general area so the munition can be investigated after the fire has been controlled or, if encountered at another time, once reported.
- Retreat from the area following the path used to get there
- Keep others away from the area!



Report

Protect yourself, your crew, firefighting assets and others by immediately reporting munitions or suspect munitions to your supervisor, chief, or the incident commander. Refrain from making reports by radio or cell phone when within 100 feet of the suspect item.

Report as much information as possible about what you saw and where you saw it. This will help the police and EOD personnel find, evaluate and address the munitions once firefighting activities have concluded.

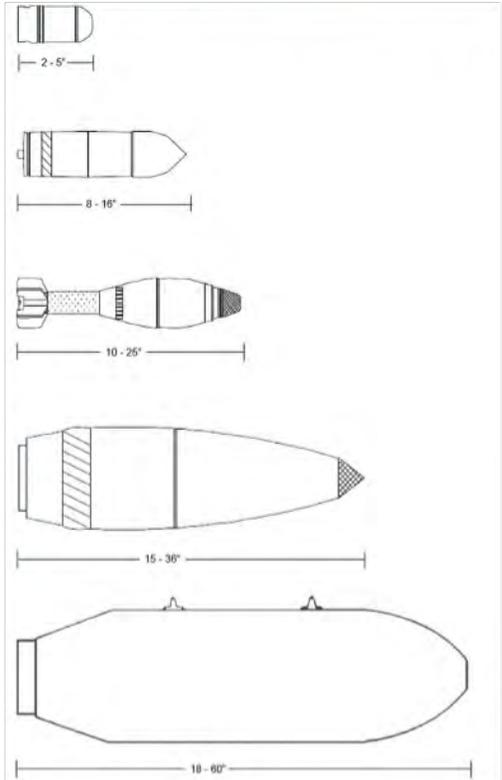


If you believe you have encountered munitions, report the following:

- The area where you encountered munitions
- A general description of any munitions observed including their:
 - Size
 - Shape
 - Visible markings and color

Do not approach or move a munition to obtain this information!

MUNITIONS COMMON SIZE AND SHAPE PROFILES



EXPLOSIVES SAFETY MEASURES

- Whether intentionally or inadvertently in an area where munitions are present, remember the following: If you didn't drop it, don't pick it up or disturb it!
- Do not enter an area known or suspected to contain munitions.
- All munitions, whether intact or in fragments, present a potential explosive hazard.
- If you encounter or suspect you may have encountered a munition, stop, scan the area for additional munitions and plan your retreat. Do not move closer.
- Never touch, move, or disturb a munition or suspect munition.
- If time permits, clearly mark the area where munitions were encountered. Do not mark the munition.
- Do not attempt to fight fires in areas known or suspected to contain munitions.
- If the types of munitions present are:
 - Unknown, larger than a 155mm artillery projectile or a heavy accumulation of munitions are known or suspected to be present, evacuate everyone within 1 mile.
 - Known to only contain isolated 155mm munitions or smaller, the evacuation distance may be reduced to 1/2 mile.
- Report the discovery of munitions to your immediate supervisor or the incident commander as soon as possible!
- Do not use radios or cell phones within 100 feet of areas known to contain munitions, unless specifically authorized or in an emergency.

Don't Forget

- Preplanning, coordination and training are the best ways to protect firefighters when lands known or suspected to contain munitions may be involved in a fire.
- Munitions are dangerous and may not be easily recognizable!
- Munitions may be encountered almost anywhere!

Follow the 3Rs

Recognize

When an area may contain munitions, or when you may have encountered a munition.

Retreat

Immediately stop activities, do not touch, move or disturb munitions, and carefully leave the area.

Report

Immediately notify your supervisor who will report to the incident commander; describe what you saw and where you saw it.



For additional information visit the US Army's
UXO Safety Education website

<https://3Rs.mil>

APPENDIX 16. Fort Rucker Regulation 215-1

Fort Rucker Regulation 215-1

Hunting, Fishing, Water Safety, & Trapping

Headquarters

U.S. Army Garrison

Fort Rucker, Alabama

1 July 2017

UNCLASSIFIED

SUMMARY of CHANGES

Fort Rucker Regulation 215-1

Major revisions of the Fort Rucker Regulation 215-1, dated 30 August 2016; as depicted on “DRAFT_2017_Fort Rucker Regulation 215-1”

- Makes formatting changes throughout.
- Table of Content, updated information.
- Adds primary mission of this installation referencing training space and resources for military use; public recreational use and enjoyment will have controlled access (Section 1-1a).
- Adds Outdoor Recreation Council responsibilities communicating information, concerns and suggestions for improving hunting and fishing on the installation to garrison command (Section 1-2e).
- Specifies restrictions and use of firearms for recreational hunting in Training Areas (TA) outlining “bow-only areas, shotgun areas, and rifle areas” (Section 3-2 a & b).
- Rearranges SEASONS Section ahead of HUNTING Section (Section II is SEASONS and III is HUNTING).
- Authorizes recreational hog hunting during turkey season (Section II d).
- Expands enforcement restricting hunters and trappers utilizing TA Charlie from parking on Artillery Road (Section 3-7 f).
- Adds as part of the Wildlife Management Program the requirement to document all dispatched hogs/ coyotes using a “kill card” (Section 3-9 f).
- Substitutes title from “Weapons and Ammunition” to “Firearms and Ammunition” (throughout).
- Authorizes for use of rifles in TAs 29 – 32 and TA 40 – 41 (throughout).

- Authorizes small game hunters' use of air guns in gun areas (TA 1-21, TAs 29 – 32, and TAs 40 – 41. Enforces no arms in TA 19E (Section 3-2 a).
- Substitutes “Miscellaneous” to “Additional Hunting Information” paragraph (Section 3-9).
- Specifies restrictions for discharging weapon in vicinity of natural and manmade structures to include roads, airstrips, ponds, stables, homes and buildings ((throughout)).
- Rearranges “FISHING” Section (Section IV).
- Substitutes “Special Regulations Applying to Small Lakes and Ponds” to “Restrictions Applying to Small Lakes and Ponds” (Section 4-3).
- Sections V and VI defines “Recreational Trapping” and “Depredation Trapping.”
- Renames “TRAPPING” to “RECREATIONAL TRAPPING” (Section V).
- Defines “RECREATIONAL TRAPPING” procedures and operations (Section V).
- Substitutes “Miscellaneous” to “Additional Recreational Hunting Information” (Section 5-4).
- Adds and explains Depredation Animal Trapping purpose, procedures and operations (Section VI). –
- Removes all maps, all maps can be gained from Fort Rucker’s MWR website <https://rucker.armymwr.com/us/rucker/programs/hunting-and-fishing>
- Rearranges “Violations” chart and corrective actions (Appendix B).
- Adds “Depredation Trapping in Occupied Areas” procedures for entry, dispatch, reporting (Appendix G).
- Replace “HuntTrac” with iSportsman.

- References to “briefing tape” refers to Range Operations Training Division Automated Briefing System.
- Expansion to Training Area Foxtrot.
- Removes terminology “handicapped” for “individuals with disabilities (IWD).”
- References updates to Fort Rucker Regulation 190-5, Fort Rucker Motor Vehicle Regulation, dated 6 December 2016.
- Separates WATER and OTHER ACTIVITIES into two sections, Section VII Boating and Water Activities and Section VIII Safety.
- Combines TA 15E and TA 15W into one TA as TA 15.

Fort Rucker Reg 215-1

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY GARRISON, FORT RUCKER
FORT RUCKER, ALABAMA 36362-5105

1 July 2017

**FORT RUCKER
HUNTING, FISHING, WATER SAFETY, AND TRAPPING**

Summary. This regulation outlines rules governing hunting, fishing, and other recreational activities at the United States Army Aviation Center of Excellence (USAACE) Fort Rucker, Al.

Applicability. All individuals permitted to hunt, fish, or participate in outdoor recreational activities on the installation will comply with this regulation.

Proponent and Exception Authority. The proponent of this regulation is the Director of Family and Morale, Welfare and Recreation (DFMWR). Only the Garrison Commander (GC), may approve changes to this regulation.

I. General.

1. Purpose and Scope.
2. Responsibilities.
3. Areas, Boundaries and Restrictions.
4. Licenses and Permits.
5. Firearm and Weapon Registration and Transportation.
6. Inspections.
7. Administrative Actions.
8. Restoration of Privileges.
9. Hunter Orange.

II. Seasons.

III. Hunting.

1. Clearance to Enter Training Areas.
2. Firearms and Ammunition.
3. Clearance of Fires.
4. Group Hunts.
5. Quality Deer Management Program
6. Tree Stands.
7. Use of Privately Owned Vehicles.
8. Hunting with Dogs.
9. Additional Hunting Mandates and Restrictions.

IV. Fishing.

1. Seasons.
2. Methods.
3. Special Regulations Applying to Small Lakes and Ponds.
4. Areas, boundaries and access restrictions.

V. Recreational Trapping.

1. General.
2. Responsibilities.
3. Administrative Rules.
4. Clearance/Procedures for trapping in Numbered TAs.
5. Clearance/Procedures for trapping in Lettered TAs.
6. Firearms and Ammunition.
7. Clearance of Fire (when Dispatching).
8. Additional Recreational Trapping Mandates and Restrictions.

VI. Depredation Trapping.

1. General.
2. Responsibilities.
3. Feral Hog Depredation Trapping. (Administrative Rules).
4. Clearance to Enter Non-Occupied (Open) TAs.
5. Clearance to Enter Occupied (Closed) TAs.
6. Firearms and Ammunition.
7. Clearance of Fire (when Dispatching).
8. Coyote Depredation Trapping.
9. Depredation Mandates and Restrictions.

VII. Boating and Water Activities.–

1. General.
2. Boat Operations Specific to Lake Tholocco.
3. Swimming, Beach Rules, and Beach Information.
4. Safety.

VIII. Safety.

1. General.
2. Policies.

IX. Night Hunting (Raccoon and Opossum).

1. General.
2. Administrative Rules.
3. Clearance to Enter Zone / Training Areas.
4. Firearms and Ammunition.
5. Clearance of Fires.
6. Night Hunting Mandates and Restrictions.

- A. Common Regulatory Violations and Possible Penalties.
- B. Coyote/Hog Depredation Trapping in Occupied Training Area.

Section I

GENERAL.

1-1. PURPOSE AND SCOPE.

a. The primary mission of this installation is to provide training space, and other related installation resources, for military use. Land and water resources deemed available for public recreational use and enjoyment will have controlled public access, subject to safety and military requirements, and will not impair the military mission.

b. Fort Rucker Regulation 215-1 pertains to hunting, fishing, watercraft safety, water safety, and trapping recognized by the State of Alabama, and federal laws and regulations. Nothing in this regulation will be interpreted to permit acts contrary to either state or federal statutes. Violation of this regulation may result in punitive actions.

c. Hunting, fishing, trapping regulations and water safety are published for the information and guidance of all concerned, and to prescribe general policies and procedures concerning hunting, fishing, watercraft, water safety, and trapping on Fort Rucker military reservation. This regulation is applicable to all who participate in any activities governed by this regulation

1-2. RESPONSIBILITIES.

a. Directorate of Family and Morale, Welfare, and Recreation (DFMWR). DFMWR is designated as the primary agency responsible for reviewing, coordinating, and publishing this regulation. DFMWR will be responsible for administration of this regulation in accordance with (IAW) Command Directive.

b. Directorate of Public Works (DPW). DPW is the authorized agency for supervision, planning, maintenance, and management of fish and wildlife resources. DPW is responsible for biological data collection. DPW will maintain a record of deer, turkeys, and hogs harvested on the installation and provide the information to the proper authorities to assist in effective wildlife management. DPW is responsible for the policy regarding the harvest of antlerless deer and will be IAW the annually published State Regulation and Installation Command Policy, Quality Deer Management Program. DPW is responsible for developing food plots for wildlife and stocking fish for all installation lakes.

c. Directorate of Public Safety (DPS). DPS is the primary designated law enforcement authority on the Fort Rucker military reservation and will provide Game Law Enforcement (GLE) officers. The GLE officers will closely coordinate with the Fish and Wildlife Section, and DPW, in the execution of the hunting and fishing programs.

d. Chief Training Division, Directorate of Plans, Training, Mobilization, and Security (DPTMS) or his/her designated representative is responsible for the overall training area management and the releasing of training areas for recreational purposes as training or maintenance activities allow as prescribed in Chapter 5 of Fort Rucker Regulation 385-1, Range and Training Area (TA) Regulation, 24 February 2015.

e. Outdoor Recreation Advisory Council. The ODR Council receives comments, suggestions, and concerns from Soldiers and other personnel authorized to hunt and fish on Fort Rucker and represents their interests to improve hunting and fishing on the installation. The ODR Council provides advice on the management of hunting and fishing on Fort Rucker, makes recommendations to improve hunting and fishing to the Garrison Commander; as appropriate.

f. Sportsmen and recreational users are responsible for:

(1) Familiarizing themselves with the provisions of this regulation, and applicable state and federal laws, and abiding by these regulations and laws.

(2) Familiarize themselves with “Fort Rucker special overprint map.” The Fort Rucker special overprint map is used to monitor and manage hunting, fishing, and trapping activities. Available at the Outdoor Recreation Facilities

(3) Before entering a TA, calling Range Operations Training Division’s Automated Briefing System, as known as briefing tape, at 334-255-4086 to obtain information regarding TA status.

(4) Informing a responsible person of their whereabouts (i.e., training areas) and expected time of return. The responsible persons will inform ODR in the event that the hunter/trapper has not returned. They will also notify the Military Police (MP) desk, 334-255-2222.

1-3. AREAS, BOUNDARIES, AND RESTRICTIONS.

a. On 11 September 2001, Fort Rucker implemented 100 percent access control. All roads and trails, with the exception of Daleville, Enterprise, Faulkner, and Ozark Gates are blocked or barricaded. All recreational users must gain access to Fort Rucker through an authorized entry point. Failure to do so could result in loss of recreational privileges.

b. Recreational activities are not allowed within the impact area. The impact area is restricted to authorized personnel only. The impact area is defined as that area bounded by Highway 27 on the south and the paved perimeter road on the north, east, and west, plus portions of TAs 7 and 11.

c. Hunters utilizing TAs adjacent to the impact area (TAs 1 through 11) must be familiar with the restrictions for a duded impact area.

d. TA status can be found by contacting Range Operations Training Division’s Automated Briefing System (briefing tape) at 334-255-4086. After confirming TA’s status, hunters must sign-in via <https://fortrucker.isportsman.net>.

e. Restricted access into these areas. The Training Division, DPTMS, will ensure gates across east and west perimeter roads and Johnston Road are open when hunting or trapping is allowed.

f. Roads with access barriers (e.g., signs, gates, chains, mounds, etc.) are restricted from vehicle traffic. The only exceptions are; vehicles in direct support of training; vehicles used by the Natural Resources Branch, and DPW; vehicles used for area maintenance; and DPS safety and emergency vehicles.

g. The following restrictions apply to recreational hunting:

(1) **Bow-only areas.** TAs A1, A2, B, C, D, E, F, G, H, I, and 19E.

(2) **Shotgun areas.** Sportsmen may only use shotguns in the following areas: TA 1- 41, with the exception of 19E.

(3) **Rifle areas.** Rifles areas, with the exception of 19E, are now TAs 1 – 21, TAs 29 – 32, and TAs 40 – 41.

h. Patrons/Personnel finding any unexploded ordnance (UXO) will immediately report the location to the Training Division, DPTMS, 334-255-4303/4793. Patrons/Personnel will not pick up, move, or otherwise disturb an item suspected of being a UXO. Mark the area and path in such a way that the UXO can be easily located by Range Operations.

1-4. LICENSES AND PERMITS.

a. All patrons/personnel (resident or nonresident) who fish, hunt, or trap on the Fort Rucker military reservation are required to possess the appropriate State of Alabama fishing, hunting, or trapping license. The purchase of a federal duck stamp and State of Alabama duck stamp, in addition to the appropriate state license, is required for hunting water fowl. A federal duck stamp may be purchased at any U.S. Post Office. A State of Alabama duck stamp may be purchased at the Probate Judge's Office at the county courthouse. Residents of the state of Alabama under 16 years of age, or 65 years of age and older are not required to have a state license.

b. DFMWR is the only agency authorized to issue installation hunting, fishing, and trapping permits. All patrons/personnel 16 years of age or older who hunt, fish, or trap on Fort Rucker must have in their possession a valid Fort Rucker hunting, fishing, or trapping permit, as applicable. Permits will be issued only to eligible individuals who possess a valid state license, view the UXO video, pay the appropriate permit fee as prescribed, (for hunters) have proof of completion of a state-certified hunter education course from any of the 50 states, Canada, or Germany.

c. Alabama state residents under 16 years of age, or 65 years of age and older are permitted to hunt, fish, and trap on Fort Rucker at no cost. Individuals meeting the state criteria as totally disabled and possessing a special annual State of Alabama fishing license for totally disabled persons are permitted to fish on Fort Rucker at no cost. Patrons/personnel meeting these criteria will be issued the appropriate Fort Rucker permit. Individuals will contact the ODR Service Center, 334-255-4305 for details on how to obtain a permit.

d. A Sikes Act fee for managing fish and wildlife resources and a Family and Morale, Welfare and Recreation (FMWR) fee for managing recreational aspects of the program will be charged to patrons. The fee is included in the permit prices. The rates will be published annually.

1-5. FIREARM AND WEAPON REGISTRATION AND TRANSPORTATION.

a. IAW Army Regulation 190-11, Physical Security of Arms, Ammunition, and Explosives, 5 September 2013, all firearms, to include black powder (except air guns) brought onto Fort Rucker will be registered with Military Police (MP) Station (Bldg 5001). Registration will be on the Fort Rucker Form 818-E (Registration of Privately Owned Weapons). Do not bring weapon(s) into the MP Station.

b. Properly registered privately owned firearms may be transported as outlined:

(1) The firearm must be transported unloaded in the trunk of the vehicle. The only exception is a vehicle without a trunk. In these circumstances, the firearm must be transported unloaded, either in a locked compartment or cased and in plain view.

(2) The transporting of a loaded firearm in a vehicle is prohibited. A firearm is considered loaded when an unexpended round is in the chamber and/or magazine. Muzzleloaders are considered unloaded when the cap is removed or flash pan is empty. Only credentialed police officers are authorized to transport a loaded firearm on Fort Rucker, and must be in pursuant to performing law enforcement duty.

(3) Transporting privately owned firearms on motorcycles is authorized if the firearm is secured in a separate lockable container from ammunition; e.g., saddlebag or lockable faring container.

(4) Handguns will not be concealed at any time.

(5) Firearm and weapon owners will have in their possession at all times their Alabama State license, Fort Rucker permit, and picture ID card. The Fort Rucker Provost Marshal weapon registration must be in their vehicle or in a gun case as they travel on the installation with firearms.

(6) Weapons will only be loaded in the assigned TA. Hunters will inspect, clear, and case their weapons prior to transporting their weapons. Weapons and ammunition will be transported in separate containers and vehicle compartments.

1-6. INSPECTIONS. Sportsmen and women must carry their state license, post permits, and proof of identification on their persons for examination upon request by Fort Rucker GLE officers, or state game wardens. Creel and game bags will be made available for examination upon request. Sportsmen and women must have their weapon's registration in their vehicle or in a gun case as they travel on the installation with firearms. ODR Card must be properly displayed on car dash.

1-7. ADMINISTRATIVE ACTIONS. DFMWR will implement the provisions of the common regulatory violations and possible penalties by conducting hearings when applicable and taking necessary actions in those cases where a violator is identified (Appendix B). A violator is defined as an individual who is apprehended or issued a summons by Fort Rucker GLE officers, federal game wardens, or state game wardens for violation of this regulation, state or federal laws, or other applicable Army regulations on the Fort Rucker military reservation. Violators will surrender their post hunting, fishing, or trapping permits to the officer making the apprehension, and those privileges will be suspended. Any appeal of a suspension will be made IAW paragraph 1-8 RESTORATION OF PRIVILEGES.

1-8. RESTORATION OF PRIVILEGES. Appeals for restoration of hunting, fishing, boating, and trapping privileges will be submitted in writing to DFMWR through DPS (for comment) within 10 calendar days from the date the penalty was issued. The community recreation officer will make a recommendation to the Director, DFMWR, who will then determine if restoration of privileges is warranted or justified. Grounds for appeal include, but are not limited to, emergency beyond patron's control, citation issued improperly, or patron called back to unscheduled military duty.

1-9. HUNTER ORANGE.

a. During all firearm deer seasons, all persons hunting any wildlife species, turkey, are required to wear an outer garment above the waist with a minimum of 144 square inches of hunter orange or either a full size hunter orange hat or cap. A small logo is permitted on the front of hunter orange caps. The cap must be visible from all angles.

b. It is required that persons bow hunting in bow hunting only areas wear, at a minimum, hunter orange headgear visible from any angle when moving.

c. If utilizing a tree stand, once the hunter is elevated 12 feet or higher, hunter orange may be removed. Hunter orange must be on prior to descending from the elevated tree stand.

d. It is required that persons duck hunting wear hunter orange while going to and from the duck blind. It may be removed while in the duck blind.

Section II

SEASONS.

2-1. Hunting and Fishing on Fort Rucker will be IAW the seasons set forth and governed by the state of Alabama and published in the Alabama State Hunting Regulation. The Fish and Wildlife Section, DPW, has the authority to close, limit, or restrict hunting seasons and bag limits in any hunting area on the installation for wildlife management/biological reasons. Any changes will be published in the official

section of the Weekly Bulletin, posted on the MWR Web site <http://rucker.armymwr.com/us/rucker>, and published in the Army Flier.

2-2. It is the sportsman's responsibility to comply with the hunting and fishing seasons, regulations, and bag limits, for the State of Alabama. Season dates and bag limit are explained annually in the Alabama Hunting and Fishing Digest.

2-3. All public streams, lakes and ponds are open to fishing throughout the year. Areas will be marked off-limits when pond management or activities are being conducted.

2-4. IAW Alabama State regulations, hog hunting is allowed during turkey season.

2-5. During turkey season, hunting will be allowed with shotgun shot sizes 6, 7, 7.5 or 8 in bow-only TAs A1, E, F, and I during weekdays.

2-6. Quail hunting will be allowed in TAs (A1, E, F, and I) following the gun deer season with shotguns, 12-gauge or smaller, using shot size 7.5, 8, or 9.

Section III

HUNTING.

3-1. CLEARANCE TO ENTER TRAINING AREAS.

a. It is mandatory that all hunters call Range Operations Training Division's Automated Briefing System also known as briefing tape at 334-255-4086 to obtain information regarding Training Areas' (TAs) status. After confirming TA's status, hunters must sign-in via <https://fortrucker.isportsman.net>. It is the hunter's responsibility to check TA closures each period posted daily by DPTMS Range Operations at 1100, 1600, and 2000.

b. iSportsman is Fort Rucker's primary method to check into a TA for hunting. This requirement aids in addressing safety concerns by ensuring the number of hunters does not exceed the TA's capacity, and prevents recreational activities from impeding on training activities.

c. Hunters will select an open TA. This selected TA assignment shall be binding. Hunters can only be signed in to one TA at a time. Hunters are allowed to change TAs only by calling the Range Operations briefing tape for TA availability. Once confirmed, hunters will log into iSportsman to change their TAs.

d. If iSportsman is inoperative, the secondary check-in procedure is to call ODR after 0730 at 334-255-4305 (voice mail) notifying them that iSportsman is inoperative. In the event that both the primary and secondary systems fail, hunters may hunt after verifying that the TA is in fact open for hunting by calling the Range Operations briefing tape at 334-255-4086. The last updated briefing will be at 2000. Hunters can **register** for an available TA a day prior between the hours of 2005hrs and 2359hrs. Hunters cannot register for TAs for the following day before Range Operations 2000 update.

e. Hunters and trappers must be out of the hunting areas not later than 1900 standard time, or 2000 daylight savings time (DST). All hunters failing to check out of a hunting area will be automatically removed by the system at 2000 DST.

3-2. FIREARMS AND AMMUNITION.

a. Firearms.

(1) Legal arms and ammunition for hunting on Fort Rucker will be IAW the State hunting regulations. Rifles, pistols using center-fire, mushrooming type ammunition are authorized for hunting in TAs 1 – 21, TAs 29 – 32, and TAs 40 – 41. There are no firearms permitted in TA 19E. Black-powder, muzzle-loading rifles, pistols (.40-caliber or larger), and shotguns (10-gauge or smaller using buckshot or slugs) are authorized for deer hunting in all gun areas (numbered TAs). Small game hunters may use .22-caliber or smaller rimfire firearms or air guns in all gun areas.

(2) Only .22-caliber firearms are permitted to dispatch hogs caught in hog traps in any bow only areas, with the exception of 19E. There are specific bow only areas that you will be allowed to hunt turkey and quail with a firearm.

b. Bow and Arrow. Bow and arrow equipment will be IAW State regulations. During bow deer season, hunters are not allowed to have in their possession a bow and firearm (rifle or gun).

3-3. CLEARANCE BEFORE DISCHARGING FIREARMS.

a. Hunters will ensure the area behind the target is cleared.

b. No discharge of firearms within 50 yards of paved roads, gravel roads or maintained roads.

c. No discharge of firearms within 200 yards of airstrips, recreational areas (to include trails), or buildings – to include stables and housing areas. Weapons and bows will not be fired in the direction of roads, airstrips, recreational areas, or buildings. The only exception is duck hunters who are permitted to hunt over or around lakes, ponds, creeks, rivers to shoot ducks.

d. Indiscriminate shooting is not allowed within the confines of the Fort Rucker military installation. Target practice is only allowed at the Privately Owned Weapon (POW) Range. Range is located across from Range Operations Bldg 24314. Individuals must present a stamped copy of their Fort Rucker Form 818-E and a valid state or federal ID and receive a safety brief, to Range Operations personnel before they are allowed to use the POW Range. Patrons/personnel should contact Range Operations for times of operation at 334-255-4303/4486.

3-4. GROUP HUNTS. A group hunt is defined as a cooperative effort by five or more individuals hunting game on Fort Rucker. Group hunts on Fort Rucker are only allowed for hog hunts and must be approved by the Garrison Commander or his/her delegated authority prior to the hunt. Deer drives, by any number of individuals, are not authorized on Fort Rucker.

3-5. QUALITY DEER MANAGEMENT PROGRAM. Fort Rucker's Quality Deer Management Program entails an annual review of harvest data, fawn recruitment, and other biological data pertaining to the deer population on Fort Rucker by the Environmental and Natural Resources Division within DPW. NRD will make a recommendation to the Garrison Commander for approval about harvest quota, antlerless harvest, and necessary hog and coyote depredation control. An announcement will be made not later than 31 August, prior to the beginning of deer season, detailing the changes to harvest restriction and training area availability for that season.

3-6. TREE STANDS.

a. ODR Tree Stands. DFMWR manages procedures for allocating ODR tree stands. A limited number of tree stands may be erected and maintained by ODR in designated hunting areas. Hunters will not use these areas or tree stands without contacting ODR. Access to the tree stands require registering for specific tree stands at ODR during regular business hours. Tree stands are used on a first-come, first-served basis. A fee will be charged for the use of these tree stands. This does not include privately built tree stands. All hunting regulations and requirements put forth in the main body of this regulation apply to hunting from tree stands is controlled by ODR.

- (1) ODR has the overall responsibility for building, maintaining, assigning, and collecting fees for the use of these tree stands.
- (2) ODR and Range Operations are responsible for selecting tree stand construction sites.
- (3) The hunter will request for an assigned tree stand from ODR. ODR personnel will brief the hunter on any special requirements, and can be contacted at 334-255-4305.
- (4) Hunters will register with ODR, **in person**, for the use of tree stands located in TA 11.
- (5) Hunters must park in the designated TA assigned to the tree stand.
- (6) Hunters can only hunt in the tree stand and area that they are assigned. Should the area be subsequently closed for training, the tree stand fee will be refunded. There will be no refunds for stands not canceled a minimum of 24 hours in advance by the hunter.
- (7) Some stands are large enough for one adult and one child. Stands are not designed for and will not be occupied by two adults.

b. **Privately Built Tree Stands (Semi-Permeant).** Construction of a tree stand in no way implies ownership. Permission must be obtained from ODR as to the location prior to construction. All tree stands constructed by private individuals become community property for authorized hunters. Fort Rucker installation assumes no responsibility for the construction, condition, or maintenance of tree stands constructed by private individuals. Hunters use tree stands at their own risk.

c. **Temporary Tree Stands.** Temporary tree stands (i.e., ladder stands) will have a placard attached with information denoting the owner's name, the owner's phone number, and the date the stand was emplaced. The placard will be a minimum of 3x5 inches and contained within a waterproof and transparent plastic bag, attached to either the stand or tree in a readily visible location.

d. **Restricted Areas.** No tree stands will be built or located in the impact area.

e. **Safety.** Falls from tree stands are common when hunting. Anyone who hunts from an elevated stand is required to use a full-body style safety harness (fall restraint device). Hunters may use tree stands at their own risk.

3-7. USE OF PRIVATELY OWNED VEHICLES.

a. Licensed motor vehicles are limited to operation on paved roads, gravel roads, and maintained dirt roads.

b. Upon entering a TA, hunters and trappers will not block roads, tank trails, etc., when parking their vehicle.

c. Hunters and trappers must display the ODR registration card in plain view on the dashboard of the driver's side of their vehicle. The ODR registration card must be filled out legibly and in its entirety.

d. Motor vehicles will not traverse cross-country through wildlife openings (food plots), through utility line rights-of-way, or around locked gates and cables. Law enforcement, other official agencies, and properly registered hunters individual with disabilities (IWD) are granted permission through proper coordination with ODR.

e. Hunting from a motor vehicle is prohibited; the **ONLY** exception as defined in State of Alabama law allowing the use of motor vehicle hunting by hunters who are individuals with disabilities (IWD). IWD hunters who are interested in obtaining approval to operate off-road vehicles and all-terrain vehicles (ATV) must contact ODR at 334-255-4305 for details, requirements, and forms.

f. Hunters and trappers in Training Area Charlie will not park automobiles on Artillery Road.

g. Hunters and trappers will not tamper with or otherwise remove any barricade or gate that prohibits entry into any TA that is closed for training.

3-8. HUNTING WITH DOGS.

a. Vaccination. Dogs brought onto the installation shall be properly immunized for rabies. Upon request by proper authorities, GLE officers, state game wardens, federal game wardens, etc., owners of hunting dogs shall produce rabies vaccination certificates.

b. Training.

(1) Training or conditioning of hunting dogs on Fort Rucker is limited to the area south of Highway 27, and may be done during daylight hours only, with the exception of raccoon hunting.

(2) Personnel will call Range Operations briefing tape at 334-255-4086 to obtain information on TAs that are available for hunting/training dogs.

(3) Dog trainers will ensure dogs remain under close supervision in designated TA and that native game is not molested.

(4) Water training may be done year-round at Engineer Beach on Lake Tholocco, Beaver Pond on Andrews Avenue near the golf course, or Beaver Lake. Dog training and/or pets are not allowed in the recreational areas at Buckhorn Lake, Ech Lake, and Parcours Lake.

(5) Hunting dog training is restricted during the critical ground bird (wild turkey, quail, etc.) nesting and brood-raising period of 1 March to 31 July. Only exception is at designated water TAs.

(6) There is no training allowed for deer hunting dogs.

c. Deer and hog hunting with dogs on Fort Rucker are prohibited.

d. Hunting with horses is prohibited.

3-9. ADDITIONAL HUNTING MANDATES AND RESTRICTIONS.

a. Electronic calls are authorized for small game hunting, including hogs. Electronic calls can only be used during daylight hours.

b. The use of explosive noise-producing devices (e.g., fireworks, blank pistols, etc.) is prohibited. Training pistols incapable of firing any ammunition but blanks may be used in training hunting dogs. State regulations apply to the use of other types of noise-producing devices (e.g., game and bird calls, rattling antlers, etc.

c. Cleaning game in housing areas is prohibited. A cleaning shed is located behind the Game Warden Office Bldg 24201. For additional information concerning this facility, contact ODR at 334-255-4305.

d. Collection stations. Field Dressing game in the TA is prohibited. Hunters must utilize the collection stations. All deer and turkeys must be physically taken to the collection stations to be weighed, measured, and logged in (instructions are posted at all collection stations). All hunters must fill out their harvest record, to include newly required confirmation number, before removing the animal/bird from the installation. Failure to do so will result in a 30-day suspension. Collection stations for TAs North of Highway 27 (TAs 1-11) is located across from Range Operations Bldg 24314. Collection stations for TAs

(TAs 12-41) South of Highway 27 are located across from the Game Warden Office Bldg 24201, and at the Newton gate.

e. Hunters wounding game will make every effort to track down the animal or bird. They will notify the Game Warden officers (334-255-4735/4213) of lost game. Tracking wounded game into the impact area is prohibited. Tracking for game is not allowed in areas known or suspected to contain UXOs.

f. As part of the Wildlife Management Program (WMP) the number of hogs/coyotes hunted must be recorded to track the hog/coyote populations. All hogs hunted must be recorded on the hunter's "kill card." Kill Cards can be picked-up from ODR at BLDG 24235, once the card is full, it must be turned-in to ODR. ODR shall report all Kill Card Data to Natural Resources within two days of receipt.

g. Turkey hunters will only possess ammunition legal for hunting turkeys.

Section IV

FISHING.

4-1. SEASONS. All ponds, lakes, and streams, with the exception of Buckhorn Lake and those identified as in the impact area, will be open for fishing 24 hours a day. Ponds, lakes, and streams may be closed due to military training or restocking. Notice will be published on the MWR Web site (<http://rucker.armymwr.com/us/rucker>) of closed ponds or lakes as well as effective dates of closing. Signs, indicating closures, will be displayed at all ponds or lakes when closed for any purpose.

4-2. METHODS.

a. Fisherpersons will have in their possession at all times their Alabama State fishing license, Fort Rucker fishing permit, and a picture ID card.

b. Methods of Fishing. Rod and reel, hook and line, cane pole, and similar methods of fishing are authorized. Fisherpersons are limited to two fishing poles or rods per person while fishing off of designated fishing piers on Lake Tholocco. Bait restrictions for small lakes and ponds are outlined in paragraph 4-3 below.

c. Line Fishing. Trotlines, throw lines, or setlines (to include jugs) are authorized only under the following conditions:

(1) All such lines will be prominently marked with the owner's last name and Fort Rucker hunting/fishing permit number.

(2) Trotlines will be prominently marked at both ends and will not be located on any span that may interfere with other fisherpersons' lines or watercraft. Trotlines are limited to 200 feet in length and not more than 2 lines per individual. Trotlines and setlines will not be placed in a water ski area, Area 1.

(3) All lines will be checked each 12-hour period.

(4) Unmarked lines and improperly set lines will be confiscated by GLE officers or state and federal game wardens.

(5) Glass and metal containers are prohibited for jug fishing. All jugs will be marked with the owner's last name and Fort Rucker hunting/fishing permit number. Jugs will be attended to prevent them drifting into recreational areas.

d. Traps, Seines, and Nets.

(1) The only fish traps authorized in any waters on Fort Rucker are minnow traps with an aperture of 1 inch or less.

(2) Special regulations governing sucker netting are as follows.

(a) Persons participating must comply with the license provisions of paragraph 1-4 and are required to have Fort Rucker fishing permits in their possession.

(b) Rods and reels, hooks and lines, cane poles, spears, gigs, longbows, or firearms are not allowed in boats with, or in the possession of, persons engaged in sucker netting.

(c) All nets will be marked with buoys or floats readily visible above the water line and prominently marked with the owner's last name.

e. Fishing Lake Tholocco.

(1) No fishing in the primary ski area while being used by skiers, tubers, etc.

(2) No fishing within 100 feet around designated swimming areas, except on the West Beach fishing pier.

(3) No fishing on beach areas when open for swimming activities.

(4) No fishing within 50 feet of boat docks.

(5) No fishing within 50 feet of vessel launching areas.

(6) No fishing from a boat within 150 feet of the spillway.

4-3. RESTRICTIONS APPLYING TO SMALL LAKES AND PONDS. The following regulations apply to Beaver Lake, Buckhorn Lake, Ech Lake, and Parcours Lake on the Fort Rucker military reservation.

a. Minnows of all types are prohibited.

b. Seining or netting is prohibited, except for specific military training.

c. Trotlines and/or jugs are prohibited.

d. Only paddles, oars, and electric motors are allowed as means of boat propulsion on Beaver Lake, Buckhorn Lake, Ech Lake, Parcours Lake, and other waters of the military reservation. The operation of gasoline engines on these four lakes is prohibited. Float tubes or belly boats are authorized for fishing.

e. Swimming and wading are prohibited in the lakes identified in paragraph 4-3.

f. Lake creel limits are posted at Lake Tholocco, Beaver Lake, Buckhorn Lake, Ech Lake, and Parcours Lake.

g. Gigging for frogs on ponds open for fishing is permitted if the gig has at least three prongs. A post fishing permit is required.

h. Parcours Lake is reserved for youth fishing, 15 years of age or younger. Adults may assist youth fishing activities but cannot actively fish themselves. ~~The following regulations apply to Beaver Lake, Buckhorn Lake, Eeh Lake, and Parcours Lake on the Fort Rucker military reservation.~~

Section V

RECREATIONAL TRAPPING.

1. GENERAL. Recreational Trapping refers to trapping of fur bearing creatures. The following are designated as furbearing animals in Alabama (2016-2017): beaver, bobcat, fox, mink, muskrat, nutria, opossum, otter, raccoon, stripped skunk, coyote and feral swine. Recreational hunting is at the expense of the trapper. Fort Rucker provides no additional resources to support trapping or baiting of furbearing animals. Recreational trapping is not depredation trapping and has separate procedures and policies.

2. RESPONSIBILITIES.

a. ODR, DFMWR. For patrons declaring their intention to trap on Fort Rucker, ODR staff will annotate trapping authorization on the trapper's Fort Rucker hunting permit, brief the patron on the major rules and procedures of this regulation, and specifically address trapping procedures within the lettered TAs surrounding the cantonment area. ODR will maintain a roster of all trappers registered and approved to trap on Fort Rucker. ODR will ensure Corvias Housing includes a statement in military tenants' housing agreements denoting that trapping is authorized in the TAs surrounding the cantonment area but is restricted to at least 200 yards from any housing areas, facilities, or structures.

b. DPS/Game Law Enforcers. GLE are responsible for enforcing state and federal law as well as regulations and guidelines identified in FRR 215-1 and FRR 385-1. They are authorized to enforce all applicable regulations and/or state laws pertaining to trapping on Fort Rucker. They will take appropriate actions against violations.

c. Fish and Wildlife Section, DPW. Consolidate trapping information from all recreational trappers. Fort Rucker biologists will maintain annual records of all game trapped on Fort Rucker.

d. Recreational Trappers. Patrons wanting to trap on Fort Rucker will declare those intentions at the ODR Office Bldg 24235 at Lake Tholocco. They will receive the trapping briefing from the ODR staff, and have trapping authorized on their Fort Rucker hunting permit. Trappers will fully understand and adhere to Fort Rucker regulations and Alabama state laws that govern trapping. Trappers will check traps set in water at least once every 72 hours. All other types of traps will be inspected at least once every 24 hours. Trappers shall report the number and types of game trapped to the Fish and Wildlife Section, DPW, at 334-255-1664/2416 and/or via email.

e. Trappers who are specifically trappings feral hogs must coordinate with DPW Natural Resource at (334) 255-1659.

3. ADMINISTRATIVE RULES.

a. Recreational trappers will adhere to all requirements found in Section I and Section III of this regulation.

b. Trapping is not authorized in the impact area, TA 19E, portions of TA 7 and 11, and as depicted on the surrounding cantonment TAs.

4. CLEARANCE/PROCEDURES FOR TRAPPING IN NUMBERED TRAINING AREAS.

a. Recreational trapping is only authorized within TAs in an open status. Trappers are required to check TA's statuses through the Range Operations briefing tape at 334-255-4086. Trappers must sign in and out via <http://fortrucker.isportsman.net> to sign in to TAs. Traps in TAs scheduled to be closed must be disarmed prior to the scheduled closed date. TAs projected open and closed dates are published on the ODR Hunting Area Status Map website.

b. Licensed motor vehicles are limited to operation on paved roads, gravel roads, and maintained dirt roads. Upon entering a TA, trappers will not block roads, tank trails, etc., when parking their vehicle. Trappers must display the ODR Dashboard Registration Card in plain view on the dashboard of the driver's side of their vehicle. The card must be filled out legibly and in its entirety.

c. Trappers may only carry and use a .22-caliber rimfire weapon to dispatch trapped furbearing game. The weapon will not be loaded until the trapper is ready to dispatch the trapped game. Conducting animal dispatch, see **5-7 CLEARANCE OF FIRES (WHEN DISPATCHING)** paragraph below.

5. CLEARANCE/PROCEDURES FOR TRAPPING IN THE LETTERED TRAINING AREAS.

a. TAs surrounding Fort Rucker's cantonment area known as lettered TAs, thus, extra safety measures will be exercised. Lettered TAs are A1, A2, B, C, D, E, F, G, H, I, and 19E. The lettered TAs and their boundaries are depicted on the Fort Rucker reservation hunting map issued by ODR with the purchase of an annual Fort Rucker hunting permit.

b. Trappers will follow normal log-in procedures notifying Range Operations and signing-in to iSportsman. See **Section III para 3-1 CLEARANCE TO ENTER TRAINING AREA.**

c. The trapper must maintain constant cognizance of his location when trapping and dispatching, especially when trapping in a lettered TA.

d. For those lettered TAs that border any portion of the residential housing, trappers are not authorized to park vehicles on any street, grass, field, or road (dirt or otherwise) that is in or between the residential housing and the lettered TAs. Trappers will not transit through any portion of the residential housing with weapons or game or to inspect traps.

e. Trapping is not authorized within 200 yards of the cantonment area or in specific areas with extended restricted areas, to include houses, schools, offices, storage buildings, riding stables, airfield, recreational area, etc.

f. Trappers may only carry and use a .22-caliber rimfire weapon to dispatch trapped furbearing game. The .22-caliber firearm is the only authorized firearm for use in lettered TAs to dispatch. The weapon will not be loaded until the trapper is ready to dispatch the trapped game. Conducting animal dispatch, see **5-7 CLEARANCE OF FIRES (WHEN DISPATCHING)** paragraph below.

6. FIREARMS AND AMMUNITION. Rifles may be used to dispatch furbearing game in TAs 1 – 21, TAs 29 – 32, and TAs 40 – 41. Only .22-caliber firearms are permitted to dispatch in lettered TAs, TAs A – I. There are no firearms permitted in TA 19E.

7. CLEARANCE BEFORE DISCHARGING FIREARMS (WHEN DISPATCHING).

a. Trappers will not fire in the direction of any post housing or any other structure bordering or surrounding a lettered TA. If there is any doubt as to which direction is the safe direction to fire, the trapper will not fire. The trapper will either release the trapped animal or regain his bearing to determine which direction is the safe direction to fire before dispatching the animal.

b. Trappers will ensure the firearm is loaded and aimed in a ‘downward’ manner to prevent rounds from departing the immediate area placing personnel or infrastructure at risk (no free shooting of trapped or un-trapped animals).

c. Trappers will ensure the area surrounding the trap is cleared before firing. Trappers will not dispatch game greater than 50 yards from the target.

- d.** No discharge of firearms within 50 yards of trails, paved roads, gravel roads or maintained roads.

- e.** No discharge of firearms within 200 yards of airstrips, recreational areas (to include trails), or buildings – to include stables and housing areas.

- f.** Weapons, firearms and bows will not be fired in the direction of roads, airstrips, recreational areas, fishing areas lakes, or buildings.

- g.** All weapons will be properly cleared and placed on safe immediately following animal dispatch.

- h.** The weapon will remain unloaded and unconcealed while removing the dispatched animal from the area.

- i.** Trappers must ensure the animal is deceased before transporting it. Alabama law prohibits the transport of live game animals.

8. ADDITIONAL RECREATIONAL TRAPPING MANDATES AND RESTRICTIONS.

- a.** Recreational Trapping **is not authorized** in a closed TA. Traps must be de-armed (unset) prior to unit occupation.

- b.** Hunter orange is required for all Recreational Trappers.

- c.** Any person trapping furbearing animals in Alabama is required to carry a choke stick.

- d.** Trap markings. Leg and water-traps will be marked with a 3-foot high (minimum) stake, topped with a small strip of orange marking tape, and staked within 5 feet of the trap location with a plastic or metal tag showing the trapper's last name, Fort Rucker permit number, and state license number.

- e.** Reporting. All trappers shall report the number and types of game trapped to the Fish and Wildlife Section, DPW, at 334-255-1664/2416.

- f.** Violations and penalties associated with trapping on Fort Rucker are as published in Appendix B of this regulation.

Section VI

DEPREDATION ANIMAL TRAPPING.

1. GENERAL.

a. Increases in feral hog populations on Fort Rucker over the last 25 years have resulted in numerous problems for the Installation. Feral hogs directly compete with both game and non-game species for available resources; displace native wildlife populations; disrupt and destroy nests of native wildlife; and cause damage to crops, trees, landfill caps and erosion control structures.

b. In order to reduce the feral hog population on the installation, Fort Rucker Natural Resources has instituted a depredation hog trapping program. As part of this program hog traps and a limited amount of corn have been purchased by Natural Resources and will be made available for use by depredation trapping volunteers. A limited amount of corn will be available from the Natural Resources Branch at no cost to the trapper. One 50-lb. bag of corn per trap will be available each month on the first Wednesday of the month.

2. RESPONSIBILITIES.

a. DPW, Natural Resources is responsible for identifying the need for depredation trapping due to damage, disease or safety risk caused by wild animals. Natural Resources will be responsible for developing a plan for accomplishing depredation animal trapping and implementing the plan through the use of Natural Resources personnel, USDA, Wildlife Resources personnel, and volunteer resources. Natural Resources will provide updated depredation trapping maps to DPTMS Training Division and the Garrison Command as changes occur.

b. DPTMS, Training Division is responsible for reviewing the depredation trapping plan and de-conflicting trapping activities with training and other users of TAs.

c. DPS, Game Law Enforcers. GLE are responsible for enforcing state and federal law as well as regulations and guidelines identified in FRR 215-1 and FRR 385-1. They are authorized to enforce all applicable regulations and/or state laws pertaining to trapping on Fort Rucker. They will take appropriate actions against violations.

d. MWR, Outdoor Recreation is responsible for the recreational aspects of trapping as well as the maintenance of traps. MWR is also responsible for consolidating Kill Cards information from hunters and depredation trappers for both feral hogs and coyotes. MWR will issue recreational hunting and trapping permits and provide incentive opportunities for depredation animal control by recreational hunting. MWR is the proponent for this regulation. ODR shall report all Kill Card Data to Natural

Resources within two days of receipt. ODR shall coordinate approval of any “Hunting Incentives” with Natural Resources prior to publishing policy.

3. FERAL HOG DEPREDATION TRAPPING. Administrative Rules.

a. All volunteer trappers and their assistants must have an Alabama hunting license and a Fort Rucker hunting permit. There should be no charge for the Fort Rucker hunting permit if no other species are to be hunted. They submit a DD 2793 Volunteer Agreement with NR.

b. Volunteers will sign an agreement/permit stating familiarity with FRR 215-1, location of trap, responsible personnel for trap, receipt of trap, and any special considerations for the specific location used.

c. Only one person will be issued a volunteer trapping permit for each trap and will be accountable for that trap. All trappers are limited to three traps. Only the permit holder is authorized to make arrangements with the Natural Resources Branch (NRB). If other personnel are assisting with the trap in the field, their names must be added to the permit issued to the responsible individual and signed off by NRB. A copy of the trapping permit must be in the trapper’s possession when inspecting traps.

d. Depredation trappers must call Range Operations briefing tape at 334-255-4086 to obtain information regarding TA status. **If the area is open, depredation trappers will follow Procedures for Open TAs. If the area is closed, depredation trappers will follow Procedures for Occupied TAs.**

e. When the trap is set the volunteer must inspect the trap daily (once every 24 hours), dispatch and remove any hogs that have been caught in accordance with state law. Hogs must be dispatched inside the trap with firearms authorized in the assigned TA, with the exception of the lettered (bow) areas in which only a .22 rimfire firearm can be used.

f. Depredation trappers must wear a yellow identification vest and display a NR Vehicle Identification card on the dash of their vehicles during trapping activities in the TA. These items will be provided by DPW, Natural Resources.

4. CLEARANCE TO ENTER NON-OCCUPIED (OPEN) TAs.

a. It is mandatory that all depredation trappers call Range Operations Training Division’s Automated Briefing System also known as briefing tape at 334-255-4086 to obtain information regarding TAs status. After confirming TA’s status, trappers must sign-in via <https://fortrucker.isportsman.net>. It is

the trapper's responsibility to check TA closures each period posted daily by DPTMS Range Operations at 1100, 1600, and 2000.

b. Volunteers are responsible for verifying with Range Operations that the area is available for trapping on a daily basis.

c. If the TA is open, trappers may proceed during daylight hours to inspect, bait, and run their traps in the TA.

d. Trapped feral hogs will be dispatched in the trap using firearms approved for that specific TA. Only .22 caliber is authorized in lettered TAs. See para **6-6 FIREARMS AND AMMUNITION** paragraph below for more details. Conducting animal dispatch, see para **6-7 CLEARANCE OF FIRES (WHEN DISPATCHING)** paragraph below.

5. CLEARANCE TO ENTER OCCUPIED (CLOSED) TAs.

a. It is mandatory that all depredation trappers call Range Operations Training Division's Automated Briefing System also known as briefing tape at 334-255-4086 to obtain information regarding TAs status. After confirming TA's status, trappers must sign-in via <https://fortruck.isportsman.net>. It is the trapper's responsibility to check TA closures each period posted daily by DPTMS Range Operations at 1100, 1600, and 2000.

b. Range Operations must be contacted at 334-255-4303 and authorization must be received to proceed into a Closed TA. The depredation trapper cannot enter Closed TA without authorization.

c. After gaining authorization, depredation trappers have two periods during the day when they can request clearance to enter for the purposes of inspecting traps. These periods are 0500-0800 and 1500-1800 daily. If the traps cannot be inspected during these time periods, the traps must be disabled.

d. Trappers will provide estimation (duration) of time on site to Range Operations.

e. The depredation trapper must notify Range Operations again to clear the trap and TA. If multiple traps are within a TA, the depredation trapper must inform Range Operations each time they clear a trap site and request authorization to proceed to the next trap site.

f. If feral hogs are in the trap, the depredation trapper must notify Range Operations that dispatch is required at the trap site. Range Operations will notify using training unit of animal dispatch activities

and advise trappers once that notification is complete. Once notification is in concurrence, feral hogs will be dispatched using weapons approved for that specific TA. See **6-6 FIREARMS AND AMMUNITION** paragraph below for more details. Conducting animal dispatch, see **6-7 CLEARANCE OF FIRES (WHEN DISPATCHING)** paragraph below.

g. Once dispatch is complete and trappers have cleared the TA, trappers will notify Range Operations. Range Operations will notify training unit personnel that dispatch activities have been completed and trapping personnel have departed.

6. FIREARMS AND AMMUNITION. Rifles may be used to dispatch hog/coyotes in TAs 1 – 21, TAs 29 – 32, and TAs 40 – 41. Shotguns may also be used to dispatch hogs in all TAs except lettered TAs. Only .22-caliber firearms are permitted to dispatch hogs in lettered TAs, TAs A – I.

7. CLEARANCE OF FIRES (WHEN DISPATCHING).

a. When conducting animal dispatch, trappers will ensure the area surrounding the trap is cleared before firing.

b. When in a lettered TA, trappers will not fire in the direction of any post housing or any other structure bordering or surrounding. If there is any doubt as to which direction is the safe direction to fire, the trapper will not fire. The trapper will either release the trapped animal or regain his bearing to determine which direction is the safe direction to fire before dispatching the animal.

c. Trappers will ensure the firearm is loaded and aimed in a ‘downward’ manner to prevent rounds from departing the immediate area placing personnel or infrastructure at risk (no free shooting of trapped or un-trapped animals).

d. Trappers will not dispatch a game/hog greater than 50 yards from the target.

e. No discharge of firearms within 50 yards of trails, paved roads, gravel roads or maintained roads.

f. No discharge of firearms within 200 yards of airstrips, recreational areas (to include trails), fishing areas, lakes, or buildings – to include stables and housing areas. Weapons, firearms and bows will not be fired in the direction of roads, airstrips, recreational areas, fishing areas lakes, or buildings.

g. All weapons will be properly cleared and placed on safe immediately following animal dispatch.

h. The weapon will remain unloaded and unconcealed while removing the dispatched animal from the area.

8. COYOTE DEPREDATION TRAPPING.

a. Control measures for coyotes have become necessary because non-native coyotes have reached high populations and are seriously impacting game and non-game species to include the gopher tortoise (a DOD designated SAR) by predation. Coyotes have also caused safety issues with joggers, bikers, and Soldiers on foot training in remote areas and around base housing.

b. Natural Resources and USDA Wildlife Services personnel are the ONLY partiers to conduct Depredation Coyote Trapping. Coyote trapping activities will be accomplished during February-March and July-August timeframes. All coyote trapping activities will be coordinated with Training Division for de-conflicting with training activities.

c. Trap locations will be marked with 4-ft tall 1-inch galvanized pipe with reflective tape around the top. Traps will be within 2 meters of pipe. Both leg-hold and snare traps may be used depending on agency authorization. Traps will be marked with an identifying band listing agency name and contact phone number.

d. Firearms and Ammunition. Dispatch of coyotes in traps will be accomplished with .22 rimfire weapons and ammunition.

e. Clearance of Fires. See **6-7 CLEARANCE OF FIRES (WHEN DISPATCHING).**

f. Reports. Records will be kept of all coyotes taken by trapping or shooting and will be maintained by Natural Resources for reporting to the Garrison Command. Recreation hunters taking coyotes will report their harvest on Kill Cards maintained by Outdoor Recreation.

9. DEPREDATION MANDATES AND RESTRICTIONS.

a. Trap Location. Traps will be placed by volunteers in areas with existing hog populations as approved by Natural Resources personnel. Traps **will not** be relocated without approval by Natural Resources. Requests for new traps or relocation of existing traps will be handled on the first Wednesday of each month. Please email Daniel M. Spillers at daniel.m.spillers.civ@mail.mil for permit application.

b. Trap Inspection. Volunteers will be responsible for monitoring and inspecting assigned traps. Each trap will have a NRB provided and signed placard. The placard will have assigned trappers' name and contact number. Traps must be inspected daily when they are set. If a trapper is unable to inspect assigned traps daily, the traps must be disabled. If the trapper is unable to run the trap for an extended period (i.e., two weeks or longer) Natural Resources Personnel must be contacted so that the trap can be turned in and reissued. If traps are not being inspected as required, trapping privileges will be revoked.

c. Reports.

(1) Reports of trapping activity must be turned in at the end of each month. DPW Natural Resources personnel provides a "Feral Hog Trapping/Harvesting Report" (spreadsheet) for this purpose. This report should be sent by email to james.bruner5.ctr@mail.mil. If trapping reports are not turned in, trapping privileges will be revoked.

(2) Outdoor Recreation Kill Cards must be maintained and turned in for any feral hogs taken by trapping or hunting. Kill Cards are available at the ODR Office Bldg 24235 at Lake Tholocco.

d. The hogs can be utilized by the volunteer for meat if desired. A list will be made available to volunteers of personnel who are available to receive trapped hogs for meat.

e. Under no circumstances will live hogs be removed from the trap and/or transported. This is a violation of state law and of Fort Rucker regulations and violators will be prosecuted. Violators will have their hunting, fishing and trapping privileges suspended and/or revoked.

f. Violations and penalties associated with trapping on Fort Rucker are as published in Appendix B of this regulation.

Section VII

BOATING AND WATER ACTIVITIES.

1. GENERAL.

a. All motorized (gasoline powered) vessels used on the waters of the Fort Rucker military reservation must have a current state registration.

b. Vessel launch passes must be paid as indicated on area signs.

c. All patrons/personnel and vessels will comply with Alabama and federal laws and regulations, unless specified below.

d. Persons operating watercraft in a reckless or hazardous manner or in violation of the regulations in this section may lose their privileges to operate a boat on the waters of Fort Rucker. Watercraft not having the required equipment will not be allowed to operate until the required equipment is obtained.

2. BOAT OPERATIONS SPECIFIC TO LAKE THOLOCCO.

a. The operator of any vessel, motorized or not, must have in his/her possession a Lake Tholocco Boater Safety Certificate. One may be obtained online at <https://rucker.armymwr.com/programs/hunting-and-fishing> or call 334-255-4305.

b. All powerboat operators will follow a clockwise traffic pattern in the primary ski area of the lake, keeping the red buoys on the right and the white buoys on the left. Operators of all vessels (as defined by Alabama state regulations) will obtain and thoroughly familiarize themselves with the Lake Tholocco Traffic Pattern.

c. Boats and personal watercraft (PWC) will not be operated within 100 feet of the authorized swimming area.

d. Boats and PWC will not be operated within 150 feet of the spillway structure of the dam.

e. Non-powered pleasure boats, including rowboats and canoes except when being used for fishing, will operate only in designated areas.

f. Sailboats, windsurfing, wave runners, jet skis, and airboats will be restricted to areas north of West and East Beach piers, with the following exceptions:

(1) Watercraft launched at the marina may use the west side of the lake en route to the authorized area, provided they take the most direct route.

(2) Watercraft may proceed directly to and from East and West Beach drop-off areas to pick up/discharge riders. They may not enter the main circulation area unless they are pulling skiers or tubes. Jet skis and wave runners pulling skiers/tubes must operate within the normal vessel/ski pattern in area 1.

(3) Jet skis and wave runners will be launched from boat ramps.

g. PWC may only operate from sunrise to sunset, except for fishing. Fishing from a boat is authorized 24 hours a day. In addition to Alabama boat lighting requirements, fishing boats operating at night must have an operational flashlight or spotlight onboard and required Type I, II, III, or V, U.S. Coast Guard-approved Personal Floatation Device (PFD) lifejackets.

- h.** Boat and PWC operators are prohibited from leaving skiers in any area other than authorized drop-off points (East and West Beach outside roped-off swimming areas).
- i.** Swimming from boats is prohibited, except in the event of an emergency.
- j.** Patrons/personnel under 18 years of age must be accompanied by an adult when using ODR boats.
- k.** Windsurfing is authorized only on Lake Tholocco. Windsurfers will stay clear of water ski and swimming areas. Windsurfers must wear a PFD lifejacket.
- l.** Impoundments are restricted from use.
- m.** Reckless or negligent operation of boats or PWC will not be tolerated. Except for specifically approved special events such as boat races, boats will be operated at a safe and prudent speed dictated by congestion and lake utilization.
- n.** Automobiles/trucks and their boat trailers will spend only minimum time on the launching ramps. Minimum time is defined as only that time required to safely launch and/or to recover boats.
- o.** During periods of severe weather or very low water when lakes are hazardous to boating, the DFMWR designee, DFMWR lifeguards, or GLE officer may close that portion of the ODR facility for safety reasons.
- p.** Paddle boards may only be used in Area 2. Paddle boards are deemed a vessel and a life vest is required on board for each person.

3. SWIMMING, BEACH RULES, AND BEACH INFORMATION.

- a.** Lifeguards have the authority to close the swimming area when deemed unsafe.
- b.** Swimming is allowed during designated daylight hours when lifeguards are on duty. Swimming is allowed only inside the roped-off area.
- c.** “Swimming at your own risk” is not permitted on Fort Rucker.
- d.** Swimming enhancement rules: PFDs are not required, except for non-swimmers. No diving, jumping, or pushing allowed. No loitering. No roughhousing allowed. No sharp or dangling jewelry. No swimming under floating swim enhancements at any time.
- e.** All patrons will comply with posted rules and regulations and lifeguard instructions.

Section VIII

SAFETY.

8-1. GENERAL. We want our recreational activities to be performed in a safe, responsible and enjoyable manner. To achieve our goal we've implemented restrictions on hunting, fishing, and water activities established upon by safety considerations and our training environment. Anyone identifying or having knowledge of an accident or incident occurring on Fort Rucker will notify the appropriate authorities – Emergency dial 911, MP Desk at 255-2222, or Environmental Resources Division at 255-1659.

8-2. POLICIES.

a. General Rules.

(1) Hikers, runners, joggers, walkers, horseback riders, and nature watchers are strictly prohibited to use any TA that are not designated or identified as approved trails. Hikers, runners, joggers, walkers, horseback riders, and nature watchers are only allowed on designated trails/courses. Violators are subject to be fined.

(2) Patrons must obey all posted rules and restrictions listed at each trail/course location.

(3) Designated horse riding areas are coordinated between Range Operations and the riding stables. All riders will coordinate horse riding with the riding stables. Horse riding is restricted to approved established trails only; free riding throughout TAs is not authorized. Riders must wear a vest or jacket hunter orange and must be visible from any angle.

(4) No firearms are permitted in 19E.

(5) Pets must be on a leash no longer than 6 feet on Air Assault and Beaver Lake courses.

(6) Runners with animals are prohibited from using tracks during hours of scheduled physical training.

(7) Unit physical fitness training has priority of running tracks between the hours of 0600 and 0730, Monday through Friday.

(8) Additional running restrictions can be found in Fort Rucker Regulation 190-5, Fort Rucker Motor Vehicle Regulation, dated 6 December 2016.

(9) Removal or disturbance of any plant, mammal, reptile, bird, or antiquities is prohibited.

(10) Possession or use of alcohol and/or illegal drugs while hunting is prohibited.

(11) Removing, altering, or defacing signs is prohibited. All official Fort Rucker regulatory signs will be strictly obeyed.

(12) Littering or dumping is strictly prohibited.

(13) Civilians will not enter any training area that is closed for training as listed in iSportsman.

b. Designated Walking, Running, and Fitness Trails.

(1) Only designated walking, running, and fitness trails are to be used for recreational fitness activities.

(2) Designated walking, running, and fitness trails include the following:

(a) Parcours Fitness Trails (behind IHG Army Hotels, Building 380).

(b) Beaver Lake Jogging and Hiking Trail.

(c) Air Assault Track (authorized night use).

(d) Quarter-Mile Track behind the Fort Rucker Physical Fitness Center, Building 4605 (authorized night use).

(3) Caution should be used in wooded areas and along trails that can harbor poison oak, ticks, and poisonous snakes. Be alert!

(4) Use of the buddy system is encouraged, especially in foul weather or low-light conditions.

(5) Children under 16 years of age must be accompanied by an adult when utilizing trails.

c. Hunter Orange. (See Section I, Paragraph 1-9 HUNTER ORANGE).

d. Duds and UXOs. Patrons/Personnel finding any unexploded ordnance (UXO) will immediately report the location to the Training Division, DPTMS, 334-255-4303/4793. Patrons will not pick up, move, or otherwise disturb an item suspected of being a UXO. Mark the area and path in such a way that the UXO can be easily located by Range Operations.

e. Indiscriminate shooting is not allowed within the confines of the Fort Rucker military installation. Target practice is only allowed at the Privately Owned Weapon (POW) Range. Range is located across from Range Operations Bldg 24314. Individuals must present a stamped copy of their Fort Rucker Form 818-E and a valid state or federal ID to Range Operations personnel and receive a safety brief before they are allowed to use the POW Range. Patrons/personnel should contact Range Operations for times of operation at 334-255-4303/4486.

f. ODR will ensure Corvias Housing includes a statement in military tenants' housing agreements denoting that trapping is authorized in the TAs surrounding the cantonment area but is restricted to at least 200 yards from any housing areas, facilities, or structures.

Section IX**NIGHT HUNTING (RACCOON AND OPOSSUM).**

- 1. GENERAL.** There is a significant demand for raccoon hunting at night. Fort Rucker sustains significant night flight operations which involves ground operations. This Chapter outlines

procedures that must be followed to allow our patrons use of TAs for night recreational hunting of raccoons/opossum IAW laws and regulations without disruption to flight operations or military training.

2. ADMINISTRATIVE RULES.

a. The only authorized night hunting in the state of Alabama is Raccoon and Opossum. Raccoon and Opossum may be hunted during daytime or nighttime hours. Legal hours for hunting raccoons and opossum are defined as 30 minutes before sunrise until 30 minutes after sunset. Effective for 2017, Raccoon and Opossum has no closed season.

b. Hunting raccoons with dogs is authorized, IAW Alabama state laws and regulations, No running of dogs during daytime or after 3:00 a.m. during and in areas of spring turkey season. See. **Paragraph 3-8 HUNTING WITH DOGS** for additional mandates and restrictions.

c. For 2017, there are no bag limits for opossums hunted on Fort Rucker. Raccoon bag limits are 5 Per Party.

3. CLEARANCE TO ENTER ZONES / TRAINING AREA.

a. It is mandatory that all hunters call Range Operations Training Division's Automated Briefing System (briefing tape) at 334-255-4086 to obtain information regarding TA status. After confirming TA status, hunters must sign-in via <https://fortrucker.isportsman.net>.

b. Night hunters are permitted to hunt the following TAs:

(1) "North of Highway 27" (TAs 1-11).

(2) "West of Highway 85" (TAs 12-31) **No firearms in 19E.**

(3) "East of Highway 85" (TAs 32-41).

c. Night hunters can only sign into and hunt in one zone at a time. Hunters will select an open TA. The selected TA assignment shall be binding. Hunters are allowed to change TAs by logging in to <https://fortrucker.isportsman.net> to change their TA.

4. **FIREARMS AND AMMUNITION.** Legal arms and ammunition for hunting on Fort Rucker is IAW the State hunting regulations. **Daytime hunting** are only authorized rifles using rimfire ammunition or those operated by air; muzzleloaders and black powder handguns; long bows, compound bows, or crossbows; shotguns 10 gauge or smaller, using standard No. 4 shot or smaller;

handguns or pistols. **Nighttime hunting** is only permitted with shotguns using No. 6 shot or smaller; .22 caliber rimfire rifles. The identified firearms and ammunition are authorized in TAs 1 – 21, TAs 29 – 32, and TAs 40 – 41. There are no firearms permitted in TA 19E.

5. CLEARANCE OF FIRES.

- a. Hunters will ensure the area behind the target is cleared.
- b. No discharge of firearms within 50 yards of paved roads, gravel roads or maintained roads. No discharge of firearms within 200 yards of airstrips, recreational areas (to include trails), fishing areas, lakes, or buildings – to include stables and housing areas.
- c. Weapons and bows will not be fired in the direction of roads, airstrips, recreational areas, or buildings.
- d. Indiscriminate shooting is not allowed within the confines of the Fort Rucker military installation.

6. NIGHT HUNTING MANDATES AND RESTRICTIONS.

- a. Raccoon nor opossum hunting are not permitted in lettered (bow) areas to include TAs A1, A2, B, C, D, E, F, G, H, I, and 19E.
- b. Dog are not allowed in the recreational areas at Buckhorn Lake, Ech Lake, and Parcours Lake.
- c. Night lights will be use IAW Alabama State laws and regulations.
- d. Hunters wounding game will make every effort to track down the game. They will notify the GLE officers (334-255-4735/4213) of lost game. Tracking wounded game into the impact area is prohibited.
- e. Hunters must display the ODR Vehicle Registration Card in plain view on the dashboard of the driver's side of their vehicle. The ODR registration card must be filled out legibly and in its entirety.
- f. Hunting from a motor vehicle is prohibited.

g. Motor vehicles will not traverse cross-country through wildlife openings (food plots), through utility line rights-of-way, or around locked gates and cables.

Appendix A
REGULATORY VIOLATIONS AND PENALTIES.

	VIOLATION	OFFENSES	
		1ST	2ND
1	Failure to properly log into hunting area utilizing iSportsman. Failure to depart hunting area after legal hunting hours.*	7 Day	30 Day
2	Failure to properly display ODR Registration Card or NR Vehicle Identification Card	30 Day	180 Day
3	Hunting without prescribed hunter orange vest/ jacket or headgear.	30 Day	180 Day
4	Traversing through planted wildlife openings (food plots) with a motor vehicle.	30 Day	180 Day
5	Dismounting dogs to hugs to hunt prior to parking transporting vehicle.	30 Day	180 Day
6	Hunting with a dog without proof of a current rabies vaccination.	30 Day	180 Day
7	Using noise-producing devices to drive game i.e., fireworks, blank pistols, indiscriminate shooting, etc..	30 Day	180 Day
8	Failure to have covered quiver for broad heads while bow hunting.	30 Day	180 Day
9	Parking a vehicle on Artillery Road while hunting.	30 Day	180 Day
10	Hunting or trapping within 200 yards of the ASP, airstrips, recreational areas, or buildings.	30 Day	180 Day
11	Use and/ or possession on person of unauthorized ammunition.	30 Day	180 Day
12	Use of ammunition other than .22- caliber or smaller rimfire firearm or shotgun (specified by state regulations) using number 6 shot or smaller size shot for hunting raccoon/opossum at night.	30 Day	180 Day
13	Bow hunting in an open gun area during firearm season without Hunter Orange vest/headgear.	30 Day	180 Day
14	Hunting with firearms in bow only areas, such as 19E.	30 Day	180 Day
15	Indiscriminate shooting or target practice while gun or bow hunting.	30 Day	180 Day
16	Shooting before or after the legal shooting hours specified in state regulations.	30 Day	180 Day
17	Training hunting dogs in an unauthorized area.	30 Day	180 Day
18	Riding of horses in an unauthorized areas.	30 Day	180 Day
19	Failure to register a weapon on Fort Rucker.	30 Day	180 Day
20	Child in a boat under eight (8) years of age not wearing a Personal Flotation Device (PFD)	30 Day	180 Day

Appendix A
REGULATORY VIOLATIONS AND PENALTIES.

21	Improper safety equipment.	30 Day	180 Day
22	Improper and/ or expired watercraft registrations.	30 Day	180 Day
23	Reckless and/ or improper operation of watercraft.	30 Day	180 Day
24	Riding of horses without vest or jacket.	30 Day	180 Day
25	Unauthorized entry into a "Closed" Training Area.	30 Day	180 Day
26	Depredation trappers not wearing designated Yellow Identification Vest.	30 Day	180 Day
27	Discharge of weapon vicinity training unit in a "Closed Area" without authorization.	60 Day	1 Year
28	Use of ammunition other than .22- caliber or smaller rimfire firearm or shotgun (specified by state regulations) ammunition to dispatch a trapped animal.	60 Day	180 Day
29	Using horses in conjunction with hunting.	1 Year	Revoke
30	Tampering with or removal/ destruction of and barricade or gate.	1 Year	Revoke
31	Use of alcoholic beverages and/ or narcotics while hunting (including traveling to and from assigned area).	1 Year	Revoke
32	Spotlighting or hunting with an artificial light at night (except as provided in state regulations).	1 Year	Revoke
33	Operating an ATV, to include motor- driven cycles, in an hunting area, except to be operated by an approved hunter who is Individual with Disabilities (IWD)	1 Year	Revoke
34	Possession of illegally shot game.	1 Year	Revoke
35	Hunting, fishing, or trapping in Closed or un-assigned TA.	1 Year	Revoke
36	Hunting, fishing, or trapping without an installation permit or state license.	1 Year	Revoke
37	Hunting with unauthorized or improper firearms.	1 Year	Revoke
38	Possession of illegal bag or creel limit.	1 Year	Revoke
39	Failure to report all harvested game.	1 Year	Revoke
40	Fishing (including frog gigging) by unauthorized methods.	1 Year	Revoke
41	Use of unauthorized trapping equipment and devices.	1 Year	Revoke
42	Transporting a loaded and/ or uncased firearm in vehicle.	1 Year	Revoke
43	Discourteous or disrespectful conduct toward Fort Rucker employees.	1 Year	Revoke
44	Any boating regulations.	1 Year	Revoke
45	Riding of horses without prescribed hunter orange vest/ jacket or headgear.	1 Year	Revoke
46	Free riding throughout training areas.	1 Year	Revoke

Appendix A
REGULATORY VIOLATIONS AND PENALTIES.

47	Violations not covered above.	1 Year	Revoke
48	Unauthorized Night Hunting.	Revoke	
49	Hunting, fishing, or trapping in restricted areas (Impact Area, including section of Training Area 7 and 11) without authorization.	Revoke	
50	Shooting from a vehicle (not including IWD).	Revoke	
51	Taking of game from a baited area.	Revoke	
52	Permitting another to use state hunting/ fishing/ trapping licenses and post permits.	Revoke	
53	Any use of firearm in 19E.	Revoke	
	LEGEND: * Third Offense is One Year Suspense		

Appendix B

COYOTE/HOG DEPREDATION TRAPPING IN OCCUPIED TRAINING AREAS.

1. PURPOSE.

- a. To establish policies to be followed by all units and personnel in support of depredation trapping of invasive feral hogs and coyotes within training areas occupied by military training units on Fort Rucker.
- b. To ensure that all units and personnel concerned with operations and training at Fort Rucker are thoroughly familiar with safety and utilization requirements.

2. APPLICABILITY. Unless directed otherwise, this policy applies to all units and personnel conducting training or depredation trapping in occupied training areas at Fort Rucker.

3. RESPONSIBILITIES.

- a. The Chief, Training Division, under the direction of the DPTMS, will –

- (1) Manage ranges, TAs, and other training facilities in a safe and effective manner.

- (2) Assist the OIC of units to ensure the efficient operation and use of TAs, to include inspections and/or supervision of training to ensure compliance with this policy.

- (3) Provide for the safety of personnel conducting operations within the training complex, to include ceasing operations or revoking privileges of individuals operating outside of compliance criteria.

- b. The DPTMS, Training Division Range Operations will –

- (1) Make on-the-spot correction of any violation of this policy or other applicable publications and report violations to DPTMS.

- (2) Provide TA information to all active duty, reserve, and national guard units; the Environmental and Natural Resources Division, DPW; the Natural Resources Branch, DPW, and all others requiring entry into TAs.

(3) Coordinate with EOD personnel for the necessary clearing of any reported UXO identified during depredation trapping or training activities.

(4) Provide safety briefings to the OIC of using units and Natural Resources personnel. The Unit OIC briefing will include, but not limited to, locations of Coyote/Hog traps in their TAs, associated hazards, times to check traps/dispatch animals, trap identification, trapper identification (e.g. yellow vest, ID card in vehicle, etc.), and to leave traps alone. Failure to follow these instructions may result in administrative disciplinary actions.

(5) Publish a list daily of areas scheduled for use by military units or maintenance and sustainment activities.

(6) Immediately notify the installation Command Group and the GSO of any incident involving injury, death, or property damage within the training complex.

(7) Immediately notify GSO of all incidents that involve violations of this regulation.

(8) Assist using units in developing DRAWs as necessary and inform using units of any risks associated with depredation-trapping activities within occupied TAs.

(9) Notify using units of animal dispatch activities prior to depredation-trapping personnel entering occupied training area for the purpose of checking traps or dispatching animals. Provide notification to unit personnel of the anticipated times to check traps, dispatch time, when dispatch activities have been completed, and when depredation-trapping personnel have departed.

(10) Maintain a copy of the current depredation-trapping DRAW and staff for semi-annual update or changes as required.

c. Commanders of using units will –

(1) Ensure compliance with procedures and guidance outlined in training facility SOPs, unit SOPs, depredation-trapping DRAW, and this regulation for the safe training within the command.

(2) Incorporate internal depredation-trapping mitigation measures, avoidance, and reporting criteria within unit DRAW.

(3) Designate in writing a qualified OIC to be responsible for the safe conduct of training and the proper use of facilities. Personnel selected will be:

(a) Competent and properly instructed in the performance of their duties.

(b) Knowledgeable in the hazards and mitigation strategies associated with each specific training event they are conducting.

(c) Provide adequate communications (FM/VHF) and ensure that constant monitoring and hourly communications checks are maintained with Range Operations during training.

d. The Unit OIC will –

(1) Be certified in writing and knowledgeable of hazards, DRAW, and requirements associated with the training event and or facilities.

(2) Be present at all times during the training event.

(3) Receive a TA briefing from Range Operations upon signing for the location.

(4) Sign for all Range Operations equipment necessary to operate the training facility.

(5) Ensure that communications are established and maintained with Range Operations, and strictly adhered to all communications requirements.

(6) Review Natural Resources map and grid location spreadsheet of the Coyote/Hog Traps provided at time of signing for TA and be familiar with all trap locations within the TA to include current status of either active or inactive.

(7) Ensure that all safety measures are taken, including but not limited to the following:

(a) Ensure all Soldiers are briefed on trap locations and avoidance or reporting procedures.

(b) Ensure a copy of the unit DRAW, map of trap location and status, depredation-trapping DRAW and spreadsheet containing grid locations for traps are on hand at all times.

(c) Ensure Soldiers are familiar with medical requirements to include awareness of established medical evacuation points contained within Appendix B.

(d) Report any trapped hogs to Range Operations upon discovery, to include trap number and eight (8) digit grid location.

(e) Report any UXO or suspected UXO IAW procedures contained within paragraph 1-3h.

(f) If required, provide depredation-trapper personnel an escort to dispatch trapped hogs in TA 15 and 38 during SERE operations.

e. The Garrison Safety Office will –

(1) Conduct review and/or make recommendations for safety requirements contained within this appendix and the depredation-trapping DRAW.

(2) Assist with investigations regarding safety incidents associated with depredation-trapping activities conducted within occupied training areas.

(3) Review required documentation and conduct inspections to assist with compliance of all applicable policies, guidelines, or regulations.

f. The DPW Environmental Division, Natural Resource Branch will –

(1) Publish current map of active, inactive, and unserviceable trap locations. In addition, as changes occur updates will be sent via email to the same distribution chain as the daily range and training area utilization/confirmation schedule.

(2) Provide and update spreadsheet to Range Operations containing eight (8) digit grid locations of trap locations.

(3) Ensure traps utilizing wireless cameras (Jager Pro) are not placed within TA 38.

(4) Ensure Hog traps are placed at locations other than known specified training sites (e.g. BIVOUAC, bleacher areas, courses, buildings, etc.) and no closer than 50 yards from paved roads.

(5) De-conflict internal operations such as timber harvest, spraying, marking, cruising, or other natural resource activities co-located within training areas not occupied by training units.

(6) Ensure depredation trappers are briefed they must contact Range Operations and receive approval prior to entering any occupied training area for the purpose of checking/maintaining traps and/or dispatching operations.

(7) Ensure Coyote/Hog depredation-trapping personnel/vehicles are clearly marked (e.g. yellow vests labeled TRAPPER, magnetic signs, etc.) and is clearly articulated in depredation-trapping program.

(8) Ensure depredation trappers are briefed they must maintain communications with Range Operations throughout animal dispatching activities and at all times while within occupied training areas.

(9) Ensure depredation trappers are provided with specific guidelines and procedures for using firearms to dispatch animals while within occupied training areas.

(10) Ensure all traps placed within training areas are properly identified with a four (4) x four inch sign containing numeric identification.

(11) Cease operations and notify Range Operations immediately upon discovery of UXO or suspected UXO.

(12) Ensure depredation trappers are briefed all weapons will remain on safe and unloaded prior to animal dispatch. Upon conducting animal dispatch, the weapon will be loaded and aimed in a manner to prevent rounds from departing the immediate area and placing personnel or infrastructure at risk (no free shooting of trapped or un-trapped animals). All weapons will be properly cleared and placed on safe immediately following animal dispatch.

(13) Ensure compliance of all mitigation and safety measures contained within this regulation, Fort Rucker Reg 385-1, internal DPW Trapping SOP and depredation-trapping DRAW at all times while conducting depredation trapping or dispatching operations within occupied training areas.

(14) Identify scheduled times for checking traps and possible dispatch procedures in depredation-trapping plan. Scheduled times will be no more than twice daily, 0500-0800 and 1500-1800.

APPENDIX 17. Fort Novosel GIS Databases

Fort Novosel GIS Databases

<i>Feature Dataset</i>	<i>Feature Class</i>
Auditory	Noise Contour Line
	Noise Incident Point
	Noise Zone Area
Boundary	Jurisdiction County Area
	Jurisdiction Municipal Area
	Jurisdiction State Area
Buildings	Structure Existing Area
	Structure Existing Point
Cadastre	DOD Property Management Point
	Installation Area
	Installation Historical Area
Carto	Section Area
	Subsurface Water Flow Direction
	Surface Water Flow Direction
Common	Coordinate Grid Area
	Coordinate Grid Line
	UTM Grid Line
	UTM Grid Point
Communications	Communication Antenna Point
	Speaker Point
Environmental Hazard Building	Lead Paint Hazard Point
Environmental Hazmat Waste	Hazmat Storage Location Point
	Hazwaste Storage Location Point
Environmental Haz Pollution	Air Emissions Source Point
	Surface Water Discharge Point
Environmental Haz Regulated Tank	Solvent Tank Point
Environmental Haz Solid Waste	Landfill Cell Area
Fauna	Species Forage Area
Flora	Flora Fire Area
	Flora Prescribed Burn Area
	Forest Compartment Area
	Land Vegetation Area
Geodetic	LCTA Point
	Timber Harvest Area
	Control Point
	Digital Elevation Model Points
	NGS Control Point
Hydrography	USGS Quad Area
	Flood Zone Area
	Surface Water Body Area
	Surface Water Course Area
	Surface Water Course Centerline
	Watershed Area
	Wetlands Area

Feature Dataset	Feature Class
Improvement Flood Control	Dam Site
Improvement General	Fence Line
	Gate Point
Improvement Recreation	Athletic Field Area
	Golf Course Area
	Hunting Area
	recreation Trail Centerline
	Swimming Pool Area
Improvement Well	Water Well Point
Land Status	Borrow Pit Area
	Cemetery Area
	Land Repair Area
	Placement Point
Landform	Elevation Contour Line
	Spot Elevation Point
	Survey Traverse Point
Military Air Operations	Military Flight Corridor
	Military Special Use Airspace
	Military Route Line
	Military Route Point
Military Range	Firing Fan Area
	Firing Lane Area
	Firing Point
	Military Live Fire Area
	Military Range Area
	Military Range Site Area
	Military Target Line
	Military Target Point
	Military Safety
Dudded Impact Area	
Quantity Distance Arc Area	
Surface Danger Zone	
Safety Marker Point	
Non Dudded Impact Area	
UXO Clearance Area	
UXO Contamination Point	
Military Security	Military Restricted Access Area
Military Training	Military Landing Zone Area
	Military Landing Zone Point
	Military Observation Point
	Military Training Sub Area
	Tank Trail Line
	Training Areas
	Training Point
Soil	Soil Map Unit Area
Transportation Air	Air Accident Zone Area

<i>Feature Dataset</i>	<i>Feature Class</i>
	Airfield Area
	Airfield Imaginary Surface Area
	Airfield Surface Area
	Airfield Surface Edge Line
	Airfield Surface Point
	Airspace Obstruction Navaid Point
	Navigational Aid Point
Transportation Road	Railroad Centerline
Transportation Vehicle	Road Bridge Centerline
	Road Centerline
	Road Edge Line
Utilities Electrical	Electrical Cable Line
	Electrical Generator Point
	Electrical Substation Point
	Electrical Switch Point
	Exterior Lighting Point
Utilities Fuel	Fuel Farm Area
	Fuel Tank Point
Utilities General	Utility Pole Tower Point
Utilities HCS	Heat Cool Pump Point
Utilities Industrial	Industrial Waste Tank Point
Utilities Storm	Storm Water Stilling Basin Point
	Storm Sewer Discharge Point
Utilities Wastewater	Wastewater Line
	Wastewater Discharge Point
Utilities Water	Water Fire Connection Point
	Water Line
	Water Pump Point
	Water Pump Station Site
	Water Tank Point
	Water Treatment Plant Area

Natural Resources GIS Data Layers

Fish and Wildlife

Annual Camera Survey Camera Locations

Ft Rucker Land Boundary Dispute

Game Check Station Locations

Fawn Mortality Project Layers*

- *Fawn Mortality Study Area*
- *Bait Sites*

Fire Lane Road Work

Food Plot Location and Types

Lake Tholocco*

- *Christmas Tree Locations*
- *Contour Intervals*
- *Fish Attractors*
- *Rubble Piles*
- *Trenches*
- *Windrows*

Turkey Walk-In Sign Locations

Vegetative Communities

NPDS

Perimeter Security Shapefiles*

Pictures

- Fawn Pictures
- Fish Survey Pictures
- Turkey Pictures

Forestry

Prescribed Burn Shapefiles

- Burn Units
- Smoke Area Buffer Rings
- Smoke Plume Angles
- Firelanes
- Points of Concern
- Smoke Sensitive Areas
- Burn Documents

Ft Rucker Stands

Sustainable Range Program (SRP) GIS Data Layers

<i>SDSFIE-V 4.0 Army Adaptation Feature Type</i>	<i>Geometry</i>
EsqdArc_A	Area
ImpactArea_A	Area
MilitaryRange_A	Area
MilitaryTrainingLocation_Ste_P	Point
MilitaryTrainingLocation_TrngA_A	Area
AerialObstruction_P	Point
AmmunitionStorage_A	Area
AmmunitionStorage_P	Point
<i>Berm_MilitaryRangeBerm_A</i>	<i>Area</i>
Berm_MilitaryRangeBerm_L	Line
EvacuationSite_A	Area
<i>EvacuationSite_P</i>	<i>Point</i>
FiringSite_A	Area
FiringSite_L	Line
FiringSite_P	Point
<i>ForwardArmingRefueling_A</i>	<i>Area</i>
ForwardArmingRefueling_P	Point
Grid_A	Area
Grid_L	Line
Grid_P	Point
Incident_MilitaryIncident_P	Point
LramSite_A	Area
LramSite_L	Line
LramSite_P	Point
MilitaryLandingZone_A	Area
<i>MilitaryLandingZone_P</i>	<i>Point</i>
MilitaryLocalFlyingArea_A	Area
MilitaryObservationPosition_P	Point
MilitaryRangeEquipment_P	Point
MilitaryReportingPoint_P	Point
MilitaryTarget_L	Line
MilitaryTarget_P	Point

<i>SDSFIE-V 4.0 Army Adaptation Feature Type</i>	<i>Geometry</i>
MilitaryTrainingRoute_L	Line
RangeControllerPosition_P	Point
RangeEntrance_P	Point
RangeLimitMarker_P	Point
RegulatedAirspace_A	Area
RestrictedArea_MilitaryRange_A	Area
RtlaSite_A	Area
RtlaSite_L	Line
RtlaSite_P	Point
SpecialUseAirspace_A	Area
SurfaceDangerZone_A	Area
UnexplodedOrdnanceClearance_A	Area
UxoContamination_A	Area
UxoContamination_P	Point
WeaponDangerZone_A	Area