APPENDICES
FOR

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
2019-2023
UNITED STATES ARMY GARRISON, FORT GORDON

APPENDIX A
Abbreviations and Acronyms

LIST OF ACRONYMS/ABBREVIATIONS

ACUB	Army Compatibility Use Buffer
AEC	Army Environmental Command
AFB	Air Force Base
AIA	Artillery Impact Area
AIT	Advanced Infantry Training
AR	Army Regulation
BA	Basal Area
BBL	Bird Banding Laboratory
BMP	Best Management Practice
BO	Biological Opinion
Ca	Calcium
CAB	Combat Aviation Brigade
CECOM	U.S. Army Communications-Electronics Command
CFR	Code of Federal Regulation
CSS	Central Security Agency
CWA	Clean Water Act
CYBER	Cyber Command
dbh	Diameter at Breast Height
DDEAMC	Dwight David Eisenhower Army Medical Center
DENCOM	U.S. Army Dental Command
DES	Directorate of Emergency Services
DFMWR	Directorate of Family, Morale, Welfare, and Recreation
DIB	Diameter Inside Bark
DoD	Department of Defense
DoE	Department of Energy
DPTMS	Directorate of Plans, Training, Mobilization, and Security
DPW	Directorate of Public Works
EA	Environmental Assessment
ED	Environmental Division
EIS	Environmental Impact Statement
E	Endangered
EO	Executive Order
ESA	Endangered Species Act
ESMC	Endangered Species Management Component

°F	Fahrenheit
Ft^2/ac	Square Feet Per Acre
FBI	Federal Bureau of Investigation
FEC	Future Ecosystem Conditions
FGSC	Fort Gordon Sportsman Club
FMIS	Forest Management Information System
FNSI	Finding of No Significant Impact
FORSCOM	Forces Command
FPPA	Farmland Protection Policy Act
FTX	Field Training Exercise
FY	Fiscal Year
GADNR	Georgia Department of Natural Resources
GAFC	Georgia Forestry Commission
GANGB	Georgia National Guard
GEPPC	Georgia Exotic Pest Plant Council
GIS	Geographical Information System
GS	General Service
HAAF	Hunter Army Airfield
HMU	Habitat Management Unit
HQ	Headquarters
I-20	Interstate 20
I-520	Interstate 520
IMCOM	U.S. Army Installation Management Command
INRMP	Integrated Natural Resource Management Plan
INSCOM	Intelligence and Security Command
IPG	Installation population goal
IPM	Integrated Pest Management
IPMC	Installation Pest Management Coordinator
IPMP	Integrated Pest Management Plan
ITAM	Integrated Training Area Management Program
IWFMP	Integrated Wildland Fire Management Plan
JF	Joint Force
K20	Potassium
LID	Low-Impact Development
LRAM	Land Rehabilitation and Maintenance
MEDCOM	Medical Command

MBF	Thousand Board Feet
MBTA	Migratory Bird Treaty Act
MI	Military Intelligence
Mn	Manganese
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MOUT	Military Operations on Urban Terrain
MP	Military Police
MPMG	Multi-purpose Machine Gun
MSL	Mean Sea Level
MTF	Medical Treatment Facility
N	Nitrogen
NBC	Nuclear, Biological, and Chemical
NEPA	National Environmental Policy Act
NETCOM	Network Enterprise Technology Command
NL	Not Listed
NOA	Notice of Availability
NPDES	National Pollution Discharge Elimination System
NRB	Natural Resources Branch
NRCS	Natural Resources Conservation Service
NRFL	Non-reimbursable forest land
NSA	National Security Agency
NWCG	National Wildfire Coordination Group
ORISE	Oak Ridge Institute Student Employment
ORP	Outdoor Recreation Plan
ORV	Off-Road Vehicle
P205	Phosphorous
PAM	U.S. Army Pamphlet
PAO	Public Affairs Office
PBG	Potential Breeding Group
PL	Public Law
PMC	Pest Management Consultant
POW	Prisoner of War
PWAR	Pointes West Army Recreation Area
PPM	Parts Per Million
PPP	Pollution Prevention Plan

PVC	Polyvinyl chloride
QAP	Quality Assurance Plan
R	Rare
RCMP	Range Complex Master Plan
RCW	Red-cockaded Woodpecker
RFL	Reimbursable Forestland
RRCC	Robust Redhorse Conservation Committee
RTLA	Range Training Land Assessment
SAIA	Small Arms Impact Area
SAR	Species at Risk
SARSA	Small Arms Range Safety Area
SC	Species of Concern
SDSFIE	Spatial Data Standard for Facilities, Infrastructure, and Environment
SESCC	Soil Erosion and Sediment Control Component
SESCP	Soil Erosion and Sediment Control Plan
SMS	Sustainability Management System
SNED	Snake Excluder Device
SOCOM	Special Operations Commands
SOAR	Special Operations Aviation Regiment
SOP	Standard Operation Procedures
SPHSD	State Parks and Historic Sites Division
SQED	Squirrel Excluder Device
SRTC	Southern Range Translocation Cooperative
SWAP	State Wildlife Action Plans
SWPPP	Stormwater Pollution Prevention Plan
T	Threatened
TA	Training Area
TARDEC	U.S. Army Tank Automotive Research, Development and Engineering Center
TASC	Tactical Advantage Sportsman’s Complex
TASS	Trusted Associate Sponsorship System
TIM	Technical Information Memorandum
TNC	The Nature Conservancy
TNOSC	Theater Network Operations and Security Center
Tr	Tracked

TRADOC	U.S. Army Training and Doctrine Command
TSA	Tropical Soda Apple
U.S.	United States
U	Unusual
USACE	U.S. Army Corp of Engineers
USAF	U.S. Air Force
USACCoE&FG	U.S. Army Cyber Center of Excellence and Fort Gordon
USASC&FG	U.S. Army Signal Center and Fort Gordon
USASCoE&FG	U.S. Army Signal Center of Excellence and Fort Gordon
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USDA-APHIS	U.S. Department of Agriculture-Animal, Plant, Health Inspection Service
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USMC	U.S. Marine Corps
UXO	Unexploded Ordnance
VENQ	Environmental Quality
VETCOM	U.S. Army Veterinary Command
WSS	Web Soil Survey
WRD	Wildlife Resources Division
WWII	World War II

APPENDIX B
References

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APPENDIX C
USFWS and GA DNR
Cooperative Agreement

COOPERATIVE AGREEMENT
BETWEEN
FORT GORDON MILITARY INSTALLATION
AND
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
AND
GEORGIA DEPARTMENT OF NATURAL RESOURCES

PURPOSE AND AUTHORITY

This Cooperative Agreement by and between the Department of Defense functioning through the Installation Commander of Fort Gordon Military Installation, Georgia, hereinafter referred to as the Installation and the Department of the Interior functioning through the Regional Director of the U.S. Fish and Wildlife Service, hereinafter referred to as the Service, under the authority contained in Title 10 U.S.C., Section 2671 and in Public Law 86-797 (16 U.S.C. 670a-670b), and the State of Georgia functioning through the Commissioner, Georgia Department of Natural Resources, hereinafter referred to as the State, is entered into for the purpose of providing the Commander of the Installation with professional and technical information necessary to coordinate actions pertaining to the operation, development, management, and protection of wildlife and fisheries resources at the Installation.

RESPONSIBILITIES

Whereas, the Commander of the Installation has jurisdiction over Fort Gordon Military Reservation and has the trusteeship responsibility to protect, maintain, and enhance wildlife resources found thereon,and

Whereas, the Service is the agency of the Federal Government primarily responsible for the protection and enhancement of the wildlife resources, and

Whereas, the Georgia Department of Natural Resources was created under the laws of the State of Georgia to provide an adequate and flexible system of enhancement, development and protection of wildlife resources in Georgia, and

Whereas, it is the mutual desire of the Installation, the Service, and the State to work in harmony for the common purpose of developing, enhancing and protecting the wildlife resources at the Installation in the best interest of the people served by these resources.

Therefore, it is mutually agreed that:

Section I. Joint Activities of the Installation, Service, State Agency

1. The Service and State will act in an advisory capacity to the Installation on matters pertaining to the management of wildlife resources on lands administered by the Installation. Actual management of the wildlife resources will remain the responsibility of the Installation Commander.

2. An interdisciplinary approach shall be promoted by all interested parties to resolve problems relating to multiple-use management of natural resources.

3. All parties will jointly meet annually or as required to discuss matters relating to the management of wildlife resources on or affecting the lands administered by the Installation, such as law enforcement, education and interpretive programs, cooperative studies, plans, surveys, and other matters as may be relevant to wildlife management within the concept of multiple-use management.

4. Nothing in this Cooperative Agreement is intended to modify in any manner the present cooperative program with other public agencies, conservation groups or education institutions, or modify any rights granted by treaty or otherwise to any Indian tribe or member thereof. In the event of a conflict between the Department

of the Interior and the Department of Defense as to the intent of this agreement, the Memorandum of Understanding between the Department of Interior and the Department of Defense for the Conservation and Management of Fish and Wildlife Resources on Military Installations (Sikes Act), will prevail.

5. This Cooperative Agreement may be modified or amended by mutual agreement by the authorized representatives of the three agencies provided, however, that the Installation Commander, upon written notice to the Service and the State, shall have the right to terminate this Cooperative Agreement, in whole or in part, at any time when in his opinion, the Installation's mission or other national security requirements renders termination or modification a necessity.

Section II. Installation Responsibilities

Within the limitations of the assigned military mission and the availability of funds and manpower, the Installation agrees to:

1. Provide access to authorized agents and employees of the Service and State in the execution of this Cooperative Agreement unless security or other military exigency should prevent the granting of such access.

2. Manage, protect and enhance wildlife resources in accordance with the approved Installation outdoor recreation plan.

3. Protect and enhance special interest areas, such as threatened or endangered species habitat or colony sites.

4. Provide information on the management of wildlife resources at the request of the State or Service.

Section III. Service Responsibilities

Consistent with its primary objectives and responsibilities, the Service agrees within the limitation of funds and personnel to:

This adopted on the _____day of _____19___ as attested by the signatures hereon.

Regional Director Southeast Region U.S. Fish & Wildlife Service U.S. Department of the Interior	Director Wildlife Resources Division Georgia Department of Natural Resources
_____ Regional Director	_____ Director

Fort Gordon Military Installation, Georgia
Department of Defense

//ORIGINAL SIGNED//
Installation Commander

APPENDIX D
Annual INRMP Implementation Actions

Appendix D. Summary of INRMP Implementation Actions 2014 through 2018

Management Action	INRMP Implementation Actions (Year)				
	2014	2015	2016	2017	2018
Prescribed Fire	8,214 acres	12,390 acres	14,456 acres	13,713 acres	14,665 acres
Timber Inventory	0 acres	13,994 acres	0 acres	0 acres	4,355 acres
Timber Harvest	991 acres	1,364 acres	1,064 acres	1,364 acres	1,375 acres
Tree Planting (Longleaf pine)	400 acres	250 acres	350 acres	350 acres	350 acres
Native Grass Planting	282 acres	421 acres	496 acres	683 acres	75 acres
Midstory Removal (Mechanical)	260 acres	140 acres	0 acres	373 acres	596 acres
Herbicide Treatment	1,379 acres	3,135 acres	1,486 acres	1,988 acres	3,984 acres
Gopher Tortoise Survey	4,862 acres	5,052 acres	11,719 acres	0 acres	0 acres
RCW Inserts	31 replaced	1 replaced	32 installed 32 replaced	24 installed	0 installed
RCW Translocation	8 birds	0 birds	10 birds	12 birds	8 birds
RCW Fledged	16 birds	23 birds	21 birds	41 birds	44 birds
Kestrel Banding	53 birds	79 birds	70 birds	129 birds	122 birds
Lakes Survey	7 lakes	0 lakes	0 lakes	0 lakes	5 lakes
Fish Stocking	7,125 fish	58,180 fish	45,154 fish	76,190 fish	77,470 fish
Invasive Plant Treatments	0 acres	0 acres	8.5 acres	0 acres	0 acres
Deer Monitoring	8,000 acres	8,000 acres	8,000 acres	8,000 acres	8,000 acres
Quail Monitoring	90 points	90 points	90 points	90 points	88 points
Vegetation Monitoring	0 points	0 points	0 plots	0 plots	0 points
Turkey Monitoring	14 points	14 points	14 points	14 points	14 points
Fire Photograph Monitoring	0 plots	0 plots	0 plots	0 plots	2 plots
RCW Monitoring	50 clusters	45 clusters	46 clusters	53 clusters	59 clusters

APPENDIX E
DoD Ecosystem Implementation Guidance

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON DC 20301-3000

ACQUISITION AND TECHNOLOGY

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DUSD(ES)/EQ-CO

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS, LOGISTICS, AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE NAVY
(INSTALLATIONS AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE AIR FORCE
(MANPOWER, RESERVE AFFAIRS, INSTALLATIONS
AND ENVIRONMENT)

SUBJECT: Implementation of Ecosystem Management in the DoD

I want to ensure that ecosystem management becomes the basis for future management of DoD lands and waters. Ecosystem management is not only a smart way of doing business, it will blend multiple-use needs and provide a consistent framework to managing DoD installations, ensuring the integrity of the system remains intact. Ecosystem management of natural resources draws on a collaboratively developed vision of desired future ecosystem conditions that integrates ecological, economic, and social factors. It is a goal-driven approach to restoring and sustaining healthy ecosystems and their functions and values using the best science available. The goal is to maintain and improve the sustainability and native biological diversity of terrestrial and aquatic, including marine, ecosystems while supporting human needs, including the DoD mission.

Ecosystem management will include:

1. Ecological approach: The DoD will continue to shift its focus from protection of individual species to management of ecosystems.

2. Partnerships: The DoD will form partnerships to achieve shared goals. Ecosystems cross political boundaries, making the need for cooperation, coordination, and partnerships essential for managing ecosystems.

3. Participation: Public involvement, communication, and incorporation of public needs and desires into management decisions will be emphasized.

4. Information: The best available scientific and field-tested information will be used in making decisions and selecting the most appropriate technologies in management of natural resources.

5. Adaptive management: Resource managers will incrementally implement adaptive management techniques as they become known through the dynamic process of applying the best available commercial and scientific data.

Taking an ecological approach involves a greater understanding and recognition of interrelationships among components of the environment (including people) across the landscape and over time. On DoD installations, ecosystem management will be achieved by developing and implementing integrated natural resources management plans and ensuring they remain current. Information from the environmental impact analysis process and other sources will be integrated into these plans as appropriate. Goals must be defined through individual installation planning and, consistent with resource management needs and military missions requirements, ecosystem management must be broadly applied across the land base to achieve those desired goals. Such an approach will require a range of management practices, identification of projected outputs, monitoring to ensure success and improve knowledge, and a commitment from everyone involved to accomplish results.

The DoD is already actively involved with implementation of ecosystem management at some of its installations. These efforts are being significantly expanded by our active participation in the Interagency Ecosystem Management Task Force. The Task Force's activities include regional ecosystem management initiatives, one of which is the Ecosystem Management Team for the Mojave Desert, with DoD as the lead, in partnership with the Department of Interior.

I want you to give additional emphasis to the DoD-wide ecosystem management effort by implementing appropriate policies at all installations. Policy developed by the Services must be consistent with the principles of ecosystem management as outlined in the attachment and as directed by regulatory agencies. Please provide me a report on regional ecosystem management programs which you currently have underway by September 1, 1994. I will be requesting the status of your progress in implementing these ecosystem management principles by July 1, 1995.

If you require additional information, please contact Mr. Peter Boice at (703) 604-5707.

Sherri W. Goodman
Deputy Under Secretary of Defense
(Environmental Security)

Attachment

Department of Defense
Ecosystem Management Principles

Components of ecosystem management:

Ecosystem management is a goal-driven approach to environmental management that is at a scale compatible with natural processes; is cognizant of nature's time frames; recognizes social and economic viability within functioning ecosystems; and is realized through effective partnerships among private, local, state, tribal, and federal interests. Ecosystem management is a process that considers the environment as a complex system functioning as a whole, not as a collection of parts, and recognizes that people and their social and economic needs are a part of the whole.

Goal:

The goal of ecosystem management is to preserve, improve, and enhance ecosystem integrity. Over the long term, this approach will maintain and improve the sustainability and biological diversity of terrestrial and aquatic (including marine) ecosystems while supporting sustainable economies and communities.

Principles and guidelines:

1. Maintain and improve the sustainability and native biological diversity of ecosystems. Ecosystem management involves conducting installation programs and activities in a manner that recognizes, restores, and sustains the composition, structure, and function of natural communities that comprise ecosystems, in order to ensure their sustainability and biological diversity at landscape and other relevant ecological scales.

2. Administer with consideration of ecological units and time frames. Ecosystem management requires the consideration of effects of installation programs and actions at spatial and temporal ecological scales that are relevant to natural processes. A larger geographic view and more appropriate ecological time frames should assist in analysis of cumulative effects on ecosystems that may not be apparent with smaller and shorter scales. Consideration of sustainability under long-term environmental threats, such as climate change, is also important.

3. Support sustainable human activities. People and their social, economic, and national security needs are an integral part of ecological systems, and management of ecosystems depends upon sensitivity to these issues. Actions should support sustainable development by meeting the needs of the present without compromising the ability of future generations to meet their own needs.

4. Develop a vision of ecosystem health. All intereste parties (federal, state, tribal, and local government governmental organizations, private organizations, and public) will collaborate in developing a vision of what constitutes desirable future ecosystem conditions concer sustainable health and biodiversity. Existing social and economic conditions should be factored into the vision, as well as methods in which all parties can contribute to the achievement of desirable ecosystem dynamics.

5. Develop priorities and reconcile conflicts. Successful approaches should include mechanisms for establishing priorities among the objectives and for conflict resolution during both the selection of the ecosystem management objectives and the methods for meeting these objectives. Identifying local installation objectives and urban development trends are especially important to determine compatibility with ecosystem objectives. Regional workshop: should be convened periodically to ensure that efforts are focused and coordinated.

6. Develop coordinated approaches to work toward ecosystem health. Ecosystems rarely coincide with ownership and political boundaries so cooperation across ownerships is an important component of ecosystem-based management. To develop the collaborative approach necessary for successful ecosystem management, installations should:

   - develop a detailed ecosystem management implementation strategy for installation lands and other programs based on the vision developed above and these principles and guidelines;
   - collaborate with state, tribal, and local governments, non-government entities, private landowners, and the public in order to achieve the desired future conditions for the ecosystem;
   - inform interested individuals and nearby communities of our ecosystem management practices and actively solicit their input and suggestions;
   - incorporate ecosystem management goals into strategic, financial, and program planning and design budgets to meet the goals and objectives of the ecosystem management implementation strategy; and
   - seek to prevent undesirable duplication of effort, minimize inconsistencies, and create efficiencies in programs affecting ecosystems.

7. Rely on the best science available. Ecosystem manageme based on scientific understanding of ecosystem compositi structure, and function.

8. Use benchmarks to monitor and evaluate outcomes. Accountability measurements are vital to effective ecosystem management. Implementation strategies should include specific, measurable objectives and criteria with which to evaluate activities in the ecosystem. Clear, specific accountability systems, including those in appropriate budget structures, should be developed to ensure timely, effective implementation of the strategies. Efficiencies gained through cooperation and streamlining should be included in the objectives.

9. Use adaptive management. Ecosystems are recognized as open, changing, complex systems. Management practices should be flexible to accommodate the evolution of scientific understanding of ecosystems. Based on periodic reviews of implementation, adjustments to the standards and guidelines applicable to management activities affecting the ecosystem should be made.

10. Implement through installation plans and programs. An ecosystem's desired range of future conditions should be achieved through linkages and subsequent adjustments and implementation of DoD plans and activities.

APPENDIX F
DoD and DA Memorandum of Understanding

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON DC 20301-3000

ACQUISITION AND TECHNOLOGY

23 JAN 1996

DUSD(ES)/EQ-CO

MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF THE ARMY
(ENVIRONMENT, SAFETY AND OCCUPATIONAL HEALTH), OASA (IL&E)
DEPUTY ASSISTANT SECRETARY OF THE NAVY
(ENVIRONMENT AND SAFETY), OASN (I&E)
DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE
(ENVIRONMENT, SAFETY AND OCCUPATIONAL HEALTH), SAF/MIQ
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Interagency Memorandum of Understanding (MOU) on Ecosystem Management

I am forwarding the attached signed MOU on ecosystem management for your information. DoD was one of fourteen agencies to sign this document in mid-December.

The purpose of the MOU is to foster a more consistent approach to ecosystem management among federal agencies, to enhance coordination, and to encourage more regional ecosystem initiatives.

Please forward this information as appropriate. If you have any questions, please contact Mr. Peter Boice at (703) 604-0524.

Peter Walsh
Assistant Deputy Under Secretary of Defense
(Environmental Quality)

Attachment

MEMORANDUM OF UNDERSTANDING TO FOSTER THE ECOSYSTEM APPROACH

between the

COUNCIL ON ENVIRONMENTAL QUALITY
DEPARTMENT OF AGRICULTURE
DEPARTMENT OF THE ARMY
DEPARTMENT OF COMMERCE
DEPARTMENT OF DEFENSE
DEPARTMENT OF ENERGY
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
DEPARTMENT OF THE INTERIOR
DEPARTMENT OF JUSTICE
DEPARTMENT OF LABOR
DEPARTMENT OF STATE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

I. DEFINITIONS

An *ecosystem* is an interconnected community of living things, including humans, and the physical environment within which they interact.

The ecosystem approach is a method for sustaining or restoring ecological systems and their functions and values. It is goal driven, and it is based on a collaboratively developed vision of desired future conditions that integrates ecological, economic, and social factors. It is applied within a geographic framework defined primarily by ecological boundaries.

The goal of the ecosystem approach is to restore and sustain the health, productivity, and biological diversity of ecosystems and the overall quality of life through a natural resource management approach that is fully integrated with social and economic goals.

II. POLICY

The federal government should provide leadership in and cooperate with activities that foster the ecosystem approach to natural resource management, protection, and assistance. Federal agencies should ensure that they utilize their authorities in a way that facilitates, and does not pose barriers to, the ecosystem approach. Consistent with their assigned missions, federal agencies should administer their programs in a manner that is sensitive to the needs and rights of landowners, local communities, and the public, and should work with them to achieve common goals.

III. BACKGROUND

In its June 1995, report entitled, *The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies*, the Interagency Ecosystem Management Task Force set forth specific recommendations with respect to how federal agencies could better implement the ecosystem approach. The Task Force recommended that member agency representatives sign a memorandum of understanding affirming their intent to implement the recommendations.

IV. THE ECOSYSTEM APPROACH

Healthy and well functioning ecosystems are vital to the protection of our nation's biodiversity, to the achievement of quality of life objectives, and to the support of economies and communities. The ecosystem approach recognizes the interrelationship between healthy ecosystems and sustainable economies. It is a common sense way for federal agencies to carry out their mandates with greater efficiency and effectiveness. The approach emphasizes:

- Striving to consider all relevant and identifiable ecological and economic consequences (long term as well as short term).
- Improving coordination among federal agencies.
- Forming partnerships between federal, state, and local governments, Indian tribes, landowners, foreign governments, international organizations, and other stakeholders.
- Improving communication with the general public.
- Carrying out federal responsibilities more efficiently and cost-effectively.
- Basing decisions on the best science.
- Improving information and data management.
- Adjusting management direction as new information becomes available.

V. THE COOPERATORS AGREE TO THE FOLLOWING:

A. Each federal agency that is a party to this Memorandum of Understanding shall designate an individual who will be responsible for coordinating the agency's internal and interagency activities in support of this Memorandum of Understanding to implement the recommendations of the Task Force report as appropriate. Such designation shall be reported to the Interagency Ecosystem Management Task Force within 30 days of signature. The collective agency designees will serve as an Implementation Committee. The Committee will

meet regularly to share information on progress in implementing this Memorandum of Understanding, problems encountered, and solutions proposed in resolving them. The Committee shall provide reports at meetings of the Interagency Ecosystem Management Task Force. Such reports should include any unresolved issues that may require the attention of the Task Force.

B. Each signatory agency shall examine the specific recommendations made in the report of the Interagency Ecosystem Management Task Force in light of its authorities, policies and procedures, and identify recommendations that may apply to its programs. Based on this review, agencies shall determine what changes or interagency actions are necessary or desirable, undertake appropriate actions, monitor accomplishments, and report their findings and actions through the Implementation Committee to the Interagency Ecosystem Management Task Force, on a schedule to be determined by the Task Force.

C. The Interagency Ecosystem Management Task Force shall encourage regional directors or comparable executives of the federal agencies in the various regions to have regular and systematic exchanges of information about plans, priorities, and problems. The purposes are to eliminate inefficiencies and duplication of effort, to keep executives informed about federal government activities outside of their agencies, to clarify the respective contributions to ecosystem activities of federal agencies with varying missions (such as land management, resource management, regulatory, research, infrastructure, technical assistance, and funding), and to strengthen executive-level support for the interagency ecosystem activities of field personnel.

D. Each signatory agency shall participate, as appropriate to its mandates, in ecosystem management efforts initiated by other federal agencies, by state, local or tribal governments, or as a result of local grass-roots efforts. Members of the Implementation Committee shall identify their ongoing ecosystem efforts and other efforts that come to their attention, share information about those efforts, discuss appropriate agency actions with regard to participating in those efforts, and identify successful and unsuccessful components of those efforts. Signatory agencies shall also look for opportunities in new geographic areas for federal efforts in collaboration with stakeholders.

E. The Interagency Ecosystem Management Task Force will propose, as appropriate, new regional ecosystem demonstration initiatives. These initiatives will build upon the knowledge gained from evaluating the seven ecosystems that were the subject of the Task Force reports.

F. The Interagency Ecosystem Management Task Force will evaluate the potential for joint training programs for the ecosystem approach, in which all signatory

agencies could participate, and in which personnel from all signatory parties could receive training. The Implementation Committee members will share information on agency training programs related to the ecosystem approach, and signatory agencies are encouraged to accommodate trainees from other agencies in such courses as appropriate.

VI. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND AMONG THE COOPERATORS THAT:

A. Specific work projects or activities that involve the transfer of funds, services, or property among the Cooperators will require the execution of separate interagency agreements, contingent upon the availability of funds as appropriated by Congress. Each subsequent agreement or arrangement involving the transfer of funds, services, or property among the Cooperators must comply with all applicable statutes and regulations, including those statutes and regulations applicable to procurement activities, and must be independently authorized by appropriate statutory authority.

B. This Memorandum of Understanding in no way restricts the Cooperators from participating in similar activities or arrangements with other public or private agencies, organizations, or individuals.

C. Nothing in this Memorandum of Understanding shall obligate the Cooperators to expend appropriations or enter into any contract or other obligations.

D. This Memorandum of Understanding may be modified or amended upon written request of any party hereto and the subsequent written concurrence of all of the Cooperators. Cooperator participation in this Memorandum of Understanding may be terminated with the 60-day written notice of any party to the other Cooperators. Unless terminated under the terms of this paragraph, this Memorandum of Understanding will remain in full force and in effect until September 30, 1999.

E. This Memorandum of Understanding is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, it officers, or any person.

F. The terms of this Memorandum of Understanding are not intended to be enforceable by any party other than the signatories hereto.

DAVID A. COLSON, , Acting Assistant Secretary for Oceans and International Environmental and Scientific Affairs, Department of State

FRANK KRUESI, Assistant Secretary for Transportation Policy, Department of Transportation

FRED HANSEN, Deputy Administrator Environmental Protection Agency

JACK GIBBONS, Director, Office of Science and Technology Policy

Dated: December 15, 1995

APPENDIX G
DoD, USFWS, and AFWA
Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE U.S. DEPARTMENT OF DEFENSE
AND
THE U.S. FISH AND WILDLIFE SERVICE
AND
THE ASSOCIATION OF FISH AND WILDLIFE AGENCIES
FOR A
COOPERATIVE INTEGRATED NATURAL RESOURCE MANAGEMENT PROGRAM
ON MILITARY INSTALLATIONS

A. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to further a cooperative relationship between the U.S. Department of Defense (DoD), U.S. Department of the Interior – Fish and Wildlife Service (FWS), and state fish and wildlife agencies (states) acting through the Association of Fish and Wildlife Agencies (AFWA) (hereafter referred to as the Parties) in preparing, reviewing, revising, updating and implementing Integrated Natural Resource Management Plans (INRMPs) for military installations.

B. BACKGROUND

In recognition that military lands have significant natural resources, Congress enacted the Sikes Act in 1960 to address wildlife conservation and public access on military installations. The 1997 amendments to the Sikes Act require the DoD to develop and implement an INRMP for each military installation with significant natural resources. A 2012 amendment to the Sikes Act now authorizes the preparation of INRMPs for state-owned National Guard installations used for training pursuant to chapter 5 of title 32 of the United States Code. DoD must prepare all INRMPs in cooperation with the FWS and states. Each INRMP must reflect the mutual agreement of the Parties concerning conservation, protection, and management of fish, wildlife, plants and their habitats on military lands.

INRMPs provide for the management of natural resources, including fish and wildlife and their habitats. To the maximum extent practicable, they incorporate ecosystem management principles, and describe procedures and projects that manage and maintain the landscapes necessary to sustain military-controlled lands for mission purposes. INRMPs also allow for multipurpose uses of resources, including public access appropriate for those uses, provided such access does not conflict with military land use, security requirements, safety, or ecosystem needs, including the needs of fish and wildlife resources. Effective communications and coordination among the Parties, initiated early in the planning process at national, regional, and the military installation levels, is essential to developing, reviewing, and implementing comprehensive INRMPs. When such partnering involves the participation and coordination of all Parties regarding existing FWS and state natural resources management plans or initiatives, such as threatened and endangered species recovery plans or State Wildlife Action Plans, the mutual agreement of all Parties is achieved more easily. INRMPs provide for the conservation

and rehabilitation of natural resources on military lands in ways that help ensure the readiness of the Armed Forces. Thus, a clear understanding of land use objectives for military lands should enable the Parties to have a common understanding of DoD's land management requirements.

This MOU addresses the responsibilities of the Parties to facilitate optimum management of natural resources on military installations. It replaces a DoD-FWS-AFWA MOU for *Cooperative Integrated Natural Resources Management Program on Military Installations* dated January 31, 2006, which expired January 31, 2011.

C. AUTHORITIES

This MOU is established under the authority of the Sikes Act, as amended, 16 U.S.C. 670a-670f, which requires the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations in cooperation with the FWS and states. The DoD's primary mission is national defense. DoD manages approximately 28 million acres of land and waters under the Sikes Act to support sustained military activities while conserving and protecting biological resources.

The FWS manages approximately 150 million acres of the National Wildlife Refuge System, and administers numerous fish and wildlife conservation and management statutes and authorities, including the: Fish and Wildlife Coordination Act, Migratory Bird Treaty Act of 1918, Endangered Species Act, Marine Mammal Protection Act, Bald and Golden Eagle Protection Act, Anadromous Fish Conservation Act, Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, Federal Noxious Weed Act, Alien Species Prevention Enforcement Act of 1992, North American Wetland Conservation Act, and Coastal Barrier Resources Act.

The states in general possess broad trustee and police powers over fish and wildlife within their borders, including – absent a clear expression of Congressional intent to the contrary – fish and wildlife on federal lands within their borders. Where Congress has given federal agencies certain conservation responsibilities, such as for migratory birds or species listed as threatened or endangered under the Endangered Species Act, the states, in most cases, have cooperative management responsibilities.

The Sikes Act (16 U.S.C. 670c-1) allows the Secretary of a military department to enter into cooperative agreements with the states, local governments, Indian tribes, nongovernmental organizations, and individuals to provide for the maintenance and improvement of natural resources, or to benefit natural and historic research, both on and off DoD installations.

The Sikes Act (16 U.S.C. 670a(d)(2) also encourages the Secretary of Defense, to the greatest extent practicable, to enter into agreements to use the services, personnel, equipment, and facilities, with or without reimbursement, of the Secretary of the Interior or states in carrying out the provisions of this section.

The Economy Act (31 U.S.C. 1535 and 1536) allows a federal agency to enter into an agreement with another federal agency for services, when those services can be rendered in a more

convenient or cost effective manner by another federal agency.

D. RESPONSIBILITIES

The Parties to this agreement hereby enter into a cooperative program of INRMP development, review, and implementation with mutually agreed-upon fish and wildlife conservation objectives to satisfy Sikes Act goals.

1. **The DoD, the FWS and AFWA (Parties) mutually agree:**

   a. To meet at least annually at the headquarters' level to discuss implementation of this MOU. The DoD and FWS will alternate responsibilities for coordinating this annual meeting and any other meetings related to this MOU. Proposed amendments to the MOU should be presented in writing to the parties at least 15 days prior to the annual meeting. The terms of this MOU and any proposed amendments may be reviewed at the annual meeting. The meeting may also review mutual Sikes Act research and technology needs, accomplishments, and other emerging issues.

   b. To participate in a Sikes Act Tripartite Core Group consisting of representatives from the Parties. This Core Group will meet at least quarterly, coordinated by the DoD, to discuss and develop projects and guidance to help prepare and implement INRMPs and to discuss Sikes Act issues of national importance.

   c. To engage in sound management practices for natural resource protection and management pursuant to this MOU with full consideration for military readiness; native fish and wildlife; threatened, endangered and at-risk species; and the environment.

   d. To promote the sustainable multipurpose use of natural resources on military installations – including hunting, fishing, trapping, and non-consumptive uses such as wildlife viewing, boating, and camping – in ways that are consistent with DoD's primary military mission and to the extent reasonably practicable.

   e. To develop and implement supplemental Sikes Act MOUs or other agreements, as needed, at the regional and/or state level.

   f. To recognize the most current DoD and FWS Sikes Act Guidance as the guidance for communication and cooperation of the Parties represented by this MOU.

   g. To post current DoD, FWS, and state Sikes Act guidance documents within 14 days of completion on the following sites:

      i. For DoD: https://www.denix.osd.mil/nr

      ii. For FWS: http://www.fws.gov/habitatconservation/sikes_act.html

      iii. For the states: http://www.fishwildlife.org

h. To cooperatively prepare and conduct full reviews of all new INRMPs in a timely manner.

i. To require the DoD Components and appropriate FWS and state offices to conduct a review for operation and effect of each INRMP no less often than every five years, as required by the Sikes Act, and to document these reviews. As a means of facilitating and streamlining this statutory requirement, use the annual progress review of each INRMP as conducted by each DoD Component per DoD policy.

j. To encourage collaboration in annual progress reviews between representatives from each military installation with an INRMP and appropriate representatives from the other Parties.

    i. The Parties shall discuss the performance of each military installation in meeting relevant DoD Natural Resources Focus Area metrics, and potential improvements to INRMP implementation, such as new projects or management practices.

    ii. Meetings may be in person or by another mutually acceptable means.

    iii. The Parties shall discuss methods and projects that the FWS and states can implement that support INRMP goals and objectives.

k. To streamline and expedite the review of INRMP updates or revisions, and to effectively address review for critical habitat exclusions based on the INRMP conservation benefit, when feasible:

    i. DoD and the FWS will develop and implement a streamlined review process within six months of signature of this MOU that will allow for expedited review and approval (new signatures) of updated sections of each INRMP.

    ii. DoD will provide a means of easily identifying all changes to each updated or revised INRMP when forwarding it for review.

    iii. FWS will focus review on those parts of updated INRMPs that reflect changes from the previously reviewed version.

    iv. FWS and the appropriate states will review all INRMPs with major revisions (e.g., changes required by mission realignments, the listing of new species or other significant action that has the potential to affect military operations or readiness).

    v. DoD, FWS, and the states (acting through AFWA) will continue to seek opportunities to make INRMP review processes more efficient while sustaining and enhancing INRMP conservation effectiveness.

    vi. The DoD Components may submit to the USFWS, a priority INRMP list

to address those installations seeking critical habitat exclusions to facilitate coordination with USFWS Endangered Species office.

vii. To ensure consistency, the Parties accept the following definitions:

a) **Compliant INRMP**: An INRMP that has been both approved in writing, and reviewed, within the past five years, as to operation and effect, by authorized officials of DoD, DOI, and each appropriate state fish and wildlife agency.
b) **Review for operation and effect**: A comprehensive, joint review by the parties to the INRMP, conducted no less often than every five years, to determine whether the plan needs an update or revision to continue to address adequately Sikes Act purposes and requirements.
c) **INRMP update**: Any change to an 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. Such changes will not result in a significant environmental impact, and installations are not required to invite the public to review or to comment on the decision to continue implementing the updated INRMP.
d) **INRMP revision**: Any change to an INRMP that, if implemented, may result in a significant environmental impact, including those not anticipated by the parties to the INRMP when the plan was last approved and/or reviewed as to operation and effect. All such revisions require approval by all parties to the INRMP, and will require a new or supplemental NEPA analysis.

l. That none of the Parties to the MOU is relinquishing any authority, responsibility, or duty established by law, regulation, policy, or directive.

m. To designate the officials listed below, or their delegates to participate in the activities pursuant to this MOU.

i. DoD: Deputy Director, Natural Resources Conservation Compliance, ODUSD (I&E) ESOH

ii. FWS: National Sikes Act Coordinator, Fish and Aquatic Conservation

iii. AFWA: Director, Government Affairs

2. DoD agrees to:

a. Communicate the establishment of this MOU to all DoD Components.

b. Take the lead in developing policies and guidance related to INRMP development, updates, revisions, and implementation, and to ensure the involvement, as appropriate, in these processes of the FWS and state fish and wildlife agencies.

c. Ensure distribution of the DoD and FWS Sikes Act Guidance to all appropriate DoD Components.

d. Encourage DoD Components to invite appropriate FWS and state fish and wildlife agency offices to participate in annual INRMP reviews. All such invitations should be extended at least 15 business days in advance of the scheduled review to facilitate meaningful participation by all three Parties. Meetings may be in person or by other mutually agreed upon means.

e. Encourage DoD Components to take full advantage of FWS and state fish and wildlife agency natural resources expertise through the use of Economy Act transfers and cooperative agreements. Encourage DoD Components and FWS to explore the use of the Fish and Wildlife Coordination Act for technical assistance, fish stocking, and other conservation projects. Priority should be given to projects that:

    i. Sustain the military mission.

    ii. Effectively apply ecosystem management principles.

    iii. Consider the strategic planning priorities of the FWS and the state fish and wildlife agency.

f. Encourage DoD Components to give priority to INRMP requirements that:

    i. Sustain military mission activities while ensuring conservation of natural resources.

    ii. Provide adequate staffing with the appropriate expertise for updating, revising, and implementing each INRMP within the scope of DoD Component responsibilities, mission, and funding constraints.

g. Encourage DoD Components to discuss with the FWS and state fish and wildlife agencies all issues of mutual interest related to the protection, conservation, and management of fish and wildlife resources on DoD installations.

h. Subject to mission, safety, security, and ecosystem requirements, provide public access to military installations to facilitate the sustainable multipurpose use of its natural resources.

i. Identify natural resource research needs, and develop research proposals with input from the Parties.

j. Identify opportunities to work with the DoD Components to facilitate:

    i. Cooperative regional and local natural resource conservation partnerships and initiatives with FWS and state fish and wildlife agency offices.

    ii. Natural resources conservation technology transfer and training initiatives

between the DoD Components, federal land management agencies, and state fish and wildlife agencies.

k. Provide law enforcement support to protect fish, wildlife, and plant resources on military installations consistent with jurisdiction and authority.

3. FWS agrees to:

a. Communicate the establishment of this MOU to each FWS Regional Office and appropriate field offices in close proximity to military installations.

b. Distribute the DoD and FWS Sikes Act Guidelines to each FWS Regional Office and appropriate field office in close proximity to military installations.

c. Designate regional and field office FWS liaisons to develop partnerships and help DoD implement joint management of ecosystem-based natural resource management programs, and provide a list of those liaisons to the DoD as needed.

d. Provide technical assistance with the appropriate expertise to the DoD in managing its resources within the scope of FWS responsibilities and funding constraints.

e. Encourage field offices to coordinate current and proposed FWS natural resource initiatives and research efforts with those that may relate to DoD installations, and to provide applicable installations with new and relevant information pertaining to distribution and/or research regarding listed and candidate species and species at-risk.

f. Inform DoD Components and affected installations regarding upcoming and reasonably foreseeable proposed listing and critical habitat designations that may potentially affect military installations in a timely manner before publication of such proposals in the Federal Register.

g. Encourage regional and field offices to expedite pending INRMP reviews that may affect foreseeable proposed listing of threatened and endangered species and critical habitat designations.

h. Provide law enforcement support as appropriate to protect fish, wildlife, and plant resources on military installations within the jurisdiction of the FWS.

i. Identify FWS refuges and other potential federal management areas in close proximity to military installations, and, where appropriate, participate in the joint management of ecosystem-based natural resource management projects that support INRMP and other planning goals, objectives, and implementation.

4. AFWA agrees to:

a. Communicate the establishment of this MOU to each state fish and wildlife agency director and appropriate personnel.

b. Distribute the DoD and FWS Sikes Act Guidelines to each state fish and wildlife agency director and appropriate staff.

c. Facilitate and coordinate with the states to encourage them to:

i. Participate in developing, reviewing, updating, revising, approving and, as appropriate implementing INRMPs in a timely way upon request by military installation personnel.

ii. Designate state liaisons to help develop partnerships and to help DoD installation staff implement natural resource conservation and management programs.

iii. Identify state wildlife management areas in close proximity to military installations and, where appropriate, participate in the joint management of ecosystem-based natural resources projects that support INRMP goals, objectives, and implementation.

iv. Provide technical assistance to DoD installation staff in adaptively managing natural resources within the scope of state responsibilities, funding constraints, and expertise.

v. Identify state personnel needs to develop, review, update/revise, approve, and implement INRMPs, and facilitate the identification of funding opportunities to address the fulfillment of state priorities.

vi. Coordinate current and proposed state natural resources research efforts with those that may relate to DoD installations.

vii. Coordinate with DoD installations to develop new, and implement existing, conservation plans and strategies, including, but not limited to State Wildlife Action Plans; the National Fish, Wildlife and Plants Climate Adaptation Strategy; goals or initiatives of the North American Bird Conservation Initiative (NABCI) and/or Partners in Amphibian and Reptile Conservation (PARC); and the National Fish Habitat Action Plan.

E. STATEMENT OF NO FINANCIAL OBLIGATION

This MOU does not impose any financial obligation on the part of any signatory.

F. ESTABLISHMENT OF COOPERATIVE AGREEMENTS

The Parties are encouraged to enter into cooperative or interagency agreements to coordinate and implement natural resource management on military installations. If fiscal resources are required, the Parties must develop a separately funded cooperative or interagency agreement.

Such cooperative or interagency agreements may also be entered into under the authority of the Sikes Act (16 U.S.C. 670c-l). Interagency agreements may be entered into under the authority of the Economy Act (31 U.S.C. 1535 and 1536). The Parties should also explore opportunities to utilize the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-666c) to facilitate agreements for FWS technical assistance, fish stocking, and other conservation activities. Each funded cooperative or interagency agreement shall include a work plan and a financial plan that identify goals, objectives, and a budget and payment schedule. A cooperative or interagency agreement to accomplish a study or research also will include a study design and methodology in the work plan. It is understood and agreed that any funds allocated via these cooperative or interagency agreements shall be expended in accordance with its terms and in the manner prescribed by the fiscal regulations and/or administrative policies of the party making the funds available.

G. AMENDMENTS

This MOU may be amended at any time by mutual written agreement of the Parties.

H. TERMINATION

Any party to this MOU may remove itself upon sixty (60) days written notice to the other parties.

I. EFFECTIVE DATE AND DURATION

This MOU will be in effect upon date of final signature, and will continue for ten years from date of final signature. The parties will meet six (6) months prior to the expiration of this MOU to discuss potential modifications and renewal terms.

7-29-13
Date

John Conger
Acting Deputy Under Secretary of Defense
(Installations and Environment)
U.S. Department of Defense

6.24.13
Date

Dan Ashe
Director
Fish and Wildlife Service
U.S. Department of Interior

7-15/2013
Date

Ron Regan
Executive Director
Association of Fish and Wildlife Agencies

APPENDIX H
National Bobwhite Conservation Initiative Memorandum of Agreement

Georgia Bobwhite Technical Team
Bobwhite Quail Initiative
Memorandum of Agreement

WHEREAS, the Northern Bobwhite Quail (*Colinus virginianus*) occupies a prominent place in Georgia's wildlife heritage; and

WHEREAS, Georgia's bobwhite population declined by 5.1 percent per year from 1966 – 2011; and

WHEREAS, this decline is causing a reduction in quail hunter numbers and reduced opportunity for wildlife associated recreation for Georgia's citizens; and

WHEREAS, this decline is resulting in the loss of millions of dollars of economic revenue to rural Georgia communities; and

WHEREAS, this decline has been caused primarily by land use changes, resulting in a loss or degradation of native early succession habitat, not only for quail, but also for certain songbirds and many other wildlife species of priority conservation concern; and

WHEREAS, the National Bobwhite Technical Committee has developed the National Bobwhite Conservation Initiative 2.0 that prioritizes landscapes for bobwhite restoration and sets goals and objectives for habitat enhancement as needed to restore and sustain quail populations and enhance habitat for other species of conservation concern; and

WHEREAS, the Georgia Department of Natural Resources, Wildlife Resources Division is charged with conserving and maintaining Georgia's wildlife resources for present and future generations, and under the direction of the National Bobwhite Conservation Initiative 2.0 has revised and redirected the Georgia Bobwhite Quail Initiative; and

WHEREAS, the bobwhite habitat and population restoration goals of Georgia's Bobwhite Quail Initiative can only can be achieved through the collaborative efforts of state, federal and private conservation organizations to deliver habitat into focal landscapes; and

WHEREAS, the Georgia Bobwhite Technical Team, a multi-organizational task force, has been formed by the Wildlife Resources Division to facilitate the Bobwhite Quail Initiative implementation in Georgia.

NOW THEREFORE, be it resolved that the undersigned organizations do agree, to the extent feasible and subject to the availability of funding, to actively support the Georgia Bobwhite Technical Team and assist with the implementation of the Georgia Bobwhite Quail Initiative through internal and external outreach, applicable research, and the promotion and application of land management practices and programs to establish and maintain habitat for bobwhites and other early succession habitats and species in Georgia.

Bobwhite Quail Initiative
Memorandum of Agreement
Signatories

_____

Colonel Samuel G. Anderson
Garrison Commander
US Army, Fort Gordon

_____

Colonel Kevin F. Gregory
Garrison Commander
Headquarters, Fort Stewart

_____

Dr. Michael Clutter
Dean
Warnell School of Forestry and Natural Resources
University of Georgia

_____

Mr. Danny Hogan
President
Georgia Association of Conservation Districts

_____

Mr. Brent Dykes
Executive Director
Georgia Soil and Water Conservation Commission

_____

Colonel Michail S. Huerter
Garrison Commander
US Army, Fort Benning

_____

Mr. Robert Farris
State Forester
Georgia Forestry Commission

_____

Mr. David Laster
Acting State Executive Director
Georgia State Farm Service Agency

_____

Mr. Dan Forster
Director
Wildlife Resources Division Georgia
Department of Natural Resources

_____

Ms. Betty Mathews
Forest Supervisor
U.S. Forest Service Chattahoochee-Oconee
National Forest

Dr. Bill Palmer
President/CEO
Tall Timbers Research Station and Land Conservancy

Mr. James E. Tillman
Georgia State Conservationist
Natural Resources Conservation Service

Ms. Robin Goodloe
Field Supervisor
U.S. Fish and Wildlife Service
Georgia Ecological Services

Mr. George C. Thornton
CEO
National Wild Turkey Federation

Mr. Howard Vincent
CEO
Pheasants Forever, Inc. & Quail Forever

APPENDIX I
Critical Habitat Issues

Critical Habitat is defined in the Endangered Species Act (ESA) as “specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection”. An area can only be established as “Critical Habitat” after the USFWS has published it in the Federal Register. The ESA also states that “the secretary shall not designate as critical habitat any lands or other geographic areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an INRMP prepared under section 101 of the Sikes Act, if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.” Therefore, Fort Gordon has no area that is considered critical habitat. Fort Gordon will manage its lands with an ecosystem approach in accordance with the 2003 Red-cockaded Woodpecker Recovery Plan, the 2007 Army Management Guidelines for RCWs, as well as the new 2008 Management Guidelines for the Gopher Tortoise on Army
Installations.

APPENDIX J
Army RCW Management Guidelines

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
SOUTHEAST REGION
1593 HARDEE AVENUE SW
FORT MCPHERSON, GEORGIA 30330-1057

REPLY TO
ATTENTION OF

IMSE-PWD-E

JUL 05 2007

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: The 2007 Management Guidelines for Red-Cockaded Woodpecker (RCW) on Army Installations

1. References:

a. Department of the Army guidelines subject: 2007 Management Guidelines for the Red-cockaded Woodpecker on Army Installations, dated 1 May 07 (encl).

b. Army Regulation (AR) 200-3, Natural Resources - Land, Forest and Wildlife Management, dated 28 Feb 95, paragraph 11-5.

c. Department of the Army guidelines, subject: 1996 Management Guidelines for the Red-Cockaded Woodpecker (RCW) on Army installations, dated 8 Nov 96.

2. Subject guidelines, reference 1a, are distributed for implementation on all Installation Management Command-South East (IMCOM-SE) installations where the Red-Cockaded Woodpecker (RCW) is present. These guidelines are provided under the authority of reference 1b, and they replace all previous RCW guidelines (the last ones were distributed by reference 1c). The guidelines give installations the opportunity to further reduce training restrictions, align Army RCW management with the current RCW recovery plan, and capitalize on Army progress in management and technology.

3. Installation RCW Endangered Species Management Components (ESMCs) of Integrated Natural Resources Management Plans will supplement these guidelines with detailed measures to meet installation specific RCW conservation and unique military mission needs. The guidelines establish RCW management standards. They have undergone programmatic Endangered Species Act consultation and National Environmental Policy Act (NEPA) review. Installations are expected to conduct their own consultation and NEPA review as needed, most likely as new ESMCs are updated to reflect the new guidelines. Installations may be able to tier off the existing biological assessment, biological opinion, environmental assessments, and findings of no significant impact.

4. Per reference a, section III, paragraph C discusses cooperation with U.S. Fish and Wildlife Service. The IMCOM-SE will be responsible for RCW coordination with the United States Fish and Wildlife Service (USFWS) Region 4 Office, and the Regional RCW Recovery Coordinator.

5. Reference a, section III, paragraph G discusses regional conservation. This paragraph states that the USFWS and installations should participate in promoting cooperative RCW conservation plans, solutions, and efforts with other federal, state, and private organizations and landowners in the region. All regional conservation efforts will be conducted by, or coordinated through IMCOM-SE, as appropriate.

6. Reference a, section V, paragraph G discusses translocation. All installation translocation efforts will be coordinated through IMCOM-SE.

7. The POC for this action is Mr. Frank Lands, 404-464-1645, frank.w.lands@us.army.mil.

Rudy Stine

Encl

for MICHAEL FRNKA
Chief, Public Works Division

DISTRIBUTION:
ENVIRONMENTAL DIVISION, FORT BENNING (ATZB-ELN) BLDG 5884, FORT BENNING, GA 31905
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ENVIRONMENTAL DIVISION, FORT POLK (AFZX-PW-E) JRTC & FORT POLK, FORT POLK, LA 71459-7100

CF w/Encls:
U.S. ARMY ENVIRONMENTAL COMMAND (IMAE-CO), 5196 HOADLEY RD., ABERDEEN PROVING GROUND, MD 21010-5401
HQDA (DAIM-ED), ODEP, 600 ARMY PENTAGON, WASHINGTON DC 20310-0600
INSTALLATION MANAGEMENT COMMAND, SOUTHWEST REGION (IMSW-PWD-E), 2450 STANLEY ROAD, SUITE 101, BLDG 1000, FORT SAM HOUSTON, TX 78234

1 May 2007

Management Guidelines
For the Red-cockaded Woodpecker
On Army Installations

Table of Contents
(References to paragraphs)

1. General

A. *Purpose.* The purpose of these guidelines is to provide standard Red-cockaded Woodpecker (RCW) management guidance to Army installations for developing endangered species management components (ESMCs) for the RCW as part of an installation's integrated natural resource management plan (INRMP). Terminology has been revised from endangered species management "plans" to "components" to reflect that endangered species management on installations is an integral component of natural resource management activities on Army installations. Installation RCW ESMCs will be prepared according to these guidelines and chapter 11, AR 200-3, Natural Resources – Land, Forest, and Wildlife Management and subsequent policies and guidance published by the Army[1]. These guidelines establish the baseline standards for Army installations in managing the RCW and its habitat. Installation RCW ESMCs will supplement these guidelines with detailed measures to meet installation-specific RCW conservation needs and unique military mission needs. The requirements in RCW ESMCs will apply to all activities on the installation.

B. *Applicability.* The guidelines are applicable to Army installations where the RCW is present. These guidelines replace 1996 Management Guidelines for the Red-cockaded Woodpecker on Army Installations, 30 October 1996.

C. *Revision.* These guidelines will be revised as necessary to be consistent with the 2003 U.S. Fish and Wildlife Service (USFWS) RCW Recovery Plan and to incorporate the latest and best scientific data available. These guidelines are the third major revision. Previous guidelines were dated 30 October 1996, 21 June 1994 and 1986.

D. *Goal.* The Army's goal is to implement management guidelines which will allow the Army to accomplish military readiness missions while concurrently developing and implementing methods to assist in the conservation, downlisting, and recovery of the RCW.

E. *Existing Biological Opinions (BOs).* Installations will continue to comply with the requirements of existing BOs until RCW ESMCs are prepared in accordance with these management guidelines and are approved through consultation with USFWS. To the extent practicable RCW ESMCs should be drafted to incorporate the requirements of existing BOs, as modified to conform to these management guidelines through consultation with the USFWS.

II. Consultation

A. *Consultation Requirement.* In preparing RCW ESMCs and taking action that may affect the RCW, installations will comply with the consultation

[1] The Army will be replacing AR 200-3 with AR 200-1, Environmental Protection and Enhancement and Natural Resource Implementation Guidance for Active Installations.

requirements of section 7 of the Endangered Species Act (ESA); the implementing USFWS regulations at 50 CFR part 402; chapter 11, AR 200-3, and subsequent policies and guidance published by the Army.

B. *Informal Consultation.* Early entry into informal consultation with the USFWS is critical to resolving potential problems and establishing the foundation to address issues in a proactive and positive manner. If, through informal consultation (which may include preparation of a biological assessment or evaluation), the USFWS concurs in writing that proposed actions are not likely to adversely affect any endangered or threatened species, formal consultation is not required. Issue resolution through informal consultation is the preferred method of consultation.

C. *Formal Consultation.* If development and implementation of an installation ESMC is likely to result in adverse effects and, particularly incidental take beyond existing authorization in an installation's BO, the installation must initiate formal section 7 consultation in accordance with the procedures in 50 CFR 402.14 and Army Regulation 200-3, Chapter 11. The purpose of formal section 7 consultation is to obtain a Non-Jeopardy BO with authorization for incidental take sufficient to implement the ESMC. When consulting with the USFWS on RCW ESMCs and other actions that are likely to adversely affect the RCW, the BOs of the USFWS are expected to be consistent with these guidelines. Installations will make every effort to resolve potential inconsistencies during consultation. Installations will report USFWS guidance that is not consistent with these guidelines, through command channels, to the Office of the Director of Environmental Programs (ODEP), Headquarters, Department of the Army. ODEP will expeditiously review these reports and determine if HQDA-level action is necessary. Installations should report any inconsistencies for action by ODEP prior to USFWS issuing the final BO.

D. *Incidental Take.* Military training activities and other land use activities may affect RCWs resulting in "take" as defined under section 9 of the ESA. As part of the consultation process for revision of ESMCs, installations will estimate the potential level of take associated with military mission and prescribed burning on the installation based on historical records, long-term monitoring results, and research data. If the estimated level of take does not restrict population growth and maintenance of population goals, the USFWS normally will provide an incidental take statement allowing the conduct of military mission and prescribed burning. Potential incidental take that is not identified within the ESMC consultation will require additional project-level formal consultation. The installation will immediately notify USFWS in the event of incidental take that exceeds authorization or meets other criteria established in the consultation process.

E. *Reinitiation.* After receiving a Non–Jeopardy BO, an installation is required to re-initiate consultation if: (i) new information arises concerning effects

to the RCW not previously considered; (ii) the ESMC is modified resulting in effects on the RCW that were not considered in the BO; or (iii) implementation of the EMSC exceeds the amount or extent of take specified in the incidental take statement. The installation will notify USFWS and reinitiate consultation within 30 days of discovering a 10 percent decline in active clusters from the previous year or a 10 percent decline in active clusters over a five-year period. Upon discovery of a 10 percent decline, the installation will conduct a systematic review of available data to evaluate the potential causes of the observed decline, e.g. declines due to forest senescence, and present the results of this review to the USFWS. Consultation with USFWS will determine actions required to prevent further population decline. Unpredictable catastrophes such as significant hurricane damage may present conditions that cannot be anticipated under these guidelines. In the event of catastrophic impacts on RCW habitats and populations, installations will reevaluate population goals and management requirements in consultation with USFWS.

III. Army Policies Applicable to RCW Management.

A. *Conservation.* Implementation of RCW ESMCs, prepared in accordance with these guidelines, supports the Army's responsibility under the ESA to assist in conservation of the RCW. Conservation, as defined by the ESA, means the use of all methods and procedures which are necessary for endangered and threatened species survival and to bring such species to the point where measures provided by the ESA are no longer necessary.

B. *Mission Requirements.* Installation and tenant unit mission requirements do not justify violating the ESA. Mission considerations are necessary in determining the installation management and recovery goals. The keys to successfully balancing mission and conservation requirements are long-term planning and effective RCW management to prevent conflicts between these interests. In consultations with the USFWS, installations will preserve the ability to maintain training readiness, while meeting ESA conservation requirements. Small installations with small populations should be especially sensitive to developing innovative strategies to maintain this balance.

C. *Cooperation with U.S. Fish and Wildlife Service.* The Army will work closely and cooperatively with the USFWS on RCW conservation. Installations should routinely engage in informal consultation with the USFWS to ensure that proposed actions are consistent with ESA requirements.

D. *Ecosystem Management.* Conservation of the RCW 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 RCW, ultimately depend upon the health of the sustaining ecosystem. Therefore, RCW ESMCs should promote ecosystem integrity. Maintenance of ecosystem integrity and health also benefit the Army by

preserving and restoring training lands for long-term use.

E. *Staffing and Funding.* Garrison commanders are responsible for ensuring that adequate professional personnel and funds are provided for the conservation measures prescribed by these guidelines and RCW ESMCs. RCW conservation projects are critical requirements of the Army Environmental Conservation program element of Base Support.

F. *Conservation on Adjacent Lands.* Necessary habitat for the RCW includes nesting and foraging areas. Both of these RCW habitat components may be located entirely on installation lands. There may be instances, however, where one of these components is located on installation land, while a portion of the other is located on adjacent or nearby non-Army land. The USFWS and installations should initiate cooperative management efforts with adjacent landowners, if such efforts would complement installation RCW conservation initiatives.

G. *Regional Conservation.* The interests of the Army and the RCW are best served by encouraging conservation measures in areas off the installation. The USFWS and installations should participate in promoting cooperative RCW 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, Safe Harbor agreements, the Army Compatible Use Buffer Program, and regional translocation cooperation.

H. *Management Strategy.* These guidelines require installations to adopt a long-term approach to RCW management consistent with the military mission and the ESA. First, installations are required to establish installation RCW population goals in consultation with the USFWS using the methodology described in paragraph V.B, below. Once established, the installation must designate sufficient nesting and foraging habitat to attain and sustain the goals. The goals will also dictate the required management intensity level. Next, installations must implement an ESMC to attain and sustain the installation RCW population goals in accordance with Chapter 11, AR 200-3. Fourth, installations are required to ensure that all units and personnel that conduct training and other activities at the installation comply with the requirements of the installation RCW ESMC.

IV. Definitions

Active Cavity - A completed cavity or start exhibiting fresh pine resin associated with cavity maintenance, cavity construction, or resin well excavation by RCWs.

Active Cavity Tree - Any tree containing one or more active cavities.

Active Cluster - A cluster containing one or more active cavity trees.

Buffer zone - The zone extending outward 200 feet from a marked cavity tree or cavity start tree in clusters with training restrictions.

Cavity - An excavation in a tree made, or artificially created, for roosting and nesting by RCWs.

Cavity restrictor - A metal plate that is placed around an RCW cavity to prevent access by larger species. A restrictor also prevents a cavity from being enlarged, or if already enlarged, shrinks the cavity entrance diameter to a size that prevents access by larger competing species.

Cavity start - An incomplete cavity excavated by, or artificially created for, RCWs.

Cavity tree - A tree containing one or more active or inactive RCW cavities or cavity starts.

Cluster - The aggregation of cavity trees previously or currently used and defended by a group of RCWs and a 200 foot wide buffer of continuous forest.

Deleted cluster - a cluster that has not been active in the last 5 years, including recruitment clusters that were established more than 5 years ago and have never activated. Deleted clusters may also include inactive clusters that have not been active and not been managed for several years and are proposed for removal from long-term management.

Group - A social unit of one or more RCWs that inhabits a cluster. A group may include a solitary territorial male or female, a mated pair, or a pair with helpers (offspring from previous years).

Habitat Management Unit (HMU) - Designated area(s) managed for RCW nesting and foraging, including clusters and areas determined to be appropriate for population maintenance and recruitment.

Impact areas - The ground within the training complex used to contain fired or launched ammunition or explosives and the resulting fragments, debris, and components from various weapons systems.

Inactive cluster - a cluster that is suitable* for RCW occupancy, has been active in the last 5 years, but has no active cavities during the breeding season of the reporting year (*suitable means midstory in cluster and foraging habitat is controlled (i.e., less than 7 feet tall) and suitable cavities are available).

Population - An aggregate of groups that function as a closed population,

demographically. Limited genetic interchange may occur between populations. Population delineations should be made irrespective of land ownership.

Potential Breeding Group (PBG) - An adult female and adult male that occupy the same cluster, with or without one or more helpers, whether or not they attempt to nest or successfully fledge young.

Population goal - A desired RCW population size. On installations the population goal will be the number of RCW PBGs that are in accordance with population goals established in the RCW Recovery Plan.

Protected Clusters - Clusters subject to training restrictions identified in Appendix 1 and paragraph V.C.5, and guidance for certain activities identified in paragraph V.C.

Recruitment cluster - A cluster designated and managed for the purpose of attracting a PBG to that territory.

Stochasticity - Random events.

Training Area - A distinct unit of land on an installation that is scheduled for training events by specific units on specific dates.

Translocation - The relocation of one or more RCWs from an active cluster to a recruitment cluster that contains both suitable cavities and foraging habitat, or the relocation of an individual to stabilize a group, e.g. a female to a solitary male cluster.

Unprotected clusters - Clusters not subject to training restrictions identified in Appendix 1 of these guidelines. These clusters are still subject to guidance for certain activities under paragraphs V.C. and V.C.5 of these guidelines, unless otherwise authorized through consultation with USFWS (preferably through the ESMC process).

V. Guidelines for Installation RCW ESMCs.

Installations will prepare RCW ESMCs and manage RCW populations according to the following guidelines. Installations will update ESMCs in conjunction with the INRMP as required by the Sikes Act and Army guidance or sooner if circumstances dictate.

A. *RCW ESMC Development Process.*

Preparation of installation RCW ESMCs requires a systematic, step-by-step approach. RCW populations (current and goal), RCW habitat (current and potential), and training and other mission requirements (present and future) must

be identified. Detailed analysis of these factors and their interrelated impacts are required as a first step in the development of an ESMC. Installations should use the following or a similar methodology in conducting this analysis:

1. Identify the current RCW population and its distribution on the installation.

2. Identify areas on the installation currently and potentially suitable for RCW nesting and foraging habitat.

3. Establish the installation RCW population goal with the USFWS according to the guidance in B. below.

4. Identify installation and tenant unit mission requirements. Overlay these requirements on the RCW distribution scheme.

5. Identify mission requirements that are incompatible with the conservation of RCW habitat.

6. Identify critical mission areas where activities cannot reasonably be relocated.

7. Identify areas which could support RCW recruitment clusters.

8. Identify areas suitable for RCW habitat and limited conflict with present and projected mission activities. These are prime areas for designation as recruitment clusters.

9. Analyze the information developed above using the guidance contained in these guidelines.

10. Identify important RCW populations, habitats, cooperators, and partnership opportunities outside the installation boundaries.

11. Prepare the RCW ESMC to implement the best combination of options, consistent with meeting the established RCW population goals, while minimizing adverse impacts to training readiness and other mission requirements.

B. *RCW Population Goals.*

1. The USFWS 2003 RCW Recovery Plan establishes Recovery Units and population goals for federal, state, and private lands within those recovery units. Installation population goals (measured as the number of “potential breeding groups”; see V.B.3, below) established under the ESMC will be in accordance with goals established under the RCW Recovery Plan. The

installation population goal should be considered long-term but is subject to change, through consultation with the USFWS, based upon changing circumstances, changing missions, or new scientific information. In conjunction with the 1-year and 5-year reviews of ESMCs, installations will reexamine population goals to reflect changing conditions. The biological significance of different population thresholds are described in paragraphs a-e, below.

a. A population size of 350 PBGs is considered highly robust to threats from environmental stochasticity as well as inbreeding and demographic stochasticity. It is the lowest current estimate of the minimum size necessary to offset losses of genetic variation through genetic drift.

b. A population size of 250 PBGs is the minimum size considered robust to environmental stochasticity, and is well above the size necessary to withstand inbreeding and demographic stochasticity.

c. A population size of 100 PBGs is considered sufficient to withstand threats from demographic stochasticity and inbreeding depression.

d. A population size of 70 PBGs is midway in estimates of sizes necessary to withstand threats from inbreeding depression and is considered robust to demographic stochasticity if territories are moderately aggregated in space.

e. A population size of 40 PBGs is at the lower end of estimates of sizes necessary to withstand inbreeding depression and is considered robust to demographic stochasticity if territories are highly aggregated in space.

2. ESMCs must clearly state the installation RCW population goal. If this goal is not provided in the RCW Recovery Plan, it will be determined by availability of suitable habitat, ecosystem attributes, and current and future mission requirements. Installations should not stop establishing recruitment clusters or conducting other proactive management actions once the population goal is reached, but should continue to manage to achieve habitat carrying capacity consistent with mission requirements.

3. Installation population goals will be established as the number of PBGs in accordance with population goal definitions of the RCW Recovery Plan. PBGs may be estimated as a percent of active clusters, using criteria established in the RCW Recovery Plan.

4. Installations that have not yet achieved their population goals will implement actions to achieve a five percent annual increase in active clusters. To achieve recommended rates of increase installations will provide a constant supply of unoccupied recruitment clusters equal to 10 percent of the current number of active clusters. Installations that do not meet this target will informally

consult with USFWS to determine whether actions are necessary to achieve this population growth rate.

5. All clusters on installations that support PBGs will count toward the installation population goal. This will include clusters where training restrictions are implemented, clusters where training restrictions are not implemented, and clusters in impact areas as long as they can be monitored in accordance with Recovery Plan criteria to determine group status (i.e., solitary bird or PBG). If the installation's estimate of population size (number of PBGs) is based on the percentage of active clusters in a sample set that support a PBG, then the number of active clusters from which the number of PBGs is estimated will only include clusters that can be accessed for management (installation of artificial cavities, midstory control, augmentation, etc.). This will help ensure validity of the assumption that the percentage of clusters that support a PBG is applicable to all active clusters from which population size is estimated. In clusters where management access is limited, PBGs may be included in the population estimate only if their presence in a specific cluster in a specific year is determined by direct observation. In addition to installation groups, clusters on state and private lands that are functioning demographically with the installation's population and are secured by an enduring covenant and are not counted as part of another agency's clusters may be counted toward the installation population goal.

C. *Training in Clusters.*

The purpose of training restrictions associated with RCW clusters is to avoid or minimize the potential for "take" as defined under section 9 under the ESA. Implementation of training restrictions on Army installations will balance support of RCW population growth to achieve installation population goals and flexibility to achieve training mission requirements. ESMCs, with appropriate consultation, may contain provisions to remove or add restrictions in HMUs.

Certain activities (refueling points, generators, smoke generators, smoke pots, and mechanical digging) are by their nature likely to disrupt the ability of RCWs to roost or nest (or conduct nesting activities; e.g., incubating, brooding, feeding) if conducted in proximity to cavity trees, or have potential for significant habitat damage. These activities will be conducted only at locations approved by Directorates of Plans, Training, and Mobilization (DPTMs) either IAW provisions of the Installation Range Regulation or by case-by-case evaluation. DPTMs must consult with the installation biologist to ensure that such activities are avoided in buffer zones and minimized elsewhere in RCW HMUs. These activities will not be approved within buffer zones of protected clusters or within 200 feet of unprotected cavity trees unless authorized through consultation with USFWS (preferably done during the ESMC process).

1. Designation of Protected Clusters.

a. Installation ESMCs currently identify the current and projected number of clusters that are subject to training restrictions. The number of these protected clusters has been established in installation-specific consultations with the USFWS and includes active clusters (solitary birds and PBGs) and currently inactive recruitment clusters. Installations will modify the current number of protected clusters in accordance with criteria established in paragraph V.C.2., below.

b. Locations of protected clusters will be determined by installation natural resources management personnel in coordination with the installation Director of Training and the Senior Mission Commander or a designee. Locations of protected clusters will be based on biologically sound principles to reduce risk of disturbance, demographic isolation, and habitat fragmentation, while minimizing effects on training operations.

2. Removal of Training Restrictions.

a. Installations with a population of $\leq$ 250 PBGs will maintain the currently negotiated number of protected clusters for both active clusters and recruitment clusters.

b. Installations with populations > 250 PBG may remove training restrictions from clusters according to the following schedule:

Total PBGs	Restrictions Removed*	Cumulative Total**
251-275	25 (1:1)	25
276-300	50 (2:1)	75
301-350	150 (3:1)	225
>350	Restrictions removed on all clusters***	

* Installations with 250-275 PBGs may remove restrictions from one protected cluster for each PBG over 250. Installations with 276 or more PBGs may remove restrictions from 25 protected clusters, plus two additional clusters for each PBG over 275. Installations with 301-350 PBGs may remove restrictions from 75 protected clusters plus 3 clusters for each PBG over 300. Restrictions will continue to be removed annually based on the documented growth in the installation's RCW population. For example, if the population increases from 255 to 260 PBGs, training restrictions will be removed from 5 clusters. If it increases from 275 to 285, training restrictions will be removed from 20 clusters, etc.

**These are in addition to the current and/or projected number of clusters that do not have training restrictions in populations under current installation ESMCs.

***Installations will specify in their ESMCs a schedule for removing training restrictions from all clusters upon reaching ≥ 350 PBGs. This schedule will be implemented after appropriate consultation with USFWS.

c. The number of clusters eligible for removal of training restrictions is dependent on the number of PBGs; however, clusters selected for removal of restrictions may include unoccupied recruitment clusters, solitary bird clusters, or clusters with PBGs. Removal of training restrictions according to the above schedule is dependent on growth of installation RCW populations. Restrictions will be removed incrementally. Depending on population size; 1, 2, or 3 clusters may be unprotected for each additional new PBG. If installation RCW PBGs fail to increase, the proportion of clusters without training restrictions cannot be increased. For populations >350 PBGs or populations exceeding the installation population goal, all new clusters (natural or recruitment clusters) may be unprotected, based on the best judgment of the biologists and DPTM.

d. For installations where the current population goal does not exceed 250 PBGs, the number of clusters with and without training restrictions will remain in accordance with levels under the current installation ESMC. Typically, reduction of training restrictions on installations with population goals ≤ 250 PBGs will occur when recovery goals are reached. However, prior to achieving their population goal, reduction of some restrictions may be possible as data become available from installations where training restrictions have been decreased or removed in entirety and critical population benchmarks are met. These benchmarks, in part, would be tied to population sizes (e.g., 100 PBGs) that are sufficient to withstand threats from such factors as demographic stochasticity and inbreeding depression. Determining whether training restrictions could be reduced prior to reaching population goals would be evaluated by considering factors such as the training mission, population aggregation (e.g., dispersed or highly aggregated), and results (based on monitoring and/or research) of training impacts on unprotected clusters from the subject and other installations. Installations may specify in their ESMCs a schedule for removing training restrictions upon attaining or exceeding the population goal or other population benchmarks. Removal of training restrictions is dependent on growth or maintenance of installation RCW populations. Schedules for removing training restrictions will be implemented after appropriate consultation with USFWS.

e. Once the installation has reached its population goal (or 350 PBGs, whichever is less), any and all training restrictions may be removed subject to the following guidelines and precautions.

(1) Installation staff will continue to identify clusters where training restrictions are warranted (and conversely where they are not warranted)

as described in paragraph V.C.1.b. Deliberations will weigh the risks and benefits to RCWs, habitat, and training. Data and observations of training impacts (or lack of same) during the population's growth from 250-350 PBGs will also be considered in assessing the risk of impacts from training. The installation will report annually to the USFWS the results of monitoring conducted IAW paragraph V.E.4. for protected and unprotected clusters as shown below.

	Protected Clusters	Unprotected Clusters
# Active Clusters		
# PBGs		
# Nests		
# of adult RCWs per PBG		
# of fledgling RCWs per PBG		

(2) Installation staff and USFWS staff will evaluate these data jointly to identify any trends that might indicate a need for modifications to the installation's application of training restrictions. Data from annual inspections of RCW clusters collected IAW paragraph V.D.5. will also be evaluated to assess habitat condition and trends. Factors such as adequacy of environmental awareness training should also be assessed. The goal will be to make any necessary adjustments and avoid population levels falling below 350 PBGs (or the installation population goal, whichever is less). If populations fall below this threshold for reasons that may be training related (i.e. not explained by habitat conditions, hurricane damage, disease, etc.), training restrictions will be re-implemented IAW Appendix 1 for all training areas containing inactive or single-bird clusters that supported a PBG at the time restrictions were removed, and formal consultation with the USFWS will be reinitiated. In this way, installations will be free to remove restrictions based on their determination of risk, but they will also bear the consequences of their decisions.

(3) Installations should use caution and discretion before reducing training restrictions as soon as 350 PBGs are met because falling back below 350 will require reinstitution of restrictions (see C.2.e.(2) above). Therefore, it is recommended that prior to implementing restriction reductions, installations should provide a reasonable number of “buffer” PBGs (e.g., 10 percent beyond the goal) to ensure that if some losses occur, restrictions do not

have to be re-implemented.

(4) In cases where continued protection is deemed appropriate even though the population exceeds 350 PBGs or the Installation Goal, protected cavity trees will be marked by two white bands. No military maneuver is authorized within 50 feet of marked cavity trees except for foot traffic and vehicles traveling on existing roads and trails. Additional "Off-Limits" areas may be marked with Seibert Stakes or by other means IAW the installation's established practices for protection of sensitive/hazardous areas.

(5) Once restrictions are removed, incrementally or in total at a later date, it is imperative that installations maintain both: (1) the level of habitat management required, particularly prescribe burning, to sustain recovery standard foraging habitat, and (2) an adequate level of monitoring (negotiated via consultation with the USFWS) to document that the population remains stable, or indeed, increases to a higher level.

3. Marking of Clusters

a. Cavity and cavity start trees in protected clusters will be marked for easy recognition. Trees will be marked with two white bands no more than four inches wide and no more than eight inches between them. Bark will only be scraped lightly to remove loose bark or not scraped at all. The bands will be centered approximately four to six feet from the base of the tree. A uniquely numbered small metal tag will be affixed to the cavity tree for monitoring and identification purposes.[2]

b. In protected clusters, buffers for all suitable cavity or cavity start trees will be marked. Warning signs will be posted and will be constructed of durable material, ten inches square (oriented as a diamond), white or yellow in color. The RCW graphic and the lettering “Endangered Species Site” and “Red-cockaded Woodpecker” will be printed in black. The lettering “Do Not Disturb” and “Restricted Activity” will be printed in red. All lettering will be 3/8 inches in height. Warning signs will be posted at reasonable intervals along the 200 foot perimeter of cavity trees facing to the outside of the buffer zone and along roads, maintained trails and firebreaks, and other likely entry points into the buffer zone.

c. Installations conducting long-term training on private, state, or other federal lands with RCW habitat will attempt to obtain agreement from the landowners on compliance with these marking guidelines. If a landowner does not agree to comply with these guidelines, even with the installation paying the costs associated with compliance, installations will educate troops training on

[2] Studies in community ecology are showing that rat snakes predate kleptoparasites and usually cannot overcome the resin barriers on active RCW trees. Thus rat snakes provide a net benefit to RCWs. Impediments which prevent rat snakes from climbing cavity trees (especially inactive trees) should be avoided.

such lands to help them recognize the markings used by the landowner.

d. Cavity and cavity start trees in unprotected clusters may be marked for management and monitoring purposes at the installation's discretion. Warning signs will not be posted. A uniquely numbered small metal tag will be affixed to the cavity tree for identification purposes. Marking will be distinctively different than that used for protected clusters.

4. Training in Protected Clusters

a. The training restrictions in this section apply to buffer zones within protected clusters. RCW-related training restrictions do not apply to foraging areas or unprotected clusters as designated in the first two paragraphs under V.C.

b. Standard training guidelines in protected clusters are:

(1) Military training within 200 feet of marked cavity trees is limited to military activities of a transient nature (less than two hours occupation). Appendix 1 provides a list of prohibited and permitted training activities within buffer zones.

(2) Military vehicles are prohibited from occupying a position or traversing within 50 feet of a marked cavity tree, unless on an existing road or maintained trail or firebreak.

5. Training Activities in All Habitats. In addition to training restrictions associated specifically with RCW clusters, the installation will implement the following guidelines for habitats throughout the installation to maintain and improve potentially suitable habitat for the RCW. These guidelines will remain in effect even if restrictions under paragraph V.C.4. above are discontinued upon reaching 350 PBGs or the installation population goal, whichever is less.

a. Military personnel are prohibited from cutting down or intentionally destroying pine trees unless the activity is approved previously by the installation biologist and is authorized for tree removal. Hardwoods may be cut and used for camouflage or other military purposes. If removal of hardwoods would damage a cavity tree, approval from the installation biologist would be required.

b. Units will immediately report to range control known damage to any marked cavity or cavity start tree and/or any known extensive soil disturbance in and around RCW clusters. Range control will notify installation biologists immediately.

c. The installation will immediately (within 2 working days of

notification) reprovision a cavity tree if one is destroyed due to training activity.

d. Installations will as soon as practicable (normally within 3 working days of notification) repair damage to training land within a cluster to prevent degradation of habitat.

e. All digging for military training activities in RCW habitat management units (HMU; see V.F.1., below) will be filled and inspected upon completion of training.

f. Training guidelines will be actively enforced through installation training and natural resources enforcement programs, prescribed in chapters 1 and 11, AR 200-3, and installation range regulations.

D. *Habitat Monitoring*

1. Surveys for New Cavity Trees and Clusters. Comprehensive surveys for new cavity trees and clusters have already been conducted on Army lands that may support RCWs. Normally, detection of previously unknown cavity trees or clusters will occur coincident to annual inspections of known clusters and adjacent habitat areas. Foresters and biologists will report any new activity observed during the routine process of other work. Surveys in previously unoccupied habitats should also be conducted by qualified biologists following protocols of the RCW Recovery Plan if the land has not been previously surveyed, or if the installation biologist determines that changing habitat conditions or changes in the distribution of known populations increases the likelihood of RCW occurrence.

2. Project Surveys. The installation will conduct surveys prior to timber harvesting operations, construction, or other significant land-disturbing activities, excluding prescribed fire, in accordance with recommendations of Chapter 8.I. of the RCW Recovery Plan. These surveys will be conducted by natural resources personnel trained and experienced in RCW biology, and must be conducted within a year of project initiation. The guiding principle of these surveys, as noted in the RCW Recovery Plan, is that, if the installation can demonstrate reasonable progress toward and support of installation population goals, most projects can be implemented.

3. Foraging Habitat. Installations will assess quality and quantity of installation-wide foraging habitat using the USFWS Matrix tool at a minimum of once every 10 years and midstory at a minimum frequency of once every five years in RCW HMUs. Foraging habitat will be assessed for all foraging elements identified in the RCW Recovery Plan under paragraph 8.I. The desired future condition of foraging habitat for RCW territories counted toward an installation's recovery goal is to meet criteria of the RCW Recovery Plan's foraging habitat "recovery standard". Foraging habitat data collected will be appropriate to the

forestry management practice (e.g. uneven versus even-aged management).

4. Prescribed and Wildfires. Installations will keep accurate records of the timing and extent of all prescribed and wild fires in RCW HMUs.

5. Cluster Status and Condition. Active and recruitment clusters that have not been deleted from management in accordance with paragraph V.F.2.b. below must be inspected annually. These are prescriptive inspections, used to develop treatments and modifications of treatments to maintain suitable nesting habitat. At a minimum, installations will inspect and record data for:

a. Density and height of hardwood encroachment (using Matrix standards).

b. Height of RCW cavities.

c. Condition of cavity trees and cavities.

d. A description of damage from training including: damage to cavity and cavity start trees requiring remedial measures if any, soil disturbance adjacent to cavity and cavity start trees requiring remedial measures if any, and general condition of the forage habitat of the cluster being monitored if impacted by training activities.

e. Effects of fire (prescribed or wild) on midstory and cavity trees.

f. Evidence of RCW activity for each cavity tree (includes each cavity and cavity start in the tree) within the cluster.

E. *Population Monitoring*

1. Installations will conduct monitoring programs to determine scientifically demographic trends within the population as a whole. At a minimum, installations will follow standards established in the RCW Recovery Plan for sampling schemes, sample sizes, frequency of monitoring and data parameters to be collected. To annually monitor population trend and size, the RCW Recovery Plan requires monitoring of cluster activity status and the presence/absence of PBGs. The RCW Recovery Plan recommends the following sample sizes for monitoring number of active clusters (ACT) and PBGs in red-cockaded woodpecker populations, by population size.

Parameter	Population Size (PBG)				
	<30	**30-99**	**100-249**	**250-349**	**>349 or at approved property goal**
ACT	100% of potentially active clusters per year	100% annually	100% annually	100% annually	Consult with USFWS
PBG	100% of potentially active clusters per year	100% annually	50% annually	33% annually	Consult with USFWS

2. To track population size relative to status of training restrictions in clusters, installations conducting < 100 percent survey of PBGs will allocate sample clusters proportional to the ratio of the number of clusters with training restrictions and the number of clusters without training restrictions. Sampling design and allocation of sample clusters will be established in consultation with USFWS.

3. All recruitment clusters, regardless of status of training restrictions, must be inspected annually for five consecutive years to document RCW occupancy. Once recruitment clusters are occupied, use monitoring criteria for active clusters.

4. To track effects of reducing training restrictions and other land use activities, installations will compare fecundity of active clusters, recruitment rates, and demographic stability between protected clusters and unprotected clusters. Input from a qualified wildlife statistician is expected at appropriate organizational levels to assure the best comparisons possible. All sampling and statistical comparisons will follow the guidance of the RCW Recovery Plan where it is applicable and will include USFWS input, especially when the RCW Recovery Plan does not provide sufficient guidance.

a. To compare fecundity between protected and unprotected clusters, installations with 30 or fewer active clusters will monitor all clusters to determine number of adults, nesting status, and number of fledglings per group. This monitoring will require color banding of birds. Installations with >30 active clusters will annually monitor these parameters in a random sample of all clusters in excess of 30, stratified by protected and unprotected clusters. Sample size in each stratum will be the greater of 25 percent of the number of clusters in the stratum, or 30 clusters. The sample should not include clusters that have been active for fewer than 3 years. Typically, recruitment clusters have a disproportionately high incidence of being occupied by a single RCW and/or low

productivity due to lack of breeder experience in their first 2 years of occupancy. Excluding recently activated clusters from the sample will help make comparisons between protected and unprotected clusters more meaningful.

b. To compare recruitment rates and demographic stability between protected clusters and unprotected clusters, installations will use monitoring data collected in accordance with paragraph V.E.1.

5. The monitoring standards established in the preceding paragraphs are the minimum requirement. Any time RCWs are banded, the RCW Recovery Plan sets the minimum data collection standards. Installations may implement additional monitoring activities or programs in support of other management and research objectives as necessary, e.g. translocations.

F. *Habitat Management*

1. Installation RCW ESMCs will identify nesting and foraging areas sufficient to attain and sustain installation RCW population goals. These areas will be designated RCW HMUs. HMU delineation is an important step in the planning process because it defines the future geographic configuration of the installation RCW population. Areas designated as HMUs for all active and recruitment clusters, regardless of training restriction status, must be managed according to these guidelines. HMUs should be large enough to enable the installation to meet or exceed its recovery goal as identified in the Recovery Plan.

2. Areas Included in HMUs

a. HMUs will encompass all clusters, areas designated for recruitment, and adequate foraging areas as specified in d., below.

b. Clusters that have been documented as continuously inactive for a period of five consecutive years or more may be deleted from RCW management requirements. Designated recruitment clusters that have not been occupied for a period of five consecutive years may also be deleted from HMUs. Once deletion of a cluster from management is approved by the USFWS, existing cavities may be covered to discourage reactivation.

c. In designating HMUs, fragmentation of nesting habitat will be avoided. Installations will attempt to link HMUs with corridors, allowing for demographic interchange throughout the installation population.

d. Adequate foraging habitat in acres, quality, and location must be provided with HMUs. Installations will determine availability of and manage for foraging habitat in accordance with guidelines established in Chapter 8.I. of the RCW Recovery Plan, i.e., the recovery standard.

e. Installations may formulate population-specific foraging guidelines in consultation with the USFWS. Population-specific guidelines must be based on site-specific study consisting of multi-year (typically 3-5 years) data on RCW group and population health and their relationships to quantity and quality of foraging habitat. Chapter 8.I.4. of the RCW Recovery Plan provides guidelines for determining population-specific foraging guidelines.

f. HMUs should be located where there will be a minimum impact upon current and planned installation missions/operations and should be consistent with land use requirements in the Real Property Master Plan.

g. Installations should delineate HMUs to maximize demographic linkage among groups on and off the installations. Where fragmentation exists, installations should develop plans to link groups on the installation by designating habitat corridors where practical.

3. Management Within Clusters.

a. Due to RCW biological needs, clusters, including the area within 200 feet of cavity trees, require a higher management intensity level than other areas within HMUs. Within HMUs, maintenance priority will be given to active clusters over both inactive and recruitment clusters (see definitions).

b. Installations will manage habitat within active and recruitment clusters in accordance with guidelines established in the RCW Recovery Plan. In general, recommended management practices in the RCW Recovery Plan include:

(1) Protection of existing cavity trees from damage due to fire, human disturbance (including erosion and sedimentation and logging activities), southern pine beetle infestations, and damage from high winds.

(2) Maintain sufficient large and old pines to serve as cavity trees.

(3) Control hardwood and pine midstory.

(4) Encourage restoration and maintenance of native grasses and forbs by using prescribed burning, minimizing soil disturbance, and implementing appropriate timber management to promote adequate light at ground level.

(5) Reduce excessive overstory hardwoods within the cluster

(6) Establish recruitment clusters in upland sites whenever

possible, consistent with demographic and habitat considerations.

(7) Retain dead and dying cavity trees and all other snags, unless they present a safety hazard.

c. Active and inactive cavities found to be in poor condition during periodic inspections will be repaired whenever feasible to prolong their use. Cavity restrictors can be installed on enlarged RCW cavities or where threat of cavity enlargement of properly-sized cavities is probable. Restrictors will be installed according to guidelines of the RCW Recovery Plan with the following priority: (a) active single tree clusters, (b) solitary bird groups, (c) clusters with less than four suitable cavities, and (d) others.

d. Artificial cavities and cavity starts will be constructed in areas designated for recruitment or translocation and in active clusters where the number of suitable cavities is limiting. Construction must be accomplished by fully trained and permitted personnel. Artificial cavities and cavity starts will be constructed using the following priorities: (a) active single tree clusters, (b) solitary bird groups, (c) clusters with less than four suitable cavities, and (d) others.

e. Avoid timber harvesting, pine straw harvesting, and habitat maintenance activities, with the exception of burning activities, during the nesting season. If a biologist, experienced in RCW management practices, determines that habitat maintenance activities are not likely to adversely affect nesting activities, they may be conducted after coordination with USFWS. Consultation on these activities may be accomplished through a programmatic consultation or on a case-by-case basis, and will typically be “informal consultation”.

4. Management in Other Areas of HMUs

a. Silviculture. Forest management and timber harvest on installations will be consistent with achieving and maintaining installation RCW population goals. In general, silvicultural practices in HMUs will have the objectives of ecosystem management including maintaining adequate old-growth pine, reducing midstory encroachment, and meeting recovery standard foraging habitat requirements. Silviculture in HMUs will include: (a) maintenance of sufficient large and old pines to serve as cavity trees; (b) control of hardwood and pine midstory, encouragement of restoration and maintenance of native grasses and forbs by using prescribed burning, minimizing soil disturbance, and implementing appropriate timber management to promote adequate light at ground level; (c) reducing excessive overstory hardwoods; and (d) retaining dead and dying trees and all other snags, unless they present a safety hazard. Installations will follow guidelines for silvicultural methods and objectives that are established in Chapters 8.J. and 8.I. of the RCW Recovery Plan.

b. Prescribed Burning. Prescribed burning is normally the most effective means of midstory control and is recommended as the best means of maintaining a healthy ecosystem. Prescribed burning will be conducted at least every three years in longleaf, loblolly, slash pine, and shortleaf pine systems. Burning must be conducted in accordance with applicable Federal, state, and local air quality laws and regulations. With the agreement of the USFWS, the burn interval may be increased to no more than five years after the hardwood midstory has been brought under control. Cavity trees will be protected from fire damage during burning. Burning should normally be conducted in the growing season because the full benefits of fire are not achieved from non-growing season burns. Winter burns may be appropriate to reduce high fuel loads. Use of fire plows in clusters will be used only in emergency situations.

5. Management in Impact and Direct Firing Areas.

a. Impact Areas

(1) Impact areas that contain or likely contain unexploded ordnance or other immediate hazardous materials (radiological or toxic chemicals) can pose danger to personnel. Natural resources conservation benefits to be gained by intensive management in high risk areas generally are not justified. Certain installations may have impact areas or other areas that have been contaminated with improved conventional munitions or submunitions where entry by personnel is forbidden.

(2) Designation of impact areas and the associated effects of these actions on RCW management activities may affect the RCW and other federally listed species within impact areas. These actions may lead to the possibility and necessity of incidental take.

(3) To the degree practicable, clusters and surrounding foraging area should be designated as “no firing areas” to protect clusters from projectile damage.

b. Direct Firing Areas.

(1) Direct fire, non-dud producing impact areas that do not contain unexploded ordnance or other immediate hazardous materials may be included within HMUs, subject to the guidelines below.

(2) In HMUs in direct fire areas that are not directly impacted by weapons firing, RCW management will be the same as for HMUs outside of impact areas. In HMUs where there is a significant risk of projectile damage to foraging or nesting habitat, the following guidelines apply:

(a) Range layout should be modified/shielded where

practical and economically feasible to protect HMUs from projectile damage. Protective measures that will be considered include reorienting the direction of weapons fire, shifting target arrays, establishing “no firing areas” around RCW clusters or HMUs, revising maneuver lanes, constructing berms, etc.

G. *Translocation*

1. Translocation can be a useful tool to expand and disperse RCW groups into unoccupied areas of designated HMUs. Translocation also provides a means to maintain genetic viability in populations with fewer than 350 PBGs. Installation plans will provide for translocation to augment solitary bird groups, where appropriate. Installations participating in translocation activities will follow guidelines established in chapter 8.H. of the RCW Recovery Plan.

2. Installations may translocate RCWs from active clusters to recruitment clusters that meet standards for translocation for strategic recruitment. This will only include translocation of subadult birds from their natal territories. Within-population translocations that do not meet these criteria must be approved on a case-by-case basis through consultation with the RCW Recovery Coordinator.

3. In areas to receive RCWs, habitat inspection and improvement work must be completed before translocation is attempted to ensure that nesting and foraging habitat meets the standards established by these guidelines.

4. Installations should support regional translocation efforts by supplying or receiving donor birds provided the installation meets criteria established in the RCW Recovery Plan for donor or recipient populations.

5. Translocation will not be undertaken without the approval of, and close coordination with, the USFWS. Installations must obtain an ESA section 10 permit (scientific purposes) or an incidental take statement under ESA section 7 and all applicable marking, banding, and handling permits prior to moving any RCW through translocation.

H. *Data Records, Reporting, and Coordination.*

1. Installations will record and retain permanently all survey, inspection and monitoring data for RCW populations and habitats for trend analysis.

2. Installation biologists and foresters will maintain close coordination and, at a minimum, will conduct an internal RCW installation progress review twice a year.

3. Installation Management Agency (IMA) Southeast Region will serve as integrator and facilitator for Army RCW management throughout all installations with RCW. IMA Southeast Region will host an annual RCW meeting for RCW

installations, USFWS, ODEP, United States Army Environmental Center, National Guard Bureau, and other organizations.

4. ODEP will provide RCW oversight. ODEP will ensure that data collected in accordance with paragraph V.E. above for protected and unprotected clusters will be evaluated for trend analysis. These data will be analyzed at least every five years, and the results will be presented to USFWS for review. Results of this trend analysis will be used to determine revision, continuation, or cancellation of military training restrictions in consultation with USFWS.

5. Installations annually will report results of RCW inventory and monitoring programs to USFWS, IMA Southeast Region, and ODEP through command channels. These data will be reported in formats agreed upon between the Army and USFWS. These data will include measures of population status and actions taken to recruit RCWs and improve habitat. These data will normally be presented to USFWS at the annual meeting hosted by IMA Southeast Region. All installations will report at the meeting in a standard format agreed upon by the USFWS and IMA Southeast Region.

6. RCW maps will be included in the ESMC using survey data to accurately depict the location of RCW clusters, RCW-related training restricted areas, HMUs, and cavity trees. Maps will be updated at least annually or when a 20 percent change in the number of active clusters occurs, whichever is sooner. Maps used internally will be tailored to the users, e.g. trainers, 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 1

TRAINING ACTIVITY WITHIN BUFFER ZONES (1)	
MANEUVER AND BIVOUAC:	ALLOWED
Hasty defense, light infantry, hands and hand tool digging only, no deeper than 2 feet, 2 hours MAX	Yes
Hasty defense, mechanized infantry/armor	No
Deliberate defense, light infantry	No
Deliberate Defense, mechanized infantry/armor	No
Establish command post, light infantry	No
Establish command post, mechanized infantry/armor	No
Assembly area operations, light infantry/mech infantry/armor	No
Establish CS/CSS sites	No
Establish signal sites	No
Foot transit thru the cluster	Yes
Wheeled vehicle transit thru the cluster (2)	Yes
Armored vehicle transit thru the cluster (2)	Yes
Cutting natural camouflage, hardwood only	Yes
Establish camouflage netting	No
Vehicle maintenance for no more than 2 hours	Yes
WEAPONS FIRING	
7.62mm and below blank firing	Yes
.50 cal blank firing	Yes
Artillery firing point/position	No
MLRS firing position	No
All others	No
NOISE:	
Generators	No
Artillery/hand grenade simulators	Yes
Hoffman type devices	Yes
PYROTECHNICS/SMOKE	
CS/riot agents	No
Smoke, haze operations only, generators or pots, fog oil and/or graphite flakes (3)	Yes
Smoke grenades	Yes
Incendiary devices to include trip flares	Yes
Star clusters/parachute flares	Yes
HC smoke of any type	No

Appendix 1 (continued)

DIGGING	ALLOWED
Tank ditches	No
Deliberate individual fighting positions	No
Crew-served weapons fighting positions	No
Vehicle fighting positions	No
Other survivability/force protection positions	No
Vehicle survivability positions	No
NOTES:	
(1) These training restrictions apply to RCW cavity trees in training areas but not to cavity trees located in dedicated impact areas.	
(2) Vehicles will not get any closer than 50 feet of a marked cavity tree unless on existing roads, trails or firebreaks.	
(3) Smoke generators and smoke pots will not be set up within 200 feet of a marked cavity tree, but the smoke may drift thru the 200 feet circle around a cavity tree.	

APPENDIX K
Projected Management Actions
Fiscal Years 2019-2023

Table 1. INRMP Projected Management Actions, Fiscal Years 2019–2023

Fiscal Year	Location	Management Action	Project	Program Element Support
2019	Training Areas 26 and 36	Mark Timber	RCW Habitat, Mission Support	INRMP, RCMP
	Training Areas 37	Mark Timber	Mission Support	RCMP
	Training Areas 15, 18, 26, 27, and 36	Harvest Timber	RCW Habitat, Mission Support	RCMP
	Training Areas 34 and 35	RCW Translocation*	RCW Population	ESMC, BO
	Ranges and AIA**	Prescribed Burn 6,155 acres	Mission Support	IWFMP, RCMP
	Training Areas**	Prescribed Burn (Dormant Season)	Ecosystem	IWFMP
	Training Areas**	Prescribed Burn (Growing Season)	Ecosystem	IWFMP, ESMC, BO
2020	Training Area 49	Mark Timber	Forest Management	ESMC, BO
	Training Area 37	Harvest Timber	Mission Support	ESMC, BO
	Training Areas 15, 18, 26, 27, and SAIA	Install RCW Recruitment Clusters*	RCW Population	ESMC, BO
	Ranges and AIA**	Prescribed Burn 6,155 acres	Mission Support	IWFMP, RCMP
	Training Areas**	Prescribed Burn (Dormant Season)	Ecosystem	IWFMP
	Training Areas**	Prescribed Burn (Growing Season)	Ecosystem	IWFMP, ESMC, BO
2021	Training Areas 32, 33, and 38	Mark Timber	RCW Habitat	ESMC, BO
	Training Area 49	Harvest Timber	Forest Management	ESMC, BO
	Training Area 36	Install RCW Recruitment Clusters*	RCW Population	ESMC, BO
	Ranges and AIA**	Prescribed Burn 6,155 acres	Mission Support	IWFMP, RCMP
	Training Areas**	Prescribed Burn (Dormant Season)	Ecosystem	IWFMP
	Training Areas**	Prescribed Burn (Growing Season)	Ecosystem	IWFMP, ESMC, BO

Fiscal Year	Location	Management Action	Project	Program Element Support
2022	Training Areas 39, 40, and 41	Mark Timber	RCW Habitat	ESMC, BO
	Training Areas 32, 33, and 38	Harvest Timber	RCW Habitat	ESMC, BO
	Training Area 37	Install RCW Recruitment Clusters*	RCW Population	ESMC, BO
	Ranges and AIA**	Prescribed Burn 6,155 acres	Mission Support	IWFMP, RCMP
	Training Areas**	Prescribed Burn (Dormant Season)	Ecosystem	IWFMP
	Training Areas**	Prescribed Burn (Growing Season)	Ecosystem	IWFMP, ESMC, BO
2023	Training Areas 42 and 43	Mark Timber	RCW Habitat	ESMC, BO
	Training Areas 39, 40, and 41	Harvest Timber	RCW Habitat	ESMC, BO
	Training Areas 32 and 38	Install RCW Recruitment Clusters*	RCW Population	ESMC, BO
	Ranges and AIA**	Prescribed Burn 6,155 acres	Mission Support	IWFMP, RCMP
	Training Areas**	Prescribed Burn** (Dormant Season)	Ecosystem	IWFMP
	Training Areas**	Prescribed Burn** (Growing Season)	Ecosystem	IWFMP, ESMC, BO

*Subject to suitable RCW habitat being available

**Areas will be determined on an annual basis (and reported in the annual INRMP update) based on current site conditions

Red-Cockaded Woodpecker Work Plan

Given current stand conditions, over the next 5 years, Fort Gordon can potentially provide 25 recruitment clusters for the red-cockaded woodpecker (RCW). Tentative locations and year of recruitment cluster installation are presented in Figure 1. Table 2 contains information such as fiscal year (FY), training areas (TAs), and management actions that will be required each year to maintain and grow Fort Gordon's RCW population. However, placement of cluster sites will require very close coordination between Fort Gordon's Natural Resources Management Branch (NRB) and Directorate of Plans, Training, Mobilization, and Security (DPTMS) as several new training locations are planned which may or may not influence RCW management. These sites will be evaluated annually by NRB and DPTMS personnel to determine exact location and when installation of inserts would be best to satisfy the military mission as well as the habitat requirements of the RCW. Proposed cluster locations are shown in Figure 1, however, the priority location for each could change as new Military missions are proposed, new scientific methods are developed, or as habitat changes occur. Cluster sites will be established in the vicinity of the mapped locations. However, specific cluster locations could be adjusted after timber thinning and mid-story removal has been accomplished. A total of 33 recruitment clusters are identified with 8 existing recruitment clusters that are suitable and awaiting activation (two sites located inside the small arms impact area and six sites located outside the small arms impact area). The remaining 25 sites will be provisioned in the following FYs (FY 2019 through 2023). Three or more new recruitment clusters could be installed annually over the next 5 years if suitable habitat and manpower/funds are available to complete the necessary provisioning.

Table 2. RCW Recruitment Cluster Priority, Location, and Annual Work Plan

Fiscal Year	Training Area	Management Action Required
2019	34, 35,	*Complete midstory control on all foraging and recruitment sites
		*Install 4 new recruitment clusters
		*Translocate 3 pairs (6 birds), if needed
		*Monitor all active and recruitment clusters to insure that all have at least 4 suitable cavities and strive to meet cluster and foraging area guidelines
		*Monitor all active and recruitment clusters for nest and cavity competitors
		*Band all RCW chicks and monitor all fledglings
2020	15, 18, 26, 27, SAIA	*Complete midstory control on all foraging and recruitment sites
		*Install 7 new recruitment clusters
		*Monitor all active and recruitment clusters to insure that all have at least 4 suitable cavities and strive to meet cluster and foraging area guidelines
		*Monitor all active and recruitment clusters for nest and cavity competitors
		*Band all RCW chicks and monitor all fledglings
2021	36	*Complete midstory control on all foraging and recruitment sites
		*Install 3 new recruitment clusters
		*Translocate 3 pairs (6 birds), if needed
		*Monitor all active and recruitment clusters to insure that all have at least 4 suitable cavities and strive to meet cluster and foraging area guidelines
		*Monitor all active and recruitment clusters for nest and cavity competitors
		*Band all RCW chicks and monitor all fledglings
2022	37	*Complete midstory control on all foraging and recruitment sites
		*Install 3 new recruitment clusters
		*Monitor all active and recruitment clusters to insure that all have at least 4 suitable cavities and strive to meet cluster and foraging area guidelines
		*Monitor all active and recruitment clusters for nest and cavity competitors
		*Band all RCW chicks and monitor all fledglings
2023	32, 38	*Complete midstory control on all foraging and recruitment sites
		*Install 8 new recruitment clusters
		*Translocate 3 pairs (6 birds), if needed
		*Monitor all active and recruitment clusters to insure that all have at least 4 suitable cavities and strive to meet cluster and foraging area guidelines
		*Monitor all active and recruitment clusters for nest and cavity competitors
		*Band all RCW chicks and monitor all fledglings

The sites specified in Figure 1 will be considered recruitment clusters. In the next 5 years, these will be provisioned before other designated recruitment clusters. Fort Gordon will consult with U.S. Fish and Wildlife Service if it is determined that these sites are no longer appropriate for recruitment.

The priority scheme discussed in previous paragraphs weighs both distances to active clusters and amount of foraging habitat available. Ideally, those with minimum forage would be managed first. Managing recruitment clusters adjacent to active clusters is important for encouraging natural expansion of the population. The population will be demographically more stable if recruitment clusters near active RCW clusters are activated initially.

Fort Gordon will annually provision, within the limitations of available nesting and foraging habitat, at least the number of recruitment clusters required to fulfill the 5 to 10 percent optimum rate of growth of the population. The proposed cluster centers for recruitment clusters over the next 5 years are shown in Figure 1. Close coordination will need to be accomplished between sections of the NRB and DPTMS to insure this plan meets its goal. However, NRB personnel will insure that habitat is available and recruitment cluster sites meet minimum standards before birds are translocated. Recruitment clusters in TAs 34 and 35 will be provisioned in FY 2019. The timber was thinned to RCW guidelines and appropriate midstory work completed in FY 2017 and FY 2018 in preparation for the translocation of birds in October of 2019. Recruitment clusters in TAs 15, 18, 26, 27, and SAIA will need the timber thinned to RCW guidelines, the midstory controlled and 28 RCW inserts installed in preparation for recruitment of RCW pairs in the spring of 2021. Recruitment clusters in TA 36 will need the timber thinned to RCW guidelines, the midstory controlled, and 12 inserts installed in preparation for recruitment of RCW pairs in the spring of 2022. Recruitment clusters in TA 37 will need the timber thinned to RCW guidelines, the midstory controlled and 12 RCW inserts installed in preparation for recruitment of RCW pairs in the spring of 2023. Recruitment sites TAs 32 and 38 will also require provisioning with 32 inserts being installed, midstory control, and timber thinning being accomplished no later than FY 2023 time frame.

The intent for adding this number of recruitment clusters in FY 2019 to 2023 is to be proactive and quickly stabilize Fort Gordon’s small RCW population. Provisioning these recruitment clusters is no guarantee that they will be activated during the next 5 years. Factors such as the reproductive success of Fort Gordon’s population and the number of birds available for translocation to the installation will affect activation of these clusters. It should be noted that with a 5 percent rate of growth of the current 37 active clusters, Fort Gordon's goal for active clusters at the end of 5 years is 47 active clusters. The chances

of reaching this goal are increased by adding more than the minimum number of recruitment clusters needed.

To ensure training is not adversely affected, recruitment clusters will generally be directed into areas closely coordinated with DPTMS for the next 5 to 10 years.

The amount of forage available and the potential for other sites to meet the above criteria for recruitment clusters will need to be re-assessed, and forage for proposed recruitment clusters will be re-calculated as forest inventory data is updated.

Inactive clusters not designated as recruitment clusters may be deleted from management either because they are not in the RCW Habitat Management Unit or they have not been utilized for at least 5 consecutive years. Clusters deleted from management will not be included in the annual inventory process. More details regarding deletion of inactive clusters are provided in Fort Gordon's Endangered Species Management Component (Section 4.1).

Fish and Wildlife Work plan

Each FY the Fish and Wildlife section of the NRB must accomplish many tasks to accomplish INRMP management goals. These actions include such things as conducting game and non-game wildlife monitoring, planting wildlife food plots, performing prescribed fire, managing fishing ponds, conducting educational briefings and administering the iSportsman program. Detailed fish and wildlife work plans are included below in Tables 3, 4, and 5.

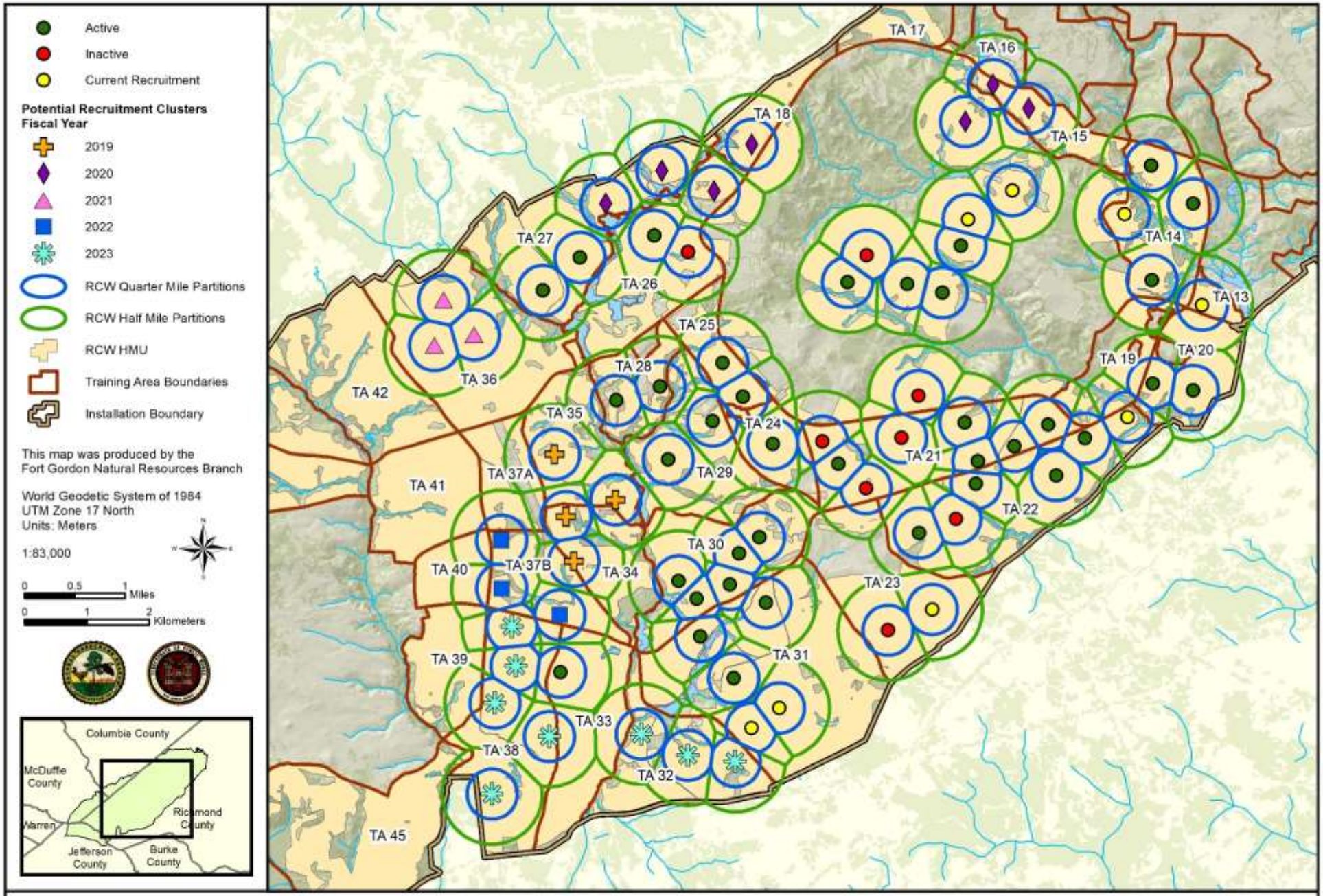


Figure 1. Red-cockaded active, inactive, and potential recruitment clusters on Fort Gordon (2019-2023)

Table 3. Fish and Game Annual Work Plan

Month	Management Actions
October thru December	Conduct prescribed burning. Monitor lake dams, aquatic weeds. Conduct supplemental fish stocking. Operate deer check stations. Conduct fall quail covey call survey. Continue planting fall food plots. Monitor, maintain, administer iSportsman program. Assist iSportsman customers.
January thru June	Conduct prescribed burning. Fill and monitor fish feeders. Spray aquatic weeds. Survey fish. Plant 300 acres spring food plots. Plant 100 acres dove field. Prepare for spring kids fishing event. Conduct spring quail and turkey surveys. Monitor, maintain, administer iSportsman program. Assist iSportsman customers.
July thru September	Conduct fall public meeting. Conduct deer camera survey. Plant 200 acres fall food plots. Fill and monitor fish feeders. Spray aquatic weeds. Prepare for fall kids fishing event. Monitor, maintain, administer iSportsman program. Assist iSportsman customers.

Table 4. Gopher Tortoise Annual Work Plan

Month	Management Actions
October thru December	Conduct prescribed burning. Conduct midstory control Control invasive species. Mark burrows in sensitive areas. Mark and measure any tortoises found. Conduct population surveys as required. Update GIS burrow data. Prepare annual inventory report.
January thru June	Conduct prescribed burning. Conduct midstory control. Control invasive species. Mark burrows in sensitive areas. Mark and measure any tortoises found. Conduct population surveys as required. Update GIS burrow data.
July thru September	Control invasive species. Conduct midstory control. Mark burrows in sensitive areas. Mark and measure any tortoises found. Conduct population surveys as required.

Table 5. Non-game and Environmental Education Annual Work Plan

Month	Management Actions
October thru December	Conduct educational workshops and briefings. Maintain and improve educational natural resources displays.
January thru June	Conduct educational workshops and briefings. Maintain kestrel nest boxes. Monitor kestrel nest boxes and band nestlings. Plant native ground cover and brood patches (wiregrass, ragweed, partridge pea, etc.). Conduct winter strip disking in brood patches and fallow fields.
July thru September	Conduct educational workshops and briefings.
Ongoing	Control of nuisance wildlife to include beavers, geese, raccoons, etc. Maintain live wildlife display cages and care for live specimens.

Annual Forest Management Work Plans

The projected timber harvest schedules, estimated operating costs, estimated value of harvested products for this planning period (FYs 2019 through 2023) are provided in the following tables. Also provided in the Forest Management Section of this appendix are the annual forestry work plan and the annual prescribed fire management work plan for Fort Gordon.

Table 6. Projected Timber Harvest Schedule for Fort Gordon for Fiscal Years 2019 through 2023

Fiscal Year	Management Units (Training Areas)
2019	15, 18, 26, 27, and 36
2020	37
2021	49
2022	32, 33, and 38
2023	39, 40, and 41

Table 7. Estimated Operating Forest Management Costs for Fiscal Years 2019 through 2023

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Equipment	$30,000	$30,000	$35,000	$35,000	$40,000
Fire Protection	$16,000	$16,000	$18,000	$18,000	$20,000
Management	$300,000	$310,000	$320,000	$330,000	$340,000
Access Roads	$22,000	$23,000	$24,000	$25,000	$26,000
Reforestation	$70,000	$71,000	$72,000	$73,000	$74,000
Support	$12,000	$12,000	$14,000	$14,000	$16,000
Total Requirement	$450,000	$462,000	$483,000	$495,000	$516,000

Table 8. Estimated Value of Harvested Products for Fiscal Years 2019-2023

Fiscal Year	2019	2020	2021	2022	2023
Value ($)	550,000	572,000	583,000	595,000	616,000

Table 9. Forestry Annual Work Plan

Month	Management Action Required
OCT - SEP	Inspect COE timber sale areas.
OCT - SEP	Conduct inventory, prepare & staff prescriptions, and prep areas for sale & harvest.
OCT - SEP	Prepare NEPA documentation & Timber Availabilities for each sale.
OCT - SEP	Firebreak and access road maintenance as necessary in support of other activities.
OCT - JUN	Prescribed burn areas as necessary.
OCT - SEP	Perform wildfire suppression activities as necessary 24 hours per day 7 days per week.
OCT - NOV & APR - JUN	Apply herbicides as necessary in reforestation areas.
DEC - MAR	Contract and/or in-house plant seedlings as necessary.
JUL - SEP	Perform site preparation and burn reforestation areas as necessary for planting in next FY.
MAY	General Declaration of Availability for the following FY due to COE 31 May.
JUN	Forestry AWP for the following FY due in RPTS 30 JUN.
DEC	End of Year report for previous FY due in RPTS 31 DEC.
OCT - SEP	Perform equipment & vehicle maintenance and record keeping as needed.
OCT - SEP	Attend meetings, conferences, and training both local and TDY as necessary & required.
OCT - SEP	Prepare memorandums, reports, plans, and etc. as necessary and required.

Table 10. Prescribed Fire Annual Work Plan

Month	Management Actions
October thru December	Preparation of areas for burning. Prescribed burn annual range & impact areas. As weather and time permits begin burning programmed areas.
January thru June	Preparation of areas for burning. Prescribed burn programmed areas as weather and resources allow. Begin post burn evaluations of areas.
July thru September	Formulate burn plans for next FY burns; send out for review and approval. Continue evaluations of burned areas. Conduct site prep burns as necessary. Begin preparation of areas for next burn cycle. Send out notice of areas to be burned during next cycle to installation personnel NLT 15 September.

APPENDIX L
USACCoE&FG Regulation 420-5

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY CYBER CENTER OF EXCELLENCE
AND FORT GORDON
Fort Gordon, Georgia 30905-5000

USACCoE&FG Regulation **13 June 2018**
No. 420-5

HUNTING, FISHING, BICYCLING, AND TRAINING AREA RECREATION REGULATION

Summary. This regulation establishes responsibilities and policies for hunting, fishing, bicycle riding and other training area recreation on the Fort Gordon military installation.

Applicability. This regulation applies to all individuals (military, government employees, civilian, and their bona fide guests) properly permitted to hunt, fish, ride bicycles, or participate in other authorized training area recreation on the Fort Gordon military installation.

Supplementation. Supplementation of this regulation is prohibited unless specifically approved by the Garrison Commander, United States Army Cyber Center of Excellence and Fort Gordon (USACCoE&FG).

Suggested improvements. The proponent of this regulation is the Directorate of Public Works (DPW), Natural Resources Branch (NRB). Users are invited to send comments and suggested improvements on Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms) to the Garrison Commander, USACCoE&FG, ATTN: IMGO-PWE, Fort Gordon, Georgia 30905 and/or submit DA Form 1045 (Army Ideas for Excellence Program (AIEP) Proposal) to the installation AIEP coordinator. Users may also submit comments and suggest changes or improvements in writing through the Interactive Customer Evaluation (ICE) site: https://ice.disa.mil/index.cfm?fa=site&site_id=440 or by sending an email to the Fort Gordon DPW Natural Resources Branch at: usarmy.gordon.imcom-atlantic.mbx.isportsman@mail.mil

Availability. This publication is available on the USACCoE&FG publications website at http://gordon.army.mil/FG_policy_letters_and_regs/ "Fort Gordon Policy Letters, Regulations and Forms" and the Fort Gordon iSportsman website at `https://ftgordon.isportsman.net/` "Regulations & Forms."

Contents

***This regulation supersedes USASCoE&FG Regulation 420-5, 9 August 2017**

***This regulation supersedes USASCoE&FG Regulation 420-5, 30 August 2017**

CHAPTER 1

GENERAL INFORMATION

1.1 Purpose.

This regulation establishes responsibilities and policies for hunting, fishing, bicycle riding, and other training area recreation on the Fort Gordon military installation. Violations of this regulation is punitive.

1-2 General.

All hunting and fishing on the Fort Gordon military installation will be in accordance with

(IAW) federal laws and the fish and game laws of the state of Georgia (Title 10, U.S. Code, Sec. 2671). Installation permits are required to hunt, scout, fish, or participate in other training area recreation on the installation (Title 16, U.S. Code, Sec. 670a). A permit is also required to ride bicycles in the training area complex (the area west of the North Range Road and 12th Street intersection and west of the Range Road and Carter Road intersection). The Directorate of Public Works - Natural Resources Branch develops management plans, establishes hunting seasons, bag limits, creel limits, and types of firearms permitted for use, and conducts land management. Each of the outdoor recreation information stations as well as the Fort Gordon iSportsman website will display the most current and accurate seasons, bag limits, access maps and other associated information. Violations of this regulation will be based on the information posted at each outdoor recreation information station and the Fort Gordon iSportsman website. Sportsmen should take time to familiarize themselves with this regulation as well as the Fort Gordon Annual Hunting Season Update, the Annual Installation Fishing Schedule, the State of Georgia Freshwater Sport Fishing Regulations, and the State of Georgia Hunting Regulations. Should differences between these regulations and the State of Georgia fishing and hunting regulations occur, the requirements of this regulation will govern. Bicycle riders must be familiar with Chapter 7 of this regulation. Individuals participating in all other training area recreational activities such as bird watching, hiking, jogging, pet walking, etc. must be familiar with Chapter 8 of this regulation.

1-3 References.

Fort Gordon iSportsman Website, https://ftgordon.isportsman.net/.

AR 200-1, Environmental Protection and Enhancement.

AR 215-1, Military Morale, Welfare, and Recreation Programs and Nonappropriated Fund Instrumentalities.

DA Pam 385-63, Range Safety.

DA Pam 420-7, Natural Resources--Land, Forest, and Wildlife Management.

U.S. Army Cyber Center of Excellence & Fort Gordon Regulation 210-3, Installation Motor Vehicle Traffic Code.

U.S. Army Cyber Center of Excellence & Fort Gordon Regulation 210-13, Control of Firearms, Ammunition, and Other Dangerous Weapons.

U.S. Army Cyber Center of Excellence & Fort Gordon Regulation 385-10, U.S. Army Cyber Center of Excellence and Fort Gordon Command Safety Program.

U.S. Army Cyber Center of Excellence & Fort Gordon Regulation 350-19, Range and Training Area Operations.

U.S. Army Cyber Center of Excellence & Fort Gordon Regulation 420-3, Sale of Small Volumes of Forest Products.

FM 19-10, Military Police Law and Order Operations, chapter 9.

The State of Georgia Freshwater Sport Fishing Regulations.

The State of Georgia Hunting Seasons and Regulations.

1-4 Responsibilities.

a. The Directorate of Public Works (DPW) Natural Resources Branch (NRB) will be responsible for:

(1) Management and development of the installation fish and wildlife management plans to include the establishment of fish and game harvest quotas, seasons, regulations, and the installation hunting and fishing permit fees.

(2) Management of all lakes and wildlife habitat to include wildlife clearings.

(3) Procuring, processing, and issuing all installation outdoor recreation and forest product harvesting permits IAW this regulation.

(4) Development, maintenance, and administration of the iSportsman site and its related content.

(5) Updating availability of all lakes for fishing in the iSportsman system in accordance with the annual installation fishing schedule.

(6) Updating training area availability in the iSportsman system in the event DPTMS Range Control is unable to perform this function.

(7) The development and maintenance of outdoor recreation information stations, maps, game check stations, and this regulation.

(8) Issuance of the Fort Gordon Training Area Parking Pass (Figure 2) for hunting, fishing, and other training area recreation.

(9) Ensuring that a copy of this regulation is available to each individual obtaining any Fort Gordon outdoor recreation or forest products harvesting permits.

(10) Establishing quota for annual Public Access lottery.

b. The installation Veterinary Services will be responsible for providing guidance on wildlife diseases, injured wildlife, and predator control.

c. The Directorate of Plans, Training, Mobilization, and Security (DPTMS) will be responsible for:

(1) Directing which training areas and bicycle courses are closed to recreational activities due to military mission and/or safety reasons. Updating training area availability for recreational activities in the Fort Gordon iSportsman system daily.

(2) Producing a schedule of training areas and bicycle courses available for recreational use that will be issued to DES and NRB personnel daily.

(3) The control, coordination, and monitoring for all activities conducted within the installation training complex to ensure safety and unified operations.

(4) Implementing DA Pamphlet 385-63, Range Safety, and USACCoE&FG Regulation 350-19 Range and Training Area Operations, to approve, control, and monitor user access into the installation training complex for military training, administrative or other activities not covered by this regulation. Range Control will be included in all training complex scheduling activities.

(5) Updating of USACCoE& FG Regulation 350-19, Range and Training Area Operations to ensure compatibility with this regulation.

(6) Issuance of the Fort Gordon Training Area Parking Pass (Figure 2) for hunting, fishing, and other training area recreation.

d. The Directorate of Emergency Services (DES) will be responsible for:

(1) Enforcing all laws pertaining to natural, cultural, and archaeological resources, environmental law, and Security Protective Force laws on Fort Gordon. This includes enforcing regulations pertaining to environmental pollution, endangered species and wetlands protection, illegal access, illegal dumping, archaeological and historic protection, etc. The Directorate of Emergency Services is responsible for law enforcement to include the processing and disposition of all individuals who violate hunting, fishing, outdoor recreation, or any of these environmental laws and regulations. Installation Conservation Law Enforcement Officers and military police (MP) will cite military personnel on Armed Forces Traffic Ticket (DD Form 1408), as a violation of Article 92, UCMJ. Civilian users will be cited on United States District Court Violation Notice (CVB) which may require an appearance before a United States (U.S.) Magistrate. Privileges of those individuals who receive a citation may be suspended, revoked, and/or fined according to Collateral Forfeiture Amounts (available upon request at the DES Law Enforcement Center). See Chapter 9 and Appendix B of this regulation for more specific information about violations to this regulation.

(2) Providing law enforcement to ensure that only authorized points of entry (such as Gates 1, 2, 3 and 5) into the installation are being used by individuals who are hunting, fishing, bicycle riding, or participating in other training area recreation and reporting probable unauthorized entry points to DPW- NRB for repair and maintenance.

(3) Assist in posting of informational updates or notices at each of the Outdoor Recreation

Information Stations.

(4) Accessing the Fort Gordon iSportsman system to ensure compliance with check in/out procedures, check the status of users (validate permit status, training area access, etc.), and to clear training areas of users daily to ensure all recreationists are accounted for.

(5) Checking a minimum of 10% (annually) of permitted recreational users to validate authorized user status.

(6) Maintaining permanent files listing the name, type of offense, and the "from/through" dates of suspensions or the effective date the privilege was revoked. Providing and updating, as required, a listing of those individuals who are under suspension or have had their installation hunting and/or fishing privilege revoked or reinstated to the DPW Natural Resources Branch and Garrison Commander.

(7) Development and enforcement of Fort Gordon Regulation 210-13, which regulates the use and control of privately owned weapons, explosives, and ammunition on Fort Gordon and the Gillem Enclave.

(8) Development and enforcement of access to the installation. Control access to the installation and length of time access is granted. Process FG Form 9243s and grant access passes.

e. Directorate of Family, Morale, Welfare and Recreation (DFMWR) is responsible for:

(1) Providing coordination, planning, organization, and supervision of special sporting and outdoor related activities such as special hunts and fishing tournaments as outlined in subparagraphs (a.) through (f.) below.

a. Staffing all special sporting and outdoor related actions at least 45 days prior to scheduled event. Actions will be coordinated with Range Control, DPW- NRB, DES, Installation Safety Office, DPTMS, and Installation Veterinary Clinic (as required by event). Provide, at a minimum, a completed FG Form 1203-R-E to all commenting activities prior to the scheduled events.

b. Developing standard operating procedures (SOP) for all special sporting and outdoor related activities. The SOPs will be submitted for review by DPTMS-Range Control, DPW-NRB, DES, Installation Safety Office and, as appropriate, other activities. Ensure that all policies and procedures identified within appropriate SOPs are implemented prior to conducting the scheduled event.

c. Providing risk assessments for all special events as required by Installation Safety Office IAW AR 385-10, Army Safety Program.

d. Providing environmental documentation (checklist, environmental assessments, etc.) as appropriate for all scheduled events. Coordinating all events requiring special permits (shooting preserve, field trial, etc.) with installation wildlife biologist. Providing funding for the

acquisition of all required permits related to these events.

e. Acquiring/maintaining range and training area safety certification IAW USACCoE&FG Regulation 350-19, Range and Training Area Operations for all event coordinators. Certification will be required prior to requesting training area usage for any special sporting or outdoor related activities. Ensuring that event coordinators are onsite for the duration of the scheduled event. All training area requests will be submitted in writing to DPTMS-Range Control 45 days prior to the scheduled event. Copy of Risk Assessment, approved Environmental checklist, and concept of operation will be submitted to Range Control prior to event.

(2) Issuance of Fort Gordon Training Area Parking Pass (Figure 2) for hunting, fishing, and other training area recreational activities.

f. Recreationists, family members, and bona fide participants and guests must familiarize themselves with this regulation. Sponsors are responsible for the conduct of their bona fide participant(s) and/or guest(s) while hunting or fishing on the installation. Observed violations of hunting and fishing laws and this regulation may be reported telephonically to the MP desk, 791-4380.

CHAPTER 2

AUTHORIZATION AND ACCESS

2-1 Individuals Authorized to Hunt, Fish, Bicycle Ride, and Participate in Other Training Area Recreation.

The Fort Gordon Garrison Commander has extended the privileges to hunt, fish, bicycle ride, and participate in other training area recreation on the Fort Gordon military installation to the individuals below. While participating in outdoor activities, individuals should be able to produce proof of status in one of the categories below to DES personnel. Proof could be in the form of: DoD CAC ID, DoD dependent ID card, retiree ID card, DD Form 214, VA Disability Rating Letter, etc.

a. Active and retired Armed Forces personnel and their dependent family members as defined in the Joint Travel Regulations (JTR), Appendix A.

b. Active and retired civilian employees of the Department of Defense (DoD), and their dependent family members as defined in JTR, Appendix A.

c. Members of the Army/Air National Guard and Drilling Reservists (The Selected Reserve and its counterpart in the other Armed Forces) of all Armed Forces and their dependent family members as defined in JTR, Appendix A. Personnel in this category must possess an appropriate military identification card, as proof of National Guard or Selected Reserve status and a Leave and Earnings Statement (LES) dated not more than a year prior to date of purchase.

d. A limited number of hunting and fishing permits are available to any individuals not authorized access as one of the categories above through the public access program. These permits are offered through a random lottery drawing conducted in the iSportsman system and are valid for no longer than one year. Lottery winners and their dependent family members under the age of 18 have the same privileges as those listed in paragraphs a-c above. Application procedures are outlined on the Fort Gordon iSportsman website. Each family member age 18 and up must enter the lottery individually as permits will not be sold to family members of lottery winners over the age of 17.

e. The Commanding General or Garrison Commander may specifically authorize, by letter, permission to hunt or fish to individuals who do not otherwise qualify under paragraphs a through d above.

f. The Fort Gordon Garrison Commander authorizes all individuals who have legally accessed the installation to participate in bicycle riding or other training area recreational activities. See Chapter 7 for bicycle riding requirements. See Chapter 8 for requirements to participate in other training area recreation.

2-2 Bona Fide Participants and Guests.

a. Persons authorized to hunt and fish on the Fort Gordon military installation may sponsor up to two bona fide guests (participating or non-participating) at any one time. The sponsor must be fully permitted to hunt or fish on the installation. For the purposes of the iSportsman system participating guests are those actually engaged in hunting or fishing and are called "Participants" and non-participating guests (observers) are called "Guests." From this point forward, this terminology will be used.

(1) All participants require a Fort Gordon participant permit (daily or weekly), and while hunting or fishing, participants must also have a corresponding valid State of Georgia hunting and/or fishing license. Each participant must have their own iSportsman account in order to purchase participant permits. In addition, everyone hunting, regardless of age, must be able to show proof of completing a state approved hunter safety course.

(2) Licensed sponsors must check in all participants and guests by providing all requested information during the iSportsman check in process. All participants must check themselves out in the iSportsman system in order to record information pertaining to any game they may have harvested. Guests, however, are checked out automatically when the sponsor checks out.

(3) The sponsor must accompany their participant(s) within the same training area or lake/pond. Additionally, sponsors must be in the immediate presence (within 150 feet) of their guest(s).

(4) Guests may not assist with the carrying of weapons or fishing rods.

(5) All guests must comply with appropriate restrictions detailed in Chapter 5 and 6 of this regulation.

b. No one under 18 years of age may sponsor participants or guests.

2-3 Access to Fort Gordon Training Area Complex.

a. All individuals participating in recreational activities in the Fort Gordon Training Area Complex must utilize the Fort Gordon iSportsman system to obtain permits and determine which training areas, lake zones, or bicycle courses are available for recreational use (training areas, lakes, and bicycle course status will be updated in the Fort Gordon iSportsman system daily). Users will check in using the Fort Gordon iSportsman system according to this regulation (See Chapter 5-2 for hunting, Chapter 6-2 for fishing, Chapter 7-3 for bicycle courses, and Chapter 8-3 for other recreational activities).

b. Individuals participating in hunting, fishing, and other outdoor recreational activities (bird watching, hiking, jogging, pet walking, etc.) must obtain a Fort Gordon Training Area Parking Pass (Figure 2) to enter and/or park a vehicle in any training area. Parking passes can be obtained through the Fort Gordon Tactical Advantage Sportsman Complex (TASC) (Bldg 445, Carter Rd.), the Natural Resources Branch Field Office (Bldg 403, Forestry Rd.) or Range Control (Bldg 81200, 12th St.). Parking Passes can also be printed from the iSportsman site by the user. Once a pass is obtained the individual must also check in/out of the training areas using the Fort Gordon iSportsman system. See Chapter 8 for outdoor recreation requirements for activities other than hunting, fishing, and bicycle riding.

c. Individuals driving their POV through the training area complex who remain on paved surface roads without entering a training area or those utilizing the Leitner Lake Recreation Area do not require a parking pass and are not required to check in. No privately owned vehicles (POV), motorcycles, dirt bikes, three or four wheeled all-terrain vehicles (ATV), or other motorized off-road vehicles are authorized on any range, in any training area, or on any dirt roads except as outlined in Chapter 4 and 5-1 a. and as indicated in USACCoE&FG Regulation 350-19, Range and Training Area Operations. Privately owned vehicles are not authorized to pass over, through, or around a closed gate, cable, sign, earth berm, or other structure or device intended to prevent access to an area or roadway.

d. Military, DoD and non-DoD civilians may access assigned duty stations located within the training area complex utilizing primary roads without a parking pass and are not required to check in. Military, DoD and non-DoD civilians or others granted permission by the Garrison Commander may use POV's to access temporary work sites within training areas for official business without a parking pass and are not required to check in, after coordination with Range Control.

e. Access for special events, such as Med Wars and Mud Runs, can be requested by individuals, units, or organizations to Range Control. This will require scheduling with Range Control and necessitates all documentation that training units submit per USACCoE&FG Regulation 350-19, Range and Training Area Operations. Such documents are: RFMSS scheduled, Concept Plan, Risk Assessment, and Record of Environmental Consideration (REC).

CHAPTER 3

PERMITS AND FEES

3-1 Permits.

a. Fort Gordon hunting, fishing, and outdoor recreation permits are required to hunt, fish, scout, bicycle ride, and access training areas for other types of recreation (hiking, jogging, pet walking, birdwatching, etc.). Permits are valid for 12 months from the date of purchase except for permits issued to those individuals accessing the installation under the public access program. (see Chapter 3-1c for more details). A Fort Gordon Big Game Hunting Permit is required for hunting deer and/or turkey. All Fort Gordon permits are sold through the Fort Gordon iSportsman system.

b. Persons 18 years old and older are required to purchase a Fort Gordon hunting, fishing, or outdoor recreation permit before participating in those activities. Persons under the age of 18 participating in hunting or fishing are required to possess a free Fort Gordon hunting or fishing youth permit for the purpose of checking in and out of the iSportsman system. Persons under the age of 18 participating in bicycle riding or training area recreation other than hunting or fishing are not required to purchase a permit, but must be checked in as a guest under a permitted user over the age of 18.

c. Public Access lottery permits will be valid for no longer than one year from date of purchase and no public access permits (regardless of when purchased) will be valid past 1 August following the year of selection. (Example 1: lottery draw date: 20 July 2017, permit purchased 21 July 2017; permit expires 20 July 2018) (Example 2: lottery draw date: 20 July 2017, permit purchased 15 January 2018; permit expires 1 August 2018).

d. For all individuals 16 and older, all installation hunting and fishing permits must be accompanied by a corresponding valid State of Georgia license and a valid Federal license, if required (example: duck stamp). Regardless of age, all hunters must possess a Harvest Record (for deer and turkey hunting) for the State of Georgia.

e. All persons (regardless of age) participating in hunting activities must be able to show proof of completing a state approved hunter safety course before purchasing any installation hunting permit and while hunting on the installation. The hunter safety course number and issuing state must be entered in the iSportsman system as part of the registration process.

f. A participant permit can be purchased through the Fort Gordon iSportsman system by anyone who wishes to accompany any permitted sponsor (authorized user) provided the participant is in possession of a valid State of Georgia hunting and/or fishing license. For hunting, the participant must be able to provide proof upon demand of successful completion of a state approved hunter safety course (this information should be entered in the person's account information during the registration process). The participant must also possess a NAF Form 7160-R that has been signed by both the sponsor and the participant or an approved FG Form 9243.

g. All persons who fish at Fort Gordon Pointes West Army Resort at Thurmond Lake must be properly licensed IAW the State of Georgia. A Fort Gordon installation fishing permit is not required at Pointes West Army Resort.

h. Those individuals who can provide proof of 100 percent service related disability, as determined by the U.S. Department of Veterans Affairs Schedule for Rating Disabilities, are eligible to receive a reduced rate Fort Gordon hunting and fishing permit. This permit can be obtained through the permit sales portion of the iSportsman system. These individuals using iSportsman for the first time will need to contact the Natural Resources Branch and provide proof of 100 percent service related disability in order to receive validation to access this permit through iSportsman (Veterans Affairs Disability Rating Letter). While the validation for this permit is good for life, the permit must be purchased annually.

i. All persons (or guardian in the case of a minor child) must read and affirm by check box a Release and Hold Harmless Agreement available on the iSportsman site during the registration and permit purchasing process. No permits will be issued through the iSportsman system until this has been completed.

3-2 Installation Training Area Safety Brief.

Sportsmen and sponsored participant(s) wishing to enter Fort Gordon for any recreation activity or forest product harvesting must read/watch a safety brief and take a corresponding quiz located on the Fort Gordon iSportsman website annually. Upon successful completion of the safety brief and quiz the individual's iSportsman account will be annotated accordingly to serve as proof of completion.

3-3 Fees.

Appendix B lists the current installation hunting, fishing, and outdoor recreation permit fees.

CHAPTER 4

VEHICLES

4-1 Use of Privately Owned Vehicles (POVs) when Hunting, Fishing or Participating in Other Training Area Recreational Activities.

a. Users may only travel primary access roads to reach training areas where they are checked in to hunt (see Chapter 5-1), fishing zones or training areas where they are checked in to fish (see Chapter 6-1), or training areas where they are checked in for other outdoor recreation (see Chapter 8-2). Primary access roads are those designated on the current Hunting and Fishing Resources Map produced by the Fort Gordon DPW Natural Resources Branch and posted at all outdoor recreation information stations and on the Fort Gordon iSportsman website. Primary access roads are also multiple use roads for other activities such as military training, government, construction, logging, etc. Driving on limited access roads and firebreaks is not authorized unless

individuals are checked in for that training area. See Chapter 7 (bicycle riding) and Chapter 8 (other training area recreation) for POV requirements.

b. Privately owned vehicles will not traverse cross-country, through reforested areas, or planted wildlife openings. At no time are POVs allowed to operate/ride off established roads or firebreaks.

c. When hunting, fishing, or participating in other training area recreation, POVs must be parked in the training area the individual is checked in to.

d. Privately owned vehicles are not allowed to operate on roads or firebreaks that have been marked closed.

e. Blocking firebreaks or roads to traffic is prohibited. Parking parallel to or just off of firebreaks is permitted.

f. Privately owned vehicle parking is prohibited on dams of ponds and lakes. Privately owned vehicles may be parked parallel to access roads and firebreaks adjacent to fishing lakes, provided they do not block traffic. Privately owned vehicles will not block access to any boat launching areas. These areas are either prepared areas or any areas where a boat can be safely off loaded from a boat trailer into a lake or pond where use of a boat is permitted.

g. It is prohibited to walk/enter, ride or drive a POV over, through, or around a closed gate, cable, sign, earth berm, or other structure or device intended to prevent access to an area or roadway.

h. No POVs, motorcycles, dirt bikes, three- or four-wheeled all-terrain vehicles (ATV), or other motorized off-road vehicles are authorized on any range, in any training area, or on dirt roads except as outlined in Chapter 4 and 5-1a. and as indicated in USACCoE&FG Regulation 350-19, Range and Training Area Operations.

i. Vehicles are subject to search by DES Conservation Law Enforcement Officers, MPs, and other authorized personnel upon entering, occupying, or exiting hunting areas, fishing areas, and training areas if there is probable cause to believe that a violation of the Uniform Code of Military Justice, DA regulations, USACCoE&FG regulations, State law, or Federal law has occurred.

j. Vehicles located in training areas, and fishing zones are subject to an unannounced inspection when the inspection is IAW FM 19-10 Military Police Law and Order Operations, Chapter 9. A Fort Gordon training area parking pass (Figure 2) must be displayed on the driver-side dash of the vehicle while hunting, scouting, fishing, or participating in other recreational activities in training areas or fishing zones. Parking passes can be obtained through the Fort Gordon Tactical Advantage Sportsman Complex (TASC) (Bldg 445, Carter Rd.), the Natural Resources Branch Field Office (Bldg 403, Forestry Rd.) or Range Control (Bldg 81200, 12th St.), or on the Fort Gordon iSportsman website.

4-2 Use of All Terrain Vehicles (ATVs).

a. The use of ATVs on the installation is prohibited without written consent from the DES. For those individuals who are mobility impaired and require use of ATVs, requests can be submitted to the Law Enforcement Center, and they will forward the request to the Provost Marshall for approval. Individuals operating ATVs must conform to all safety equipment requirements (helmets, gloves, etc.) as outlined in Fort Gordon regulations covering motorcycle safety. Directorate of Emergency Services will notify DPTMS Range Control and DPW Natural Resources Branch of any approved request.

b. When authorized, ATVs may only be used for hunting, scouting, or fishing in the training area that the user is checked in to.

4-3 Training Areas and POV access.

a. Individuals participating in any training area recreation may only travel primary access roads, as identified on the current Hunting and Fishing Resource map (posted at the outdoor recreation information stations and on the Fort Gordon iSportsman website), to reach training areas where they are checked in to recreate. Once recreationists enter their training area, they are allowed to use any open road or firebreak within that area. Recreationists are not permitted to travel through training areas they are not checked in to, with the exception of entering TA 49A to access TA 49B, and entering TA 46 to access TA 47.

b. Fishermen checked in to Zones A, B, or C may only travel to and from a fishing zone on primary access roads as identified on the current Hunting and Fishing Resource map posted at the outdoor recreation information stations and the Fort Gordon iSportsman website. Fishermen checked into Zones A, B or C are not authorized to travel on or through any training area off of a primary access road.

c. In cooperation with DES, DPTMS, and DFMWR, specific areas may be authorized by DPW Natural Resources Branch as special use areas. These areas may be set aside for special events or activities for physically impaired, Wounded Warriors, special needs individuals, etc.

CHAPTER 5

HUNTING

Hunting is any activity that involves tracking, capturing, harvesting, trapping, or pursuing any game or wild animal, to include scouting, setting up and/or removing trail cameras and/or tree stands/blinds, and training of dogs. A valid Fort Gordon hunting permit is required for all these activities.

5-1 Hunting Areas and POV access.

a. Hunters may only travel primary access roads to reach training areas where they are checked in to hunt. Once hunters enter their training/hunting area, they are allowed to use any

open road or firebreak within that area. Hunters are not permitted to travel through training areas they are not checked in to, with the exception of entering TA 49A to access TA 49B and entering TA 46 to access TA 47.

b. Hunting areas are divided into five main areas.

(1) Training Areas 1-17 (excluding 14B). Hunting is authorized in certain sections of Training Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14A, 15, 16, and 17. Only crossbows and archery equipment may be used for hunting in these areas. Firearms of any type are prohibited in these areas at all times. Maps of these areas are posted at the main outdoor recreation information station and on the Fort Gordon iSportsman website.

(2) Training Areas 18-47. Shotguns, muzzle loaders, crossbows, and archery equipment may be used for hunting in these areas. Rifles are prohibited in these areas at all times. Maps of these areas are posted at the main outdoor recreation information station and the Fort Gordon iSportsman website.

(3) Training Areas 48, 49A, and 49B. Rifles, shotguns, muzzle loaders, crossbows, and archery equipment may be used for hunting in this area (see Appendix E for a list of approved and unapproved rifle calibers for use in this area). Area specific maps are located at the outdoor recreation information stations located in Training Area 48 and 49A and on the Fort Gordon iSportsman website. These areas have maximum numbers of authorized users at any one time (see iSportsman website).

(4) The Small Arms Impact Area (SAIA). The SAIA consists of 4 areas: A, B, C, and D. Shotguns, muzzle loaders, crossbows, and archery equipment may be used for hunting in these areas. Rifles are prohibited in these areas at all times. An area specific map is available at the main outdoor recreation information station and on the Fort Gordon iSportsman website.

(5) Training Area 14 B, Special Opportunity Hunting Area. This area is closed to all hunting except when specifically used for a Special Opportunity Hunt as described in Appendix D.

c. In all areas, only one area can be checked in to for hunting or scouting at any one time.

5-2 Checking In and Out.

a. All persons, regardless of age, entering any open training area for hunting or scouting are required to check in by utilizing the Fort Gordon iSportsman system prior to entering the area.

b. All hunters are required to check out upon completion of the hunt or scout by utilizing the Fort Gordon iSportsman system.

c. Each visit to a training area requires checking in and out. This includes multiple visits to the same area in the same day.

d. Licensed sponsors must check in all participants and guests by providing all requested information during the iSportsman check in process. All participants must check themselves out using the iSportsman system in order to record information pertaining to any game they may have harvested. Guests however, are checked out automatically when the sponsor checks out.

e. Youth hunters (age 17 and under) utilizing a youth hunting permit should be checked in to the iSportsman system under their adult sponsor using the same procedure as sponsored participants (see 5-2 d.). Like participants, youth hunters must check themselves out in the iSportsman system in order to record information pertaining to any game they may have harvested.

f. The main outdoor recreation information station will be located at 111th Avenue and 15th Street. In the event that the Fort Gordon iSportsman system is non-operational all recreational activities will cease until the DES (Conservation Law Enforcement Officer) and the Natural Resources Branch have installed manual check in/out procedures. This information will be publicized through the installation media or posted at the main outdoor recreation information station.

g. All hunters are advised to read all notices and updates posted at the outdoor recreation information stations or on the Fort Gordon iSportsman website prior to commencing hunting events.

h. Hunters may not check in to participate in multiple activities at one time (i.e. hunting, fishing, other outdoor recreation, etc.)

i. Hunters may not intentionally check in to an area and not go hunting with the purpose of taking up spaces or creating the perception that more hunters are in an area than are actually there.

j. Hunters may not use another hunter's iSportsman login credentials to check that hunter into or out of an area.

5-3 Legal Hours.

a. Hunters may check in to an open training area to hunt or scout no earlier than two (2) hours before official sunrise.

b. Legal hours for hunting are 30 minutes before sunrise until 30 minutes after sunset except for those species that may be hunted at night (raccoon, opossum, foxes, coyotes, bobcats and feral hogs). Legal hours for doves are 12 noon until sunset on opening day and 30 minutes before sunrise to sunset for the remainder of the season. Legal hours for all other migratory birds are 30 minutes before sunrise to sunset.

c. Hunters must be checked out of the training areas no later than two (2) hours after official sunset.

d. In the event you are trailing game at the end of the legal hunting hour, you must abandon

the trail or contact the DES (Conservation Law Enforcement Officer) (706-791-4380) for instructions.

e. Night Hunting: small game species such as raccoons, opossums, foxes, bobcats, coyotes, and feral hogs may be hunted at night. For these species, hunters may only use lights that conform to the State of Georgia Hunting regulation.

(1) Small game hunters hunting at night can check in no earlier than two (2) hours before sunset and must check out no later than 11:59 p.m. If the area is still available for hunting, the hunter may then check back in to hunt at 12:01 a.m. and continue hunting if they so desire, but must check back out no later than official sunrise.

(2) In the event you are trailing any wounded small game at the end of the legal hunting hour (no later than official sunrise), you must abandon the trail or contact the DES (Conservation Law Enforcement Officer) (706-791-4380) for instructions.

f. During open seasons, hunting is permitted 7 days a week in training areas open for hunting, except on Christmas Day.

5-4 Trapping.

Trapping on Fort Gordon military installation is prohibited. DES (Conservation Law Enforcement Officers), DPW Natural Resources Branch personnel, DPW pest control contractors, and other authorized personnel may trap for predator and invasive species control and public health purposes only when authorized by DPW Natural Resources Branch. Authorization to trap must be approved on a case-by-case basis. Requests are to be forwarded to DPW Natural Resources Branch.

5-5 General Hunting Regulations.

a. The State of Georgia hunting regulations and statutes will apply on Fort Gordon, unless specifically outlined on the annual hunting season updates or in this regulation.

b. All hunters must have in their possession a valid State of Georgia license, a valid Federal license (example: duck stamp), a Fort Gordon permit, and proof of completing a state approved hunter safety course while hunting on Fort Gordon.

c. All individuals entering training areas during firearms deer or special coyote/feral hog seasons (whether hunting, scouting, participating in other training area recreation or Fort Gordon staff/contractors, etc.) must wear outer garments totaling at least 500 square inches of daylight fluorescent orange at all times while within a training area. This clothing must be worn above the waistline (and may include a head covering) while in the training areas. Individuals hunting ducks/doves during firearms deer or special coyote/feral hog seasons must wear outer garments totaling at least 500 square inches of daylight fluorescent orange in transit to and from duck/dove blinds. Fluorescent orange outer garments may be removed while in the duck/dove blind. Fluorescent orange outer garments are not required but are recommended in archery/crossbow

hunting areas (Training Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14A, 15,16, and 17). Caution should be exercised by duck/dove hunters and by bow hunters during the Firearms season.

d. Scouting of training areas is authorized any time of the year, provided the training area is open for recreation. Scouting is prohibited in areas posted "OFF LIMITS" or closed for training requirements. All individuals wishing to scout must possess a valid Fort Gordon hunting permit and check in for scouting prior to entering any training areas. Individuals scouting will comply with check in/out procedures outlined in Chapter 5-2.

e. All temporary deer stands, blinds, trail cameras, etc. must be removed from the hunting areas within 30 days of the end of the deer hunting season and may not be placed more than 30 days prior to the beginning of the deer archery season. Any stand, blind, or trail camera not so removed will be deemed abandoned property and will be disposed of IAW Defense Disposal Manual procedures. The U.S Government or Fort Gordon will not be responsible for the theft of or the damage to tree stands, blinds, game cameras, etc. It is the hunter's responsibility to fireproof their stands, blinds, or game cameras so they are not damaged during wild and/or prescribed fires.

f. All hunters who harvest big game (deer or turkey) will take their harvest to one of the outdoor recreation information stations for weigh in and must comply with all check station requirements (IAW Annual Hunting Season Update) and complete the appropriate deer or turkey harvest form during the checkout process in iSportsman. In the event iSportsman is non-operational, or the hunter is unable to complete the harvest report in iSportsman, FG Form 9168 (Hunting Control Register), Figure 3 will be made available and must be completed and placed in the collection box at one of the outdoor recreation information stations.

g. Installation DPW Natural Resources Branch personnel are permitted to count, examine, measure, weigh, and collect tissues samples from all wild game taken by hunters while in the training areas or at the completion of a hunt on the installation. Hunters should review the Annual Hunting Season update posted at each outdoor recreation information station and on the Fort Gordon iSportsman site to familiarize themselves with all check station requirements.

h. The SAIA has been designated as a trophy management area for white tailed deer. Within the SAIA, deer may be harvested according to the Fort Gordon Annual Hunting Season Update published by the NRB. See this annual update for antler restrictions for bucks, antlerless harvest, and check station requirements (posted at each outdoor recreation information station and on the Fort Gordon iSportsman website).

5-6 Legal Firearms.

a. Handguns are not permitted when hunting on the installation.

b. Rifles may only be used for hunting in training areas 48, 49A, and 49B during the firearms deer, small game, or special coyote/feral hog seasons. Rifles may only be loaded with a maximum of 5 rounds in the magazine and chamber combined. Authorized and prohibited rifle calibers can be found in Appendix E (calibers not listed in Appendix E are not authorized).

Species specific caliber requirements can be found on the Fort Gordon Annual Hunting Season Update (posted at each Outdoor Information Recreation Station and on the Fort Gordon iSportsman website). Rifles may also be used for hunting in training area 14B (Special Opportunity Hunting Area) as authorized and approved in accordance with Appendix D.

c. Shotguns, muzzle-loaders, and archery equipment must conform to the State of Georgia laws. Arrows for hunting deer or feral hog must be broad head type. Riflescopes are permitted on rifles, muzzle-loaders and shotguns to the extent allowed by the hunting laws of the State of Georgia.

d. During the firearms season, muzzle-loaders are permitted.

e. Shotguns must be at least 20 gauge to hunt big game (deer or turkey) and ammunition is limited to slugs when hunting deer. The use of buckshot for hunting is prohibited on the installation. The use of .410 gauge shotguns is limited to small game hunting only.

f. Procedures for entering and transporting weapons on Fort Gordon must conform to all requirements in USACCoE&FG Regulation 210-13, Control of Firearms, Ammunition and Other Dangerous Weapons. Before entering the installation for an authorized activity with a firearm, military personnel must register all firearms by completing FG Form 9243. Department of Defense and non-DoD civilians will authorize Fort Gordon officials to conduct a National Crime Information Center (NCIC) criminal and driver history background check by completing a FG Form 9243. If the NCIC background check is favorable it will be valid for one year. All individuals (military, DoD and non-DoD civilians) bringing firearms onto the installation must have in their possession a copy of the approved FG Form 9243 (Personal Firearms and Weapons Registration Form) documenting registration or favorable background check. Access to the installation and length of time access is granted will be governed by Access Control Policies or Regulations in effect at that time.

g. When transporting a weapon on the installation, it must be in some form of case or container, secured in the trunk for a car or rear compartment for Sport Utility Vehicles (SUVs). If transporting in a pickup truck, firearms may be transported behind the seat or in a locked toolbox secured to the bed of the truck. The weapon will remain in the secured case until the hunter arrives at the hunting area that he/she is checked in to. A secure case is defined as a commercial case with a security device such as a zipper or lock. Sock type cases are not allowed. Upon arriving at the hunting area, the hunter may remove the firearm from the secured case for the purpose of hunting.

h. Upon completion of the hunt or relocating to a secondary hunting area in a POV, the unloaded firearm will be placed back into the secured case before departing the area and the ammunition will remain separate from the weapon. At no time will the firearm be out of the case while being transported in a POV. Transporting a loaded firearm or loaded crossbow in or on any type of POV or authorized all-terrain vehicle (ATV) is prohibited on the installation.

i. A crossbow is considered loaded if it is cocked and either has a bolt or arrow engaged or partially engaged on the shooting rail or track or with a trackless crossbow when the crossbow is cocked and bolt or arrow is nocked.

j. When hunting with a muzzle-loading rifle, the firing cap will be removed prior to transporting the rifle from one hunting area to another. If a misfire occurs, please consult the manufacturer's handbook for unloading procedures.

k. Firearms with suppressors are not permitted to be used for hunting at any time.

5-7 Hunting with and Training Dogs.

a. The use of dogs when hunting deer is prohibited except for trailing wounded animals.

b. The use of hunting dogs for small game is permitted. Dogs will not be dismounted to hunt until the transporting vehicle is parked.

c. Persons desiring to train hunting dogs must have in their possession a valid Fort Gordon hunting permit. Release of pen-raised birds is prohibited except during special events hosted by DFMWR and/or approved by NRB.

d. Persons desiring to train hunting dogs (other than deer/bear dogs) may do so IAW the State of Georgia laws. Training of dogs will be conducted in Training Areas 23 and 28 only (for waterfowl training see on duty DES Conservation Law Enforcement Officer). Training dogs for profit is prohibited. Live rounds will not be in the possession of any person training dogs, however, blank ammunition may be used. Rifles and handguns are not permitted.

e. Persons training dogs and their sponsored participant(s) or guest(s) will check in and out using the iSportsman system. If it is outside of any hunting season, the user must check in for scouting. See Chapter 5-2 of this regulation.

5-8 Installation Hunting Seasons.

Installation hunting seasons, species, weapons, bag limits, check station requirements, etc. will be updated on the Fort Gordon Annual Hunting Season Update and posted at all outdoor recreation information stations and on the Fort Gordon iSportsman site annually by DPW Natural Resources Branch.

5-9 Hunting Restrictions.

a. Hunting is prohibited in the Fort Gordon cantonment area with the exception of certain sections of Training Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14A, 15, 16, and 17, which are restricted to hunting with archery and crossbow equipment only.

b. Entry is prohibited in the area known as the "Artillery Impact Area" by unauthorized personnel. Hunting, scouting, fishing, and all other types of outdoor recreation in this area are prohibited at all times. This area is bounded on the north, south, east, and west by a posted firebreak as well as Ivy Road on the north, Brier Creek on the south, and Harlem Road and Boggy Gut Creek on the east.

c. Hunting is prohibited in posted "Dud Areas" and on those ranges posted "RESTRICTED" for safety reasons.

d. Hunters may not hunt for big game and small game at the same time, with the exception of feral hogs and coyotes which may be harvested during any open hunting season while hunting other species. See Fort Gordon Annual Hunting Season Update for information.

e. The placing of any feed or bait (corn, wheat or other grains, salts, apples, or other feed or bait) is prohibited on Fort Gordon.

f. Sponsored participants must hunt in the same training area as their accompanying sponsor when hunting. Sponsors must be 18 years of age and licensed to hunt in the State of Georgia and on the Fort Gordon military installation IAW this regulation.

g. No person under 18 years of age will be allowed to hunt without being accompanied by a fully licensed adult at least 18 years old. Persons 13 - 17 years of age will be allowed to hunt without being in the immediate presence of an adult but must be within the same training area. Persons 12 years of age and under will be within arm's length of their licensed sponsor at all times while hunting.

h. Target practice in training areas is prohibited. See USACCoE&FG Regulation 350-19, Range and Training Area Operations for further information. DFMWR, Outdoor Recreation range may be utilized on designated days for this purpose. For further information on this range, contact Tactical Advantage Sportsman's Complex (Range 14) at (706) 791-3317/5078.

i. Camping in training areas and around lakes is prohibited. Camping is authorized at the Leitner Lake Recreation Area (contact DFMWR at (706) 791-3317/5078).

j. Open fires in training areas or around lakes are prohibited (exception: fires are permitted at the Leitner Lake Recreation Area in designated areas).

k. The cutting of live trees for construction of blinds, or for any reason, is prohibited.

l. All Fort Gordon Training Areas will be closed to all recreational activities on Christmas day. Areas will be open to these activities on all other holidays.

m. Persons knowledgeable of an accidental kill of any deer or wild turkey on the installation will file a report with a DES Conservation Law Enforcement Officer or the MP desk sergeant (706-791-4380).

n. Littering or dumping is prohibited. The offender will be cited to appear before the U.S. Magistrate.

o. Guiding/escorting, hunting or fishing for profit is prohibited on Fort Gordon military installation.

p. Carrying of firearms or bow/archery equipment into hunting areas or training areas during closed season is prohibited. For further information on transporting a weapon, see USACCoE&FG Regulation 210-13 available at the Law Enforcement Center.

q. Discharging a firearm or bow from or across a roadway, other than a firebreak, is prohibited. This includes all asphalt-surfaced roadways, limited access roads, and primary access roads.

r. Construction of any permanent tree stand is prohibited. The use or maintenance of existing permanent tree stands is prohibited. The use of portable and natural tree stands is permitted; however, the installation of spikes, nails, screw-in type steps, bolts, etc. into trees is prohibited. Portable stands are limited to three per hunter.

s. Construction of permanent blinds in any food plot area is prohibited. Blinds, if built, will be constructed of biodegradable materials (examples are cotton string, jute, hemp) in locations that do not interfere with the maintenance of food plots. All blinds constructed will be available on a first-come-first-served basis.

t. Hunting is prohibited within 100 yards of any lake, pond (excluding beaver ponds), primary access road, or building (see map posted at outdoor recreation information stations or the Fort Gordon iSportsman site for details on primary roads). An exception to this restriction is duck hunting on certain installation lakes during duck seasons (see Annual Installation Fishing Schedule for lakes open for duck hunting). All duck hunters can contact the on duty DES (Conservation Law Enforcement Officer) for additional duck hunting information.

u. The use of modified ammunition is prohibited. Reloaded ammunition must meet the original ammunition specifications.

5-10 Alcohol and Drugs.

Hunters will not be intoxicated, possess alcohol on their person, or consume alcoholic beverages while hunting. Hunters will not be under the influence of illegal drugs or possess them while hunting. Hunters will not be under the influence of prescription drugs that do not allow the operation of a motor vehicle.

CHAPTER 6

FISHING

Fishing is any activity that involves catching, capturing, taking, harvesting, or pursuing any fish or aquatic animal. Includes all lesser acts such as attempting to catch, capture, or kill by any device or method and directly assisting any person in catching or attempting to catch fish or aquatic animals. Being around a lake, pond, or stream with a fishing pole in your possession is considered fishing.

6-1 Fishing Areas and POV Access.

a. Fishing areas are divided into three zones (A,B,C).

(1) Zone A (Cantonment Lakes)
Gordon, Mirror, Wilkerson, Soil Erosion

(2) Zone B
Upper Leitner, Howard, Big Smoak, Little Smoak, Fettig, Little Beaver, Big Beaver, Whittimore, Upper Whittimore, Claypits I, II, and III

(3) Zone C
Leitner, Lower Leitner, Union Mill, Rainbow, Rachels I, II, III, and IV

(4) Fisherman and their sponsored participant(s) and/or guest(s) may only check in to one (1) fishing zone at a time.

(5) Only lakes that are open to fishing within the specific zone can be fished.

b. Fishing is also authorized in beaver ponds, streams, and lakes not included in the three fishing zones, provided that the training area is open to recreation (example Thomas Lake is open for fishing when SAIA-D is open). It's the fisherman's responsibility to check the training area availability on the iSportsman website to ensure the training area is open for recreation. Once checked in to an open training area, the use of limited access roads and firebreaks is permitted within that training area only. Fishermen and their sponsored participant(s) and/or guest(s) may only check in to one (1) open training area at a time when fishing in beaver ponds, lakes, or streams in training areas.

c. Fishermen checked in to Zone A, B, or C may only travel to and from that fishing zone on primary access roads as identified on the current Hunting and Fishing Resource map posted at the outdoor recreation information stations and on the iSportsman website. Fishermen checked into Zone A, B or C are not authorized to travel on or through any training area off of a primary access road.

d. The annual Installation Fishing Schedule lists the lakes and dates available for fishing.

e. Boardman Lake is located within the Boardman Housing Area and is a "RESTRICTED" fishing area. Fishing in Boardman Lake requires written permission from a Boardman Lake resident. Written permission will only be valid for one year and fishermen are required to meet the Fort Gordon permit requirements.

f. Fishing in Butler Reservoir is restricted to tournaments or special events only. Contact NRB for more information concerning Butler Reservoir fishing.

g. Lakes, ponds, and streams on the installation are subject to be periodically closed for maintenance or management reasons as determined by the DPW Natural Resources Branch. Additionally, they may be closed due to training exercises.

6-2 Checking In and Out.

a. All fishermen, regardless of age, are required to check in using the iSportsman system prior to fishing.

b. All fishermen are required to check out and log all fish caught upon completion of fishing by using the iSportsman system.

c. Licensed sponsors must check in all participants and guests by providing all requested information during the iSportsman check in process. All participants must check out themselves in the iSportsman system in order to record information pertaining to any fish they may have harvested. Guests however, are checked out automatically when the sponsor checks out.

d. Youth fishermen (age 17 and under) utilizing a youth fishing permit should be checked in to the iSportsman system under their adult sponsor using the same procedure as sponsored participants (see 6-2 c.). Like participants, youth fishermen must check themselves out in the iSportsman system in order to record information pertaining to any fish they may have harvested.

e. Fishermen may not intentionally check in to a zone or training area and not go fishing with the purpose of taking up spaces or creating the perception that more fishermen are in a zone or area than are actually there.

f. Fishermen may not use another person's login credentials to check that person into or out of a zone or area.

g. All fishermen are advised to read all notices and updates posted at the outdoor recreation information stations or on the Fort Gordon iSportsman website prior to commencing fishing events.

6-3 Legal Hours.

a. Fishermen may check in to an open training area or a fishing zone to fish no earlier than two (2) hours before official sunrise. Fishermen must be checked out of the training areas or fishing zones no later than two (2) hours after official sunset.

6-4 Fishing Regulations.

a. A State of Georgia fishing license and installation fishing permit are required for all individuals age 18 and older to fish in all lakes and ponds including lakes, streams, and beaver ponds found in training areas on Fort Gordon. Youth age 17 and younger are required to possess a free Fort Gordon Youth Fishing Permit for the purposes of checking in and out of the iSportsman system. Youth age 16 and 17 are required to possess a valid state of Georgia fishing license.

b. Fishermen are required to read the Installation Fishing Schedule published annually and

posted on the Fort Gordon iSportsman website and at all outdoor recreation information stations by DPW Natural Resources Branch for specific creel limits and any changes.

c. If fishing in an open training area during firearms deer or special coyote/feral hog season, fishermen must wear outer garments totaling at least 500 square inches of daylight fluorescent orange at all times while within the training area. This clothing must be worn above the waistline (and may include a head covering). This requirement does not apply to fishing in lakes within the three fishing zones (A, B, or C).

d. The Installation Fishing Schedule lists the lakes in which live minnows may be used for bait. Bass and other game fish will not be used as bait. Live species of the sunfish family may be used as bait in all lakes provided they were taken from lakes, ponds, or streams on the installation.

e. Frog gigging is permitted in open training areas and lakes within Zones B and C. Check in and out procedures and a Fort Gordon fishing permit are required.

f. Fishing is permitted from dams on all lakes, unless signs are posted limiting fishing to designated areas or at prepared fishing areas on the dam.

6-5 Creel Limits.

a. Creel limits when fishing at Fort Gordon Pointes West Army Resort are established by the State of Georgia and the reciprocal agreement with the State of South Carolina.

b. It is prohibited for any person to take more than 50 total fish in one consecutive 24 hour period. See annual Installation Fishing Schedule for specific creel limits and minimum length limits. Creel limits may be changed at any time as determined by the DPW Natural Resources Branch.

c. Installation DPW Natural Resources Branch personnel are permitted to count, examine, measure, weigh and collect tissue samples from the catch of all individuals actively engaged in or immediately following fishing on the installation.

6-6 Fishing Restrictions.

a. Fishing with any gear other than pole and line is prohibited. No person may fish with more than two poles and lines.

b. The use of trotlines, minnow seines, gill nets, brush hooks, and the practice known as jug fishing is prohibited unless written permission is obtained from DPW Natural Resources Branch. Call 706-791-2397/6135 for further instructions.

c. Taking or attempting to take white amur (grass carp) from waters of Fort Gordon is prohibited. Any fish of this species caught without written permission from DPW Natural Resources Branch will immediately be returned to the water, unharmed.

d. Firearms of any type are not permitted while fishing.

e. Sponsored participants may only fish in the same training area or lake/pond as their accompanying sponsor. Sponsors must be 18 years of age and licensed to fish in the State of Georgia and on the Fort Gordon military installation IAW this regulation. Persons 12 years of age and under must be in the immediate presence (within 150 feet) of their licensed sponsor at all times while fishing. Persons 13 - 17 years of age will be allowed to fish without being in the immediate presence of an adult but must be within the same training area or lake.

f. Fishing is permitted 7 days a week in open training areas and fishing zones, except on Christmas Day.

6-7 Boating.

a. On lakes where boats are permitted, only electric motors may be used. (See Installation Fishing Schedule for lakes where the use of boats is permitted). All boats must conform to the state of Georgia registration requirements, must be registered in their state of primary use, and must comply with U.S. Coast Guard regulations. See Georgia Safe Boating Guide for all information pertaining to boating.

b. All boats used on the installation waters (streams, ponds, or lakes) will be equipped with personal flotation devices (PFD) and other safety equipment as required by Georgia State Boating Laws. U.S. Coast Guard approved vest-type PFD must be readily accessible to all occupants and appropriate size. Children under 12 years of age and all non-swimmers must wear a US Coast Guard approved vest-type PFD at all times while in the boat.

c. It is unlawful to operate a boat while intoxicated or consume alcoholic beverages while operating a boat. It is also unlawful for the owner of a boat to allow anyone else to operate their boat while that person is under the influence of alcohol or drugs. Operating a boat while under the influence of prescription drugs that does not allow the operation of a motor vehicle is also a violation.

CHAPTER 7

BICYCLE RIDING

7-1 Access.

Bicycle riding is authorized for individuals who have legally accessed the installation (Chapter 2-1.f.) All individuals (age 18 and over) riding bicycles in training areas or on established road courses in the training area complex (the area west of the North Range Road and 12th Street intersection and west of the Range Road and Carter Road intersection (Figure 1)) must have an outdoor recreation permit available through the Fort Gordon iSportsman system. Those individuals that ride on paved roads of the cantonment area (not within the training area complex) are not required to have a permit.

7-2 Areas and POV Parking.

a. Bicycle riding is allowed in training areas and on established road courses in the training area complex. Maps of the authorized road courses are posted on the iSportsman site and at the outdoor recreation information station on 111th Avenue.

b. There are two established road riding courses. Course 1 (black course, 23 miles) consists of Range Road to Gibson Road to Harlem Road to McDuffie Road to Forestry Road and back to Range Road. Course 2 (yellow course, 15 miles) consists of Range Road which loops around the Small Arms Impact Area. See Figure 1.

c. Persons riding bicycles on the established courses may only park their vehicles in one of the two designated parking areas. Riders may park their vehicles at the outdoor recreation information station on 111th Avenue or the gravel POV parking lot across from Range 6 at the corner of Gibson and Range Road. Individuals riding bicycles within training areas are considered to be participating in "other training area recreation" and should park their vehicles according to procedures outlined in Chapter 8.

7-3 Checking In and Out.

a. All individuals age 18 and older riding bicycles on the established courses discussed in 7-2.b. above or in training areas must use the Fort Gordon iSportsman system to check in. Bicyclists under the age of 18 are not required to have a permit, but must be checked in as a guest under a properly permitted sponsor who is 18 years old or older and must be accompanied by that sponsor at all times. Bicycle riders must choose to check in to Course 1 (black course), Course 2 (yellow course), or both or to any open training area. Riders are not authorized to check in to ride on Fort Gordon earlier than one hour before official sunrise.

b. All bicycle riders are required to check out upon completion of the bicycle ride. Riders are to check out no later than one hour after official sunset.

c. Each bicycle ride requires checking in and out. This includes multiple visits in the same day.

d. All riders are advised to read all notices related to bicycle riding posted at the outdoor recreation information stations or on the Fort Gordon iSportsman website prior to commencing their ride.

e. There are no check in/out requirements for bicycle riding on paved roads within the cantonment area (outside of the training area complex).

f. Riders may not use another person's login credentials to check that user into or out of an area or course.

g. Riders may not intentionally check in to a course or training area and not go riding with

the purpose of taking up spaces or creating the perception that more users are in an area than are actually there.

7-4 Legal Hours.

Bicycle riding is permitted between the hours of 1 hour before official sunrise and 1 hour after official sunset.

7-5 Restrictions.

a. All bicycle riding will be IAW federal and state laws, USACCoE&FG Regulation 210-3, Installation Motor Vehicle Traffic Code (Paragraphs 2-5) and this regulation. Bicycle riders under 18 years of age, riding in the training area complex (area defined in Section 7-1 above), must be with an adult 18 years of age or older.

b. All bicycle riders must wear helmets and comply with all requirements of USACCoE&FG 385-10, U.S. Army Cyber Center of Excellence and Fort Gordon Command Safety Program and USACCoE&FG 210-3, Installation Motor Vehicle Traffic Code. All low profile bicycles (hand cycles and recumbent) must be equipped with a high visibility safety flag that is at least 2 feet above the rider's head. All riders riding in low light conditions must have their bicycles equipped with a working headlight, taillight, and reflectors, which are visible to 300 feet and wear clothing with reflective material. Riders are encouraged to wear brightly colored, high visibility clothing at all times.

c. Riders checked in to ride on the established road courses will remain on those courses at all times and will not traverse cross country or ride within any training area. Individuals wanting to ride in training areas will remain on established roads and firebreaks within that training area and will not traverse cross country. Individuals riding in training areas must do so under the regulations and procedures outlined in Chapter 8 "Other Training Area Recreation."

d. All Fort Gordon training areas and bicycle courses will be closed to all recreational activities on Christmas day. Areas will be open to these activities on all other holidays.

CHAPTER 8

OTHER TRAINING AREA RECREATION

8-1 Access.

Fort Gordon training areas are available to use for outdoor recreational activities such as hiking, jogging, bird watching, pet walking, etc. for any individuals who have legally accessed the installation (Chapter 2-1.f.) All individuals age 18 and older participating in any outdoor recreation activities (other than hunting and fishing) in training areas must have an outdoor recreation permit available through the Fort Gordon iSportsman system.

8-2 Areas and POV Access.

a. All training areas open to hunting, scouting, and fishing are also open for other training area recreation such as hiking, jogging, bird watching, pet walking, etc.

b. Individuals participating in other training area recreational activities are required to obtain a parking pass from the Fort Gordon iSportsman system, the Tactical Advantage Sportsman Complex (TASC) (Bldg 445, Carter Rd.), the Natural Resources Branch Field Office (Bldg 403, Forestry Rd.) or Range Control (Bldg 81200, 12th St.). Parking passes should be displayed on the driver's side dash of the vehicle.

c. Recreational users may only travel primary access roads to reach the training areas where they are checked in to recreate. Once users enter their training area, they are allowed to use any open road or firebreak within that area. Users are not permitted to travel through training areas they are not checked in to, with the exception of entering TA 49A to access TA 49B and entering TA 46 to access TA 47. Maps showing primary access roads are posted at the outdoor recreation information stations and on the Fort Gordon iSportsman website.

d. Individuals driving their POV through the training area complex who remain on paved surface roads without stopping or those utilizing the Leitner Lake Recreation Area will not require a Parking Pass and are not required to check in.

e. No privately owned vehicles (POV), motorcycles, dirt bikes, three or four wheeled all-terrain vehicles (ATV), or other motorized off-road vehicles are authorized on any range, in any training area, or dirt roads except as outlined in Chapter 4 and as indicated in USACCoE&FG Regulation 350-19, Range and Training Area Operations. POV's are not authorized to pass over or through a closed gate, cable, sign, earth berm, or other structure or device intended to prevent access to an area or roadway.

8-3 Checking In and Out.

a. All persons 18 years old and older entering any open training area for recreation are required to check in prior to entering the area using the iSportsman system. Individuals may only check in to one training area at one time and are not authorized to check in to a training area earlier than one hour before official sunrise. All individuals under the age of 18 are not required to have a permit, but must be checked in as a guest under a properly permitted sponsor who is 18 years old or older and must be accompanied by that sponsor at all times.

b. All recreational users are required to check out upon completion of the activity. Users are required to check out by utilizing the Fort Gordon iSportsman system by one hour after official sunset.

c. Each visit to a training area requires checking in and out. This includes multiple visits to the same area in the same day.

d. All recreational users are advised to read all notices and updates posted at the outdoor

recreation information stations or on the Fort Gordon iSportsman website prior to commencing activity.

e. Users may not intentionally check in to an area and not go with the purpose of taking up spaces or creating the perception that more users are in an area than are actually there.

f. Users may not use another person's login credentials to check that user into or out of an area.

8-4 Legal Hours.

With the exception of hunting, fishing, and scouting, recreational activities in training areas are permitted between the hours of 1 hour before official sunrise and 1 hour after official sunset.

8-5 Restrictions.

a. All individual under 18 years of age must be accompanied by an adult (18 or older) when in training areas.

b. If participating in any recreational activities in an open training area during firearms deer or special coyote/feral hog season, individuals must wear outer garments totaling at least 500 square inches of daylight fluorescent orange at all times while within the training area. This clothing must be worn above the waistline (and may include a head covering).

c. All Fort Gordon Training Areas will be closed to all recreational activities on Christmas day. Areas will be open to these activities on all other holidays.

d. Individuals will not be intoxicated, possess alcohol on their person, or consume alcoholic beverages, or be under the influence of illegal drugs or possess them while checked in to the training areas for recreation.

e. Individuals are not permitted to walk, hike, or jog on any paved roads within the training area complex. Any recreational activities within a training area must start and end within that training area.

CHAPTER 9

VIOLATIONS AND PENALTIES

9-1 Violations.

a. Individuals who violate Federal Hunting and Fishing regulations, the State of Georgia Hunting and Fishing regulations, or the provisions of this regulation may be cited for the violation and may have their privilege withdrawn for a specific time (suspended) or withdrawn permanently (revoked) and/or fined according to Collateral Forfeiture Amounts (available upon request at the DES Law Enforcement Center). All privileges pertaining to hunting, fishing, and

other training area recreational activities on the installation are withdrawn from the individual at this time. See 9-1 c below. The individual will have an administrative hold placed on their account in iSportsman and will not be allowed to check in to any activities.

b. If privileges are withdrawn, the suspension period begins on the day the violation occurred. Suspension periods for two violations are to run concurrently if the citations were written on the same day. Individuals who have committed three violations on the same day will have their privilege revoked. Individuals hunting, fishing, and/or participating in other outdoor recreation during a suspension period will have their privilege revoked.

c. Individuals who have had their privileges to hunt, fish, or participate in other outdoor recreation on the installation suspended or revoked may not enter any lake or training area and may not participate in any outdoor recreation, hunting, or fishing. Individuals suspended or revoked may use the Leitner Lake camping facilities or the Tactical Advantage Sportsman's Complex (Range 14).

d. Upon the first failure to check out, individuals will receive a warning, however, two failures to check out within a six (6) month period will result in a suspension of privileges.

e. Sponsors of participants and/or guests who commit a violation will lose their privilege an equal amount of time as their participant or guest.

f. Individuals who have their privileges suspended may request that their privileges be reinstated at the end of the suspension period by contacting the DES (Conservation Law Enforcement Officer). At this time the administrative hold in iSportsman can be removed from the individual's account.

g. The DES (Conservation Law Enforcement Officer) will provide and update as required a listing of those individuals who are under suspension or have had their installation hunting and/or fishing privilege revoked to DPW Natural Resources Branch and the Garrison Commander.

h. The DES (Conservation Law Enforcement Officer) will maintain permanent files listing the name, type of offense, and the "from/through" dates of suspensions or the effective date the privilege was revoked.

i. The privilege to hunt, fish, and participate in other outdoor recreation on the installation will be immediately restored should the individual be found not guilty of the violation as recorded on the citation after the court case has been adjudicated by the US Magistrate. The individual must show proof of a not guilty finding or ruling for return of the permit(s) (reinstatement) to DES (Conservation Law Enforcement Officer) personnel who will then remove the administrative hold on the person's iSportsman account.

9-2 Appeals.

a. Persons who have had their privilege to hunt, fish, bicycle ride, and participate in other recreation on the installation suspended or revoked on Fort Gordon Recreation

Suspension/Revocation Notice (FG Form 9170) (Figure 4) may request reinstatement of their privileges. Requests from active duty military shall be submitted in writing through their chain of command, through the DES, to the Garrison Commander. Retired military, government employees, civilians, contractors, and family members shall submit their requests, in writing, through the DES to the Garrison Commander. If the request for reinstatement of privileges is denied, reinstatement may be requested again every two years thereafter.

b. The DES (Conservation Law Enforcement Officer) will provide a letter to the DPW Natural Resources Branch for each person who has had his/her privilege reinstated granting permission to remove the administrative hold on the individual's iSportsman account.

9-3 Suspensions and Revocations.

Appendix B and Appendix C list hunting, fishing, and other recreation violations and other provisions of this regulation for which user privileges are suspended or revoked.

CHAPTER 10

MISCELLANEOUS

10-1. Horseback Riding.

Horseback riding is prohibited on Fort Gordon except for those individuals riding horses as part of the DFMWR Hilltop Riding stables or special events authorized by DPW Natural Resources Branch.

10-2 Forest Products Harvesting.

The harvest of forest products, such as fire wood, pine straw, fat lighter, fiddle heads, berries, pecans, etc. without proper permits is prohibited. See the Fort Gordon iSportsman website and Fort Gordon USACCoE&FG Regulation 420-3, Sale of Small Volumes of Forest Products, for requirements to conduct these activities. Anyone who conducts these activities must have an appropriate permit which can be purchased from the Fort Gordon iSportsman website. The permit will also serve as the users training area parking pass. Once a permit is purchased you must check in and out of the area you intend to harvest from using the iSportsman system. It is the user's responsibility to make sure the training area you want to harvest in is open for recreational purposes by checking the Fort Gordon iSportsman site prior to purchasing a permit. All sales are final and no refunds will be given to individuals who purchase a forest products permit to harvest forest products in a closed training area.

10-3 Endangered and Threatened Species.

In accordance with AR 200-1, it is unlawful for any person subject to the jurisdiction of the U.S. to harass, harm, or capture any endangered species within the U.S.

a. Hunting within 200 feet of any known or marked Red-cockaded woodpecker (*Picoides borealis*) cavity tree is prohibited. These trees are marked with two 5-inch white bands

approximately 4 feet above the ground.

b. Disturbing a Gopher Tortoise (*Gopherus polyphemus*) or it's burrow is prohibited. No vehicle traffic is allowed within 25 feet of a burrow unless on improved roads and no foot traffic is allowed within 5 feet of a burrow.

10-4 Cultural Resources.

In accordance with AR 200-1, it is unlawful to disturb archaeological sites or remove artifacts from Fort Gordon. The use of metal detectors on Fort Gordon is prohibited in training areas.

10-5 Artillery Firing.

During artillery firing, convoy live fire exercises, aerial gunnery, and other large-scale training, Range Control may designate areas that will be "OFF LIMITS" for hunting, fishing, or bicycle riding.

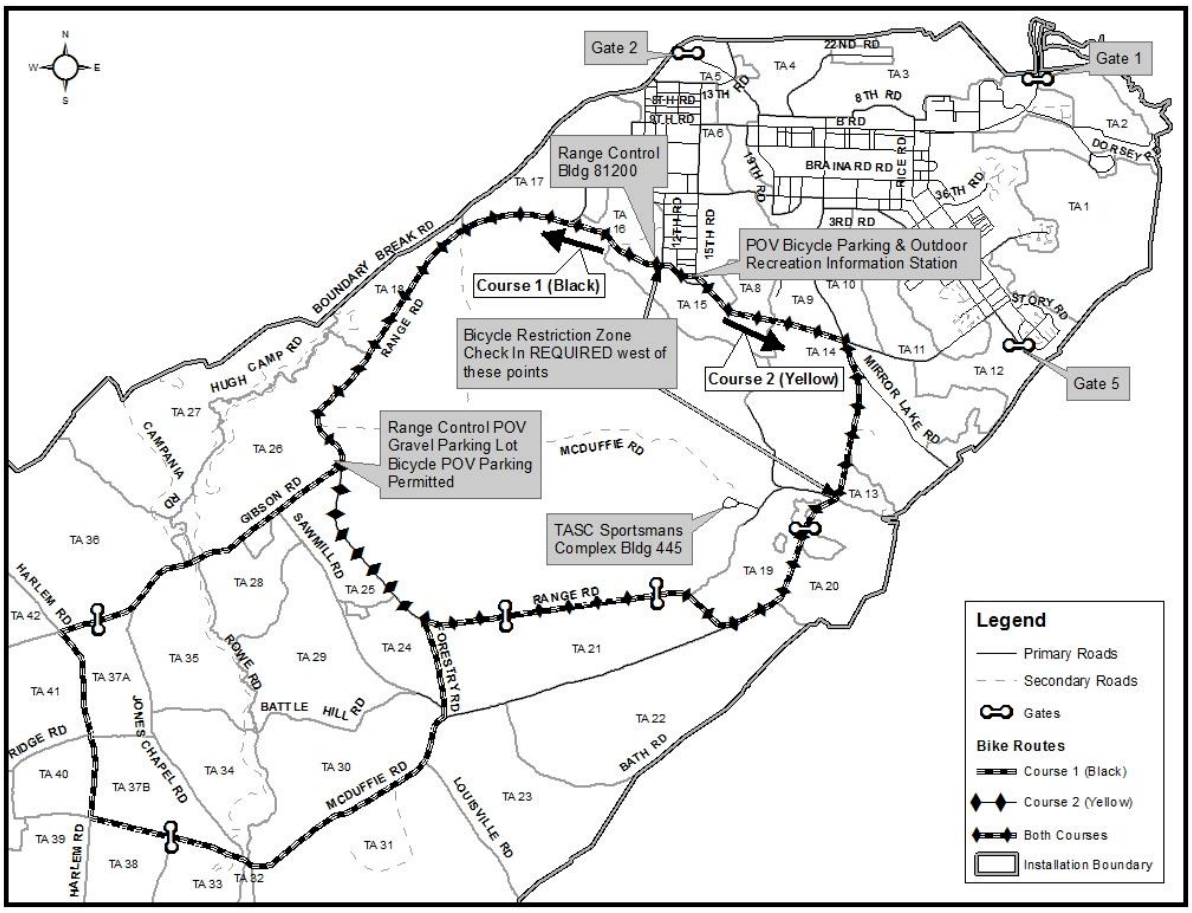


Figure 1. Bicycle riding courses. All bicyclists riding outside of the cantonment in the training area complex must have an outdoor recreation permit and be checked in to one of the two courses shown.

Fort Gordon Training Area Parking Pass

iSportsman Permit #: _____

Expiration Date: _____

Cell Phone #:_____

Emergency Contact #:_____

MUST BE VISIBLY DISPLAYED ON DRIVER'S SIDE DASH OF VEHICLE

Figure 2. The Training Area Parking Pass for hunting, fishing and other training area recreational activities can be obtained from the Tactical Advantage Sportsman Complex, Range Control, or the Natural Resources Branch Field Office, as needed. The parking pass can also be printed from the iSportsman website.

<table>
<tr><td colspan="5">READ PRIVACY ACT STATEMENT BELOW BEFORE PROVIDING REQUESTED INFORMATION</td></tr>
<tr><td colspan="4">NAME (Last, First, MI) Grade/Rank</td><td>FORT GORDON HUNTING PERMIT #</td></tr>
<tr><td colspan="2">ORGANIZATION OR HOME ADDRESS</td><td colspan="3">FORT GORDON BIG GAME PERMIT #</td></tr>
<tr><td colspan="2">HOME PHONE #</td><td colspan="3">GEORGIA HUNTING LICENSE CUSTOMER #</td></tr>
<tr><td colspan="2">SPONSOR’S NAME (Last, First, MI)</td><td colspan="3">SPONSOR’S FORT GORDON PERMIT #</td></tr>
<tr><td>DEER</td><td>TURKEY</td><td colspan="2">HARVEST DATE</td><td>HARVEST TIME</td></tr>
<tr><td>Circle One:
BUCK DOE
POINTS:</td><td>BEARD LENGTH:
SPUR LENGTH:</td><td colspan="3">WEAPON USED (Circle One):
Bow Crossbow Muzzleloader Shotgun</td></tr>
<tr><td>LIVE WEIGHT:
DRESSED
WEIGHT:</td><td>WEIGHT:</td><td colspan="2">TRAINING AREA</td><td></td></tr>
<tr><td colspan="5">DATA REQUIRED BY THE PRIVACY ACT OF 1974
AUTHORITY: Title 5, United States Code, section 301. PRINCIPAL PURPOSE: To gather data on Fort Gordon big game populations and hunting success. ROUTINE USE: For administrative and statistical purposes. Personal data will be used in the event of emergency. DISCLOSURE: Disclosure of home telephone number and home address is voluntary; however, failure to provide this data could result in person(s) being denied hunting privileges.</td></tr>
</table>

FG FORM 9168 **(PREVIOUS EDITIONS ARE OBSOLETE)** **HUNTING CONTROL REGISTER**
1 DEC 2010 **(Proponent: DPW** Natural Resources Branch**)**

Figure 3. Sample of FG Form 9168 (Hunting Control Register) to be used to log deer and turkey harvests in the event the harvest forms in the iSportsman system cannot be accessed.

FORT GORDON RECREATION SUSPENSION / REVOCATION NOTICE

DATA REQUIRED BY THE PRIVACY ACT OF 1974

AUTHORITY:	Title 10, United States Code, Section 3012 (g)
PRINCIPAL PURPOSE:	To provide commanders & law enforcement officials with means by which information may be accurately identified.
ROUTINE USES:	Social Security & Drivers License numbers are used as an additional means of identification.
DISCLOSURE:	Disclosure of your Social Security number is voluntary.

SUBJECTS INFORMATION

NAME (*Last, First, MI*)	RANK/STATUS	SSN OR D/L NUMBER & STATE

DATE OF BIRTH	HEIGHT	WEIGHT	SEX	RACE / ETHNICITY

UNIT / ADDRESS	CITY / STATE	ZIP CODE

PHONE NUMBER	MOS / BRANCH	PCS/ETS DATE	SECURITY CLEARANCE

OFFENSE(S) INFORMATION

DESCRIPTION / TITLE:

TIME: DATE: LOCATION:

CITATION(S) ISSUED: CVB: DD FM 1408: CITATION #(S):

REMARKS:

SUSPENSION / REVOCATION APPEAL INFORMATION

Persons who have had their privilege to hunt, fish, bicycle ride, and participate in other recreation on the installation suspended or revoked may request reinstatement of their privileges. Requests from active duty military shall be submitted in writing through their chain of command, through the DES, to the Garrison Commander. Retired military, government employees, civilians, contractors, and family member shall submit their requests, in writing, through the DES to the Garrison commander. If the request for reinstatement of privileges is denied, reinstatement may be requested again every two years thereafter.

DATE SUSPENDED/REVOKED: _____ *(DATE)* for: _____ *(NUMBER)* DAYS / MONTHS / PERMANENTLY *(CIRCLE ONE)*

DATE REINSTATED: _____ *(DATE)* i-Sportsman #:_____

SUBJECT'S NAME *(PRINT)* OFFICER'S NAME *(PRINT)*

SUBJECT'S SIGNATURE *(Not an admission of guilt)* OFFICER'S SIGNATURE

FG FORM 9170 **8-Jan-18** **RECREATION SUSPENSION/REVOCATION NOTICE**

Figure 4. Sample of FG Form 9170 (Recreation Suspension/Revocation Notice).

APPENDIX A

SCHEDULE OF INSTALLATION PERMIT FEES

PERMIT	COST	TERM
Hunting (Small Game Only)	$20.00	1 year from date of purchase
Hunting (Small and Big Game)	$40.00	1 year from date of purchase
Fishing	$20.00	1 year from date of purchase
1-Day Participant Hunting (Small and Big Game)	$10.00	1 day
7-Day Participant Hunting (Small and Big Game)	$50.00	7 days (consecutive)
1-Day Participant Fishing	$5.00	1 day
7-Day Participant Fishing	$25.00	7 days (consecutive)
Outdoor Recreation	$5.00	1 year from date of purchase
Youth Hunting or Fishing (Age 17 and under, required for check in on iSportsman)	Free	1 year from date of purchase
100% Service-Disabled Hunting and Fishing (See chapter 3-1 for specific requirements)	$5.00	1 year from date of issuance (validation has no expiration)
Nighttime Hunting (required to check in for night hunting on iSportsman)	$10.00	1 year from date of purchase
Public Access Lottery Entry Fee	$10.00	1 lottery drawing
Public Access Hunting (Small Game Only)	$15.00	1 year from date of purchase, but not to exceed Aug 1 of year following drawing
Public Access Hunting (Small and Big Game)	$35.00	1 year from date of purchase, but not to exceed Aug 1 of year following drawing
Public Access Fishing	$15.00	1 year from date of purchase, but not to exceed Aug 1 of year following drawing

NOTE: Installation hunting, fishing, and outdoor recreation permit fees are included in this regulation for information purposes only and are subject to change at any time.

APPENDIX B

VIOLATIONS OR OFFENSES FOR WHICH PRIVILEGES ARE SUSPENDED OR REVOKED

VIOLATION OR OFFENSE	MAXIMUM PENALTIES	
	1st Offense	**2nd Offense**
Hunting within 100 yards of any lake, named road, numbered range, or building	1 month	6 months
Allowing sponsored participant to hunt in different training area than sponsor.	3 months	6 months
Allowing child less than 12 years to hunt beyond direct supervision	3 months	6 months
Failure to check in before participating in training area recreation such as hunting, fishing, etc.	6 months	PERMANANTLY REVOKE
Entering false information during registration in iSportsman	6 months	PERMANANTLY REVOKE
Checking in to participate in any outdoor recreation activity with no intention of going.	3 months	6 months
Failure to check out in iSportsman after participating in training area recreation such as hunting, fishing, etc.	Warning	1 month
Participating in training area recreation in a closed area or bicycle course.	6 months	PERMANANTLY REVOKE
Operating a POV off firebreaks, cross-country, or through reforested areas/planted openings	1 month	3 months
Parking or blocking a firebreak to traffic with a POV	1 month	3 months
Transporting a muzzle-loader with percussion cap on nipple	6 months	PERMANANTLY REVOKE
Not wearing required amount of fluorescent orange	1 month	3 months
Littering Fort Gordon training areas or roadways	1 month	3 months
Discharging a firearm or bow across a primary or named access road.	6 months	PERMANANTLY REVOKE

Using electronic communication equipment to aid in the pursuit of game (however electronic calls may be used for hunting coyotes and crows).	3 months	6 months
Transporting a loaded weapon in or on a motorized vehicle and/or transporting a weapon out of a secured case.	6 months	PERMANANTLY REVOKE
Hunting, fishing, riding, or travelling through an area other than the one checked in for.	1 month	6 months
Hunting small game or migratory game birds with an unplugged shotgun (3 shells total in weapon).	6 months	1 year
Exceeding bag or creel limit	3 months	6 months
Target practicing, zeroing of a firearm, or plinking on the installation in other than designated areas.	3 months	6 months
Participating in training area recreation without proper license, permit, or parking pass.	3 months	6 months
Taking any game animal out of season.	6 months	PERMANANTLY REVOKE
Using another person's iSportsman log in credentials to check that person in to or out of an area	3 months	6 months
Hunting without proof of completing a state approved hunter safety course.	1 months	3 months
Failure to register deer or turkey harvest in iSportsman or on Hunting Control Register card (FG Form 9168).	6 months	PERMANANTLY REVOKE
Failure to comply with check station requirements	Suspended until compliance or 1 month	Suspended until compliance or 3 months
Failure to comply with SAIA trophy guidelines	Lose SAIA privileges for 1 year	Permanently Revoke SAIA privileges
Failure to comply with any requirements of this regulation not specifically detailed above	1 month	3 months

APPENDIX C

VIOLATIONS OR OFFENSES FOR WHICH PRIVILEGES ARE PERMANENTLY REVOKED

The following offenses require mandatory revocation of post privileges. (All revocations are on a permanent basis)

1. Participating in hunting, fishing, bicycle riding, or other recreation in unauthorized areas of the installation cantonment area.

2. Participating in hunting, fishing, bicycle riding, or other recreation in the Artillery Impact Area.

3. Failure to consent to inspection of POV by DES MPs, Conservation Law Enforcement Officers, or Police Officers in training areas.

4. Hunting, boating, or bicycle riding while under the influence of alcohol or drugs.

5. Participating in hunting, fishing, bicycle riding, or other recreation in an impact area, range or other restricted area without authorization.

6. Firing a weapon from a motorized vehicle unless authorized by special use permit.

7. Loan or transfer of hunting, fishing, or bicycle riding permit to another.

8. Unauthorized trapping (see chapter 5-4).

9. Hunting with or carrying any illegal firearm and/or ammunition on the installation.

10. Entering posted dud areas.

11. Baiting or salting any hunting area during hunting season.

12. Taking deer while deer is in a lake, pond, or stream.

13. Taking or attempting to take any protected wildlife species.

14. Hunting at night (except as permitted).

15. Operating a gasoline or diesel motor on a boat on installation waters.

16. Hunting in a designated archery area while in possession of a firearm.

17. Hunting without completing a state approved hunter safety course.

18. Participating in hunting, fishing, bicycle riding, or other training area recreation while privileges are suspended.

19. Unauthorized horseback riding on installation property.

APPENDIX D

SPECIAL OPPORTUNITY HUNTING AREA (SOHA)

Training area 14 is divided into two areas separated by Spirit creek. North of Spirit Creek is TA 14A consisting of 352 aces and TA 14B is south of Spirit Creek and totals 418 acres. Training area 14A will be for archery only hunting equipment while TA 14B will be designated as a firearms area and will only be used for Special Opportunity hunts.

Training area 14B will have established hunting locations which will consist of a shooting house or blind capable of seating three individuals, overlooking a wildlife clearing.

SOHA Advisory Committee

The SOHA advisory committee will be made up individuals from the major supporters of the hunting and fishing program of Fort Gordon (DPW, Natural Resources Branch; DPTMS, Range Control; DFMWR, Sportsman club; DES, Game Wardens; and the Garrison Sergeant Major). One individual from each activity will sit on the advisory committee to plan, monitor, and select applicants for special hunting opportunities in the SOHA. Committee members will be appointed by the director of each activity and will serve a term of at least one year. The SOHA advisory committee will select individuals permitted to participate in special opportunity hunts.

SOHA Participants

All potential participants will apply to the SOHA advisory committee by application. To be considered, applicants should be individuals that are mobility impaired (i.e. confined to a wheelchair, hemiplegia, monoplegia, paraplegia, or single-leg amputation above the knee), individuals that need extreme physical help to participate in a hunting activity, and/or individuals that are a part of a group such as the Wounded Warriors or make a wish foundation. This area is not intended for individuals who can physically participate in outdoor activities alone. Participants will be allowed to bring one non-hunting guest as a caregiver, however one individual appointed by the committee will guide each participant during their hunt.

Application Submission and Review

Applications should be submitted to DPW, Natural Resources Branch or DFMWR, Outdoor Recreation/Sportsman's Club. Applications will be reviewed by the committee as they are received and potential participants will be notified in writing as to the determination of the committee. Participants are allowed to apply once annually for each big game hunting season (deer and turkey).

SOHA Rules and Restrictions

All hunting rules and restrictions outlined in this regulation apply to all SOHA hunts. Participants must obtain a Participant hunting permit in the Fort Gordon iSportsman system. The hunt guide will check in the participant and their non-hunting guest using iSportsman prior to

entering the area and will check them out and log any harvest following the hunt.

Legal Firearms

All weapons legal for hunting on Fort Gordon are permissible for training area 14B. Rifles may be used for hunting deer in this area but may only be of a type and caliber approved by the SOHA committee and may have a maximum of 5 rounds in the magazine and chamber combined.

APPENDIX E

CALIBERS AUTHORIZED FOR HUNTING IN TRAINING AREAS 48 AND 49*

Rim Fire		
	.17	
	.22	
Center Fire		
.17 Hornet	.25 (Bullet Diameter .257" / 6.5mm)	.30 (Bullet Diameter .308" / 7.8mm)
.17 Remington Fireball	.250 Savage	.30 Carbine
.17 Remington	.257 Roberts	.300 Whisper
.20 (Bullet Diameter .204" / 5.18mm)	.25-06 Remington	7.62x39mm Russian
.204 Ruger	.26 (Bullet Diameter .263" - .264" / 6.7mm)	.30 Remington AR
.22 (Bullet Diameter .222" - .224" / 5.6mm)	6.5x55mm Mauser	7.62x51mm NATO
.218 Bee	.260 Remington	.30-30 Winchester
.22 Hornet	6.5mm Remington Magnum	.300 Savage
.222 Remington	6.8 Remington SPC	.308 Marlin Express
5.56x45mm NATO	.27 (Bullet Diameter .277" / 7.0mm)	.308 Winchester
.223 Remington	.270 Winchester	.30-06 Springfield
.225 Winchester	7x57mm Mauser	.30 Thompson Center
.22-250 Remington	.28 (Bullet Diameter .284" / 7.2mm)	.300 Ruger Compact Magnum
.220 Swift	7mm-08 Remington	7.62x54mm Russian
.24 (Bullet Diameter .243" / 6.1mm)	.280 Remington	.30-40 Krag
.243 Winchester	7mm Remington Magnum	.307 Winchester
6mm Remington	.35 Remington	.300 H&H Magnum
	45-70 Springfield	

*Calibers not listed above are NOT Authorized.

UNAUTHORIZED **Rifle Calibers for Hunting in Training Areas 48 and 49**

Weatherby Magnums of any caliber
Winchester Magnums (Win Mag) of any caliber
Winchester Short Magnums (WSM) of any caliber
Winchester Super Short Magnums (WSSM) of any caliber
Remington Ultra Magnum of any caliber
Remington Short Action Ultra Magnum (SAUM) of any caliber

(IMGO-PWE)

FOR THE COMMANDER:

/original signed/
TODD TURNER
Colonel, AV
Commanding

OFFICIAL:

/original signed/
JOHN MCINTYRE
Director, Human Resources
/Adjutant General

DISTRIBUTION:
http://gordon.army.mil/FG_policy_letters_and_regs/

APPENDIX M
Guidelines for Eating Fish From Fort Gordon

Mercury in Fish:
Health Advice on EatingFish

Fish is an excellent source of protein and other nutrients, and is good for the heart as well the developing brain of unborn children. However freshwater fish may contain high levels of mercury, which can pose a risk to human health. This advice will help you make healthy food choices.

Recommended Maximum Consumption of
Freshwater Fish from Lakes on Fort Gordon

Fort Gordon Bass Consumption Limit **1 Meal Per Month** for Largemouth Bass from Lakes Based upon US EPA and GA DNR Fish Consumption Levels for Mercury

One meal is assumed to range from ¼ to ½ pound of fish (4-8 ounces) for a person of 150 pounds. Subtract or add 1 ounce of fish to the range of 20 pounds of body weight. For example, one meal is assumed to be 3-7 ounces for a 130 pound person and 5-9 ounces for a 170 pound person.

Why were fish from Lakes on Fort Gordon tested for mercury?

All waterbodies contain some mercury. The Environmental and Natural Resources Management Office was concerned about fish from lakes on Fort Gordon because it's a popular fishing area and because:

- Studies found that sediment and some fish in Lakes on Fort Gordon were found to contain mercury.
- Mercury Fish Consumption Advisories for Largemouth Bass have already been issued for some waters of Columbia County and Richmond County.

Why focus on Largemouth Bass?

- They're one of the most popular catches at Lakes on Fort Gordon.
- Adult Largemouth Bass are top-level predators, feeding on other fish, and thus are likely to be more contaminated than their prey because methylmercury *bioaccumulates* (accumulates within organisms faster than it is eliminated) and *biomagnifies* (increases in concentration as it travels up the food chain).

For further information please visit:

Georgia Environmental Protection Division
https://epd.georgia.gov/fish-consumption-guidelines
Fort Gordon Natural Resources Branch
https://ftgordon.isportsman.net/Fishing.aspx

APPENDIX N
INRMP Monitoring Standard Operating Procedures

INRMP Monitoring Standard Operating Procedures (SOP)

Current versions of SOPs on file in Natural Resources Field Office Bldg 403:

- Gopher tortoise burrow monitoring
- Gopher tortoise marking and radio telemetry
- Gopher tortoise survey data recording
- Kestrel box inventory
- Kestrel nest checks and banding
- Long term vegetation monitoring
- Short term vegetation monitoring
- Photo point
- White tailed deer camera survey
- RCW cavity tree
- RCW nest check
- Northern bobwhite covey call
- Northern bobwhite whistle count
- Wood duck nest box
- Wintering waterfowl survey
- Nuisance wildlife control
- Wild turkey gobble census

APPENDIX O
Migratory Bird Management

MIGRATORY BIRD MANAGEMENT

There is a continental-wide concern over declining numbers of many nongame birds, especially neotropical migratory birds and many resident landbird species. In July 2007, the U.S. Fish and Wildlife Service and the Department of Defense, signed a memorandum of understanding to outline the responsibilities of each agency in the protection of migratory birds. Both parties agree that migratory birds are important components of biological diversity and that the conservation of migratory birds will both help sustain ecological systems and help meet the public demand for conservation education and outdoor recreation, such as wildlife viewing and hunting opportunities. The parties also agree that it is important to: 1) focus on bird populations; 2) focus on habitat restoration and enhancement where actions can benefit specific ecosystems and migratory birds dependant upon them; and 3) recognize that actions taken to benefit some migratory bird populations may adversely affect other migratory bird populations.

Birds are generally adaptable and resilient to gradual changes in the landscape. However, as human influence permeates even the most pristine and remote natural areas, many bird species face environmental changes that can overwhelm their ability to adapt and persist. One of the least widely recognized, but perhaps most pervasive anthropogenic impact on terrestrial birds in North America is the alteration of natural processes such as fires and floods. This large scale alteration or loss of habitat and conflicts with agriculture and other human economic interests further exacerbate the rapid decline of some bird species.

Conservation of birds depends on a clear understanding of both avian habitat requirements and sustainability. The study of landscape ecology has greatly advanced our knowledge of these habitat requirements and the underlying ecological processes.

As we learn more about how ecosystems historically functioned, we increase our understanding of important ecological processes. Restoration may require large contiguous blocks of habitat, and results may not be fully realized for a long time. In the interim, we must be careful not to lose the basic building blocks, including the species of organisms that are needed to rebuild damaged ecosystems.

Military lands like Fort Gordon contain habitat building blocks, especially in area where human impacts have been minimized. The goal of Fort Gordon's bird conservation efforts is to maintain fully functioning natural ecosystem that can provide for the needs of various and differing species. Maintaining ecological processes and the species that depend on them across landscapes that are intensively used by people is essential to planning.

By incorporating holistic ecosystem management into the Integrated Natural Resources Management Plan (INRMP), Fort Gordon is adopting habitat based conservation measures grounded in sound science, effective partnerships, and adaptive natural resources management that will benefit bird conservation. In some cases, training activities help maintain healthy, functioning ecosystems, such as grassland dependent upon periodic fires, or benefit birds, such as those that require some light ground disturbance. Additionally, conserving wildlife habitats and biodiversity helps minimize future listings of species.

Fort Gordon will utilize information from Partners In Flight (www.dodpif.org) which provides a scientific foundation for DoD to maximize effectiveness of management resources, enhance the biological integrity of our lands, and ensure continued use of lands to fulfill military training requirements. Participating in broad-scale partnerships also helps us to more effectively meet our trust responsibility to conserve our nation's biodiversity.

Fort Gordon will implement the requirement of the MOU between USFWS and DoD to include the following: Prior to starting any activity that is likely to affect populations of migratory birds:

1. Identify the migratory bird species likely to occur in the area of the proposed action and determine if any species of concern could be affected by the activity.
2. Assess and document through the project planning process, using NEPA when applicable, the effect of the proposed action on species of concern. Use best available demographic, population, or habitat association data in the assessment of effects upon the species of concern.
3. Engage in early planning and scoping with the USFWS relative to the potential impacts of a proposed action, to proactively address migratory bird conservation, and to initiate appropriate actions to avoid or minimize the take of migratory birds.

MEMORANDUM OF UNDERSTANDING BETWEEN THE U.S. DEPARTMENT OF DEFENSE AND THE U.S. FISH AND WILDLIFE SERVICE TO PROMOTE THE CONSERVATION OF MIGRATORY BIRDS

This Memorandum of Understanding (MOU) is entered into between the U.S. Department of Defense (DoD) and the U.S. Fish and Wildlife Service (FWS) (hereinafter "the Parties").

A. Purpose and Scope

Pursuant to Executive Order 13186 (January 17, 2001), Responsibilities of Federal Agencies to Protect Migratory Birds, this MOU outlines a collaborative approach to promote the conservation of migratory bird populations.

This MOU does not address incidental take during military readiness activities, which is being addressed in a rulemaking in accordance with section 315 of the National Defense Authorization Act for Fiscal Year 2003 (Pub. L. 107-314, 116 Stat. 2458).

This MOU specifically pertains to the following categories of DoD activities:

(1) Natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, agricultural outleasing, conservation law enforcement, invasive weed management, and prescribed burning;

(2) Installation support functions, including but not limited to, the maintenance, construction or operation of administrative offices, military exchanges, road construction, commissaries, water treatment facilities, storage facilities, schools, housing, motor pools, non-tactical equipment, laundries, morale, welfare, and recreation activities, shops, landscaping, and mess halls;

(3) Operation of industrial activities;

(4) Construction or demolition of facilities relating to these routine operations; and

(5) Hazardous waste cleanup.

This MOU identifies specific activities where cooperation between the Parties will contribute substantially to the conservation of migratory birds and their habitats. This MOU does not authorize the take of migratory birds.

B. Authorities

The Parties' responsibilities under the MOU are authorized by provisions of the following laws:

Alaska National Interest Lands Conservation Act of 1980 (16 USC 410hh-3233)
Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668d)
Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)
Fish and Wildlife Act of 1956 (16 U.S.C. 742 et seq.)
Fish and Wildlife Conservation Act of 1980 (16 U.S.C. 2901-2911)
Fish and Wildlife Coordination Act (16 U.S.C. 661-667)
Migratory Bird Conservation Act (16 U.S.C. 715-715d, 715e, 715f-715r)
Migratory Bird Treaty Act (16 U.S.C. 703-711)
National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347)
Sikes Act Improvement Act of 1997 (16 USC 670a-670o)
Agreements to limit encroachments and other constraints on military training, testing, and operations (10 U.S.C. § 2684a)

C. Background

The Parties have a common interest in the conservation and management of America's natural resources. The Parties agree that migratory birds are important components of biological diversity and that the conservation of migratory birds will both help sustain ecological systems and help meet the public demand for conservation education and outdoor recreation, such as wildlife viewing and hunting opportunities. The Parties also agree that it is important to: 1) focus on bird populations; 2) focus on habitat restoration and enhancement where actions can benefit specific ecosystems and migratory birds dependent upon them; and 3) recognize that actions taken to benefit some migratory bird populations may adversely affect other migratory bird populations.

The DoD mission is to provide for the Nation's defense. DoD's conservation program works to ensure continued access to land, air, and water resources for realistic military training and testing while ensuring that the natural and cultural resources entrusted to DoD's care are sustained in a healthy condition.

The DoD is an active participant in international bird conservation partnerships including Partners in Flight (PIF) and the North American Bird Conservation Initiative (NABCI). Military lands frequently provide some of the best remaining habitat for migratory bird species of concern, and DoD plans to continue its leadership role in bird conservation partnerships.

Through the PIF initiative, DoD works in partnership with numerous Federal and State agencies and nongovernmental organizations for the conservation of migratory and resident birds and to enhance migratory bird survival. Through DoD PIF, a list of species of concern (see Definitions) has been developed for each Bird Conservation Region where DoD facilities occur, thus improving DoD's ability to evaluate any migratory bird conservation concerns on respective DoD lands.

Integrated Natural Resources Management Plans (INRMPs) offer a coordinated approach for incorporating habitat conservation efforts into installation management.
INRMPs are a significant source of baseline conservation information and conservation initiatives used when preparing National Environmental Policy Act (NEPA) documents for all DoD management activities. This linkage helps to ensure that appropriate conservation and mitigation measures are identified in NEPA documents and committed to, when appropriate, in final decision documents.

The DoD PIF program provides a framework for incorporating landbird, shorebird and waterbird habitat management efforts into INRMPs. DoD's strategy focuses on inventorying and long-term monitoring to determine changes in migratory bird populations on DoD installations. Effective on-the-ground management may then be applied to those areas identified as having the highest conservation value. DoD's PIF goal is to support the military's training and testing mission while being a vital and supportive partner in regional, national, and international bird conservation initiatives. DoD strives to implement cooperative projects and programs on military lands to benefit the health and well-being of birds and their habitats, whenever possible. The Department of Defense implements bird inventories and monitoring programs in numerous ways including Monitoring Avian Productivity and Survivorship (MAPS) and Next Generation Radar (NEXRAD) for studying bird movements in the atmosphere. DoD also maintains an integrated pest management (IPM) program designed to reduce the use of pesticides to the minimum necessary.

The mission of the FWS is to work with others to conserve, protect, manage, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The FWS is legally mandated to implement the provisions of the Migratory Bird Treaty Act (MBTA), which include responsibilities for population management (e.g., monitoring), habitat protection (e.g., acquisition, enhancement, and modification), international coordination, and regulation development and enforcement. The FWS also promotes migratory bird conservation through its coordination and consultation efforts with other entities.

Many FWS programs are involved in bird conservation activities, including:

1. The Division of Migratory Bird Management and Regional Migratory Birds and Habitat Programs serve as focal points in the United States for policy development and strategic planning, developing and implementing monitoring and management initiatives that help maintain healthy populations of migratory birds and their habitat, and providing continued opportunities for citizens to enjoy bird-related recreation.

2. The Division of Bird Habitat Conservation is instrumental in supporting habitat conservation partnerships through the administration of bird conservation grant programs and development of Joint Ventures that serve as major vehicles for implementing the various bird conservation plans across the country.

3. Ecological Services Field Offices across the country serve as the primary contacts for environmental reviews that include, when requested, projects developed by local military installations and DoD regional offices involving migratory bird issues. The Field Offices coordinate with the Regional Migratory Bird Offices, as

necessary, during these reviews regarding permits and overall migratory bird conservation coordination for DoD activities.

4. The Office of Law Enforcement is the principal FWS program that enforces the legal provisions of the MBTA .

The Parties agree this MOU shall be implemented to the extent permitted by law and in harmony with agency missions, subject to the availability of appropriations and budgetary limits.

D. Responsibilities

1. **Each Party shall**:

a. Emphasize an interdisciplinary, collaborative approach to migratory bird conservation in cooperation with other governments, State and Federal agencies, and non-federal partners within the geographic framework of the NABCI Bird Conservation Regions

b. Strive to protect, restore, enhance, and manage habitat of migratory birds, and prevent or minimize the loss or degradation of habitats on DoDmanaged lands, by:

(1) Identifying and avoiding management actions that have the potential to adversely affect migratory bird populations, including breeding, migration, or wintering habitats; and by developing and implementing, as appropriate, conservation measures that would avoid or minimize the take of migratory birds or enhance the quality of the habitat used by migratory birds.;

(2) Working with partners to identify, conserve, and manage Important Bird Areas, Western Hemisphere Shorebird Reserve Network sites, and other significant bird conservation sites that occur on DoD-managed lands;

(3) Preventing or abating the pollution or detrimental alteration of the habitats used by migratory birds;

(4) Developing and integrating information on migratory birds and their habitats into outreach and education materials and activities; and

(5) Controlling the introduction, establishment, and spread of nonnative plants or animals that may be harmful to migratory bird populations, as required by Executive Order 13112 on Invasive Species.

c. Work with willing landowners to prevent or minimize the loss or degradation of migratory bird habitats on lands adjacent or near military installation boundaries. This cooperative conservation may include:

(1) Participating in efforts to identify, protect, and conserve important migratory bird habitats or other significant bird conservation sites and ecological conditions that occur in landscapes or watersheds that may be affected by activities on DoD lands;

(2) Developing and integrating information on migratory bird resources found on DoD lands into other partners' outreach and education materials and activities; and

(3) Using available authorities to enter into agreements with other Federal agencies, States, other governmental entities, and private conservation organizations to conserve and enhance habitat in a compatible manner so military operations are not restricted.

d. Promote collaborative projects such as:

(1) Developing or using existing inventory and monitoring programs, at appropriate scales, with national or regional standardized protocols, to assess the status and trends of bird populations and habitats, including migrating, breeding, and wintering birds;

(2) Designing management studies and research projects using national or regional standardized protocols and programs, such as MAPS to identify the habitat conditions needed by applicable species of concern, to understand interrelationships of co-existing species, and to evaluate the effects of management activities on habitats and populations of migratory birds;

(3) Sharing inventory, monitoring, research, and study data for breeding, migrating, and wintering bird populations and habitats in a timely fashion with national data repositories such as Breeding Bird Research and Monitoring Database (BBIRD), National Point Count
Database, National Biological Information Infrastructure, and MAPS;

(4) Working in conjunction with each other and other Federal and State agencies to develop reasonable and effective conservation measures for actions that affect migratory birds and their natural habitats;

(5) Participating in or promoting the implementation of existing regional or national inventory and monitoring programs such as Breeding Bird Survey (BBS), BBIRD, Christmas Bird Counts, bird atlas projects, or game bird surveys (e.g., mid-winter waterfowl surveys) on DoD lands where practicable and feasible.

(6) Using existing partnerships and exploring opportunities for expanding and creating new partnerships to facilitate combined funding for inventory, monitoring, management studies, and research.

e. Provide training opportunities to DoD natural resources personnel on migratory bird issues, to include bird population and habitat inventorying, monitoring methods, and management practices that avert detrimental effects and promote beneficial approaches to migratory bird conservation.

f. Participate in the Interagency Council for the Conservation of Migratory Birds to evaluate implementation of this MOU.

g. Promote migratory bird conservation internationally, as it relates to wintering, breeding and migration habitats of birds that breed on DoD lands.

h. Promote and undertake ecologically sound actions to curb the introduction in the wild of exotic or invasive species harmful to migratory birds.

2. **The Department of Defense Shall**:

a. Follow all migratory bird permitting requirements for non-military readiness activities that are subject to 50 CFR Parts 21.22 (banding or marking), 21.23 (scientific collecting), 21.26 (special Canada goose permit), 21.27 (special purposes), or 21.41 (depredation). No permit is required to take birds in accordance with Parts 21.43 - 21.47 (depredation orders).

b. Encourage incorporation of comprehensive migratory bird management objectives in the preparation of DoD planning documents, including Integrated Natural Resource Management Plans, Pest Management Plans, Installation Master Plans, NEPA analyses, and non-military readiness elements of Bird Aircraft Strike Hazard documents. Comprehensive planning efforts for migratory birds include PIF Bird Conservation Plans, the North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, and North American Waterbird Conservation Plan and associated regional plans where available.

c. Incorporate conservation measures addressed in Regional or State Bird Conservation Plans in INRMPs.

d. Consistent with imperatives of safety and security, allow the FWS and other partners reasonable access to military lands for conducting sampling or survey programs such as MAPS, BBS, BBIRD, International Shorebird Survey, and breeding bird atlases.

e. Prior to starting any activity that is likely to affect populations of migratory birds:

(1) Identify the migratory bird species likely to occur in the area of the proposed action and determine if any species of concern could be affected by the activity;

(2) Assess and document, through the project planning process, using NEPA when applicable, the effect of the proposed action on species of concern. Use best available demographic, population, or habitat association data in the assessment of effects upon species of concern;

(3) Engage in early planning and scoping with the FWS relative to potential impacts of a proposed action, to proactively address migratory bird conservation, and to initiate appropriate actions to avoid or minimize the take of migratory birds.

f. Manage military lands and non-military readiness activities in a manner that supports migratory bird conservation, giving consideration to the following factors:

(1) Habitat protection, restoration, and enhancement. Military lands contain many important habitats for migratory birds. Some unique, sensitive, endangered and/or declining habitat types that may require special management attention include:

(a) Grasslands. Many native grassland communities require intensive management to maintain and restore vigor and species diversity and to provide habitat for migratory birds and other wildlife dependent on native grasslands. Grassland management and restoration tools include controlled burning, mowing, grazing, native species planting, and exotic plant removal. Many grasslands have evolved with a natural fire regime, and the management activities often emulate this fire regime.

(b) Riparian and wetland habitats. Military lands contain riparian and wetland habitats that may be critical for migratory birds. DoD will strive to prevent the destruction or degradation of wetlands and riparian vegetation, and also restore those habitats, when feasible, where they have been degraded.

(c) Coastal beach, salt marsh, and dune habitats. Military lands support some of the best remaining undisturbed coastal habitats. DoD will strive to protect, restore and prevent the destruction of coastal and island habitats that are important to breeding, migrating and wintering shorebirds, salt marsh land birds and colonial water birds.

(d) Longleaf pine ecosystem. Some of the best remaining examples of the longleaf pine ecosystem occur on military lands. Such habitats benefit from prescribed fire and other management measures which DoD regularly implements on thousands of acres in the Southeast. The DoD

manages and will continue to manage this ecosystem to benefit and promote migratory bird conservation.

(2) Fire and fuels management practices. Fire plays an important role in shaping plant and animal communities and is a valuable tool in restoring habitats altered by decades of fire suppression. Fire management may include fire suppression, but also involves fire prevention and fuels treatment, including prescribed burning and monitoring, to protect communities and provide for healthy ecosystems. Fire management planning efforts will consider the effects of fire management strategies on the conservation of migratory bird populations.

(3) Invasive Species and Aquatic Nuisance Species management practices. Invasive Species and Aquatic Nuisance Species are a threat to native habitats and wildlife species throughout the United States, including military lands. Efforts to control/contain these species must take into account both the impacts from invasive species and the effects of the control efforts on migratory bird populations. Invasive Species and Aquatic Nuisance Species that can threaten migratory birds and their habitats include, but are not limited to, exotic grasses, trees and weeds, terrestrial and aquatic insects and organisms, non-native birds, and stray and feral cats.

(4) Communications towers, utilities and energy development. Increased communications demands, changes in technology and the development of alternative energy sources result in impacts on migratory birds. DoD will review wind turbine and powerline guidelines published by FWS and the Avian Power Line Interaction Committee, respectively, and consult with FWS as needed, in considering potential effects on migratory birds of proposals for locating communications towers, powerlines or wind turbines on military lands. Construction of new utility and energy systems and associated infrastructure should be designed to avoid and minimize impacts on migratory bird populations. Existing utilities may also be considered for retrofitting to reduce impacts.

(5) Recreation and public use. The demand for outdoor recreational opportunities on public lands is increasing. Impacts on migratory birds may occur both through direct and indirect disturbances by visitors and through agency activities associated with providing recreational opportunities to visitors and installation personnel and morale facilities (e.g., facilities construction). DoD provides access to military lands for recreation and other public use, such as Watchable Wildlife and bird watching, where such access does not compromise security and safety concerns or impact migratory birds, other species, or their habitats.

Many conservation measures have been developed to benefit a variety of migratory bird species and their associated habitats. Some of these conservation measures may be directly applicable to DoD non-military readiness related

activities; however, the appropriateness and practicality of implementing any specific conservation measure may have to be determined on a case-by-case basis. The FWS will work cooperatively with DoD in providing existing conservation measures and developing new ones as needed. Examples of some conservation measures may be found at http://www.partnersinflight.org/pubs/BMPs.htm for landbird species.

g. Develop and implement new and/or existing inventory and monitoring programs, at appropriate scales, using national standardized protocols, to evaluate the effectiveness of conservation measures to minimize or mitigate take of migratory birds, with emphasis on those actions that have the potential to significantly impact species of concern.

h. Advise the public of the availability of this MOU through a notice published in the Federal Register.

i. In accordance with DoD INRMP guidance, promote timely and effective review of INRMPs with respect to migratory bird issues with the FWS and respective state agencies. During the INRMP review process, evaluate and coordinate with FWS on any potential revisions to migratory bird conservation measures taken to avoid or minimize take of migratory birds.

3. **The Fish and Wildlife Service Shall**:

a. Work with DoD by providing recommendations to minimize adverse effects upon migratory birds from DoD actions.

b. Through the Division of Migratory Bird Management, maintain a Web page on permits that provides links to all offices responsible for issuing permits and permit application forms for take of migratory birds.

c. Provide essential background information to the DoD when requested to ensure sound management decisions. This may include migratory bird distributions, status, key habitats, conservation guidelines, and risk factors within each BCR. This includes updating the FWS publication of *Birds of Conservation Concern* at regular intervals so it can be reliably referenced.

d. Work to identify special migratory bird habitats (i.e., migration corridors, stop-over habitats, ecological conditions important in nesting habitats) to aid in collaborative planning.

e. Through the Ecological Service Field Office, provide to DoD, upon request, technical assistance on migratory bird species and their habitats.

f. In accordance with FWS Guidelines for Coordination with DoD and Implementation of the 1997 Sikes Act (2005), work cooperatively with DoD in the development, review and revision of INRMPs.

g. Review and comment on NEPA documents and other planning documents forwarded by military installations.

E. It is Mutually Agreed and Understood That:

1. This MOU will not change or alter requirements associated with the MBTA, Endangered Species Act, NEPA, Sikes Act or other statutes or legal authority.

2. The responsibilities established by this MOU may be incorporated into existing DoD actions; however, DoD may not be able to implement some responsibilities identified in the MOU until DoD has successfully included them in formal planning processes. This MOU is intended to be implemented when new actions are initiated as well as during the initiation of new, or revisions to, INRMPs, Pest Management Plans, and non-military readiness elements of Bird Aircraft Strike Hazard plans. It does not apply to ongoing DoD actions for which a NEPA decision document was finalized prior to, or within 180 days of the date this MOU is signed.

3. This MOU in no way restricts either Party from participating in similar activities with other public or private agencies, governments, organizations, or individuals.

4. An elevation process to resolve any dispute between the Parties regarding a particular practice or activity is in place and consists of first attempting to resolve the dispute with the DoD military installation and the responsible Ecological Services Field Office. If there is no resolution at this level, either Party may elevate the issue to the appropriate officials at the applicable Military Service's Chain of Command and FWS Regional
Offices. In the event that there is no resolution by these offices, the dispute may be elevated by either Party to the headquarters office of each agency.

5. This MOU is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement, contribution of funds, or transfer of anything of value between the Parties will be handled in accordance with applicable laws, regulations, and procedures, including those for government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the Parties and shall be independently authorized by appropriate statutory authority.

6. The Parties shall schedule periodic meetings to review progress and identify opportunities for advancing the principles of this MOU.

7. This MOU is intended to improve the internal management of the executive branch and does not create any right or benefit, substantive or procedural, separately enforceable at law or equity by a party against the United States, its agencies or instrumentalities, its officers or employees, or any other person.

8. Modifications to the scope of this MOU shall be made by mutual consent of the Parties, through issuance of a written modification, signed and dated by both Parties, prior to any changes.

9. Either Party may terminate this instrument, in whole or in part, at any time before the date of expiration by providing the other Party with a written statement to that effect.

The principal contacts for this instrument are as follows:

Brian Millsap, Chief Migratory Bird Management US Fish and Wildlife Service 4401 N. Fairfax Drive MS4107 Arlington, VA 22203	L. Peter Boice, Conservation Team Leader Division of Office of the Secretary of Defense 1225 S. Clark St. Suite 1500 Arlington, VA 22202-4336

This MOU is executed as of the last date signed below and expires no later than five (5) years thereafter, at which time it is subject to review and renewal, or expiration.

F. Definitions

Action – a program, activity, project, official policy, rule, regulation or formal plan directly carried out by DoD, but not a military readiness activity.

Breeding Biology Research and Monitoring Database (BBIRD) - national, cooperative program that uses standardized field methodologies for studies of nesting success and habitat requirements of breeding birds (http://pica.wru.umt.edu/BBIRD/).

Breeding Bird Survey (BBS) – a standardized international survey that provides information on population trends of breeding birds, through volunteer observations located along randomly selected roadside routes in the United States, Canada and Mexico (http://www.mbr-pwrc.usgs.gov/bbs/bbs.html).

Bird Conservation Region – a geographic unit used to facilitate bird conservation actions under the North American Bird Conservation Initiative (http://www.manomet.org/USSCP/bcrmaps.html).

Birds of Conservation Concern – published by the FWS Division of Migratory Bird Management, refers to the list of migratory and non-migratory birds of the United States and its territories that are of conservation concern. The current version of the list Birds of Conservation Concern 2002 is available at (http://migratorybirds.fws.gov/reports/bcc2002.pdf).

Comprehensive Planning Efforts for Migratory Birds – includes Partners in Flight,

North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, Western Hemisphere Shorebird Reserve Network, North American Waterbird Conservation Plan, and other planning efforts integrated through the North American Bird Conservation Initiative.

Conservation Measure – an action undertaken to improve the conservation status of one or more species of migratory birds. Examples include surveys and inventories, monitoring, status assessments, land acquisition or protection, habitat restoration, population manipulation, research, and outreach.

Conservation Planning – strategic and tactical planning of agency activities for the longterm conservation of migratory birds and their habitats.

Council for the Conservation of Migratory Birds – an interagency council established by the Secretary of the Interior to oversee the implementation of Executive Order 13186.

Ecological Condition – the composition, structure, and processes of ecosystems over time and space. This includes the diversity of plant and animal communities, the productive capacity of ecological systems and species diversity, ecosystem diversity, disturbance processes, soil productivity, water quality and quantity, and air quality. Often referred to in terms of ecosystem health, which is the degree to which ecological factors and their interactions are reasonably complete and functioning for continued resilience, productivity, and renewal of the ecosystem.

Effect (adverse or beneficial) – "effects" and "impacts," as used in this MOU are synonymous. Effects may be direct, indirect, or cumulative, and refer to effects from management actions or categories of management actions on migratory bird populations, habitats, ecological conditions and/or significant bird conservation sites.

Important Bird Areas (IBAs) – a network of sites that provide essential habitat for the long-term conservation of birds. In the United States, the IBA network is administered by the American Bird Conservancy and the National Audubon Society.
(http://www.audubon.org/nird/iba/)

Integrated Natural Resources Management Plan (INRMP) – an integrated plan based, to the maximum extent practicable, on ecosystem management that shows the interrelationships of individual components of natural resources management (e.g., fish and wildlife, forestry, land management, outdoor recreation) to military mission requirements and other land use activities affecting an installation's natural resources. INRMPs are required for all DoD installations with significant natural resources, pursuant to the Sikes Act Improvement Act.

International Shorebird Survey – a monitoring program started in 1974 to survey shorebirds (sandpipers, plovers, etc.) across the Western Hemisphere.
(http://www.manomet.org/programs/shorebirds).

Management Action – an activity by a government agency that could cause a positive or negative impact on migratory bird populations or habitats. Conservation measures to mitigate potential negative effects of actions may be required.

Migratory Bird – any bird listed in 50 CFR §10.13, Code of Federal Regulations.

Military Readiness Activity – all training and operations of the Armed Forces that relate to combat, including but not limited to the adequate and realistic testing of military equipment, vehicles, weapons and sensors for proper operation and suitability for combat use.

Monitoring Avian Productivity and Survivorship (MAPS) – a program that uses the banding of birds during the breeding season to track the changes and patterns in the number of young produced and the survivorship of adults and young (http://www.birdpop.org/maps.htm).

National Environmental Policy Act (NEPA) – a Federal statute that requires Federal agencies to prepare a detailed analysis of the environmental impacts of a proposed action and alternatives, and to include public involvement in the decision making process for major Federal actions significantly affecting the quality of the human environment 42 U.S.C. §4321, et. seq.

North American Bird Conservation Initiative (NABCI) – an initiative to align the avian conservation community to implement bird conservation through regionally-based, biologically driven, landscape-oriented partnerships across the North American continent. NABCI includes Federal agencies of Canada, Mexico and the United States, as well as most landbird, shorebird, waterbird, and waterfowl conservation initiatives (http://www.nabci-us.org).

North American Waterbird Conservation Plan – a partnership of Federal and State government agencies, non-governmental organizations, and private interests focusing on the conservation of waterbirds, primarily including marshbirds and inland, coastal, and pelagic colonial waterbirds (www.nacwcp.org/pubs/). The vision of the partnership is that the distribution, diversity and abundance of populations and breeding, migratory, and nonbreeding waterbirds are sustained throughout the lands and waters of North America, Central America, and the Caribbean.

North American Waterfowl Management Plan —a partnership of Federal and State agencies, non-governmental organizations, and private interests focusing on the restoration of waterfowl populations through habitat restoration, protection, and enhancement (http://birdhabitat.fws.gov/NAWMP/nawmphp.htm).

Partners in Flight (PIF) – a cooperative partnership program of more than 300 partners including Federal and State government agencies, non-governmental organizations, conservation groups, foundations, universities and industry focusing on the conservation of landbirds. DoD was an original signatory to the PIF Federal Agencies' MOA. (http://www.partnersinflight.org and http://www.dodpif.org).

Species of Concern – refers to those species listed in the periodic report *Birds of Conservation Concern;* priority migratory bird species documented in the comprehensive bird conservation plans (North American Waterbird Conservation Plan, U.S. Shorebird Conservation Plan, Partners in Flight Bird Conservation Plans); species or populations of waterfowl identified as high, or moderately high, continental priority in the North American Waterfowl Management Plan; listed threatened and endangered bird species in 50 CFR. 17.11; and MBTA listed game birds below desired population sizes.

Take – as defined in 50 C.F.R. 10.12, to include pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

U.S. Shorebird Conservation Plan – an effort undertaken by a partnership of Federal and State government agencies, as well as non-governmental and private organizations to ensure that stable and self-sustaining populations of all shorebird species are restored and protected (http://www.fws.gov/shorebird).

The Parties hereto have executed this agreement as of the date shown below.

Director
US Fish and Wildlife Service

H. Dale Hall 7/7/06
Signature Date

Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health)
US Department of Defense

Alex Albert Buehler 7/31/06
Signature Date

–

DoD Management Strategy

The DoD Partners in Flight Policy

Promote and support our partnership role in the protection and conservation of birds and their habitats by protecting vital DoD lands and ecosystems, enhancing biodiversity, and maintaining healthy and productive natural systems consistent with the military mission.

The strategy described in this document will enable DoD to better integrate programs for migratory and resident birds into existing natural resources and land management programs. New and innovative management techniques aimed at protecting priority bird species will be an integral part of the planning and decision-making processes. Implementation of this strategy will allow DoD natural resources managers to determine best management practices based on regional or physiographic delineations rather than on a species basis. This ecosystem management approach provides a framework to consider the biological diversity on military lands in the context of the surrounding landscape. This approach will improve long-term planning and efficiency and promote better integration of mission and resource requirements.

Program-wide Goals and Objectives

The primary goals and objectives of the DoD Partners in Flight program are to:

- Apply information collected from this partnership program to support DoD mission requirements
- Take proactive management actions to prevent bird species from reaching threatened or endangered status
- Facilitate cooperative partnership efforts consistent with the military mission
- Determine the status of migratory and resident bird populations on DoD lands and the causes of population fluctuations
- Reduce bird aircraft strike hazard risks through implementation of mobile radar
- Maintain and restore priority habitats on DoD lands for migratory and resident bird populations
- Reduce or eliminate pesticide use in sensitive habitats, especially in and around wetlands and riparian areas
- Reduce the spread and impact to birds and their habitats of invasive and nuisance species on military lands, including feral and free-roaming cats

Black-bellied Whistling Duck
Photo by: Michael Stubblefield

DoD Management Strategy

Partnerships

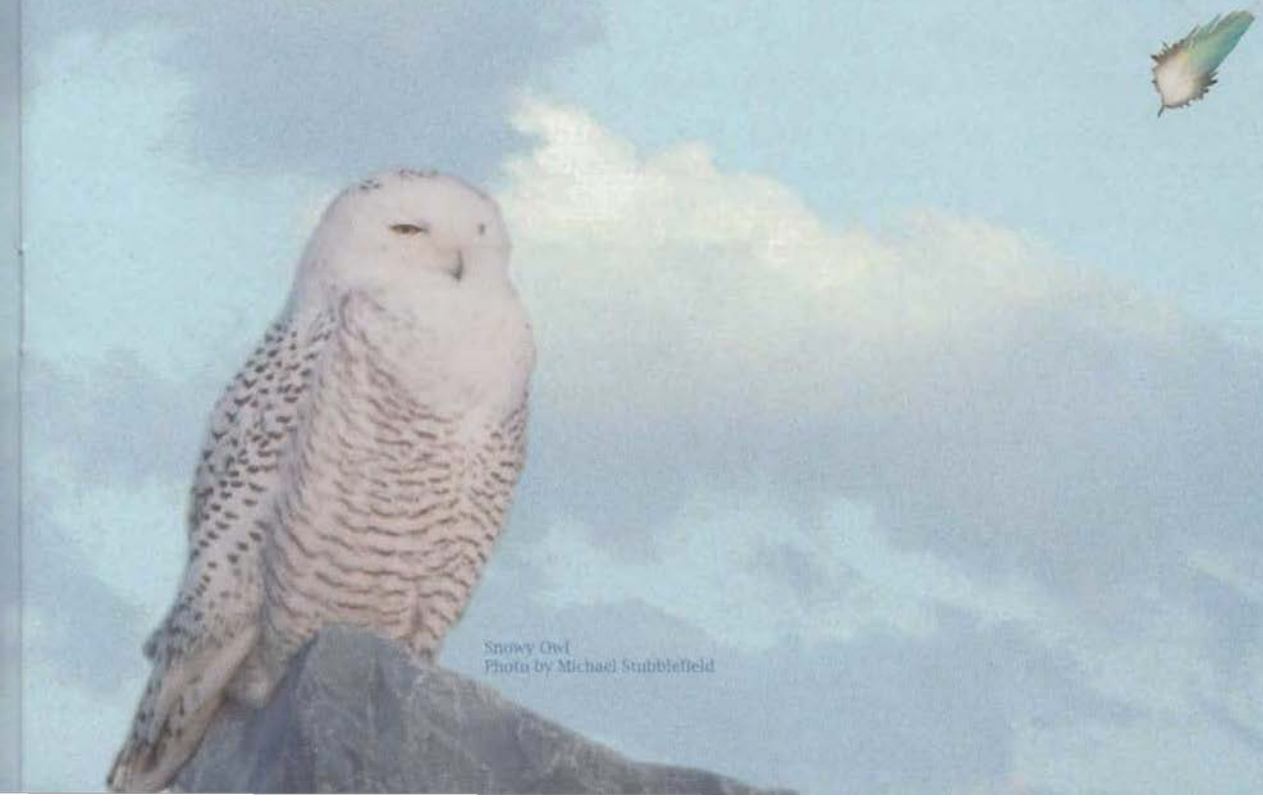
The international Partners in Flight (PIF) program is an umbrella network of agencies, corporations, and non-governmental organizations. Department of Defense (DoD) bird conservation programs are a vital part of this network. Through the National Fish and Wildlife Foundation and other groups, DoD works to develop cooperative programs and projects with PIF partner organizations. Partnering ensures a focused and coordinated approach for the conservation of resident and neotropical migratory birds and their habitats.

As signatories to the federal PIF Memorandum of Agreement, the DoD military service branches are part of the national PIF Management and Joint Steering Committees. A lead DoD representative, appointed by the Assistant Deputy Under Secretary of Defense (Environment), and a fulltime program manager promote and coordinate PIF efforts within DoD. In addition, DoD has established a network of biologists and natural resource managers to represent DoD in the various regional and technical PIF working groups. The role of DoD PIF Working Group representatives is to cultivate and maintain positive working relationships with partners, develop cooperative agreements for implementing bird conservation programs and projects on military lands, and facilitate communication and information sharing across geographical and political boundaries. These working group representatives promote implementation of local and regional conservation objectives such as establishing habitat corridors that encompass DoD and adjacent lands. They also participate and provide leadership in various state, regional and national PIF working groups and committees.

A Strategy for DoD Action

The DoD PIF program includes four regional working groups (Northeast, Southeast, Midwest, West) and six technical working groups (Monitoring, Research, Communications, Education, BASH, International). These groups identify actions compatible with the military mission that achieve the overall PIF goal of maintaining secure populations of priority birds.

The following eight pages highlight key issues facing each of the national PIF regional and technical working groups, their goals and objectives, and DoD priority support efforts.



Snowy Owl
Photo by Michael Stubblefield

Regional Working Groups

Southeast

Issues and Challenges

The conversion of pine forest, especially longleaf pine and associated grasslands, to short rotation pine plantations has impacted pine forest communities as well as the adjoining bottomland hardwood and riparian communities. Military installations in the Southeast contain some of the best remaining longleaf pine ecosystems and contribute to significant bottomland hardwood and floodplain forest acreage. Other significant conservation issues in this region include the conversion of grasslands and savannahs to agriculture and other uses, and grassland fragmentation and degradation. Several installations in the southeast can help fulfill this conservation need by maintaining warm season grasslands and providing year round habitat for grassland dependent species.

Shorebird and waterbird conservation issues are important along southeastern coasts. Loss of and disturbance to wetland and riparian habitats has reduced available avian habitat. Coastal development increases the pressure on military lands for use of open nesting beaches by priority shorebirds. Nuisance species, notably feral cats, also impact bird populations in these areas.

DoD PIF Priorities

- Identify DoD sites that will meet the desired PIF acreage requirements for forested floodplain wetlands without affecting mission needs
- Maintain bottomland hardwood forests, especially in and near coastal areas
- Document maritime bird communities under DoD management
- Continue longleaf pine-wiregrass restoration and management to support priority species
- Maintain disturbance regimes and conduct habitat management where necessary to promote early successional hardwood shrub/scrub to support priority bird species
- Monitor and protect colonially nesting waterbirds and vulnerable shorebirds
- Identify and conserve critical shorebird and nongame waterbird habitats
- Educate installation personnel and military residents on the negative impact of cats to birds and other wildlife
- Identify military lands where restoration of native warm season grasses, longleaf pine communities, and associated fire regimes are feasible
- Support wintering grassland bird monitoring and research on military lands

Blackwater Swamp, Bottomland Hardwood Forest, Ft. Stewart, GA
Photo by: Chris Eberly

Golden-cheeked Warbler Habitat, Ft. Hood, TX
Photo by: Gil Eckrich

Technical Working Groups

Monitoring

Issues and Challenges

Avian monitoring projects on DoD lands typically occur on an as-needed basis. To facilitate sharing of data among our partners, we use existing protocols appropriate for the intended objective of the monitoring project. The Integrated Training Area Management program includes a protocol, Land Condition Trend Analysis (LCTA), which currently provides non-standardized avian monitoring data. DoD PIF will work with the Army to incorporate standard monitoring protocols into LCTA, making Army data compatible with the National Point Count Database and other sources. DoD PIF also supports the process of developing standardized regional and national monitoring strategies for various bird taxa and contributes DoD survey data to existing databases.

Photo by Chris Eberly

Proper management of natural resources cannot be accomplished without baseline knowledge of the habitats managed by DoD. We help identify DoD lands that lack baseline surveys of bird populations and document sites that satisfy criteria for identification as Important Bird Areas or potential core bird conservation areas. A key monitoring program used on DoD lands is Monitoring Avian Productivity and Survivorship (MAPS; see page 31), which provides specific habitat based management recommendations.

DoD Priorities

- Identify installations lacking baseline avian surveys, and other monitoring needs
- Review and revise LCTA to include use of standard avian survey protocols
- Support MAPS program on DoD lands
- Contribute data to and utilize resources in the National Point Count Database
- Communicate and coordinate with adjoining landowner partners to coordinate monitoring efforts, where appropriate

Yellow-headed Blackbird
Photo by Mike Blair

Technical Working Groups

Research

Issues and Challenges

Avian researchers frequently use military lands as research study sites because these lands provide high-quality habitats not found in otherwise fragmented and developed landscapes. DoD lands can provide needed study sites for several areas of research underway, including the study of the spread of diseases (such as West Nile Virus) by birds, determination of bird conservation area requirements, assessment of grassland bird breeding and wintering habitats, determination of optimal placement of MAPS stations and research to fill gaps in avian life history knowledge. This research will also benefit the military by helping us determine when and where species are at risk before they require state or federal protection.

The PIF Research and Monitoring Needs Database maximizes resource effectiveness and efficiency by linking research needs between partners. We contribute to the database, and access its data elements to assist in our own research needs and future projects. The DoD PIF Bird Conservation Database consolidates information on bird related projects and management on all DoD lands into a searchable web-based database.

DoD Priorities

- Provide access, where conditions permit, to DoD lands to support PIF research priorities
- Update and maintain the DoD PIF Bird Conservation Database
- Contribute to the PIF Research and Monitoring Needs Database
- Identify DoD-wide research needs and issues and encourage research partnerships
- Identify DoD lands that can contribute to national PIF goals
- Maintain effective MAPS network

MAPS Station, Camp Pendleton, Deluz Creek, CA
Photo by Tim Burr

Researcher with Parabolic Dish
Photo by Norman Famous

MAPS worker with bird in hand
Photo courtesy Ft. Riley, KS

Technical Working Groups

Communications

Issues and Challenges

PIF has made significant progress in communicating advances in bird conservation to its traditional partners. However, since bird conservation is ultimately habitat-based, there is an increasing need to reach out to non-traditional partners. Non-traditional partners include non-bird focused groups as well as federal-state, state-non-governmental organization (NGO), and private-public partnerships.

With the planning phase of PIF completed, the need to disseminate information about PIF bird conservation plans (BCPs), Important Bird Areas (IBAs) and Bird Conservation Areas (BCAs) to land managers is essential. Reaching the target audience may also involve publishing in agricultural, commodities, or other non-bird related media. Outreach efforts are underway to accomplish this objective.

DoD Priorities

- Support International Migratory Bird Day and other PIF outreach efforts
- Ensure appropriate PIF BCP information is incorporated into installation INRMPs
- Provide support and assistance for PIF web site and outreach information for DENIX web site (http://www.denix.osd.mil)
- Contribute articles regarding DoD PIF activities to DoD publications, birding magazines, and PIF publications
- Enhance conservation objectives through partnerships that facilitate information exchange and coordinated management activities
- Continue to participate in state, regional and national PIF conferences

Educational

Issues and Challenges

Public and private land managers require technical information and educational tools to successfully incorporate bird habitat management into their management plans. These materials also serve to fill gaps in general bird conservation knowledge. By providing educational materials and hosting workshops in both the US and Latin America, we can improve bird habitat management, increase bird conservation knowledge and facilitate communication among educators.

DoD Priorities

- Work with national PIF and other groups to develop materials for landownersand managers regarding grassland bird habitat and other management priorities
- Promote DoD accomplishments to the public and other agencies.
- Update DoD display and brochure as needed
- Give talks to bird clubs and school groups
- Identify and create needed educational materials

Interpretive Sign, Vandenberg AFB, CA
Photo by Chris Eberly

Technical Working Groups

Bird Aircraft Strike Hazard

Issues and Challenges

A successful Bird Aircraft Strike Hazard (BASH) prevention program reduces loss of human life and damage to aircraft. Historical reporting of bird strikes and near strikes has rarely exceeded 20% of actual strikes. Increasing this response rate is key to maintaining a successful BASH program. To accomplish this objective, we must enhance communications between Air Operations and Natural Resources personnel. Recent research also indicates that maintaining grasses at a height for certain grassland obligate bird species reduces the attractiveness of the habitat for traditional "problem" species like hawks, gulls and geese. By working together, we can achieve mutually beneficial results that will aid priority bird species while reducing the BASH risk for flight crews. Improving communication and education among all stakeholders is a top priority of this working group.

DoD Priorities

- Implement use of radar, particularly mobile units, as a BASH tool
- Improve communication with Air Operations personnel
- Integrate BASH plans into INRMPs
- Publicize the importance of reporting all bird strike and near strike data
- Help provide all available current and future hazard detection technology for pre-flight planning
- Work with the Air Force BASH Team to update BASH guidelines to reflect advances in knowledge of grasslands, seasonal bird movements, and "problem" species

International

Issues and Challenges

The reversion of lands to the Panamanian government in 1999, under terms of the Panama Canal Treaty, greatly reduced the amount of land under DoD management in Latin America. Most DoD lands are now located on the islands of Cuba and Puerto Rico. Ongoing studies on both islands seek to gain better knowledge of wintering habitat requirements of neotropical migrants.

Winter habitat associations of many neotropical migrants still are poorly understood. Following the example of Fort Hood (TX), DoD installations need to create partnerships with Latin American biologists and conservation organizations to work cooperatively on life history requirements of migrant species breeding on military lands. A biologist exchange program at Fort Hood has helped biologists studying the Golden-cheeked Warbler on its wintering grounds gain more complete knowledge of management issues on the breeding grounds. These biologists, in turn, are teaching US biologists about wintering ground issues.

DoD Priorities

- Measure density and winter survival rates of migrants on the wintering grounds at DoD installations in Puerto Rico and Cuba
- Document wintering locations of priority neotropical migrants breeding on DoD lands, and establish partnerships with local groups in wintering areas
- Promote shade grown coffee use on military installations

APPENDIX P
Fort Gordon's Integrated Pest Management Plan

This document is a stand-alone plan and has been printed separately.

APPENDIX Q
Erosion and Sedimentation Laws and Regulations

Soil Erosion and Sediment Control Component
Laws, Acts, Regulations, Codes, Bills, and Ordinances

Army Regulation 200-1

Environmental Protection and Enhancement. This regulation addresses environmental protection and enhancement and provides the framework for the Army Environmental Management System.

Sikes Act (Title 16, United States Code 670a et seq., as amended through 1997)

Requires each military department manage natural resources, including all fish and wildlife species, in accordance with a tripartite cooperative plan agreed to by USFWS and state wildlife agency; to train personnel in fish and wildlife management, and prioritize contracting work with Federal/state agencies.

The Clean Water Act (CWA) Section 319
The primary law for regulating the overall water quality and controlling water pollution in the United States. Section 319 gives States the authority to regulate nonpoint source pollution.

Nonpoint Source Management Program

The Georgia Environmental Protection Division (EPD), Watershed Protection Branch, manages water quality in the State of Georgia and works to control nonpoint sources of pollution, storm water discharges, including erosion and sedimentation.

The Georgia EPD is responsible for reviewing local erosion and sedimentation control ordinances and delegating authority to local governments for their erosion and sedimentation control programs.

Other responsibilities of this organization include issuing stream buffer variances; implementing municipal, construction and industrial storm water permitting programs through NPDES permits; issuing Clean Water Act Section 401 Water Quality Certifications; and administering the Clean Water Act Section 319(h) Federal grant program for nonpoint source pollution abatement projects.

State of Georgia 305(b)/303(d) List of Waters

The Georgia EPD determines whether a body of water is supporting its designated uses by collecting water quality data and comparing this data against the water quality criteria. It is the goal of the State of Georgia that all of its waters support their designated uses. If it is determined that a water is not supporting its designated use, then Georgia EPD will typically develop a total maximum daily load (TMDL) as the start of the process of restoring the water. A TMDL determines how much of a particular pollutant a water body can contain and still support its designated use. The TMDL will state how much the pollutant load to the water needs to be reduced in order for the water to support its designated use.

Section 305(b) of the Clean Water Act requires States to assess and describe the quality of its waters every two years in a report called the 305(b) report. Section 303(d) of the Clean Water Act requires States to submit a list of all of the waters that are not meeting their designated uses and that need to have a TMDL(s) written for them. The 303(d) list is also to be submitted every two years. Georgia submits a combined 305(b)/303(d) report. This combined report is

called an Integrated Report and has typically been entitled the "Water Quality in Georgia" report.

Georgia Water Quality Control Act 391-3-6

The Georgia water Quality Control Act provides the principal requirements under which the state implements the federal clean water act, including permitting programs. The Water Quality Control Act also establishes water quality standards for every body of water in the state.

The water quality standards include a designation for each waterbody, which describes and defines the maximum levels of pollutants that may exist in the water, and an "anti-degradation" statement, which prohibits high quality waters from being degraded. Generally, the standards of NPDES (National Pollutant Discharge Elimination System) permits issue to municipalities, industries and other dischargers are sufficiently stringent to ensure that state water quality standards will not be violated by the proposed wastewater discharge.

Georgia Sediment and Erosion Control Act

On April 24, 1975 the State of Georgia signed into law, Act 599, also known as the Erosion and Sediment Control Act. This act establishes a permit process for land- disturbing activities in urban and urbanizing areas. The Erosion and Sediment Control Act established minimum technical guidelines which are found in the Manual of Erosion and Sediment Control (Georgia Green Book). As Phase II Rules became established, Georgia EPD integrated its existing regulations into its storm water management program. Construction sites greater than one acre or activities occurring within 200 feet of the banks of state waters are regulated by the Erosion and Sediment Control Act. These sites must obtain a Land Disturbing Activity (LDA) Permit from the Local Issuing Authority (LIA). Fort Gordon is located in four counties. However, only two of the four counties are LIAs. Richmond County (which covers the cantonment area) and Columbia County are classified as local issuing authorities. Jefferson and McDuffie Counties defer to the Georgia EPD so the LDA permits for these areas are issued through the state.

- Stream Buffer Requirements

The Georgia Erosion and Sediment Control Act defines buffers as the area of land immediately adjacent to the banks of state waters in its natural state of vegetation, which facilitates the protection of water quality and aquatic habitat. These buffers, called buffer zones, are measured horizontally from the point where the vegetation has been wrested by normal stream flow or wave action. Buffer zones have the following beneficial purposes:

- Reduces storm runoff velocities,
- Filters and increases infiltration of runoff,
- Improves aesthetics on disturbed land,
- Acts as a screen for visual pollution,
- Protects channel banks from scour and erosion and
- Aids in flood protection.

There is an established 25-foot buffer along the banks of all warm water streams, and a 50-foot buffer along the banks of all cold water trout streams. No land- disturbing activities are allowed within the established buffers on any state waters. However, variances are granted from the Georgia EPD through an application process. Variances will only be considered under certain circumstances, which are listed in the Erosion and Sediment Control Act. Federal permits may also be required from the United States Army Corps of Engineers or from

the United States EPA. The stream buffer variance applications can be found on the Georgia EPD website. The stream buffer variance application process takes at least 60 days after the receipt of a completed application; therefore, applications must be processed in a timely fashion.

Georgia House Bill 285

House Bill 285, which was signed into law on May 27, 2003, created several amendments to the Erosion and Sediment Control Act in 2003. One major amendment created a certification program for all individuals involved in land disturbing activities in Georgia. Anyone involved in land development, design, review, permitting, construction, monitoring or inspection must meet these new education requirements and be certified by the Georgia Soil and Water Conservation Commission. A Stakeholder Advisory Board was established and charged with developing and implementing the education and training program. This program, which is specific to the needs of Georgia, includes various levels of certification, and it is estimated that 26,000 people will have to be certified by December 31, 2006. Another major amendment created a new permit fee system for land disturbing activities.

Augusta-Richmond County Soil Erosion/Sediment Control Ordinance

This document is included in the Augusta-Richmond County Code at § 7-3-31 and it is Document #10 in the Augusta-Richmond County Development Documents set. The Soil Erosion and Sedimentation Control Ordinance provides minimum guidelines for measures and practices as applied to development, including street and utility installations, drainage facilities and other temporary and permanent improvements. Appropriate Best Management Practices as set forth in Section 7-3- 34(b) and (c) of this Ordinance shall be installed to prevent or control erosion and sedimentation pollution during all stages of any land-disturbing activity.

APPENDIX R
Soil Erosion and Deposition GIS Modeling Methods

Soil Erosion and Deposition GIS Modeling Methods

RUSLE Model

The RUSLE model was developed for erosion and sediment deposition simulation on agricultural lands. This model assumes that erosion is limited primarily by the ability of rainfall and runoff to detach soil particles (i.e. detachment limited) as opposed to situations where erosion is determined primarily by the capacity of runoff to transport sediment (i.e. transport limited). This one-dimensional model accounts for the effects of topography using slope length and its steepness.

The RUSLE model is based on the following equation: $E = R \times K \times C \times P \times LS$

Where:

E = average sheet and rill erosion

R = erosivity

K = erodability

C = erosion protection afforded by various soil covers

P = farming application (contouring, strip cropping or terraces)

LS = slope-length factor * slope-steepness factor, $LS = (\lambda/22.13)t \times (65.4 \sin 2\beta + 4.56 \sin\beta + 0.0654)$

Where:

λ is the horizontal projection of slope length

t is the constant dependent on the value of the slope β is the slope angle (deg)

Erosivity "R" is the Rainfall Energy based upon the average rain intensities within a given year. The USDA national Sedimentation Laboratory has provided a value of 250 for the R value for the entire area of Fort Gordon.

Erosion factor "K" indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is used to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Various land/soil covers affect the amount of soil erosion that may occur. Land Cover data obtained from the USDA/NRCS – National cartography & Geospatial Center provided land use classifications for the Fort Gordon area. These classes were then translated into appropriate "C" values based upon The NRCS's current National Engineering Handbook. Since Fort Gordon Property does not contain any tillage or crop rotation Farming Applications the "P" value for all sites within Fort Gordon were given a

value of 1.0. There are some limitations to using the RUSLE model. Since the RUSLE model considers erosion only along sediment flow lines without the full influence of converging or diverging flow, it is not suited for the effects of areas associated with topographic complexity (i.e. concavity, convexity) on the erosion process. In addition, the RUSLE model predicts soil erosion even where deposition may occur. As a result of these limitations and based on discussions with Fort Gordon staff, the contractor opted to utilize a second model to supplement the modeling results. For the purpose of the GIS Database deliverable, the contractor provided only input and calculation information for RUSLE.

USPED Model

The Unit Stream Power Erosion and Deposition Model (USPED) is a two-dimensional soil erosion model. Unlike the one-dimensional RUSLE model, which assumes erosion mainly depends on rainfall detachment capacity, USPED assumes that soil erosion and deposition mainly depend on the sediment transport capacity of the surface runoff. If soil particles are already detached by rain, but there is not enough runoff to transport the soil particles because of terrain shape or vegetation effect, the actual amount of erosion will be significantly reduced.

The USPED model is based on the following equation: $T = R \times K \times C \times P \times LS$

For the USPED model, T is sediment transport capacity.

The primary difference between RUSLE and USPED is how the LS value is calculated. For the USPED model, the formula for the value, “LS”, is as follows: $LS = Am(\sin\beta)n$

Where:
A is the upslope contributing area and not the USLE slope length; β is the slope angle; and m and n are the constants that depend on soil type and it’s properties

The USPED model is a multidimensional derivative of the RUSLE. This model has an added benefit of predicting the spatial distribution of erosion and deposition rates. Another advantage is the USPED model is that it may be manipulated to test various scenarios (land development plans) to help land managers plan for future development and determine which scenario offers the best choice and least impact.

Sourced from: Michael Baker Jr., Inc. 2012. Sediment, Erosion and Soil Control and Geodatabase.

APPENDIX S
Butler Reservoir Drought Contingency Plan

Butler Reservoir Drought Contingency Plan

Table of Contents

Section I: Declaration of Plan, Purpose, and Intent

In order to conserve the available water supply and protect the integrity of the water supply facilities, with regard for domestic water use, sanitation, fire protection, protection of public health, welfare, safety, and minimize the adverse impacts of water supply shortage. The Fort Gordon Drought Contingency Plan establishes regulations and restrictions for the use of water during emergency conditions. Water uses regulated or prohibited under this drought contingency plan are considered to be non-essential. Continuation of such water uses are deemed to constitute a waste of water during times of water shortage and other emergencies.

Section II: Authorization

The Commanding General of Fort Gordon designates the Director of Public Works to serve as the designated and authorized official to implement all applicable regulations and restrictions in accordance with the Fort Gordon Drought Contingency Plan. Upon determination from the Environmental and Natural Resources Management Office that such implementation is necessary to protect public health, safety, and welfare the Plan will be implemented through the chain of command and distributed to all personnel, tenants, and activities on the Fort Gordon Military Reservation. The Director of Public Works shall have the authority to initiate or terminate drought or other water supply emergency response measures as described within the Fort Gordon Drought Contingency Plan.

Section III: Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the Fort Gordon Water Treatment Plant. The terms "person" and "customer" as used in this Plan include Individuals, Units, Directorates, and all other Legal Entities.

Section IV: Definitions

For this purposes of this plan, the following definitions shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such fountains

Commercial and Institutional Water Use: Water use which is integral to the operations of commercial, non-profit, and governmental entities.

Conservation: Practices, techniques, and technologies that reduce the consumption of water, reduce the water loss or waste of water, improve the efficiency in the use of water or increase the recycling/reuse of water so that a supply is conserved and made available for future or alternative uses.

Customer: Any person, company, or organization using water supplied by the Fort Gordon Water Distribution System

Domestic Water Use: Water use for personal needs, for household, or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even Number Addresses: Street Addresses, box numbers, building numbers ending in 0,2,4,6,8.

Industrial Water Use: Industrial water use on Fort Gordon is composed of the following operations motorpools, equipment manufacturing facilities, maintenance facilities, hospitals, and dental clinics.

Landscape Irrigation: Water used for the irrigation and maintenance of landscaped areas. The definition includes residential and commercial lawns, gardens, golf courses, parks, and right-of-ways and medians.

Non-Essential Water Use: Water uses that are not essential not required for the protection of public health, safety, and welfare including:

a. Irrigation of landscaped areas, including parks, athletic fields, and golf courses, except otherwise provided for under this plan.
b. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane, or other vehicle.
c. Use of water to wash down any sidewalk, walkways, driveways, parking lots, tennis courts, or other hard surfaced areas.
d. Use of water to wash down any buildings or any other structures for the purposes other than immediate fire protection.
e. Flushing gutters or permitting water to run and accumulate in any gutter or street.
f. Use of water to fill, refill, or add to any indoor or outdoor swimming pool or jacuzzi type pools.
g. Use of water in any fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life.
h. Failure to repair a controllable leak(s) within a reasonable period after having been given notice to repair such leaks.
i. Use of water from any hydrants for construction purposes or any other purposes other than fire fighting.

Odd Numbered Address: Street Addresses, box Numbers, building numbers ending in 1, 3, 5, 7, 9.

Section V: Triggering Criteria for Initiation and Termination of Drought Response Stages

The Environmental and Natural Resources Management Office (ENRMO) will monitor water supply reservoir levels, stream flow levels, and climactic conditions on a weekly basis. The ENRMO will advise the Director of Public Works on conditions of the water system. The Director of Public Works will determine the initiation or termination of each stage of the plan. Public Notification of the initiation and termination will be accomplished by use of the Fort Gordon Chain of Command, Installation Newspaper, and Installation TV channel.

Triggering Criteria described below are based upon three elements, Water Supply Reservoir Levels, Stream Flow Levels of Butler Creek, and Climactic Conditions. The following list is the triggering criteria which will be used under the Fort Gordon Drought Contingency Plan. Triggering Criteria #2,#3,and #4 will be the primary Drought

Contingency Plan implementation elements. Triggering Criteria #1 and #5 will be implemented when necessary to conserve water during periods of high water usage.

1. Annually beginning in May 1 through October 28. (Voluntary rationing will be an annual requirement to prepare Fort Gordon for the possibility of drought conditions)
2. When the water supply available is equal to or less than 60% (Mild), 50 % (Moderate), 40% (Severe), 30% (Critical), 20% (Emergency) of the Butler Water Supply Reservoir storage level. Triggering Criteria 2 generally applies to stages b. Stage II Moderate, c. Stage III Severe, and d. Stage IV Critical Water Supply.
3. When water supplied by the City of Augusta is purchased and the City of Augusta is under Drought Conditions.
4. When Flows in the Butler Creek Watershed are equal to or less than .8 Cubic Feet Per Second
5. When Total Daily Water Demand equals or exceeds 3.8 Millions Gallons Per Day for 5 Consecutive Days or 4.5 Million Gallons in any single day. (Precuationary measure to be implemented based upon water demand)

a. Stage 1 - Mild Water Shortage

Requirements for Initiation - Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses, defined in Section IV - Definitions when Triggering Criteria 1,2,3,4,5 have potential to progress to higher stages.

Requirements for Termination - Stage 1 shall be terminated when all conditions described under the triggering criteria have ceased and reservoir and stream levels are sufficient for 10 consecutive days.

b. Stage II - Moderate Water Shortage

Requirements for Initiation - Customers shall conserve water and adhere to the prescribed restrictions on certain water uses, as defined in Section IV - Definitions, when Triggering Criteria 2 (mild),3,4 are close to being attained.

Requirements for Termination - Stage 2 of the plan shall be rescinded when all triggering criteria have ceased to exist for 10 consecutive days. Upon termination of stage 2 of the Plan Fort Gordon will revert to stage 1.

c. Stage III - Severe Water Shortage

Requirements for Initiation - Customers shall comply with requirements and restrictions on certain non-essential water uses provided in Section IV - Definitions of this plan when the following Triggering Criteria Are Met 2,3,4,5.

Requirements for Termination - Stage 3 of the Plan shall be rescinded when all the Triggering Criteria Conditions have ceased to exist for a period of 10 days. Upon termination of Stage 3 the Fort Gordon Water Distribution System will revert to Stage 2.

d. Stage IV - Critical Water Shortage

Requirements for Initiation - Customers shall comply with the requirements and restrictions of Section IV - Definitions of this plan when the following Triggering Criteria have been met 2,3,4,5.

Requirements for Termination - Stage 4 of the Plan shall be rescinded when all the Triggering Criteria Conditions have ceased to exist for a period of 10 consecutive days. Upon termination of Stage 4 the Fort Gordon Water Distribution System will revert to Stage 3.

e. Stage V - Emergency Water Shortage

Requirements for Initiation - Customers shall comply with the restrictions for stage 5 of this Plan when the Director determines that a water supply emergency exists based on:

1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service.
2. Natural or man-made contamination of the water supply source.
3. Natural disaster renders the water treatment operations at the Water Treatment Plant non-obtainable.

Requirements for Termination - Stage 5 of the Plan may be rescinded when all the conditions listed above have ceased to exist for a period of 10 consecutive days.

f. Water Rationing

Requirements for initiation - Customers shall comply with the water allocations plan prescribed in Section VI of this plan and will be required to comply with all requirements and restrictions of Stage 5 of this plan. The inclusion of this rationing plan may not be required in all cases. The plan is included to address more than facility limitations and emergency conditions. The water rationing allocations are set forth to provide guidance on water use priorities during emergencies and natural disasters.

Requirements for Termination - Water rationing will be rescinded when all of the conditions listed under triggering events have ceased to exist for a period of 10 consecutive days or by determination of the Director of Public Works.

Section VI: Drought Response Stages

The Environmental and Natural Resources Management Office (ENRMO) shall monitor water supply reservoir levels, stream flow levels, and demand conditions on a weekly basis and, in accordance with the triggering criteria set forth in Section V of the Plan. The ENRMO shall inform the Director of Public Works of the conditions of the water supply system. The Director of Public Works shall determine that a Mild, Moderate, Severe, Critical, or Emergency condition exists and shall implement the level of action needed to address drought severity. The implementation shall be accomplished by use of the Fort Gordon Chain of Command and a public notification in the installation newspaper:

Stage I - Mild Water Shortage

Goal: Achieve a voluntary 10% reduction in daily water demand.

Supply Management Measures: Use of vehicle washracks will be limited to mission essential washracks only. Vehicle washracks will be limited to use during heavy training and mobilization exercises. Water main flushing will be reduced during periods of limited water supply.

Voluntary Water Use Restrictions:

a. Water customers are voluntarily limit the irrigation of landscaped areas to Sundays and Thursdays for customers with addresses ending in even numbers (0,2,4,6,8), and Saturdays and Wednesdays for water customers with addresses ending in odd numbers (1,3,5,7,9) and to irrigate landscapes only between the hours of midnight to 10:00 am and 8:00 p.m. to midnight on designated watering days only.
b. All operations of the Fort Gordon Water Supply System shall adhere to the water use restrictions prescribed in Stage 2 of the Plan.
c. All water customers of the Fort Gordon Water Distribution System are requested to practice water conservation and or to minimize or discontinue water use for non-essential purposes.

b. Stage II: Moderate Water Shortage

Goal: Achieve a 15 % percent reduction in total daily water use

Supply Management Measures: The Fort Gordon Directorate of Public Works will Implement a ban on watering of all public landscaped areas. Washrack use will be limited to a predetermined number of selected washracks. Benefit car washes will not be permitted and deemed a non-essential water use. Stage I measures will remain in effect.

Water use restrictions: Under threat of penalty for violations, the following water use restrictions will apply to all persons on Fort Gordon:

a) Irrigation of all landscaped areas with hose end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address or building number ending in an even number (0,2,4,6,8), and Saturdays and Wednesdays for water customers with an odd number street address or building number (1,3,5,7,9), and irrigation of landscaped areas is further limited to the hours of 12:00 midnight to10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime if it is by means of a hand-held hose, a faucet filled bucket or watering can of five gallons or less, or drip irrigation systems.
b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff valve for quick rises . Vehicle washing may be done at anytime on the immediate premises of a commercial car wash. Further such washing may be exempted by permit from the Environmental and Natural Resources Management Office (ENRMO) from these regulations if the health, safety, welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks/waste dumpsters and vehicles used to transport food and perishables (This exemption will apply to mission essential requirements only).

c) Use of water to fill, re-fill, or add to any indoor or outdoor swimming pool, wading pools, or jacuzzi type pools is prohibited except on designated watering days between the hours of 12;00 midnight and 10:00 a.m. and between 8;00 p.m. and 12;00 midnight.
d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where fountains or ponds are equipped with a recirculation system.
e) Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under a special permit obtained from the Environmental and Natural Resources Management Office (ENRMO).
f) Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. The Kilbourne Street Golf Course (Nine-Hole) will water on odd numbered days. The Gordon Lakes Golf Course is on a separate watering system and shall follow the regulations in the Gordon Lake Drought Contingency Plan.
g) All restaurants are prohibited from serving water to its patrons except when requested.
h) The following uses of water are defined as non-essential and are prohibited:

1. Wash down of any sidewalks, walkways, driveways, parking lots, tennis courts or other hard surfaced areas;
2. use of water to wash down buildings or structures for purposes other than immediate fire protection;
3. use of water for dust control;
4. flushing gutters or permitting water to accumulate in any gutter or street;
5. failure to repair a controllable leak(s) within a reasonable time period after having been given notice directing the repair of such leak(s).

c. Stage III - Severe Water Shortage

Goal: Achieve a 20% reduction in total daily water use.

Supply Management Measures: All measures of Stage II will remain in effect.

Water use restrictions: All requirements of Stage II shall remain in effect during Stage III except:

a) A total outdoor watering ban is in effect. The ban on outdoor watering includes all forms and types of outdoor watering..
b) The watering of Golf Course tees at the Kilbourne Street Golf Course (Nine-Hole) is prohibited at all times.
c) The use of water for construction purposes from designated fire hydrants under special permits from the Environmental and Natural Resources Management Office is to be discontinued.

d. Stage IV - Critical Water Shortage

Goal: Achieve a 30% percent reduction in total daily water use on Fort Gordon.

Supply Management Measures: All management measures in Stage III shall remain in effect.

Water use restrictions: All requirements of Stages II and III shall remain in effect during Stage IV except:

a) A total outdoor water ban is in effect. The outdoor watering ban includes all types of outdoor watering.
b) The use of water to wash any motor vehicle, motorbike, boat, trailer, airplane, or other vehicle not occurring on the premises of an designated washrack or commercial wash facility and not in the interest of public health, safety, and welfare is prohibited. Further , such vehicle washing at an approved washrack or commercial wash facility shall occur only between the hours 6:00 a.m. to 10:00 a.m. and between 6:00 p.m. to 10:00 p.m.
c) The filling, re-filling, or adding of water to swimming pools, wading pools, and jacuzzi type pools is prohibited.
d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or ponds are equipped with a recirculation system.
e) No applications for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved or allowed.

e. Stage V - Emergency Water Shortage

Goal: Achieve a 50% percent reduction in total water use.

Supply Management Measures: All management measures in Stage IV will remain in effect. If the water treatment plant is not adequate to maintain supply due to natural disaster alternative emergency water sources will be used. All priority users will receive water first (Eisenhower Army Medical Center, Georgia State Correctional Hospital, Family Housing, Units, industrial facilities). The water will be used for potable supplies only. Emergency water sources will be used for training and potable water supply when there is insufficient supply from the Butler Reservoir. A total outdoor watering ban is in effect.

Emergency water sources: Will be used due to natural disaster or contamination of Butler Reservoir.

1. 16 Inch Water Line from the City of Augusta - Will be used if the Fort Gordon Water System loses ability to provide enough water for the installation.
2. Leitner Lake Well Public Water System NG2450165 - Water will be trucked to cantonment area.
3. Range Control Well Public Water System NG2450164 - Water will be trucked to cantonment area.
4. Game Warden Well Public Water System NG2450163 - Water will be trucked to the cantonment area.
5. Gordon Lake Golf Course Well Public Water System NG2450166 - Water will be trucked to the cantonment area.
6. Gordon Lake Golf Course Well public Water System NG2450167 - Water will be trucked to the cantonment area.
7. Forestry Water System (Well) - Water will be trucked to the cantonment area

8. Fish and Wildlife Water system (Well) - Water will be trucked to the cantonment area.
9. Surface Water Withdrawal Point Leitner Lake - Water will be withdrawn by a reverse osmosis water purification unit and trucked to the cantonment area.
10. Surface Water Withdrawal Point Union Mill Pond - Water will be withdrawn by a reverse osmosis water purification unit and trucked to the cantonment area.

Water Use Restrictions: All requirements of Stages II, III, IV shall remain in effect during Stage V except:

a) Irrigation of all landscaped areas is prohibited.
b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.

SECTION VII - Water Rationing

In the event that water shortage conditions threaten public health, safety, and welfare, the Director of Public Works will ration water according to the following allocation plan:

a) Family Housing: residential water customers shall be rationed as follows. Family Housing includes the Barracks Areas, Gordon Terrace, Olive Terrace, Maglin Terrace.

Persons Per Household	Gallons Per Month
1-2	6000
3-4	7000
5-6	8000
7-8	9000
9-10	10000

b) Commercial Customers: Commercial customers will be allocated the following amount. Each commercial customer who uses water for processing purposes will be allocated 75% of the preceding year (12 month period).
c) Industrial Customers: Each industrial customers will be allocated a certain percentage of the preceding year (12 month period) water usage. The following water allocations will be used.

Hospitals: 85%
Motorpools and Maintenance Facilities: 75%
Training Facilities: 75%
Production Facilities (Training Support Center):75%
Other Industrial Facilities: 75%

Section VIII - Enforcement

No Customer, Person, Tenant, or Facility will knowingly or intentionally allow the use of water from the Fort Gordon Water Distribution System for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision within this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to the action taken by the Director of Public Works, or the Chief of the Environmental and Natural Resources Management Office, in

accordance with this Plan. Violations of this Plan will be subject to corrective action through the Fort Gordon Chain of Command.

Section IX - Variances

The Environmental and Natural Resources Management Office may in writing grant temporary permits for variance to existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such permit of variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met

a) Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which this plan is in effect.
b) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Entities requesting such variance can request exemption by contacting the Environmental and Natural Resources Management Office (ENRMO) within 5 working days after implementation of the Plan or drought stage. Permit applications will be available at the ENRMO. The permit application will need to include the following information:

a) Name and address of petitioner.
b) Purpose of water use.
c) Specific provision of Plan the petitioner is seeking relief from.
d) Detailed statement of adverse effects or damage that will occur if petitioner complies with the Plan.
e) Description of relief requested.
f) Time period for which variance is sought.
g) Alternative water use restriction petitioner is taking or proposes to take to meet the intent of the plan and the compliance date.
h) Other pertinent information.

Permits of Variance granted by the Environmental and Natural Resources Management Office (ENRMO) shall be subject to the following conditions:

a) Permits of Variance granted shall include a timetable.
b) Permits of Variance shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specific requirements.
c) Permits of Variance are not valid unless signed by the Chief of Environmental and Water Program Manager.
d) No permit of Variance will be retroactive, all permits granted will be subject to revocation for non-compliance.

HYDRANT DISCHARGE
Associated with Construction Activity
Non-Stormwater

Permit # - -

Issued By:
U.S. Army Signal Center and Fort Gordon
Environmental and Natural Resources Management Office
ATZH-DIE
Fort Gordon, GA 30905-5040

*Name of Permit Holder:*_____

*Site Location:*_____

Corps of Engineer Contract Number: _____

Time Period of Continual Discharge: _____

Best Management Practices to Control Discharge:_____

_____

Fire Hydrant Number: _____

Permit Expiration: _____
(Permit is not Valid Unless Signed)

_____ Date:_____
JOHN WELLBORN
Natural Resources Specialist,
Environmental and Natural Resources
Management Office
Directorate of Public Works

Name and Signature of Environmental Coordinator:

_____ Date:_____
STEPHEN C. WILLARD
C, Environmental and Natural Resources Management Office
Directorate of Public Works

Permit of Variance
Drought Contingency

Permit # - -

Issued By:
U.S. Army Signal Center and Fort Gordon
Environmental and Natural Resources Management Office
ATZH-DIE
Fort Gordon, GA 30905-5040

NAME:_____

PURPOSE OF WATER USE:_____

SPECIFIC PROVISION FOR RELIEF SOUGHT: _____

ADVERSE AFFECTS: _____

DESCRIPTION OF RELIEF REQUESTED:_____

_____

_____

TIME PERIOD OF VARIANCE: _____

ALTERNATIVE WATER USE RESTRICTIONS_____

Permit Expiration: _____
(Permit is not Valid Unless Signed)

_____ Date:_____

JOHN WELLBORN
Natural Resources Specialist,

Environmental and Natural Resources
Management Office

Directorate of Public Works

Name and Signature of Environmental Coordinator:

_____ Date:_____

STEPHEN C. WILLARD

C, Environmental and Natural Resources Management Office

Directorate of Public Works

Permit to Wash Vehicles
Drought Contingency

Permit # - -

Issued By:
U.S. Army Signal Center and Fort Gordon
Environmental and Natural Resources Management Office
ATZH-DIE
Fort Gordon, GA 30905-5040

NAME:_____

WASHRACK LOCATION:_____

HOURS OF VEHICLE WASHING: _____
HEALTH REQUIREMENT: _____ MOBILIZATION:_____
DESCRIPTION POSSIBLE EFFECTS FOR NON-
WASHING:_____
_____

TIME PERIOD OF WAIVER:_____

WATER USE RESTRICTIONS_____

Permit Expiration: _____
(Permit is not Valid Unless Signed)

_____ Date:_____

JOHN WELLBORN

Natural Resources Specialist,

Environmental and Natural Resources Management Office

Directorate of Public Works

Name and Signature of Environmental Coordinator:

_____ Date:_____

STEPHEN C. WILLARD

C, Environmental and Natural Resources Management Office
Directorate of Public Works

APPENDIX T
Fort Gordon's Integrated Wildland Fire Plan

This document is a stand-alone plan and has been printed separately.

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APPENDIX U
Georgia White-nose Syndrome (WNS) Response Plan

Georgia White-nose Syndrome (WNS) Response Plan

Last Revised: April 29, 2015

White Nose Syndrome (WNS) is a disease that affects bats hibernating in caves (and mines) in the Eastern United States. It was first discovered in New York in 2006 and by the winter of 2013 had spread south to Alabama and west to Oklahoma. It is estimated that 5.5 to 6.5 million bats have died from the disease, including some species of high conservation concern. The disease is characterized by white fungus (*Pseudogymnoascus destructans*) on the wing membranes and noses of affected hibernating bats. For more information on this disease, please visit the US Fish and Wildlife Service webpage at http http://whitenosesyndrome.org/. This plan is part of a national effort to combat this deadly disease and follows recommendations in the National WNS Plan (http://whitenosesyndrome.org/national-plan/white-nose-syndrome-national-plan).

This document applies to the following bat genera in Georgia: *Myotis*, *Perimyotis*, *Eptesicus*, *Corynorhinus*, *Nycticeius*, and *Tadarida*, though so far WNS has not been documented in *Corynorhinus*, *Nycticeius*, and *Tadarida*.

I. Cooperators. The mission of monitoring, survey, regulation and research cannot be met by a single entity. The response to WNS will require cooperation from state and federal government and the private sector. Cooperators or partners include:

   a. State Agencies: Georgia Department of Natural Resources (GA DNR), Southeastern Cooperative Wildlife Disease Study (SCWDS), Georgia Department of Community Health, Division of Public Health (DPH)

   b. Federal: US Fish and Wildlife Service (USFWS), US Forest Service (USFS), Department of Defense (DOD)

   c. Universities: University of Georgia (UGA), Clayton State University (CSU)

   d. Non-Government Organizations (NGOs): Southeastern Bat Diversity Network (SBDN), Bat Conservation International (BCI), GA Bat Working Group (GBWG), GA Wildlife Federation (GWF), The Nature Conservancy (TNC), Southeastern Cave Conservancy, Inc. (SCCI), Georgia Speleological Survey (GSS), Georgia grottos, private landowners

II. Pre-WNS Activities

   a. Increase Awareness:

      i. GA DNR will develop a WNS webpage on the GA DNR website with information, links to other sites and a section for reporting unusual die-offs or WNS suspect bats. COMPLETED SEE: (http://www.georgiawildlife.com/WNS)

      ii. GA DNR will develop a protocol for disseminating information to personnel within the agency. ONGOING

iii. GA DNR will announce completion of the plan through a press release and social media venues, and attempt to get media coverage. COMPLETED

iv. GA DNR will create an email list of interested parties to provide the most updated information in a timely manner. COMPLETED

v. GA DNR will develop presentations and make them available on the website. These will be available to all cooperators for presentations about bats and the disease to grottos, the general public and other interested groups. ONGOING

b. Prevent the Spread of the Disease / Early Detection

i. All people visiting caves or mines in Georgia should follow the USFWS Disinfection Protocol for Bat Field Research/Monitoring (Appendix A).

ii. All people working with bats in Georgia should follow the USFWS Disinfection Protocol for Bat Field Research/Monitoring (Appendix A).

iii. GA DNR and cooperators will develop signs summarizing the WNS issue and decontamination protocols for posting at cave kiosks, cave entrances, etc.

iv. All scientific research permitees and other personnel who work with bats in GA must evaluate all captured bats using the Reichard Wing Damage Index (WDI) (Appendix B).Any bats scoring a **2 or higher** on the WDI must be reported to GA DNR. Data/material to be collected should include:

1. Photographing wing damage and submitting the photo to GA DNR (include date, location, animal identification number and species)

2. Taking tissue or fluid samples from live animals, <u>if possible,</u> and submitting them to SCWDS and notifying GA DNR.

3. If resources are available, consider using radio telemetry to track the bat.

v. Unusual bat die-offs should be reported to GA DNR. GA DNR biologists and cooperators will collect bats from abnormal die-offs and submit those bats to SCWDS using forms in Appendix C.

vi. All wildlife rehabilitators who rehabilitate or transport bats must adhere to the following procedures:

1. Use the USFWS Disinfection Protocol (Appendix A) and isolate all colonial bats. [Draft rehabilitation protocol is available for WNS positive bats]

2. Do not release any WNS positive bats as they may spread the fungus to unaffected healthy bats. Many states now prohibit bat rehabilitation.

3. Identify bats with significant wing damage and use the Reichard Wing Damage Index (WDI) (Appendix B). Document any bats scoring a **2 or higher** on the WDI and report to GA DNR. Data/material to be collected should include:

    a. Photographing the wing damage and submitting to GA DNR (include date, location, animal identification number and species)

    b. Taking tissue or fluid samples from live animals, <u>if possible,</u> and submitting to SCWDS and notifying GA DNR.

vii. GA Dept. of Community Health routinely receives bats from across the state for rabies testing. Staff is requested to conduct WDI on bats if they don't save them for submission to SCWDS. **Bats that are not positive for rabies, but show signs of WNS should be refrigerated or frozen and submitted to SCWDS.** GA Dept. of Community Health will notify GA DNR if any bats w/ visible fungus are received.

c. Increase Pre-WNS Baseline Bat Population Information

i. Acoustic Baseline Surveys

1. Establish Routes in different parts of the state, with northern GA as a priority. ONGOING

2. Work with other agencies/landowners/volunteers to coordinate survey efforts. ONGOING

ii. Continue netting efforts across the state. Establish/maintain population survey information via DNR bat research coordinator. ONGOING

iii. Continue Monitoring known Summer Roost Sites ONGOING

iv. No large winter hibernacula are known in Georgia. Gather information from the research and caving community to document any significant sites. If significant hibernacula are confirmed, establish winter monitoring as appropriate. ONGOING, SEVERAL NEW HIBERNACULA HAVE BEEN IDENTIFIED.

III. Management or Regulatory Actions – Pre-WNS

a. GA DNR recommends that users temporarily reduce caving activities in the state to prevent the spread of White-nose Syndrome (WNS). If you must visit caves, follow the UFWS decontamination protocol (Appendix A).

b. The USFS has issued an emergency order banning public entry or use of caves and mines in the southeast on USFS lands.

c. GA DNR encourages other landowners to consider suggesting that users temporarily reducing caving activities on their properties and follow USFWS decontamination protocols (Appendix A).

d. The USFWS Disinfection Protocol for Bat Field Research/Monitoring (Appendix A) and Reichard Wing Damage Index (WDI) (Appendix B) must be used by all bat researchers in order to retain their GA DNR scientific research permit.

e. GA DNR and cooperators will encourage cavers to respect public and private land cave closure advisories.

IV. Post-WNS

a. Communications Plan

i. Public reporting of WNS suspect bats can be done through the GA DNR website or SCWDS.

ii. SCWDS should immediately report any WNS positive bats to GA DNR by telephone (contacts listed in Appendix D).

iii. GA DNR and other personnel who find WNS suspect bats should immediately report them to appropriate GA DNR contacts (contacts listed in Appendix D) and submit bats to SCWDS (forms in Appendix C).

iv. In the event that a WNS positive bat is confirmed, GA DNR should immediately be notified and the established call protocol should be enacted (Appendix D). GA DNR public affairs staff will coordinate media outreach.

b. Management or Regulatory Actions – Post-WNS

i. GA DNR continues to recommend that users temporarily reduce caving activities in the state to prevent the spread of White-nose Syndrome (WNS). If you must visit caves, follow the UFWS decontamination protocol (Appendix A).

ii. GA DNR will continue to encourage other landowners to consider suggesting that users temporarily suspend caving activities on their properties and follow USFWS decontamination protocols (Appendix A).

iii. All individuals working with or trapping bats in Georgia must continue to follow the USFWS Disinfection Protocol for Bat Field Research/Monitoring (Appendix A) on all gear. Soft equipment or any equipment that cannot be decontaminated cannot be used at more than one site.

iv. The caving community is encouraged to abide by all cave closures on public and private lands

c. General Actions - Post-WNS

i. Evaluate non-related research that involves handling of bats to determine if these efforts are likely to be beneficial or detrimental. Continue acoustic surveys of same route(s) for rough population trends.

ii. Cooperate with other states & researchers in gathering samples or monitoring information as requested.

iii. Continue monitoring summer roost sites (no cave entry necessary).

iv. Evaluate and consider various proposed treatment options as they develop, if necessary

V. Information in the Georgia WNS Plan will be updated no less than every 6 months to reflect emerging knowledge and information.

APPENDIX A

White-nose Syndrome Decontamination Protocols (June 25, 2012)
(https://www.whitenosesyndrome.org/topics/decontamination)

National White-Nose Syndrome Decontamination Protocol - Version 06.25.2012

The fungus *Geomyces destructans* (*G.d.*) is the cause of white-nose syndrome (WNS), a disease that has devastated populations of hibernating bats in eastern North America. Since its discovery in New York in 2007, WNS has spread rapidly through northeastern, mid-Atlantic, and Midwest states and eastern Canada. It continues to threaten bat populations across the continent. For the protection of bats and their habitats, comply with all current cave and mine closures, advisories, and regulations on the federal, state, tribal, and private lands you plan to visit. In the absence of cave and mine closure policy, or when planned activities involve close/direct contact with bats, their environments, and/or associated materials, the following decontamination procedures should be implemented to **reduce the risk of transmission** of the fungus to other bats and/or habitats. For the purposes of clarification, the use of the word "decontamination," or any similar root, in this document entails both the 1) cleaning and 2) treatment to disinfect exposed materials.

Under no circumstances should clothing, footwear, or equipment that was used in a confirmed or suspect WNS-affected state or region be used in a WNS-unaffected state or region. Some state/federal regulatory or land management agencies have supplemental documents[1] that provide additional requirements or exemptions on lands under their jurisdiction.

I. TREATMENTS TO REDUCE RISK OF TRANSFERRING *GEOMYCES DESTRUCTANS*[2]:

Applications/Products:

The most universally available option for treatment of submersible gear is:

Submersion in Hot Water: Effective at sustained temperatures ≥50°C (122°F) for 20 minutes

Secondary or non-submersible treatment options (for a minimum of 10 min.) include:

	PRODUCT	Clorox® (6% HOCl) Bleach	Lysol® IC Quaternary Disinfectant Cleaner	Professional Lysol® Antibacterial All-purpose Cleaner	Formula 409® Antibacterial All-Purpose Cleaner	Lysol® Disinfecting Wipes
APPROVED USES	Hard, non-porous surfaces	Yes	Yes	Yes	Yes	Yes
	Non-porous personal protective safety equipment	No	Yes (headgear, goggles, rubber boots, etc.)	No	No	No
	All surfaces, including: porous clothing, fabric, cloth footwear, rubber boots	Yes (Do not use on ropes, harnesses or fabric safety gear.)	No	No	No	No
DILUTION / TREATMENT (as per label)		Effective at 1:10 dilution (bleach : water)[3,4]	Effective at 1:128 dilution (1 ounce: 1 gallon of water)[3,4]	Effective at 1:128 dilution (1 ounce: 1 gallon of water)[3,4]	Effective at concentrations specified by label[3,4]	Effective at 0.28 % di-methyl benzyl ammonium chloride[3,4]

[1] To find applicable addenda and/or supplemental information, visit http://www.whitenosesyndrome.org/topics/decontamination

[2] The use of trade, firm, or corporation names in this protocol is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by state and/or federal agencies of any product or service to the exclusion of others identified in the protocol that may also be suitable for the specified use.

[3] Product guidelines should be consulted for compatibility of use with one another before using any decontamination product. Also, detergents and quaternary ammonium compounds (i.e. Lysol® IC Quaternary Disinfectant Cleaner) should not be mixed directly with bleach as this will inactivate the bleach and in some cases produce a toxic chlorine gas. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

[4] Final determination of suitability for any decontaminant is the sole responsibility of the user. Use of some treatments which utilize such method need to be applied carefully, especially in confined spaces, due to inhalation or contact risks of the product. All users should be aware of these risks

Other effective disinfectant(s) with similar chemical formulas (e.g., a minimum of 0.3% quaternary ammonium compound) or water based applications may exist but are unknown and not recommended at this time.

REMEMBER, the product label is the law!

It is the responsibility of the users of this protocol to read and follow the product label and MSDS.

Products must be used in accordance with the label:

Ensuring the safety of those who use any of the above products for treatment is of utmost importance. Material safety data sheets (MSDS) developed by product manufacturers provide critical information on the physical properties, reactivity, potential health hazards, storage, disposal, and appropriate first aid procedures for handling or working with substances in a safe manner. Familiarization with MSDS for chemical products prior to use will help to ensure appropriate use of these materials and assist in emergency response.

It is a violation of federal law to use, store, or dispose of a regulated product in any manner not prescribed on the approved product label and associated MSDS.

- Disinfectant products, or their contaminated rinse water, should be managed and disposed of as per product label directions to avoid contamination of groundwater, drinking water, or non-municipal water feature such as streams, rivers, lakes, or other bodies of water. Follow all local, state and federal laws. State-by-state requirements for product disposal may vary. Note: Quaternary ammonium wastewaters should not be drained through septic systems because of the potential for system upset and subsequent leakage into groundwater.

II. PLAN AHEAD AND CAVE CLEAN:

Dedicate your Gear: Many types of rope and webbing have not been thoroughly tested for integrity after decontamination. Dedicate your gear to a single cave/mine or don't enter caves/mines that require this gear.
Bag it Up: Bring bags on all of your trips. All gear not decontaminated on site should be isolated (quarantined) in a sealed plastic bag/s or container/s to be cleaned and disinfected off-site.

Before Each Cave/Mine or Site Visit:

1.) Determine *G.d.*/WNS status[5] of the state/county(s) where your gear was previously used.

2.) Determine *G.d.*/WNS status[5] of state/county(s) to be visited.

3.) Determine whether your gear is permitted for your cave/mine visit or bat related activity, as defined by the current WNS case definitions[6] and the flowchart below.

4.) Choose gear that can be most effectively decontaminated [i.e., rubber wellington type (which can be treated with hot water and/or secondary treatment options in section I.) vs. leather boots] or dedicated to a specific location. **Remember, under no circumstances should any gear that was used in a WNS-affected state or region be used in a WNS-unaffected state or region.** Brand new gear can be used at any location where access is otherwise permitted.

5.) Determine if any state/federal regulatory or land management agency addendum or supplemental document[1] provides additional requirements or exemptions on lands under its jurisdiction that supplement the final instruction identified in the flowchart below.

6.) Prepare a "Clean Caving" strategy (i.e., how and where all gear and waste materials will be stored, treated and/or disposed after returning to your vehicle and base area) for your particular circumstances that provides for cleaning and treatment of gear on a daily basis **unless** instructed above to do so more frequently throughout the day.

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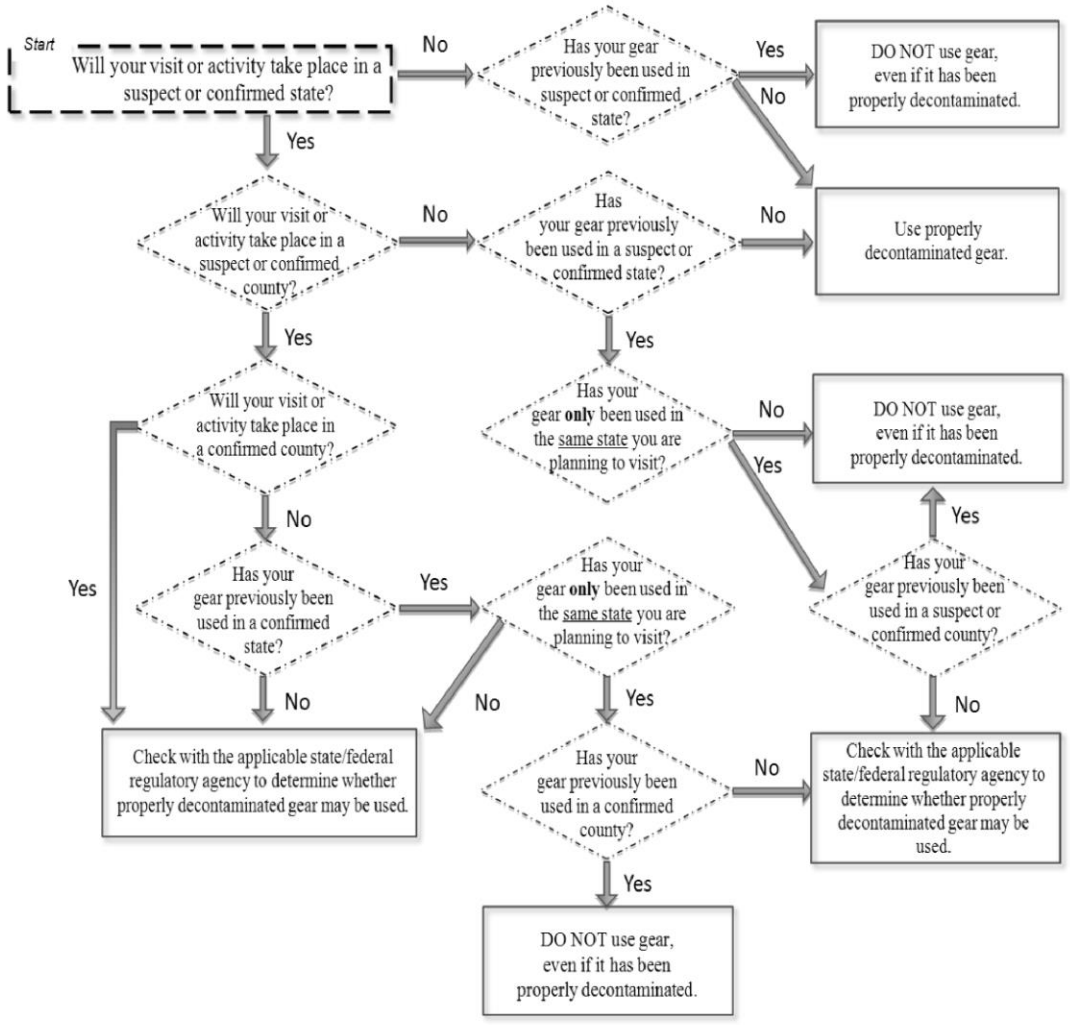
prior to entering cave environments and understand that products and corresponding procedures may cause irreversible harm. Always use personal protective equipment to reduce contact with these products, particularly when recommended by the manufacturer.

[5] Visit http://www.whitenosesyndrome.org/resources/map to determine the WNS status of a county or state.

[6] Visit http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/wns_definitions.jsp for current WNS case definitions.

7.) When visiting multiple caves/mines or bat research sites on the same day, clean and treat all gear between **each** cave/mine/site, **unless** otherwise directed in an agency/landowner addendum. It is recommended that known confirmed or suspect caves/mines be visited only after those sites of unknown *G.d.* status have been visited, to further reduce the risk of inadvertent transmission.

Flowchart to Determine Gear Use or Decontamination



After Each Cave/Mine or Site Visit:

1.) Thoroughly scrub and remove sediment/dirt from clothing, footwear, and other gear immediately upon emerging from the cave/mine or bat research site. Avoid contamination of vehicles; store exposed gear separately from unexposed gear.

2.) Once fully scrubbed and rinsed of all soil and organic material, clothing, footwear, and any appropriate gear should be sealed, bagged in a plastic container and once at home, machine or hand-washed/cleaned using a conventional cleanser like Woolite® detergent or Dawn® antibacterial dish soap in water (the use of Dawn® antibacterial dish soap is **not intended** for use in conventional washing machines.) Once cleaned, rinse gear thoroughly in water. Clean/treat gear used in a suspect or confirmed state prior to transport when traveling back to or through a state **without** known cases of *G.d.*/WNS. Use the treatments listed under Applications/Products on page 1 for a minimum of 10 (products) or 20 (hot water) minutes.

Remember: Many types of rope and webbing have not been thoroughly tested for integrity after decontamination. Dedicate your gear to a single cave/mine or don't enter caves/mines that require this gear.

A.) Submersible Gear (i.e. clothing, footwear, and/or equipment that can be submerged in liquid):

Clothing, footwear, and other submersible gear:

Following steps 1 and 2 above, the primary treatment for all submersible gear should always be submersion in **water of at least 50°C (122°F) for a minimum of 20 minutes, where possible**. Some submersible gear (depending on material) could be soaked for a minimum of 10 minutes in the appropriate products listed in the Applications/Products chart on page 1, rinsed thoroughly in water again, and air dried. Note: Although commercially available washing machines with sanitation cycles often sustain desirable water temperatures, their efficacy for killing the conidia of *G.d.* is unknown.

B.) Non-submersible Gear:

Gear that may be damaged by liquid submersion should be cleaned according to the manufacturer's recommendation between cave/mine visits and when appropriate, follow steps 1 and 2 above in addition to following:

Cameras and Electronic Equipment:

Until effective techniques are developed to comprehensively disinfect cameras and electronics, it is recommended that these items only be used in caves when absolutely necessary. Regardless of the cave/mine visited, clean/treat cameras and electronics after each visit using an appropriate product listed in the Applications/Products chart on page 1. Equipment that must be used in the cave/mine may be placed in a sealed plastic casing (i.e., underwater camera housing), plastic freezer bag, or plastic wrap that permits operation of the equipment (i.e., glass lens is exposed) and reduces the risk of exposure to the cave environment. Prior to opening or removing any plastic protections, wipe the outside surfaces with an appropriate product described in the Applications/Products chart on page 1. Plastic freezer bag or wrap should be removed and discarded after each visit. A sealed plastic casing may be reusable if properly submersed in appropriate product as described in the Applications/Products chart and the functionality and protective features of the casing are not sacrificed (check with manufacturer). After removal of any outside plastic protection, all non-submersible equipment surfaces (i.e., camera body, lens, etc.) should be wiped using an appropriate product described in the Applications/Products chart.

3.) Reduce the risk of vehicle contamination and transport of *G.d.* to new areas by making sure to

A) transport gear in clean containers,
B) remove outer clothing/footwear and isolate in a sealed plastic bag or container prior to entering a vehicle. Storage container options vary considerably depending on the type of vehicle; but **always clean and disinfect the outside surfaces of storage containers prior to putting them in the vehicle**.
C) remain outside of the vehicle after exiting a cave/mine or completing field work,
D) change into clean clothing and footwear prior to entering the vehicle, and
E) clean dirt and debris from the outside of vehicles (especially wheels/undercarriage).

OBSERVATION OF LIVE OR DEAD BATS

If you observe live or dead bats (multiple individuals in a single location) that appear to exhibit signs of WNS, contact a wildlife professional in your nearest state (http://www.fws.gov/offices/statelinks.html) or federal wildlife agency (http://www.fws.gov/offices/, http://www.fs.fed.us/, http://www.blm.gov/wo/st/en.html, or http://www.nps.gov/ index.htm). **Do not handle bats unless authorized in writing to do so by the appropriate government agency.**

Note on the use of Pesticides/Products listed above:

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. §136 et seq. (1996))
http://www.epa.gov/oecaagct/lfra.html

defines a pesticide as follows:

(u) Pesticide
The term "pesticide" means (in part)
(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.

FIFRA defines a pest at §136:
(t) Pest
The term "pest" means (in part)
(1) any insect, rodent, nematode, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism (except viruses, bacteria, or other micro-organisms on or in living man or other living animals) which the Administrator declares to be a pest under section 25(c)(1).

This document is the product of the multi-agency WNS Decontamination Team, a sub-group of the Disease Management Working Group established by the National WNS Plan (A National Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats, finalized May 2011). On 15 March 2012 a national decontamination protocol was adopted by the WNS Executive Committee, a body consisting of representatives from Federal, State, and Tribal agencies which oversees the implementation of the National WNS Plan. This version of the protocol contains some modifications to the 15 March version, intended to clarify the recommendations for the appropriate use of treatment options. This decontamination protocol will continue to be updated as necessary to include the most current information and guidance available.

APPENDIX B

Wing-Damage Index Used for Characterizing Wing Condition of Bats Affected by White-nose Syndrome

http://www.fws.gov/northeast/PDF/Reichard_Scarring%20index%20bat%20wings.pdf

Wing-Damage Index Used for Characterizing
Wing Condition of Bats Affected by White-nose Syndrome

Jonathan D. Reichard
Center for Ecology and Conservation Biology
Department of Biology
Boston University
Boston, MA 02215

White-nose Syndrome (WNS) is characterized by the growth of one or more species of fungus on the rostrum, ears, and flight membranes of hibernating bats. During the warm months of the year, damage to these membranes may be manifested by the appearance of necrotic tissue, tears, and scars in these membranes. To assess the occurrence and severity of damage to flight membranes, researchers authorized to handle bats should inspect the membranes of both wings and the uropatagium for each bat handled. Each bat is assigned a single score based on the collective condition of these membranes as described below. Affected membrane areas are estimated as the percent of the total membrane area (including both wings and the uropatagium). Translumination of membranes helps to reveal damage that is not otherwise visible. Damage also has been observed on the forearms of some bats and has been included in these scoring criteria. A general diagram of bat anatomy is included in Appendix A for reference.

The damage to membranes and the forearms are scored 0 (none) to 3 (high) according to the criteria listed below and digital photographs are taken to document any damage. Each photograph should include a **reference scale** and the **bat ID number** (specimen number if collected dead or band or ID number if alive and released). Place the **animal on its back on a flat surface with wings and leg extended**. Record images of both wings and the uropatagium either simultaneously or individually. This is best accomplished if one person grasps the tips of the wings and spreads them fully, while a second person extends the bat's legs and uropatagium with one hand and takes the photo with the other. Alternatively, each wing and the uropatagium can be photographed separately, making sure that each photo includes the reference scale and ID number. You may need to experiment with camera settings to achieve quality images; we have had success recording images of flight membranes using a Canon PowerShot A95 (5 MP) digital camera against a white background using the Macro setting, a low intensity, built-in flash, F7.0, shutter speed = 1/800. These settings highlight some of the pslotching and all of the necrosis and holes described below. If possible, translumination may highlight more scarring, but this may be difficult in the field. For translumination, we have used a modified Plano Stowaway tackle box insert (translucent white plastic box) with an LED headlamp inside (see Appendix B). If digital images cannot be recorded, sketches of damaged wings will be helpful.

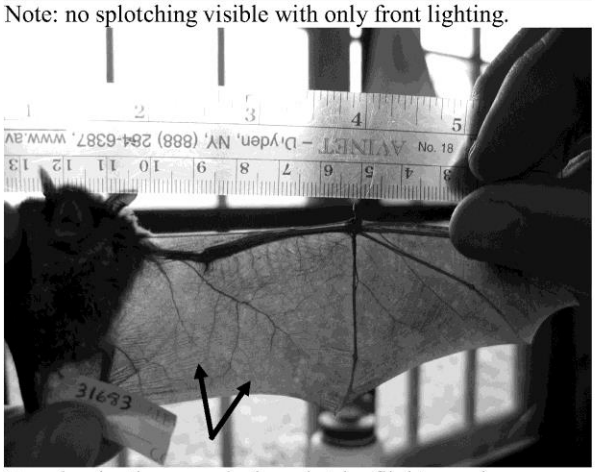
Scoring Criteria:

Each bat is assigned the score for which it exhibits one or a combination of the characteristics designated to that score. Some minor physical damage may be normal. See notes on physical damage not associated with necrosis at the end of this document.

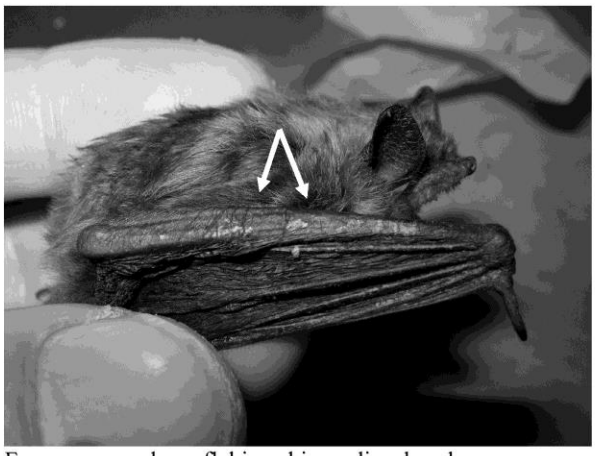
Score = 0 *No damage*. Fewer than 5 small scar spots are present on the membranes. The membranes are fully intact and pigmentation is normal.

Score = 1 *Light damage*. Less than 50% of flight membrane is depigmented (splotching), which is often visible only with translumination. The membranes are entirely intact. Some discoloration or flaking is visible on forearms. Such flaking on the forearm may exist even if the patagium appears unaffected.

Note: no splotching visible with only front lighting.

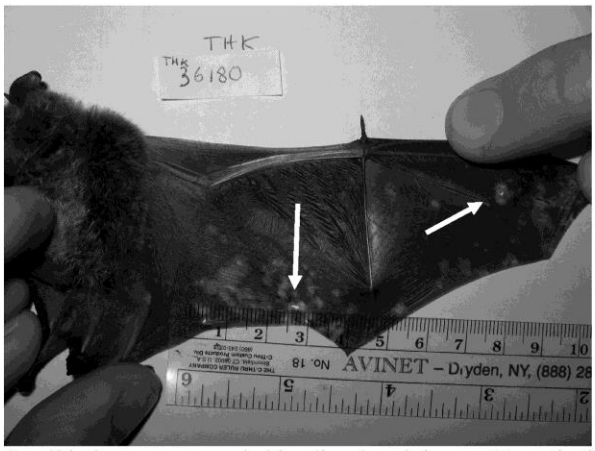


Translumination reveals the splotchy flight membrane.

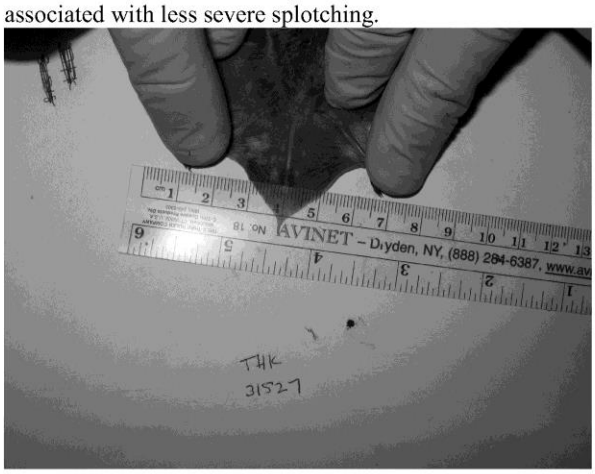


Forearms may have flaking skin or discolored areas.

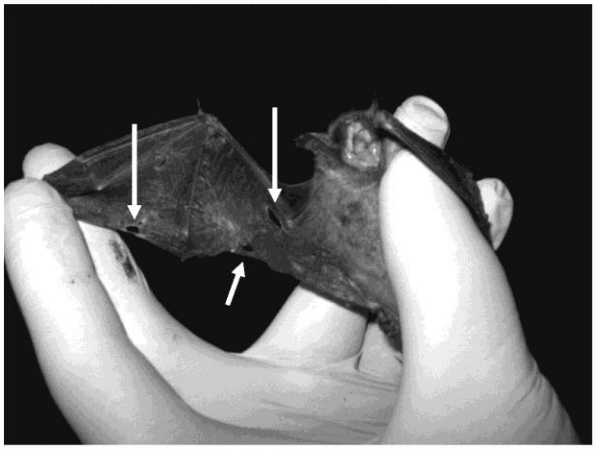
Score = 2 *Moderate damage*. Greater than 50% of wing membrane covered with scar tissue (splotching). Scarring is visible without translumination. Membrane exhibits some necrotic tissue and possibly few small holes (<0.5 cm diameter). Forearm skin may be flaking and discolored along the majority of the forearm, but this condition alone *does not* earn this score level.



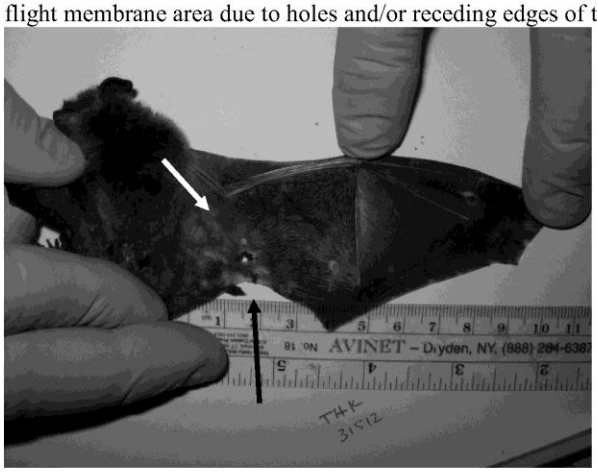
Small holes are surrounded by discolored tissue. Necrotic tissue is sometimes associated with less severe splotching.



Score = 3 *Heavy damage*. Deteriorated wing membrane and necrotic tissue. Isolated holes ≥0.5 cm are present in membranes. Necrotic or **receding plagiopatagium** and/or chiropatagium are evident. This score is characterized by notable loss of membrane area and abundant necrosis.



Flight membranes show damage similar to level 2 damage with additional loss of flight membrane area due to holes and/or receding edges of the wings.



Plagiopatagium loss may be severe.

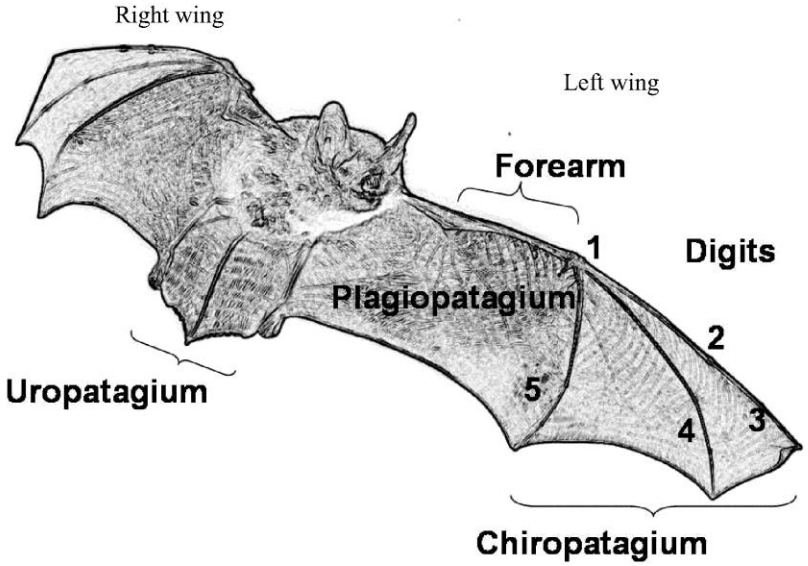
Physical Damage

We have encountered bats that have obvious physical damage to wings, but no associated splotching or necrotic tissue. These conditions are important to document as well. We suggest these be recorded in concordance with the above scores followed by a postscript "P" for "physical damage." For example, an animal which has no noticeable splotching or flaking, but does have a tear in the wing membrane would be scored "0-P." An animal that has moderate splotching and a tear or puncture would be scored "2-P." Along with these scores, a description of the physical damage should be included on the data sheet.

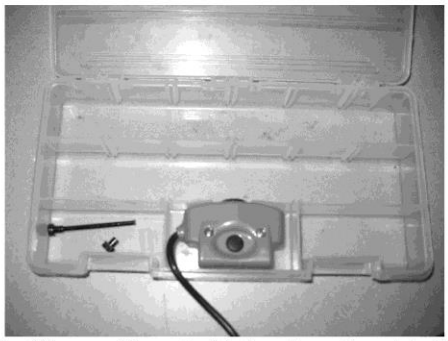
Example: **Score = 1-P** due to light splotching (not shown in photo) and a physical tear in the membrane. **Description**: Right plagiopatagium appears to have torn from trailing edge of the membrane to about 1

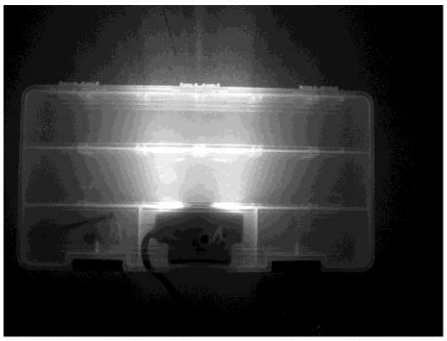
cm proximal to the elbow.

Appendix A: Reference for flight membranes and digits of bats. Image adapted from J. S. Altenbach's photograph of *Myotis thysanodes*.

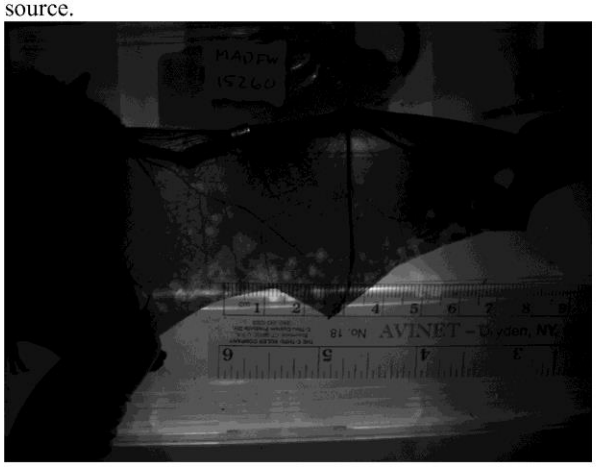


Appendix B: We are working with an inexpensive light box in the field. The following model is an early effort to create an in expensive, transportable light box for transluminating wings. The Plano Stowaway tacklebox insert (~$3.00) is a good size and the headlamp in this model may be replaced with small LED keychain lights (~$3.00 each).





The 23 cm x 12 cm tackle box insert is cut to fit the light of a headlamp, creating a diffuse light source.



In this model, images are a bit underexposed, but splotching is highlighted nicely. Brighter lights or more LEDs may solve this problem and a tripod would allow for slower shutter speed. This image was taken using F2.8, shutter speed = 1/30.

APPENDIX C

Southeastern Cooperative Wildlife Disease Study (SCWDS) WNS Surveillance Form

http://vet.uga.edu/population_health_files/WNS-surveillance-submission-form2014.pdf

White-Nose Syndrome Submission Form

State ID Number_____ **SCWDS ID Number**_____
(Enter reference numbers assigned by the submitting agency here. Optional) (Leave blank. For use by SCWDS personnel)

Date Collected: _____/_____/_____ Date Shipped for testing: _____/_____/_____
(Ship for next day delivery – receipt of packages is not available at SCWDS on weekends)

Person completing this form:

Name:_____ Date: _____/_____/_____

Agency:_____ Phone:_____ Fax:_____ Email:_____

Date of initial report: _____/_____/_____ Date bat(s) were discovered: _____/_____/_____

Name of initial observer: _____ Phone:_____

Number of sick or dead bats seen:_____ Total number of bats present in cave:_____

Species of bats submitted (number):_____
(If multiple species are present please provide a label on the bats with their appropriate species)

Brief History: _____

_____

Location of bat(s):

Name of the cave:_____ UTM Coordinates:_____

Address (if available): _____

City:_____ County:_____ Zip code:_____

Bats should not be submitted if decomposed **(only ship freshly dead bats)**. Approximately 10 animals from each site should be sufficient for evaluation. They should be in a water-tight bag with the species written on the bag. They should be placed in a second water-tight bag and shipped overnight on sufficient ice packs to keep them cold for the duration of shipping. Use plastic coolers or Styrofoam coolers designed for shipping. Ship samples overnight so that they arrive on a week day. Prior to shipping, please notify **Heather Fenton by e-mail at hfenton@uga.edu.**

Bats should be sent to:

Dr. Heather Fenton
589 D.W. Brooks Drive
SCWDS - College of Vet Med - UGA
Athens, Georgia 30602-4393
706-542-1741

APPENDIX D

External Call List – To be distributed in the public WNS Response Plan

WNS Response External Contact List

GA DNR

Main Contact:

Trina Morris - cell: 678-836-5769, office: 706-557-3220, katrina.morris@dnr.ga.gov

Alternate Contact:

Jim Ozier - cell: 404-291-8124, office: 478-994-1438, jim.ozier@dnr.ga.gov

Media Contact:

Rick Lavender - cell: 404-717-0913, office: 706-557-3327, rick.lavender@dnr.ga.gov

USFS Contact:

Dennis Krusac - cell: 404-660-4377, office: 404-347-4338, dkrusac@fs.fed.us

USFWS Contact:

Pete Pattavina - office: 706-613-9493 x 236, pete_pattavina@fws.gov

ADDITIONAL RESOURCES

USFWS WNS Page: http://whitenosesyndrome.org/

GA WNS Page: http://www.georgiawildlife.com/WNS

USGS Fort Collins Science Center WNS Page: http://www.fort.usgs.gov/WNS/

Bat Conservation and Management WNS Page: http://www.batmanagement.com/wns/wns.html

APPENDIX V
USACCoE&FG Regulation 420-7

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY CYBER CENTER OF EXCELLENCE AND FORT GORDON
Fort Gordon, Georgia 30905-5000

USACCoE&FG Regulation No. 420-7 **14 June 2018**

Facilities Engineering
ENDANGERED SPECIES REGULATIONS

Summary. The United States Army Cyber Center of Excellence and Fort Gordon (USACCoE&FG) Regulation 420-7 provides guidance to the USACCoE&FG on activities in proximity to endangered species sites.

Applicability. This regulation applies to all individuals (military and civilian) conducting activities in close proximity to endangered species sites on Fort Gordon military installation. *This regulation supersedes USASC&FG Regulation 420-7, 15 December 1998.

Supplementation. Supplementation of this regulation is prohibited unless prior approval is obtained from Garrison Commander, USACCoE&FG, ATTN: IMGO-PWE.

Suggested Improvements. The proponent of this regulation is the Directorate of Public Works (DPW), Natural Resources Branch (NRB). Users are invited to send comments and suggested improvements on Department of the Army (DA) Form 2028, Recommended Changes to Publications and Blank Forms, to Garrison Commander, USACCoE&FG, ATTN: IMGO-PWE, Fort Gordon, Georgia 30905-5000 and/or submit DA Form 1045, Army Ideas for Excellence Program (AIEP) Proposal, to the installation AIEP Coordinator. Users may also submit comments and suggest changes for improvements in writing through the Interactive Customer Evaluation (ICE) site: https://ice.disa.mil/index.cfm?fa=site&site_id=440

Contents

***This regulation supersedes USASC&FG Regulation 420-7, 15 December 1998**

1. Purpose. The USACCoE&FG 420-7 establishes guidance to USACCoE&FG on activities in proximity to endangered species sites.

2. Policy. In accordance with references in paragraph 3a of this regulation, it is unlawful for any person(s) subject to the jurisdiction of the United States (U.S.) to harass, harm, or capture any endangered species within the United States. State listed species (as indicated in Appendix C) are protected by Georgia law. Harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting any species of plant or wildlife mentioned in Appendix C is prohibited. In addition, it is the Army's policy to proactively manage and protect species at risk (SAR) to prevent Endangered Species Act listings that could severely degrade military readiness. Fort Gordon's SARs are denoted in Appendix C. Violations of this regulation are punishable under Article 92, Uniform Code of Military Justice for members of the Armed Forces. Civilian offenders may be prosecuted under applicable federal and state laws.

3. References.

a. Endangered Species Act of 1973, as amended by The Endangered Species Act Amendments of 1978, 1982, 1988, and 2004; Public Laws 95-632, 97-304, 100-478, and 108-139 respectively.

b. USACCoE&FG Reg 200-2, Environmental and Natural Resources Management, 8 July 1998.

c. USACCoE&FG Reg 350-19, Range and Training Area Operations, 15 February 2018.

d. AR 200-1, Environmental Protection and Enhancement, 13 December 2007.

e. Management Guidelines for the Gopher Tortoise on Army Installations, 14 February, 2008.

f. Fort Gordon Integrated Natural Resource Management Plan (INRMP), 2014-2018.

g. USFWS Biological Opinion for the Endangered Species Management Component of the 2014-2018 INRMP, 19 August 2015.

h. USFWS Recovery Plan for the Red-cockaded Woodpecker, 27 January 2003.

i. Management Guidelines for the Red-cockaded Woodpecker (RCW) on Army Installations, 1 May 2007.

j. Army Species at Risk Policy and Implementing Guidance, 15 September 2006.

k. Protection of Endangered, Threatened, Rare, or Unusual Species, Rules and Regulations of the State of Georgia, Subject 391-4-10, 20 April 2018

4. Definitions.

a. Buffer Zone. The zone extending outward 200 feet from a marked cavity tree or cavity start tree in clusters with training restrictions.

b. Burrow. A hole in the ground and dirt apron in front of the hole excavated by a gopher tortoise.

c. Cavity. An excavation in a tree made, or artificially created for roosting or nesting by RCWs.

d. Cavity tree. A tree containing one or more red-cockaded woodpecker cavities or cavity start holes.

e. Cluster. The minimum convex polygon containing all cavity trees in use by a group of red-cockaded woodpeckers and a 200 ft wide buffer surrounding this polygon. The polygon must contain a minimum of 10 acres.

f. Habitat. The place or site where plants or animals naturally or normally live and grow.

g. Habitat Management Unit (HMU). An area designated for management of a certain species.

5. General.

a. HMU Activity Approval. Any activity occurring within the HMU of a federally listed species (RCW or Gopher Tortoise) must have prior review and approval from DPW-NRB, obtained through the National Environmental Policy Act (NEPA) process. Such activities may include, but are not limited to, training area maintenance and improvements, wildlife habitat improvements, recreation, forestry practices, etc. For military training activities see paragraph 5d.

b. Endangered Species Site Delineation. The boundaries of RCW buffer zones are marked with signs stating, "ENDANGERED SPECIES SITE - DO NOT DISTURB - RESTRICTED ACTIVITY," at a distance of 200 ft. around the cavity trees. Individual cavity trees are marked with two white bands approximately four feet above ground level. Gopher tortoise burrows may only be marked in high traffic areas or temporarily marked in areas where an activity is occurring. When marked, burrows will have a sign stating, "PROTECTED SPECIES SITE - DO NOT DISTURB - RESTRICTED ACTIVITY," within five feet of the burrow. Locations of all currently known RCW clusters and Gopher Tortoise burrows can be obtained upon request from the DPW-NRB.

c. Prohibited Activities. Within endangered species sites certain acts violate the reference in paragraph 3a of this regulation and are prohibited. Appendix A outlines permitted and prohibited training activities within RCW buffer zones. Appendix B outlines permitted and prohibited training activities in areas where Gopher Tortoise burrows occur. In addition to prohibited training activities listed in Appendices A and B, the activities below are also prohibited in endangered species sites.

(1) Open burning, including open campfires (excludes prescribed fire performed by DPW-NRB).

(2) Land management activities such as timber thinnings, midstory removal, herbicide

application, mowing, and similar activities creating a disturbance within a red-cockaded woodpecker cluster during the nesting season (1 April through 31 July). Outside of the nesting season, any land management activities such as these must have prior approval from DPW Environmental Division.

(3) Contamination of endangered species sites with petroleum products or other hazardous materials.

(4) Cutting or otherwise damaging pine trees.

(5) Destroying or removing signs that delineate restricted endangered species sites.

(6) Disturbing the burrows of gopher tortoise (including the apron in front of the burrow).

(7) Capturing, harassing, or otherwise disturbing a live gopher tortoise.

(8) Vehicle traffic within 25 ft. of a gopher tortoise burrow (unless on existing roads or firebreaks)

(9) Foot traffic within 5 ft. of a gopher tortoise burrow.

(10) Excavation or digging of foxholes, fighting positions, trash pits, trenches, laying of underground communication lines, or other similar significant disturbance of the soil.

d. Military Training and Field Exercises.

(1) Scheduling of a military field training exercise (FTX) must be done forty-five (45) days in advance of the FTX. At that time, the proponent must provide the FTX checklist with the 10-digit grid coordinates of the FTX location to the DPW-NRB. The DPW-Environmental Division will prepare the environmental documentation if the FTX qualifies for a Categorical Exclusion (CX) or Record of Environmental Consideration (REC). If the FTX or training program does not qualify for a CX or REC and is not covered by previous assessments for the same acts, it will require an Environmental Impact Statement (EIS) or Environmental Assessment (EA) and the proponent will be responsible for having the environmental documentation prepared. When adequate preexisting documentation exists, a copy will be provided for updated notation of concurrence by DPW-Environmental Division. Documentation will become part of the training and exercise package. Proponent will also provide a copy to Range Control, DPTMS. The DPW-Environmental Division, NEPA manager, is the point of contact for assistance. The above mentioned is in reference to 32 CFR Part 651.

(2) For permitted and prohibited training activities within RCW and gopher tortoise sites see paragraph 5 c.

6. Responsibilities.

a. Directorate of Plans, Training, Mobilization, and Security (DPTMS) will:

(1) Ensure that a copy of this regulation is made available to commanding officers or

officers-in-charge of units who use Fort Gordon Training Areas inhabited by endangered species. The contents of this regulation will also be made known to military and civilian individuals using such areas.

(2) Conduct spot inspections of training areas in which endangered species sites are identified, in accordance with USACCoE&FG Regulation 350-19, to determine if violations have occurred and to determine the responsible unit. Reports of violations will be forwarded to the DPW Environmental Division Chief, DES, and to the appropriate commanding officer for disposition.

(3) Provide information concerning endangered species protection at the Range Certification Course conducted by DPTMS personnel.

b. Directorate of Public Works will:

(1) Conduct periodic surveys to determine presence or absence of protected species on the Fort Gordon Military Installation.

(2) Review listings of endangered and threatened wildlife and plants for changes in status, additions, or deletions.

(3) Monitor known endangered or threatened species sites for compliance with federal regulations and Army policies.

(4) Provide to Range Control, DPTMS and Game Wardens, Directorate of Emergency Services (DES), the locations of known protected species sites using GPS/GIS technology.

(5) Coordinate with the Department of Interior, U.S. Fish and Wildlife Service on matters concerning compliance with Federal regulation.

(6) Coordinate with DES on matters concerning violations of this regulation and State and Federal endangered species laws and regulations.

c. Directorate of Emergency Services will:

(1) Investigate all potential violations of endangered species regulations.

(2) Assume responsibility for the processing and disposition of all individuals found to have violated any endangered species regulations.

(3) Maintain awareness of all endangered species regulations that pertain to Fort Gordon including any changes in listed species or listing status.

d. Commanders will ensure all personnel are aware of the status of threatened and endangered species and the potential consequences of their actions and appoint an Environmental Officer trained through the Environmental Officers Course conducted by DPW Environmental Division.

7. Violations. All potential violations of paragraphs 2 and 5c(1-7) and Appendices A, B, and C of this regulation will be reported to the DES for further investigation by the appropriate authority. Additionally, such potential violations will be reported to the Environmental Division and Natural Resources Branch, DPW, Fort Gordon, Georgia 30905, telephone numbers 706-791-6135 or 706-791-6374. Reports of violations will be forwarded to the appropriate commanding officer for members of the Armed Forces and to the U.S. Magistrate's Court prosecutor for civilian offenders.

APPENDIX A

Permitted and Prohibited Training Activities within RCW Cluster Buffer Zones

TRAINING ACTIVITY WITHIN RCW BUFFER ZONES (1)	ALLOWED
MANEUVER AND BIVOUAC	
Hasty defense, light infantry, hands and hand tool digging only, no deeper than 2 feet, 2 hours MAX	YES
Hasty defense, mechanized infantry/armor	NO
Deliberate defense, light infantry	NO
Deliberate Defense, mechanized infantry/armor	NO
Establish command post, light infantry	NO
Establish command post, mechanized infantry/armor	NO
Assembly area operations, light infantry/mech infantry/armor	NO
Establish CS/CSS sites	NO
Establish signal sites	NO
Foot transit through the cluster	YES
Wheeled vehicle transit through the cluster (2)	YES
Armored vehicle transit through the cluster (2)	YES
Cutting natural camouflage, hardwood only	YES
Establish camouflage netting	NO
Vehicle maintenance for no more than 2 hours	YES
WEAPONS FIRING	
7.62mm and below blank firing	YES
.50 cal blank firing	YES
Artillery firing point/position	NO
MLRS firing position	NO
All others	NO
NOISE	
Generators	NO
Artillery/hand grenade simulators	YES
Hoffman type devices	YES
PYROTECHNICS/SMOKE	
CS/riot agents	NO
Smoke, haze operations only, generators or pots, fog oil and/or graphite flakes (3)	YES
Smoke grenades	YES
Incendiary devices to include trip flares	YES
Star clusters/parachute flares	YES
HC smoke of any type	NO
DIGGING	
Tank ditches	NO
Deliberate individual fighting positions	NO
Crew-served weapons fighting positions	NO
Vehicle fighting positions	NO
Other survivability/force protection positions	NO
Vehicle survivability positions	NO

NOTES:

(1) These training restrictions apply to RCW cavity trees in training areas but not to cavity trees located in dedicated impact areas (Artillery Impact Area only)

(2) Vehicles will not get any closer than 50 feet of a marked cavity tree unless on existing roads, trails, or firebreaks.

(3) Smoke generators and smoke pots will not be set up within 200 feet of a marked cavity tree, but the smoke may drift through the 200 feet buffer around a cavity tree.

APPENDIX B

Permitted and Prohibited Training Activities in Areas Where Gopher Tortoise Burrows Occur

TRAINING ACTIVITY WHERE TORTOISE BURROWS OCCUR	ALLOWED
MANEUVER AND BIVOUAC:	
Hasty defense, light infantry, hands and hand tool digging only, no deeper than 2 feet, 2 hours MAX	YES
Hasty defense, mechanized infantry/armor	NO
Deliberate defense, light infantry	YES
Deliberate defense, mechanized infantry/armor	NO
Establish command post, light infantry	YES
Establish command post, mechanized infantry/armor	NO
Assembly area operations, light infantry/mechanized infantry/armor	NO
Establish CS/CSS sites	NO
Establish signal sites	NO
Foot transit thru the colony	YES
Wheeled vehicle transit through the colony	NO
Armored vehicle transit through the colony	NO
Cutting natural camouflage, hardwood only	YES
Establish camouflage netting	YES
Vehicle maintenance	NO
WEAPONS FIRING	
7.62mm and below blank firing	YES
.50 cal blank firing	YES
Artillery firing point/position	YES
MLRS firing position	YES
All others	YES
NOISE	
Generators	YES
Artillery/hand grenade simulators	YES
Hoffman type devices	YES
PYROTECHNICS/SMOKE	
CS/riot agents	YES
Smoke, haze operations only, generators or pots, fog oil and/or graphite flakes	YES
Smoke grenades	YES
Incendiary devices to include trip flares	YES
Star clusters/parachute flares	YES
HC smoke of any type	YES
DIGGING ALLOWED	
Tank ditches	NO
Deliberate individual fighting positions	NO
Crew-served weapons fighting positions	NO
Vehicle fighting positions	NO
Other survivability/force protection positions	NO
Vehicle survivability positions	NO

APPENDIX C

Target Species Known to Occur on Fort Gordon

Target Species					
Common Name	**Scientific Name**	**Status**			**Description of Habitat**
		Federal	**State**	**NatureServe**	
Birds					
Bachman's sparrow	*Aimophila aestivali*	NL	R	G3	Pine savannahs or abandoned fields with scattered shrubs, pines, or oaks.
Southeastern American kestrel	*Falco sparverius paulus*	NL	R	G5T4	Breed in open or partly open habitats with scattered trees and in cultivated or urban areas.
Bald eagle[a]	*Haliaeetus leucocephalus*	NL	T	G5	Inland waterways and estuarine areas.
Wood stork[a]	*Mycteria americana*	E	E	G4	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps.
Red-cockaded woodpecker	*Picoides borealis*	E	E	G3	Nest in open mature pine with low understory vegetation; forage in open pine stands.
Mammals					
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	NL	R	G3G4	Roosts in buildings, bridges, and culverts in forested areas. Forages in both upland pine stands and hardwood stands.
Reptiles and Amphibians					
Gopher tortoise[b]	*Gopherus polyphemus*	C	T	G3	Well-drained, sandy soils in forest and grassy area, associated with sparse pine overstory.
Southern hognose snake[b]	*Heterodon simus*	NL	T	G2	Open, sandy woods, fields, and floodplains.
Fish					

Target Species					
Common Name	**Scientific Name**	**Status**			**Description of Habitat**
		Federal	**State**	**NatureServe**	
Bluebarred pygmy sunfish	*Elassoma okatie*	NL	E	G2G3	Heavily vegetated creeks, sloughs, and roadside ditches.
Plants					
Sandhill Rosemary	*Ceratiola ericoides*	NL	T	G4	Dry, openly vegetated, scrub oak sandhills and river dunes with deep white sands of the Kershaw soil series.
Atlantic white cedar	*Chamaecyparis thyoides*	NL	R	G4	Wet sandy terraces along clear streams and in acidic bogs.
Pink ladyslipper	*Cypripedium acaule*	NL	U	G5	Upland oak-hickory pine forest.
Carolina bogmint	*Macbridea caroliniana*	NL	R	G2G3	Bogs, marshes, and alluvial woods.
Indian olive	*Nestronia umbellula*	NL	R	G4	Dry open upland forest of mixed hardwood and pine.
Sweet pitcher plant	*Sarracenia rubra rubra*	NL	T	G4T3T4	Acid soils of open bogs, sandhill seeps, Atlantic white cedar swamps, and wet savannahs.
Pickering's morning glory[b]	*Stylisma pickeringii var. pickeringii*	NL	T	G4T3	Coarse white sands on sandhills near the fall line and on a few ancient dunes along the Flint and Ohoopee rivers.
Silky camelia	*Stewartia malacodendron*	NL	R	G4	Steepheads, bayheads, and edge of swamps.

[a]Transient presence on Fort Gordon
[b]Army Species at Risk

Status Key: E = Endangered, T = Threatened, C= Candidate, R = Rare, U = Unusual, NL = not listed, G1 = Critically Imperiled, G2 = Imperiled, G3 = Vulnerable, G4 = Apparently Secure, G5= Secure, T3 = Vulnerable (subspecies), T4 = Apparently Secure (subspecies)

(IMGO-PWE)

FOR THE COMMANDER:

/original signed/
TODD TURNER
Colonel, AV
Commanding

OFFICIAL:

/originial signed/
JOHN P. MCINTYRE
Director, Human Resources
/Adjutant General

DISTRIBUTION:
http://gordon.army.mil/FG_policy_letters_and_regs

APPENDIX W
Army Species At Risk (SAR) Memorandums

DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON DC 20310-0600

REPLY TO
ATTENTION OF

SEP 15 2006

DAIM-ED

MEMORANDUM FOR

ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT (DAIM-BO), 600 ARMY PENTAGON, WASH DC 20310-0600
US ARMY MATERIEL COMMAND (AMCPE-I), 9301 CHAPEK RD, FT BELVOIR, VA 22060-5527
US ARMY SPACE & MISSILE DEFENSE COMMAND (SMDC-EN-V/MR), 1941 JEFFERSON DAVIS HWY, SUITE 900, ARLINGTON, VA 22202
MILITARY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND (SDG4-F/MR), HOFFMAN BLDG II, 200 STOVALL ST, ALEXANDRIA, VA 22332-5000
US ARMY MEDICAL COMMAND, (MCFA-E/MR), 2050 WORTH RD, FT SAM HOUSTON, TX 78234-6000
NATIONAL GUARD BUREAU (NGB-ARE), ARMY NATIONAL GUARD READINESS CENTER, 111 SOUTH GEORGE MASON DR, ARLINGTON, VA 22204-1382
INSTALLATION MANAGEMENT AGENCY (IMAH-END), 2511 JEFFERSON DAVIS HWY,TAYLOR BUILDING (NC3), ARLINGTON, VA 22202-3926

SUBJECT: Army Species at Risk Policy and Implementing Guidance

1. References:

a. Memorandum, DASA (ESOH), 29 Jul 05, subject: Request Implementation of Army Policy and Guidance on Species at Risk (enclosure 1).

b. Army Range and Training Land Strategy, 11 Feb 04, supplemented by Sustainable Range Program Tiers Training Support Working Group, 28 Mar 06.

2. The Army's policy is to manage species at risk (SAR) proactively in order to prevent Endangered Species Act (ESA) listings that could severely degrade military readiness (reference 1a).

3. Army SAR would have a significant impact on military missions if Federally listed as threatened or endangered. They may be official candidates for ESA listing, classified by NatureServe as critically imperiled or imperiled on a global scale, and/or a concern for ESA listing in the foreseeable future. Implementing proactive measures to prevent the listing of a SAR will be beneficial to both the Army and the species.

4. The resources needed to manage all SAR proactively are beyond the Army's budgetary means. Therefore, the Army must focus scarce resources on those SAR which, if listed, would most adversely impact vital Army missions.

5. Managing Army SAR is vital. Installations should prioritize Army SAR management requirements within allocated resources to ensure SAR requirements are adequately addressed. Army resources are budgeted for SAR beginning in FY 08. This policy guidance gives installations the flexibility to allocate resources to SAR that could cause significant mission degradation resulting from potential ESA listing.

6. Installations may only select SAR for management focus using the list of Army SAR (enclosure 2). The species listed are the highest priority Army SAR based on references; considerations in paragraph 7 (below); and input from stakeholders. The prioritization (high, medium, low) is based on potential mission impacts. Army Commands may request consideration for changes to the list of Army SAR through the chain of command.

7. The objective of the SAR initiative is to conserve species prior to Federal listing. Priority species occur on installations with an Army-wide strategic and enduring mission capability (reference 1b). Long term commitment to Army SAR funding is paramount to precluding the need to list species, so priorities should not be changed drastically each year. The following will assist in selecting and prioritizing SAR funding:

- The SAR is high (1) priority (enclosure 2). Listing of the species would have a significant adverse impact on the Army's mission. Trainers and testers should assist in determining the degree of mission impact.
- The species meets the definition of a SAR (paragraph 3).
- Management of the species onsite and/or offsite could preclude the need to list the species. Conservation efforts for the species could benefit the installation mission by preparing it for a possible listing of the species requirements.
- The level of support from outside agencies, private landowners and/or non-governmental organizations to advance the protection/management of the SAR.
- The installation mission allows for implementing strategies to prevent, or support efforts to prevent, listing the species.
- The percentage of the species found onsite or contiguous to the installation and the quality of the habitat to support the species is significant.
- The percentage of the species found on or contiguous to other Army or DoD installations and the quality of the habitat to support the species is significant.

8. Installations should coordinate with the US Fish and Wildlife Service (USFWS) to assist in determining the significance of its natural resources (type, scope, magnitude) for conservation and sustainability of the species and the imminence of a listing of that species.

9. Installations should capitalize on partnerships and agreements (e.g. candidate conservation agreements) with other organizations for managing Army SAR. Partnering with State Comprehensive Wildlife Conservation Plans or Strategies may be appropriate, especially if States are receiving USFWS State Wildlife Grants for conservation of an Army SAR on State lands.

10. On an annual basis, installations will be required to provide information on SAR actions through the Army Environmental Data Base – Environmental Quality (AEDB-EQ) 4th quarter data call. This information will be used by this office to refine Army priorities and integrate management efforts within the Army and with other Federal agencies.

11. Installations shall incorporate SAR management into the development and execution of Integrated Natural Resources Management Plans during the next major update. Installations will also assess impacts of proposed actions on SAR in National Environmental Policy Act (NEPA) analysis when proposed actions have the potential to affect SAR.

12. Installations should incorporate SAR protection/conservation in mission planning.

13. The Army Staff POC for SAR policy is Mr. Scott Belfit, 703-601-1585, e-mail: scott.belfit@hqda.army.mil. The technical contact is Mr. Steven Sekscienski, US Army Environmental Center, 410-436-3909.

FOR THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT:

2 Encls

JAMES B. BALOCKI
Colonel, GS
Director, Environmental Programs

CF W/ENCLS:
DEPUTY CHIEF OF STAFF OF THE ARMY, G-3 (DAMO-TRS)
ENGINEERING RESEARCH AND DEVELOPMENT CENTER, (CEERD-PA-I)

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
INSTALLATIONS AND ENVIRONMENT
110 ARMY PENTAGON
WASHINGTON, DC 20310-0110

JUL 29 2005

MEMORANDUM FOR ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT

SUBJECT: Request Implementation of Army Policy and Guidance on Species at Risk

1. Purpose: Request ACSIM to implement Army policy/guidance to prevent listing of species at risk (SAR).

2. It is Army policy to proactively manage species at risk (SAR) in order to prevent Endangered Species Act listings that could severely degrade military readiness. By doing so, the Army avoids resource-intensive consultations and resultant operational restrictions that often impede needed flexibility. Preventing the need for listings maximums land use and is consistent with Department of Defense Sikes Act policy issued by the Deputy Under Secretary of Defense (Installations and Environment) October 10, 2002.

3. A report entitled "Species at Risk on Department of Defense Installations" dated January 2004 found that there are 31 candidate species and over 200 other species at risk on or contiguous to Army installations. The resources needed to proactively manage all of these species at risk are large, and that underscores the need for clear guidance that prioritizes funding such that the Army continues to protect its most vital military readiness assets.

4. Please issue specific guidance to implement the Army policy and maximize our management strategy. Specifically, the Army policy focuses on preventing the listing of SAR that would possibly impact the mission on Category 1 installations and better prepares installations for conservation efforts where species listings are imminent. Category 1 installations are those that have the highest Army-wide strategic and enduring military training values. Clear Army guidance based on this SAR policy will help insure that our military readiness mission is always protected.

5. Please forward your respective implementing instructions to this office by October 24, 2005. If you have any questions, please contact Ms. Toni Patton-Williams, (703) 697-3937.

Daphne Kamely
Acting Deputy Assistant Secretary of the Army
(Environment, Safety and Occupational Health)
OASA(I&E)

ARMY SPECIES AT RISK

Species	Scientific Name	Priority	Command	Known Installation	Installation Information	COMMENTS
Columbia Basin distinct population segment of greater sage-grouse	*Centrocercus urophasianus*	1	NWRO	Yakima Training Center (YTC)	Is a State threatened species consisting of only two populations within the distinct population segment (DPS) and Washington, one of which occurs on YTC. Listing under ESA of this DPS as a federal threatened species was found to be warranted but precluded by higher priority listing actions in 2001. It remains a federal Candidate species. Installation indicates this is a high priority species and has established agreements for the protection of this species and it's habitat.	Proactive management by the installation consisting of population monitoring, habitat protection and restoration, population genetic augmentation, and reintroductions on adjacent lands has been recognized by the FWS in their Annual Candidate Species Review as beneficial to the species and has been influential in reducing the need for further listing. If listed, would have impacts to the installations ability to meet its mission. As such, it is a high priority species for YTC.
gopher tortoise	*Gopherus polyphemis*	1	SERO	Camp Blanding, Fort Stewart, Fort Benning, Fort Gordon, Fort Rucker	High impact to training, FWS has indicated that the main reason sp. hasn't been listed is because of abundance on Army land.	G3 species
desert cymopterus	*Cymopteris deserticola*	1	SWRO	Fort Irwin	Environmental organizations are still persuing the listing of the plant. Listing could impact Fort Irwin's Western Expansion area.	G3 species
Mohave ground squirrel	*Spermophilus mohavensis*	1	SWRO	Fort Irwin	This listing will dramatically affect 50 % of the NTC training lands, including the entire western expansion area	Petitioned for candidate status. G2G3 species.
Camp Shelby burrowing crayfish	*Fallicambarus gordoni*	2	ARNG	Camp Shelby		Signed candidate conservation agreement, FWS removed crayfish from Candidate list. G1 species.
slickspot peppergrass	*Lepidium papilliferum*	2	ARNG	Orchard Training Site	LEPAs worldwide range consists of small populations within five counties in Idaho. Not listed because of a Candidate Conservation Agreement that Orchard Training Site is a signatory to. August 05, Federal District Court of Idaho ordered FWS to reconsider listing.	G2 species
regal fritillary butterfly	*Speyeria idalia*	2	ARNG, NWRO	Fort Indiantown Gap, Fort Riley	Listed as priority SAR for FIG and for Fort Riley as well. Some apparent question regarding subspecies classification, but species as a whole "cannot be considered secure" according to NatureServe. Installation mission would be adversely impacted if species was listed	G3 species
dwarf milkweed	*Asclepias uncialis*	2	NWRO	Fort Carson	Approximately two thirds of all known plants are on Pinon Canyon. Listing of this species would most likely close available (and already utilized) training lands on PCMS and possibly Fort Carson.	G3G4T2T3 species
golden blazing star	*Nuttalia chrysantha*	2	NWRO	Fort Carson	Impact to training is not currently available	Funding will provide survey data that will assist in future justification of retention or deletion from the SAR list. G2 species

ARMY SPECIES AT RISK

Species	Scientific Name	Priority	Command	Known Installation	Installation Information	COMMENTS
Mardon skipper*	*Polites mardon*	2	NWRO	Fort Lewis	Listing would have major impact on training activities, locations and timing.	Developing a CCA, which would help prevent listing of the four SAR identified by Fort Lewis. Even if listed, the installation would be prepared by being proactive. Letter of support from FWS for funding these species.
Mazama pocket gopher*	*Thomomys mazama*	2	NWRO	Fort Lewis	Listing would have major impact on training activities, locations and timing.	Developing a CCA, which would help prevent listing of the four SAR identified by Fort Lewis. Even if listed, the installation would be prepared by being proactive. Letter of support from FWS for funding these species.
streaked horned lark*	*Eremophila alpestris strigata*	2	NWRO	Fort Lewis	Listing would have major impact on training activities, locations and timing.	Developing a CCA, which would help prevent listing of the four SAR identified by Fort Lewis. Even if listed, the installation would be prepared by being proactive. Letter of support from FWS for funding these species. Species is contiguous to Camp Adair.
Taylor's checkerspot*	*Euphydryas editha taylori*	2	NWRO	Fort Lewis	Listing would have major impact on training activities, locations and timing.	Developing a CCA, which would help prevent listing of the four SAR identified by Fort Lewis. Even if listed, the installation would be prepared by being proactive. Letter of support from FWS for funding these species.
red-tailed prairie leafhopper	*Aflexia rubranura*	2	NWRO	Fort McCoy	Last survey conducted in 1997 when species was found in 12 locations.	G1; endangered in Wisconsin
Henslow's sparrow	*Ammodramus henslowii*	2	NWRO	Fort McCoy, Fort Riley	Species is one of 38 species of highest concern according the American Bird Conservancy. Listing this species on Forts McCoy and Riley would restrict training where mission activities impact the species. Also, managing for this species would provide for several other declining birds dependent on tall grass prairie.	G4 species
Sandhills lilly	*Lillium pyrophilum*	2	SERO	Fort Bragg	Should replace *Lillium iridolle* and be placed on high priority. Significant impact to training if it is listed.	G2 species
Sandhills milk-vetch	*Astragalus michauxii*	2	SERO	Fort Bragg	high impact to training, add to high priority SAR list for Fort Bragg. Significant impact to training if it is listed.	G3 species
Georgia plume	*Elliottia racemosa*	2	SERO	Fort Stewart	add to high priority list, high impact to training	G2G3 species
giant orchid	*Pteroglossaspis ecristata*	2	SERO	Fort Stewart	add to high priority list, high impact to training	G2G3 species
mimic glass lizard	*Ophisaurus mimicus*	2	SERO	Fort Stewart	add to high priority list, high impact to training	G3 species
purple balduina	*Balduina atropurpurea*	2	SERO	Fort Stewart	add to high priority list, high impact to training	G2 species
Southern hognose snake	*Heterodon simus*	2	SERO	Fort Stewart	add to high priority list, high impact to training	G2 species
striped newt	*Notophthalmus perstriatus*	2	SERO	Fort Stewart	add to high priority list, high impact to training	G2G3 species
Texabama croton (Alabama croton)	*Croton alabamensis var. texensis*	2	SWRO	Fort Hood	Approx half the known individuals of the TX variety occur onsite. Habitat where they occur has been de-designated to Noncore habitat for GCW, and some training restrictions have been lifted. Monitoring croton pops will document whether lifting training restrictions results in damage or loss of these rare plants.	T1 species

ARMY SPECIES AT RISK

Species	Scientific Name	Priority	Command	Known Installation	Installation Information	COMMENTS
Louisiana pine snake*	*Pituophis ruthveni*	2	SWRO	Fort Polk	Fort Polk is the last remaining stronghold for the species in LA. Without continued mgmt efforts at Fort Polk, the likelihood of listing is increased. Entered into CCA. Listing could have very high/significant impacts to training activities including cross-country vehicle maneuvers and field excavations.	
little white whiptail	*Aspidoscelis gypsi*	2	SWRO	WSMR	55% of pop. on WSMR. Certain aspects of WSMR mission could be affected if any of these were listed, although currently threats are minimal	G1G3 species
Oscura Mountains Colorado chipmunk	*Neotamias quadrivittatus oscuraensis*	2	SWRO	WSMR	Sp. is endemic to the Oscura Mountains on WSMR. WSMR contains the entire world's population. It is more rare and at risk than any other species on the Range. Listing could adversely affect testing, training, Air Force use of Oscura Bombing Range, and a number of other DoD activities. Estimates that up to 20% of all WSMR activities would be affected if listed.	G5T1
White Sands pupfish	*Cyprinodon tularosa*	2	SWRO	WSMR	Installation has indicated that this is a high priority species and have established agreements for the protection of this species.	G1 species
Sonoran population of the desert tortoise	*Gopherus agassizii*	2	SWRO	WSMR, YPG	WSMR - Pop. not listed in late 80's only due to creation & implemention of interagency agreement & Interagency Desert Tortoise Management Plan. The entire installation is within range of sp. and entire mission could be adversely affected by listing. Yuma Proving Ground - Recent FOIA requests to agencies having management jurisdiction over the tortoise indicate a potential upcoming petition to list the species. YPG covers a significant percentage of species habitat and listing of the species would adversely affect mission.	G4T4 species.
rayed bean*	*Villosa fabalis*	3	ARNG	Camp Atterbury	No comment	
Michigan bog grasshopper	*Appalachia arcana*	3	ARNG	Camp Grayling	Some of the documented occurrences of species are in areas used for maneuver training.	G2G3 species
dusted skipper	*Atrytonopsis hianna*	3	ARNG	Camp Grayling	Is a State threatened species found at 7 sites in a 2004 survey. It is also found in habitats that are currently used for maneuver training. More surveys and research are needed to better understand the abundance, ecology and protection of this species.	G4G5 species
eastern massasauga*	*Sistrurus catenatus catenatus*	3	ARNG	Camp Grayling	Installation plans to participate in a Candidate Conservation Agreement that's being developed.	
southwestern pond turtle	*Clemmys marmorata pallida*	3	ARNG	Camp Roberts		G3T2
Southern crawfish frog	*Rana areolata areolata*	3	ARNG	Camp Swift	Has not been petitioned for listing because we (Camp Swift) have been managing. Sufficient data to petition.	G4
Texas horned lizard	*Phrynosoma cornutum*	3	ARNG	Camp Swift	High profile with public and declining rapidly. If listed, could impact training and land management.	G4. Also recorded on Camp Bowie and Camp Wolters
Comanche harvester ant	*Pogonomyrmex comanche*	3	ARNG	Camp Swift	Has not been petitioned for listing because we (Camp Swift) have been managing. Sufficient data to petition.	Not ranked
coldwater darter	*Etheostoma ditrema*	3	ARNG	Fort McClellan	On Pelham Range.	G1G2 species
Atlantic pigtoe	*Fusconaia masoni*	3	ARNG	Fort Pickett		G2 species
Torrey's mountain mint	*Pycnanthemum torrei*	3	ARNG	Fort Pickett		G2
Pickering's morning glory	*Stylisma pickeringii var. pickeringii*	3	NERO, SERO	Fort Dix, Fort Gordon	None	Fort Bragg and Fort Benning recommended removal from high priority list for their installations. G4G3 species.

* Species are candidates for ESA listing

ARMY SPECIES AT RISK

Species	Scientific Name	Priority	Command	Known Installation	Installation Information	COMMENTS
Emmel's blue butterfly	*Euphilotes rita emmeli*	3	NWRO	Dugway Proving Ground	Installation supports an expanding training program.	G3G4T2 species
Leo penstemon	*Penstemon leonardii var. patricus*	3	NWRO	Dugway Proving Ground	Installation supports an expanding training program.	G4G5T2 species
Arkansas River feverfew	*Bolophyta tetraneuris*	3	NWRO	Fort Carson	Impact to training is not currently available	Funding will provide survey data that will assist in future justification of retention or deletion from the SAR list
no common name	*Oxytropis tananensis*	3	PARO	Fort Wainwright	Little info provided	Occurs near airfield. Did use critieria. G2G3 species.
Alaska starwort	*Stellaria alaskana*	3	PARO	Fort Wainwright-Donnelly TA	Little info provided	G3 species
rusty blackbird	*Euphagus carolinus*	3	PARO	Fort Wainwright-Donnelly TA	identied as species with long-term decline in population	G4 species
Georgia leadplant	*Amorpha georgiana var georgiana*	3	SERO	Fort Bragg	None	G3T2 species
Well's pyxie-moss	*Pyxidanthera brevifolia*	3	SERO	Fort Bragg	None	No verbiage provided to remove species from priority list. G3 species.
Hueco Mountains rock daisy	*Perityle huecoensis*	3	SWRO	Fort Bliss	Known only from portions of 2 small canyons on Fort Bliss, no known populations off of Fort Bliss	G1 species. No impacts to mission have been identified.
Organ Mountain evening-primrose	*Oenothera organensis*	3	SWRO	Fort Bliss	Majority of habitat is on Fort Bliss. Organ Mountains is backdrop of impact area for artillery and many crew-served weapons ranges which will see more than 4x increase in mission based on Army Transformation and BRAC decisions. Listing would be significant problem	G2 species
bog coneflower	*Rudbeckia scabrifolia*	3	SWRO	Fort Polk	None	No verbiage provided to remove species from priority list. G3 species
bleached earless lizard	*Holbrookia maculata ruthveni*	3	SWRO	WSMR	55% of pop. on WSMR. Certain aspects of WSMR mission could be affected if this species is listed, although currently threats are minimal.	not ranked
White Sands prairie lizard	*Sceloporus undulatus cowlsi*	3	SWRO	WSMR	55% of pop. on WSMR. Certain aspects of WSMR mission could be affected if any of these were listed, although currently threats are minimal	G5/T1 species

ARNG - Army National Guard
PARO - Pacific Regional Office
ER - Eastern Range
FIG - Fort Indiantown Gap
FWS - US Fish and Wildlife Service
NERO - Northeast Regional Office
NWRO - Northwest Regional Office
SERO - Southeast Regional Office
SWRO - Southwest Regional Office
TA - Training Area
WSMR - White Sands Missile Range

CCA - Candidate Conservation Agreement
G1 - Critically imperiled (classified by NatureServe for full species range-wide)
G2 - Imperiled (classified by NatureServe for full species range-wide)
G3 - Vulnerable (classified by NatureServe for full species range-wide)
G4 - Apparently secure (classified by NatureServe for full species range-wide)
G5 - Secure (classified by NatureServe for full species range-wide)
SAR - Species at Risk
T1 - Critically imperiled (classified by NatureServe for subspecies, varieties, and populations range-wide)
T2 - Imperiled (classified by NatureServe for subspecies, varieties, and populations range-wide)
Priority - based on potential mission impacts. 1 - High, 2 - Medium, 3 - Low
Species at risk in HI are not included because they are benefiting from general ecosystem management and management of numerous listed species.

APPENDIX X
Army Gopher Tortoise Management Guidelines

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
SOUTHEAST REGION
1593 HARDEE AVENUE SW
FORT MCPHERSON, GEORGIA 30330-1057

REPLY TO
ATTENTION OF

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.

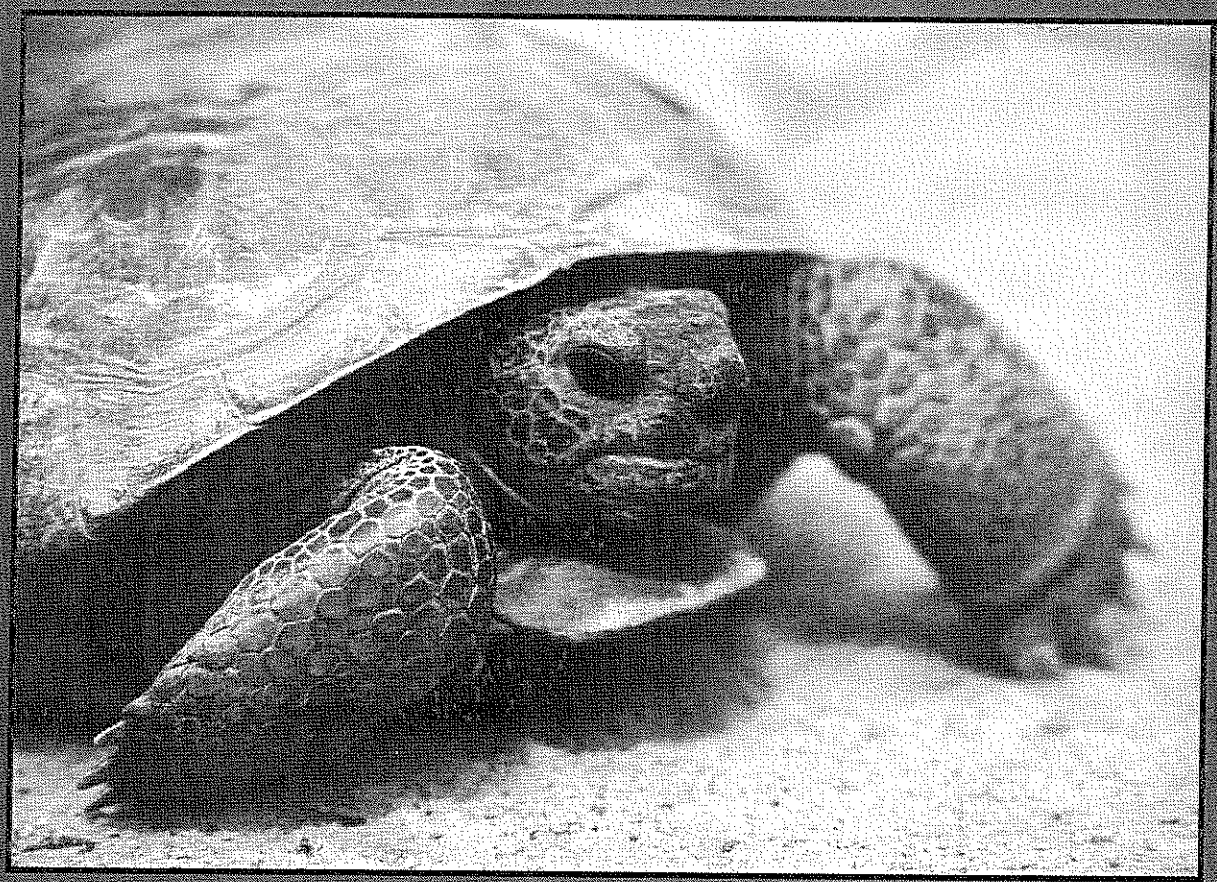
5. The POCs for this action are Mr. Casey Newton, (404) 464-4090, casey.h.newton@us.army.mil, and/or Mr. Frank Lands, (404) 464-1645, frank.w.lands@us.army.mil.

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

Contents

I. General

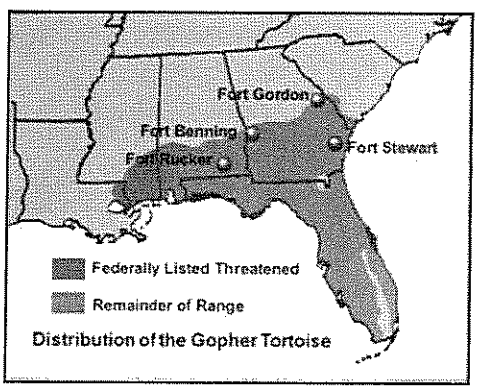
A. Purpose

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

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.

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

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-fragmented[1] 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.

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.

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."

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,

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.

TRAINING ACTIVITY WHERE TORTOISE BURROWS OCCUR

MANEUVER AND BIVOUAC	**Potential Adverse Impacts**
Hasty defense, light infantry, hands and hand tool digging only, no deeper than 2 feet	NO
Hasty defense, mechanized infantry/armor	YES
Deliberate defense, light infantry	NO
Deliberate Defense, mechanized infantry/armor	YES
Establish command post, light infantry	NO
Establish command post, mechanized infantry/armor	YES
Assembly area operations, light infantry/ mechanized infantry/armor	YES
Establish CS/CSS sites	YES
Establish signal sites	YES
Foot transit thru the colony	NO
Wheeled vehicle transit through the colony	YES
Armored vehicle transit through the colony	YES
Cutting natural camouflage	NO
Establish camouflage netting	NO
Vehicle maintenance	YES
WEAPONS FIRING	
7.62mm and below blank firing	NO
.50 cal blank firing	NO
Artillery firing point/position	NO
MLRS firing position	NO
All others	NO
NOISE	
Generators	NO
Artillery/hand grenade simulators	NO
Hoffman type devices	NO
PYROTECHNICS/SMOKE	
CS/riot agents	NO
Smoke, haze operations only, generators or pots, fog oil and/or graphite flakes (3)	NO
Smoke grenades	NO
Incendiary devices to include trip flares	NO
Star colonies/parachute flares	NO
YES HC smoke of any type	NO
DIGGING ALLOWED	
Tank ditches	YES
Deliberate individual fighting positions	YES
Crew-served weapons fighting positions	YES
Vehicle fighting positions	YES
Other survivability/force protection positions	YES
Vehicle survivability positions	YES

APPENDIX Y
Target Species Summaries

TARGET SPECIES SUMMARIES

Target species refers to federally endangered or threatened species as well as Georgia state listed species (threatened, endangered, rare, or unusual) or Army Species at Risk (SAR). Species considered Army SARs are those that are Federal candidate species for ESA listing or are categorized by NatureServe as imperiled or critically imperiled on a global scale. Fort Gordon manages for species at risk (SAR) in order to prevent listing under the endangered species Act of 1973, as amended (ESA). The listing of a species could severely degrade military readiness, therefore, proactive measures to prevent the listing of a species at risk or to help prepare installations for the conservation of species whose listing may be imminent, benefits the army and the species. Headquarters Department of the Army species at risk guidance memorandum, DAIM-ED, 15 Sept 2006, subject: Army Species at Risk Policy and Implementing Guidance requires that all Army installations manage for species at risk.

The INRMP also provides for the protection and conservation of state listed protected species when practicable. Although not required by the ESA, Fort Gordon will provide similar conservation measures for species protected by state law when such protection is not in direct conflict with the military mission. When conflicts occur, consult with the appropriate state authority to determine if any conservation measures can be feasibly implemented to mitigate impacts.

Common Name	Scientific Name	Status			Description of Habitat
		Federal	State	NatureServe	
Birds					
Bachman's sparrow	*Aimophila aestivali*	NL	R	G3	Pine savannahs or abandoned fields with scattered shrubs, pines, or oaks.
Southeastern American kestrel	*Falco sparverius paulus*	NL	R	G5T4	Breed in open or partly open habitats with scattered trees and in cultivated or urban areas.
Bald eagle[a]	*Haliaeetus leucocephalus*	NL	T	G5	Inland waterways and estuarine areas.
Wood stork[a]	*Mycteria americana*	E	E	G4	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps.
Red-cockaded woodpecker	*Picoides borealis*	E	E	G3	Nest in open mature pine with low understory vegetation; forage in open pine stands.
Mammals					
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	NL	R	G3G4	Roosts in buildings, bridges, and culverts in forested areas. Forages in both upland pine stands and hardwood stands.
Reptiles and Amphibians					
Gopher tortoise[b]	*Gopherus polyphemus*	C	T	G3	Well-drained, sandy soils in forest and grassy area, associated with sparse pine overstory.
Southern hognose snake[b]	*Heterodon simus*	NL	T	G2	Open, sandy woods, fields, and floodplains.
Fish					
Bluebarred pygmy sunfish	*Elassoma okatie*	NL	E	G2G3	Heavily vegetated creeks, sloughs, and roadside ditches.
Plants					
Sandhill Rosemary	*Ceratiola ericoides*	NL	T	G4	Dry, openly vegetated, scrub oak sandhills and river dunes with deep white sands of the Kershaw soil series.
Atlantic white cedar	*Chamaecyparis thyoides*	NL	R	G4	Wet sandy terraces along clear streams and in acidic bogs.

Common Name	Scientific Name	Status			Description of Habitat
		Federal	State	NatureServe	
Pink ladyslipper	*Cypripedium acaule*	NL	U	G5	Upland oak-hickory pine forest.
Carolina bogmint	*Macbridea caroliniana*	NL	R	G2G3	Bogs, marshes, and alluvial woods.
Indian olive	*Nestronia umbellula*	NL	R	G4	Dry open upland forest of mixed hardwood and pine.
Sweet pitcherplant	*Sarracenia rubra rubra*	NL	T	G4T3T4	Acid soils of open bogs, sandhill seeps, Atlantic white cedar swamps, and wet savannahs.
Pickering's morning-glory[b]	*Stylisma pickeringii var. pickeringil*	NL	T	G4T3	Coarse white sands on sandhills near the Fall line and on a few ancient dunes along the Flint and Ohoopee rivers.
Silky camelia	*Stewartia malacodendron*	NL	R	G4	Steepheads, bayheads, and edge of swamps.

[a]Transient presence on Fort Gordon
[b]Army Species At Risk

Status Key : E = Endangered, T = Threatened, C= Candidate, R = Rare, U = Unusual, NL = not listed, G2 = Imperiled, G3 = Vulnerable, G4 = Apparently Secure, G5= Secure, T3 = Vulnerable (subspecies), T4 = Apparently Secure (subspecies)

Bachman's Sparrow (*Aimophila aestivalis*)

Threats

Reasons for decline largely unknown[1]
Loss of breeding habitat due to succession and habitat degradation[1]
Fire suppression[1]
Brood parasitism by brown-headed cowbird[1]
Predation of nestlings and eggs by snakes[1]

Management Goals

Maintain pine forests with open, savanna-like structure with scattered trees or saplings[1]
Home range estimate of 2.5 ha (0.3-6 ha)[1]
Breeding densities vary from 2 birds/ha-10 birds/ha[1]

Management Procedures

Prevent overgrazing and woody species invasions[1]
Timber rotations < 40 years will not attain ground conditions to support Bachman's sparrows[1]
In grassy fields, keep woody species to < 30 % cover[1]
Avoid drumchopping--removes ground cover and results in dense shrubs[1,2] In non-burn areas, cut saplings and girdle older deciduous trees[2]
Burn on a 3-5 year rotation, using growing season burns[1,2]
Caution should be used when burning during early spring due to nesting[1]
Habitat patches should be < 1 km from established populations[1]
Clear cutting provides habitat 1-7 years postharvest[1,2]
Restore longleaf pine using natural regeneration techniques[1]

Monitoring Goals

Check for evidence of breeding and nesting success[1]
Determine the frequency of cowbird parasitism[1]

Monitoring Procedures

Listen for singing males in early morning during the breeding season[1,2]
Tape recorded calls may elicit calling[2]
Follow female to nest during feeding or nest building activities[1,2]
Collect data on nesting dates, number of hatchlings, and reasons for nesting failure[1]

Research Needs

Estimates of minimal preserve size[1]
Outline reasons for population decline[1]
Quantitative description of preferred habitats[1]
Why is apparently suitable habitat not occupied?[1]
Data on reproductive success, cowbird parasitism, and nest predation[1]
Relation between singing males and productivity[2]
Relation between singing males and vegetation succession[2] Investigate dispersal behavior[2]
Nest area location and distance from source location[2]
Understand winter habitat of Bachman's sparrow (incl. use of riparian habitat)[2]

Research and Management Programs

Heritage Programs[1]
U.S. Forest Service[1]

1-The Nature Conservancy. 1995. Species stewardship abstract for *Aimophila aestivalis*. Pages 10-161-10-175. In R. S. Jordan, K. S. Wheaton, and W. M. Weiher. Integrated endangered species management recommendations for Army installations in the Southeastern United States: Assessment of Army-wide guidelines for the red-cockaded woodpecker on associated endangered, threatened, and candidate species. The Nature Conservancy, Southeast Regional Office, Chapel Hill, NC.

2-Brooks, R. and P. Laumeyer. 1992. Fort Gordon Endangered Species Survey. Report to the U.S. Army, Fort Gordon, GA from the U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Brunswick, GA.

Southeastern American Kestrel (*Falco sparverius paulus*)

Threats

Habitat alteration (removal of isolated trees)
Habitat degradation (urbanization, agricultural conversion, commercial forestry)
Habitat fragmentation

Management Goals

Protect adequate habitat to support variety of life-history functions
Maintain open habitat, nest sites, and perches

Management Procedures

If a site contains > 50 ha, protect habitat onsite
If a site contains < 50 ha, compensate for habitat offsite
Recommended: 1 perch site/ha
Recommended: 1 nest site/ha with 150-m radius buffer
Maintain foraging ground cover at < 25 cm in height
Use periodic prescribed fire (2-3 year rotation)
Avoid disturbing nest sites during courtship, breeding, and nesting
Manage snags through retention and creation where necessary
Avoid pesticide use
Use nest boxes to compensate for insufficient nesting sites
Erect perches on sites where insufficient supply

Monitoring Goals

Population size estimates
Distribution

Monitoring Procedures

Survey during spring and summer (April to August)
Survey for 3-4 hours beginning at sunrise on calm, clear days
Survey transects along roads through habitat

Survey transects by foot in areas with limited access
Note and map activity, location, and nest sites
Note signs of activity (prey remains, pellets, feathers, white feces stains on perches)
Survey nests in areas of courtship, breeding, or territorial defense
At active nests, note tree species, stage of decay, and tree health

Research Needs

Research and Management Programs

This information is summarized exclusively on:

Lane, J. H. and R. A. Fischer. 1997. Species profile: Southeastern American Kestrel (*Falco sparverius paulus*) on military installations in the Southeastern United States. U. S. Army Corps of Engineers, Waterways Experiment Station.

Bald Eagle (*Haliaeetus leucocephalus*)

Threats
Environmental contaminants, excessive human disturbance, especially near nesting sites.

Management Goals
Encourage nesting and continued use of Fort Gordon as a forage/hunting area.

Management Procedures
Protect tall trees in forests adjacent to lakes and ponds.
Reduce or eliminate any pesticides (especially aquatic herbicides) that may cause accumulations of toxins in fish.

Monitoring Goals
Periodically monitor for the presence of nests in tall trees near the shorelines of lakes and ponds.

Monitoring Procedures
Annual drive-by inspection of tall trees adjacent to lakes and ponds.
Follow up on reports of observations of individuals.

Research Needs
None

Research and Management Programs
None

Wood Stork (*Mycteria americana*)

Threats
Alteration of nesting, and feeding areas; loss of wetlands, alteration of hydrologic cycles.

Management Goals
Continue to encourage use of Fort Gordon as an occasional feeding and roosting area.

Management Procedures
Lower the water level in at least one lake/pond per year. Wood storks are drawn to feed in water bodies that are receding are have been recently drained. Protect forested wetlands and mature trees adjacent to lakes and ponds which may be used for roosting.

Monitoring Goals
Document presence when observed.

Monitoring Procedures
Periodically monitor any lakes or ponds that are in the process of being lowered and/or drained. Document number of storks observed.

Research Needs
None

Research and Management Programs
None

Red-cockaded Woodpecker (*Picoides borealis*)

Information on the Red-cocked Woodpecker can be found in section 4.1 and Appendix J of the INRMP.

Rafinesque's Big-eared Bat (*Corynorhinus rafinesquii*)

Threats

Forestry practices that reduce availability of large hollow trees used for roosting.
Human disturbance of roost sites in man-made structures and caves.

Management Goals

Protect known and potential roosts from human disturbance.

Management Procedures

Consider potential effects of forest management and construction projects on potential and known roost sites and mitigate for potential loss.

Monitoring Goals

Periodically monitor for presence/absence and abundance. Monitor for the presence of White-nose Syndrome.

Monitoring Procedures

Mist netting[1,2]
Collect information on weight, age, sex, reproductive condition, pelage, and general health conditions[2]

Research Needs

None

Research and Management Programs

None

1-Brooks, R. and P. Laumeyer. 1992. Fort Gordon Endangered Species Survey. Report to the U.S. Army, Fort Gordon, GA from the U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Brunswick, GA.

2-Ledbetter, W. J. 1996. Rare bat search in Sandyland. Horizons: summer.

Gopher Tortoise (*Gopherus polyphemus*)

Information on the gopher tortoise can be found in section 4.1 and Appendix X of the INRMP.

Southern Hognose Snake (*Heterodon simus*)

Threats

Habitat alteration[1]
Habitat degradation (fire suppression, conversion to agriculture, commercial forestry)[1]
Predation by king snakes[1]

Management goals

Maintain suitable habitat[1]
Maintain pine dominated woodland with low open understory, and dense groundcover[1]
Maintain forest openings with sparse shrub cover for nesting and hibernation[1]
Preserve large tracts of remaining forest[1]
Restore disturbed habitat[1]
Provide habitat linkages[1]

Management procedures

Prescribed burning (5-10 years), including growing season burns[1]
Low-intensity site preparation methods[1]
Protect large tracts of habitat including adjacent community types[1]

Monitoring goals

Systematic searches and long-term monitoring[1]

Monitoring procedures

Identify potential habitat with aerial photographs[2]
Walk transects through suitable habitat[2]
Survey roads where snakes are more visible[2]
Use funnel traps with drift fences to sample populations[3]

Research Needs

Information on hibernation behavior[1] Information on burrow use[1]

Document hatchling success and survival[1]
Spatial ecology in relation to habitat fragmentation[1] Home range sizes[1]
Movement patterns across habitat types[1] Minimum viable population densities[1]
Effects of season of burn[1]

Research and Management Programs

None

1-The Nature Conservancy. 1995. Species stewardship abstract for *Heterodon simus*. Pages 10-131--10141. In R. S. Jordan, K. S. Wheaton, and W. M. Weiher. Integrated endangered species management recommendations for Army installations in the Southeastern United States: Assessment of Army-wide guidelines for the red-cockaded woodpecker on associated endangered, threatened, and candidate species. The Nature Conservancy, Southeast regional Office, Chapel Hill, NC.

2-The Nature Conservancy. 1995. Fort Stewart Inventory, Final Report. U.S. Department of Defense, Department of the Army, Headquarters 24th Mechanized Division, Fort Stewart, GA.

3-Brooks, R. and P. Laumeyer. 1992. Fort Gordon Endangered Species Survey. Report to the U.S. Army, Fort Gordon, GA from the U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Brunswick, GA.

Bluebarred Pygmy Sunfish (*Elassoma okatie*)

See management plan that follows target species summaries.

Sandhill Rosemary (*Ceratiola ericoides*)

Controlled burns at intervals > 10 years[1]
Selectively thin shading trees to maximize light[1]

Atlantic White-cedar (*Chamaecyparis thyoides*)

Avoid draining of habitat[1,2]
Avoid burning[2]
Avoid clearcutting[1]
Prevent upslope land uses that contribute to sedimentation[1]

Pink Ladyslipper (*Cypripedium acaule*)

Avoid disturbance[1]
May require periodic thinning of shading trees[1,2]
Use winter season burns[1]
Control weeds (avoid herbicide) such as *Lonicera japonica* and *Pueraria lobata* and encroaching vines (avoid herbicide) such as *Vitis rotundifolia* [1,2]
Protect from collectors[1]

Carolina Bogmint (*Macbridea caroliniana*)

Prescribed burns may benefit the species by controlling undergrowth[3]
Protect and minimize disturbance in riparian areas

Indian Olive (*Nestronia umbellula*)

Due to parasitism on hardwood roots, do not clear-cut (eliminates host trees)[2]
Hand thin shading trees[1]
Periodic prescribed fire to control encroaching vegetation[2]

Sweet Pitcherplant *(Sarracenia rubra)*

Avoid draining of habitat[1,2]
Protect riparian areas from disturbance
Control encroaching woody vegetation with prescribed burns[1,2]
Remove timber to increase light[1]
Protect from collectors[1]

Pickering's Morning-glory (*Stylisma pickeringii var. pickeringii*)

Prescribed fire including growing season burns [1,2,4]
Reduce fuel load around populations in fire suppressed areas[4]
Hand thin shading vegetation[1,2]
Tolerant of grading on fire breaks[4]
Protect from severe soil disturbance[4]

Silky camellia (*Stewartia malacodendron*)

Avoid alteration of watertable[1]
Hand thin shading vegetation[1]
Protect wetlands from disturbance

Monitoring Procedures

Monitoring procedures are similar for all plants. The goal of monitoring is to track the population size of a population from year to year. Three monitoring options are available: 1) measurement of areal extent of populations, 2) counting number of individuals within a population, or 3) tracking marked individuals over time (Menges and Gordon 1996). Monitoring is repeated annually to check on the status of the population relative to previous population sizes. Common research questions include characterizing demographic response in different habitats and to disturbances such as fire.

Menges, E. S. And D. R. Gordon. 1996. Three levels of monitoring intensity for rare plant species. Natural Areas Journal 16: 227-237.

1- Patrick, T. S., J. R. Allison, G. A. Krakow. 1995. Protected Plants of Georgia. Georgia Department of Natural Resources.

2-Moore, M. O. And D. E. Giannasi. 1992. Sensitive Plant Species Survey: Fort Gordon Military Reservation *in* R. Brooks, and P. Laumeyer. Fort Gordon Endangered Species Survey. Report to the U.S. Army, Fort Gordon, GA from the U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Brunswick, GA.

3-Barnett-Lawrence, M. 1995. Element stewardship abstract for *Macbridea caroliniana*. The Nature Conservancy.

4-The Nature Conservancy. 1995. Species stewardship abstract for *Stylisma pickeringii.* Pages 10-627-10-636. In R. S. Jordan, K. S. Wheaton, and W. M. Weiher. Integrated endangered species management recommendations for Army installations in the Southeastern United States: Assessment of Army-wide guidelines for the red-cockaded woodpecker on associated endangered, threatened, and candidate species. The Nature Conservancy, Southeast Regional Office, Chapel Hill, NC.

Management Plan for the Savannah Darter, Bluebarred Pygmy Sunfish, and Mud Sunfish at Fort Gordon, Georgia

Fred C. Rohde [1] , Jan Jeffrey Hoover [2] , and K. Jack Killgore [2]

[1]North Carolina Division of Marine Fisheries,
Wilmington, NC 28405-3845

[2]U.S. Army Engineer Research and Development Center
Waterways Experiment Station, EE-A
Vicksburg, MS 39180-6199

Conservation Assistance Program
Request 0702-02

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Background

The Savannah darter (*Etheostoma fricksium*), bluebarred pygmy sunfish (*Elassoma okatie*), and mud sunfish (*Acantharcus pomotis*) are listed by the Georgia Department of
Natural Resources as species of special concern. All three species inhabit the waters of Fort Gordon, Georgia. Environmental resource managers at the installation have requested a management plan that would provide guidelines for population and range inventories, habitat identification, and relocation program (John Wellborn, pers.comm..).

Previous field studies at Fort Gordon indicate a species-rich fish community (> 45 species), diverse aquatic habitats (varying principally in water depth and water quality), and taxa (and assemblages) responsive to variation in specific physical parameters (i.e., depth, turbidity, velocity). The first of these studies, conducted in 1995-1996, evaluated the effects of stream erosion on fishes (Hoover and Killgore, 1999). Juvenile and adult fishes were sampled 3-4 calendar seasons at 17 stations in four streams. The second of these studies, conducted in 1997-1998, evaluated specific habitats as fish rearing and feeding grounds (Hoover et al., unpublished data). Larval, juvenile, and adult fishes were sampled 2-3 calendar seasons at 10 stations in five streams (8 of which had been sampled during the previous study). Data obtained from these two studies indicated that the Savannah darter and bluebarred pygmy sunfish were broadly distributed throughout the installation, occurring in four or five of the five streams sampled, but that the mud sunfish was less common, recorded in only two of the five streams (Table1).

Table 1. Documented occurrence of Savannah darter, bluebarred pygmy sunfish, and mud sunfish in the five principal stream systems of Fort Gordon, Georgia (Hoover and Killgore, 1999; Hoover et al., unpublished data).

Species	Spirit Creek	Sandy Run Creek	Boggy Gut Creek	Head Stall Creek	Brier Creek
Savannah darter	+	+	+	+	+
Bluebarred pygmy sunfish	+	+	+		+
Mud sunfish		+	+		

Distinguishing morphological features and characteristic habitat have been described for each of these species. Because they are small and endemic (Savannah darter, bluebarred pygmy sunfish) or rare (mud sunfish), few demographic and environmental models exist for the development of effective management plans. This report summarizes existing data on the three species and provides guidelines for environmental resource managers at Fort Gordon.

Savannah darter (Etheostoma fricksium)

Morphology, appearance, similar species - The Savannah darter is a moderate sized darter and reaches about 64 mm standard length (SL). It has a small conical head, a frenum on the upper lip, two anal spines, and separate or slightly connected gill membranes (Kuehne and Barbour 1983). The lateral line is nearly complete or complete and straight. The cheeks and opercles are scaled in the adults, the belly often scaled, and the breast is usually scaled (Kuehne and Barbour 1983; Page 1983). The genital papilla in the male is a triangular flap; in the female it is a long round tube. Lateral line consists of 37-42 scales with the last 0-4 unpored. Fin counts are: dorsal X-XI, 12; anal II, 8-9, and pectoral 13-14 (Page 1983).

The dorsum usually has six faint saddles and is lighter than the sides. Eight to nine vertical elongated blotches are on the sides that are better defined posteriorly. Three to four basicaudal spots are present. The suborbital bar is dark and thin but usually pronounced. Spots or mottling often occurs on the cheeks. Both sexes have a broad dark horizontal stripe on the side that is superimposed over the vertical bars. The first dorsal fin has a red edge and all fins have brown wavy lines or mottling. The caudal fin has four to five vertical rows of dark brown spots that form bands. The breeding male is characterized by alternating brownish-green and orange-red bars on the lower side and orange on the belly (Rohde et al. 1994). The color intensifies in the breeding male and may include the first dorsal fin with a thin clear to green edge, wide red-orange marginal band, broad green basal band, and the anal fin with a green basal band (Layman 1993).

The Savannah darter is most similar to the allopatric pinewoods darter, *Etheostoma mariae*, but the latter species possesses broadly joined branchiostegal membranes and a black spot at the front of the first dorsal fin. It lacks the orange on the belly. The sympatric Christmas darter, *Etheostoma hopkinsi*, can be differentiated from the Savannah darter by the lack of a dark dorsolateral stripe and no spots on the cheek and operculum. The Christmas darter also has a middle red band and dusky green edge on the first dorsal fin.

Status in the US and Georgia - The Savannah darter is restricted to stream reaches below the Fall Line in the Edisto, Combahee, Broad, and Savannah River drainages in South Carolina and Georgia. (Richards, 1963). Warren et al. (2000) consider this species to be Currently Stable. It is widespread in smaller tributaries of the middle Savannah River drainage (Marcy et al., In Press). In Georgia, it is apparently restricted to three tributary streams of the Savannah River – Brier Creek (nine locales), Spirit Creek (two locales), and Butler Creek (one locale) (Marcy et al., In Press).

Historical Records in Vicinity of Augusta, Georgia - Richards (1963) lists the following records of the Savannah darter near Augusta, Georgia: Richmond County; 1) Boggy Gut Creek, 22.5 miles SW of Augusta on US 1; 2) a tributary to Butler Creek, 1 mile SW of Augusta at US 1; 3) Spirit Creek, 10.9 miles SW of Augusta, at US 1; and Little Spirit

Creek, just below Old Savannah Creek Road, about 12 miles S of Augusta. Hoover and Killgore (1999) report the species from four streams on Ft. Gordon and to be unusually abundant in Boggy Gut. The type locality for the species is a creek near the Sanitary Dairy Farm near Augusta. This locality is located west of Augusta between the Fort Gordon Parkway and the Milledgeville Road just west of Wylds Road that connects the previous two (Richards 1963).

Recent Records at Fort Gordon, Georgia - The Savannah darter occurs in all streams surveyed. In 1995-1996, it was found in all streams (Hoover and Killgore, 1999). It was uncommon (< 1% of all fishes collected) in Spirit and Brier Creeks, and moderately abundant in Sandy and Boggy Creeks (> 5 % of all fishes collected). In 1997-1998, it was again found in all streams sampled (Appendix A). It was again uncommon (< 2 % of all fishes collected) in Brier Creek and also at Headstall Creek. The darter was again moderately abundant (> 5% of all fishes collected) in Sandy and Boggy Creeks. In the more recent survey, however, Savannah darter were substantially more abundant (4.6 %) in Spirit Creek. This may be partly attributed to degraded stations (e.g., McCoy's Creek at Signal Lake, Spirit Creek at the sewage outfall) not sampled during the second survey, but may be partly attributable to population increases in that system. In 1995-1996, the species was represented in Spirit Creek by a single specimen in 20 collections (from 6 stations). In 1997-1998, the Savannah darter in Spirit Creek was represented by 5 specimens from 6 collections (from only two stations).

Stepwise regression models relating numbers collected of Savannah darter to hydraulic variables (channel width, depth, velocity) and water quality (conductivity, turbidity) indicate that abundance is negatively correlated with turbidity and, in some circumstances, positively with water velocity and channel width (Table 2). Differences between the models may reflect the broader range of hydraulic conditions represented during the 1995-1996 study.

Table 2. Habitat models for the Savannah darter based on seine samples. Data are log10 transformed.

Year	Model	d.f.	R_2	p
1995-1996	Number = 0.15 – 0.79(Turbidity) + 1.44(Velocity) + 0.42 (Width)	27	42	< 0.01
1997-1998	Number = 3.65 – 4.42(Turbidity)	23	35	< 0.01

Life history, ecology, and genetics -- The Savannah darter is predominantly found in clear, small to medium-sized creeks, usually with a pronounced current. The preferred sediment type is sand and gravel where logs, sticks, and leafy detritus are present (Layman 1993; Rohde et al. 1994). A preferred microhabitat appears to be in submerged tree and shrub roots along undercut banks (F.C. Rohde, pers. obs.). Layman (1993) conducted an intensive study on populations from the Savannah River drainage. Both sexes matured at one year of age and have a maximum age of around three years. Spawning occurred from February through May when water temperatures

were between 11 and 23 C. Mean clutch size was 26 and there was some indirect evidence of multiple clutches of 10 to 46 eggs; it is unclear how many clutches an individual female produces in one year. In the aquarium, spawning adults buried the adhesive eggs in sand and fine gravel. This species forages among woody debris and leafy vegetation where it predominantly preys on aquatic insects and their larvae (especially chironomids). They also consume terrestrial insects, zooplankton, small snails and worms.

Page (1981) placed the Savannah darter and two other species, pinewoods darter (*E. mariae*) and Okaloosa darter (*E. okaloosae*) in the subgenus *Belophlox*. Previously, the first two had been included in the subgenus *Oligocephalus* and the latter in *Villora*. However, Bailey and Etnier (1988) retained *E. fricksium* and *E. mariae* in *Belophlox* as possible closest relatives but provisionally transferred *E. okaloosae* to *Oligocephalus.* To further confuse the issue, K.A. Shaw (pers. comm. in Layman 1993), based on a cladistic analysis, supported a sister relationship between *E. fricksium* and *E. hopkinsi* and indicated that *Belophlox* may be paraphyletic. The genetic relationships within the *Belophlox* have not been studied yet, but one is proposed (J. Quattro, pers. comm., 2003).

Bluebarred pygmy sunfish (*Elassoma okatie*)

Morphology, appearance, similar species - The bluebarred pygmy sunfish has a compressed body with a deep caudal peduncle. The eye is large. The mouth is small and terminal to slightly superior. Cycloid scales cover the body and a few are embedded on the opercles and cheeks. The top of the head is scaleless. It possesses a rounded caudal fin and long pointed pelvic fins that reach the anal fin. The lateral line is absent as is the lateralis canal on the mandible. Lateral scales number 25-29. Fin counts are: dorsal IIIVI, 9-11; anal III, 5-7, pectoral 15, and pelvic I, 5 (Rohde and Arndt 1987). Maximum size is around 29 mm SL.

Nine to 12 dark vertical bars are present on the sides, rarely 8 to 14. The bars are relatively wide. In the male they average 1.1 mm in width and 1.0 mm in the female. The bar width is three times wider than the light interbar space. The breeding male is typically black with blue-green markings. A brilliant spot at the anterior edge of the eye is conspicuous. Females are much lighter in color but may have some flecks of blue, green, or yellow on the thorax and mid-trunk.

Two other species of *Elassoma* are sympatric with the bluebarred pygmy sunfish. The banded pygmy sunfish, *E. zonatum*, can be distinguished by the presence of one to three dark shoulder blotches and a dark postocular stripe, both of which are absent in the bluebarred pygmy sunfish. The Everglades pygmy sunfish, *E. evergladei*, has scales on top of the head (absent in *E. okatie*) and streaks or mottling on the sides, rarely forming an irregular bar.

Status in the US and Georgia - This pygmy sunfish was originally only known from the Edisto River, New River, and Savannah River drainages in South Carolina (Rohde and Arndt 1987). However, faded museum specimens examined during that study suggested that this species might occur in Georgia, but attempts to collect it there failed. Recently Hoover et al. (1998) confirmed its presence in Georgia when they collected it in Boggy Gut Creek, Richmond County. It is considered as imperiled or potentially so due to its rarity or restricted range (G2/G3). Warren et al. (2000) list its status as Vulnerable. In South Carolina, it is listed as a Species of Special Concern. It is listed by the state of Georgia as (S1), critically imperiled because of extreme rarity (Marcy et al. In Press).

Historical Records in the Vicinity of Augusta, Georgia - One faded specimen of an *Elassoma* from Boggy Gut Creek, Richmond County, collected in the 1950s, was found in the Cornell University Fish Collection (CU 17212) during the description of the two new species of pygmy sunfish (Rohde and Arndt 1987). The body morphology was consistent with that of the bluebarred pygmy sunfish, but since the specimen was so faded, Rohde and Arndt were hesitant to include it in the description. The apparent rediscovery of the bluebarred pygmy sunfish in this creek by Hoover et al. (1998) may validate this specimen as the first and only historical record from Georgia.

Recent Records at Fort Gordon – The bluebarred pygmy sunfish, originally thought to be restricted to a single location at Fort Gordon (Hoover et al., 1998), is broadly distributed throughout the installation (Appendix B). In 1995-1996, the species was found at the ruined mill at Gibson Road on Boggy Gut Creek, and at none of the other 17 stations sampled. Most of the 22 specimens were collected in the shallow, slack water cove formed by the river flowing around the mill structure. Comparable habitats, such as backwaters and wetlands, were not sampled at that time.

In 1997-1998, sampling locations were broadened to include such slack water habitats and light-traps were used to effectively sample very shallow water. More than 200 bluebarred pygmy sunfish were collected in all streams and ponds sampled except Head Stall Creek. Fish were abundant at several locations including the outflow of Union Mill Pond (slack areas in the scour pool), an off channel wetland connected to McCoy's Creek at North Range Road, and again at Boggy Gut Creek at Gibson Road.

Habitat affinities differ in ponds and streams (Table 3). In ponds, there is no relationship between microhabitat (depth, distance from shore) or water quality (conductivity, turbidity, dissolved oxygen) and occurrence of the fish. Extensive areas of slack water with submersed vegetation, preferred habitat by this fish, may override any subtler variations in habitat. In streams, however, bluebarred pygmy sunfish were significantly more likely to occur in low (sometimes hypoxic) concentrations of dissolved oxygen, at locations with low water velocity, in narrow reaches (or side channels).

Table 3. Habitat models for the bluebarred pygmy sunfish based on light-trap samples, 1997-1998. Data, except for dissolved oxygen, are log 10 transformed.

Habitats	Model	d.f.	R^2	p
Ponds	No significant model	88	0.02	0.22
Streams	Number = 0.36 – 0.24 (Dissolved oxygen) – 0.22 (Trap Velocity) – 0.07 (Channel Width)	237	0.13	<0.0001

Life history, ecology, genetics - The primary habitat of the bluebarred pygmy sunfish is roadside ditches and backwaters of creeks with brown-stained water and abundant vegetation that includes, bladderwort, duckweed, alligatorweed, pondweed, spatterdock, rushes,and grasses (Rohde and Arndt 1987). The habitat parameters in Boggy Gut Creek are very consistent to those reported for the South Carolina populations, except that Boggy Gut Creek is more acidic (pH of 4.2 to 5.8) (Hoover et al. 1998). It is often most common in the very shallow, heavily vegetated waters immediately adjacent to the shoreline.

No life history work has been published on this species, but some unpublished work by F.C. Rohde has been done on its sister species in North Carolina, the Carolina pygmy sunfish (*Elassoma boehlkei*). All fish were sexually mature by the end of their first winter. The oldest individual collected was 22 months of age. Spawning occurred in late February through March. The number of mature eggs ranged from 11 to 51 (mean 35) and the eggs ranged in size from 0.6 to 1.0 mm in diameter (mean 0.78). In the aquarium, the male displays to the female by moving back and forth, circling the female, darkening in color, and assuming a head down position with the fins fully flared. The male attracts the female with alternating flicks of the pelvic fins. General movement was towards vegetation. Actual spawning was not observed but it did occur in the vegetation. No nest was constructed. The Carolina pygmy sunfish is an opportunistic, carnivorous feeder, eating small invertebrates from all levels of the water column. The diet consisted primarily of small crustaceans (cyclopoid copepods, ostracods, cladocerans) and aquatic insects, primarily dipteran larvae.

Phylogenetic analysis of mitochondrial and nuclear genes indicate that the bluebarred and Carolina pygmy sunfishes are sister taxa and are related to the widespread Everglades pygmy sunfish (Quattro et al. 2001a). Further analysis of the then known populations of the two rare species found some inconsistencies with the described species boundaries though it does appear that they are separate (Quattro 2001b). The lower Savannah River and Edisto River populations are sufficiently genetically distinct that they should be managed separately as Evolutionarily Significant Units (ESU) (Quattro et al. 2001b). Specimens from Boggy Gut Creek were not included in this paper, but have subsequently been analyzed. The two Savannah River populations (mid

and lower) share the same haplotypes but there are frequency differences (J. Quattro, pers. comm. 2003)

Mud sunfish (Acantharcus pomotis)

Morphology, appearance, similar species - The mud sunfish is a stocky fish with an oblong, compressed body. Adults can reach up to 170 mm SL, but most adults range from 100-145 mm SL (Cashner et al. 1989; Jenkins and Burkhead 1994). The caudal fin is rounded unlike most other sunfishes. Pectoral fins are broadly rounded and short. It has a short snout with a large, oblique mouth with the posterior edge of the maxilla extending to the posterior margin of the pupil (Marcy et al. In Press). The gill rakers are long but there are less than 10 present on the lower arch. The lateral line is complete and has between 37 to 43 scales. It is the only sunfish to have cycloid scales. Fin counts are: dorsal XII, 10-12; anal V, 10; and pectoral 14-15 (Jenkins and Burkhead 1994).

Three to six dark brown stripes on the side run across the face and extend posteriorly (Rohde et al. 1994). Body color varies from brown to olive green to a yellowish tan. The sides are often marked with a chocolate brown mottling. A black spot edged with orange is on the opercular flap. Dorsal and anal rays are dusky brown, possibly mottled, especially in the young. The young are usually olive green in color with many rows of parallel lines on the body that are produced by large diffuse blotches on the lateral scales (Marcy et al. In Press).

The mud sunfish is readily distinguished from the other large sunfishes by having cycloid scales, a rounded caudal fin, and five anal spines versus three (Marcy et al. In Press). The warmouth, *Lepomis gulosus*, also has dark lines that radiate back from the eye, but the caudal fin is forked and the anal fin has three spines.

Status in the US and Georgia - The mud sunfish is widely distributed in the Atlantic Coastal Plain from the Hudson River system of southern New York to the St. Johns River in northern Florida and west in the Gulf Slope drainages from the Suwannee River to the St. Marks River (Cashner et al. 1989). Apparently, the geographic range has decreased within relatively recent times and is rarely common anywhere in its range. Warren et al. (2000) consider it to be Currently Stable which can include species that may have declined in portions of its range but is not in need of immediate conservation management action. In Georgia, it is most widely distributed in the Gulf Slope streams near the Florida border from the Suwannee River west to Ochlocknee River . There are a few Atlantic Slope records in Georgia from the Savannah, Ogeechee, Altamaha,and
Satilla rivers.

Historical records in Vicinity of Augusta, Georgia - Cashner et al. (1989) indicate two historical records just below Augusta, apparently from the Savannah River or its adjacent swamps. Marcy et al. (In Press) depict three records near Augusta. One is in South Carolina across from Rocky Creek. The second record appears to be in or near the canal off Route 104 and the third one is in an upper Brier Creek tributary. Hoover and Killgore (1999) reported three individuals from Boggy Gut Creek.

Recent Records at Fort Gordon – The mud sunfish is one of the rarest fishes at Fort Gordon. In 1995-1996, three specimens were collected in Boggy Gut Creek (Hoover and Killgore, 1999). All specimens were collected at the ruined mill upstream from the bridge at Gibson Road (Appendix C). In 1996-1997, an additional specimen was collected in the outflow of Union Mill Pond (in slack water adjacent to the turbulent, surging water). Extreme rarity of this species makes it impossible to generalize about its habitat on the installation.

Life history, ecology, genetics - The mud sunfish is a secretive species that inhabits sluggish streams, ponds, and swamps (Cashner et al. 1989). In small tributary streams, it is frequently found beneath undercut banks or among woody debris in pools. It often occurs in very shallow waters that are heavily vegetated. Adult fish frequently rest head down in weeds and are most active at night (Laerm and Freeman 1986). It can occur over a wide pH range from 4 to nearly 9 (Marcy et al. In Press). While rarely common, Marcy et al. (In Press) note that it can be abundant in some Carolina bays. The spawning period in North Carolina extends from December to May, based on field observations, egg sizes and counts (Pardue 1993). There was no evidence of sexual dimorphism nor was there a perceptible color change during the breeding season. Sexual maturity was reached by age 1+. Maximum age was eight years in Maryland (Mansueti and Elser 1953). Pardue (1993) attributed the low annual survival (20-28%), rapid growth in length, and short life span (age 4+) to the harsh swamp environment encountered in North Carolina that included large annual fluctuations in water level and quality. The total egg complement of seven specimens, age one and older, ranged from 5,508 to 11,838 and are probably deposited over a relatively short time frame. Nests are prepared on the soft bottom among vegetation (Breder 1936). In the middle Savannah River basin, males have been captured from small nests, about 15-20 cm in diameter, generally in a protected area near the bank of pools in very small headwater streams (Marcy et al. In Press). The mud sunfish is reportedly a rather sedentary species with a small home range as more than 70% of all recaptures in a North Carolina swamp stream, were within 200 m from the original site of capture (Whitehurst 1981). But they can do some significant moving. Twelve percent of his recaptures traveled an average distance of 4.9 km downstream and 18% moved upstream an average of 2.7 km. Invertebrates dominated the diet in a North Carolina study (Pardue 1993). Numerically, amphipods were most abundant (22%), followed by decapods (12%) and coleopterans (11%). Fish were found in the stomachs of fish larger than 105 mm.

Acantharchus is a monotypic genus. Specimens from throughout its range were examined to determine geographic variation and the status of a nominal subspecies, *A. pomotis mizelli* (Cashner et al. 1989). They found a complex cline in meristic and morphological characters from the northern end of the range to its southern limits but there was no compelling evidence for recognizing subspecies of the mud sunfish. Based on allozyme studes, *Acantharchus* clusters together in the biochemical dendrogram with the genus *Archoplites*, the Sacramento perch, despite the fact that they are genetically quite different from one another (Avise et al. 1977).

Recommendations

Protect existing large populations – Anthropogenic disturbance should be minimized in Boggy Gut Creek since all three species occur there and since abundance of Savannah darter and bluebarred pygmy sunfish are apparently higher there than in any of the other streams. Because much of the Boggy Gut watershed is an Impact Area, access is already restricted. Efforts should be made, however, to reduce any military traffic near or through the stream, minimize reductions in vegetative cover, and enhance restoration of historic woodland communities (i.e., longleaf pine).

Establish and evaluate baseline habitat conditions – Existing GIS database and imagery should be used to identify, categorize, and quantify permanent or persistent wetland habitats. Bluebarred pygmy sunfish and mud sunfish are wetland inhabitants. Their reproductive success depends on the availability of slack, shallow, vegetated waters – habitats that do not dominate small, upland streams and are not conspicuous at Fort Gordon.

Limited floodplain and regulated stream flow (via impoundments) limit fish access to rising slack water stream margins, reduce riparian inputs of detritus (e.g., coarse particulate organic material, large woody debris), and minimize seasonal hydrologic variability that provides seasonal reproductive cues. Gage data are needed to establish natural hydrographs for unregulated streams (e.g., Boggy Gut Creek) and regulated streams (e.g., Spirit and Sandy Run Creeks). Once the natural chronology of onset, rate, and duration of floods are established, they can be used to estimate the degree of hydrological impairment in regulated streams and can be used to establish guidelines for water releases that will recreate natural hydrographs.

Establish and evaluate baseline demographic characteristics - Two of the three species are comparatively abundant. Savannah darter and bluebarred pygmy sunfish are broadly distributed throughout Fort Gordon and comprise 5-10% of the fish assemblages in Sandy Run and Boggy Gut Creeks. Their distribution and abundance in surrounding waters is not known. Paucity of records could be due to rarity or to limited collecting by biologists. Before implementing costly or complex management

actions, the distribution, abundance, and population structure of these species should be determined outside and inside the perimeter of the installation. If outside the installation, species distributions are less continuous, abundance lower, or population structure poor (e.g., low recruitment), managers should consider the value of the installation as a refugium and exercise caution about instigating changes which could impact existing populations. If, however, outside the installation distributions are more continuous, abundance higher, and population structure excellent, managers should evaluate possible means of mitigating military impacts to these fishes within the perimeter of the fort.

Previous fish surveys at Fort Gordon employed standard collecting efforts (i.e., 10 seine hauls stratified among all apparent macrohabitats) to determine abundance of each species relative to that of all other fishes (i.e., percent of fishes collected). This approach is not ideal for establishing relative abundance or densities of rare species among different localities. We suggest a series of intensive, frequent, non-destructive surveys at high-priority sites identified in previous studies (Appendices A-C), using variable, measured effort (number of seine hauls, distance seined, etc.), retaining all individuals of the three species collected. These fish should be enumerated, measured (total length to the nearest mm), and, if feasible, uniquely marked (e.g., with subcutaneous injections of fluorescent latex) prior to on-site release. This protocol will allow determination of relative densities among sites, description of population size/age structure, and quantification of population size and local movements (from subsequent recaptures). When numbers permit, voucher specimens of larger individuals should be preserved to determine additional life history parameters (e.g., fecundity, condition, growth rates).
Due to the rapid growth and maturation, and short life-spans of all three species, these surveys should be repeated over short intervals (i.e., several weeks or months). Data for Fort Gordon populations should then be compared with populations outside the fort (or in the scientific literature) to objectively determine their status on the installation.

<u>Enhance existing habitat</u> – The distinctive, and disparate, habitat affinities of the three species make it possible to create specific habitats for each of them. Habitat for the Savannah darter can be improved by maintaining constant, minimal flow (and higher water velocities) in the stream channel. In Sandy Run Creek, this can be accomplished by controlled releases from the reservoirs, especially Union Mill Pond. Such releases do not necessarily dictate increased total releases of water or reductions in pool level – only slower gradual releases to maintain flow within the channel downstream from the reservoirs. The Savannah darter would also benefit from the placement of small, inchannel structures – such as boulders, root masses, and embedded large woody debris – which would create resting areas (velocity refugia), nesting sites, and cover from predators. These structures could be placed in the stream or allowed to recruit from natural riparian processes (encroaching growth of trees, litter fall). These structures would also provide habitat for mud sunfish.

Habitat for the bluebarred pygmy sunfish can be improved by creating areas of very shallow, slack water. This can be done most readily in lentic or off-channel areas. Ponds can be aquascaped by excavating terraced edges along the water's edge. This will create a rim (or rims) of very shallow water (at various pool elevations) that can be colonized by vegetation and inhabited by pygmy sunfish but which will exclude the larger predatory fishes that predominate in the ponds. Likewise, tributary seeps and runs (such as those flowing into Spirit (McCoy's) Creek at North Range Road, which provide seasonal habitat, could be enhanced by creating small sills that would pool water behind them and prevent seasonal drying (or, at least, prolong persistence of aquatic habitats). This approach has been used to enhance habitat for bluebarred pygmy sunfish in South Carolina.

The co-occurrence of all three species at the site of the Gibson Road mill ruins on Boggy Gut Creek and at the man-made scour pool below Union Mill Pond on Sandy Run Creek demonstrate that habitat for all three species can be created or improved by structures, including artificial structures, that increase stream channel complexity and stability. Weirs or alternating dikes, create permanent areas of deeper water, increase channel sinuosity (and cross-sectional diversity in water depth and velocity), and reduce stream bank erosion (reducing turbidity). These structures would also provide additional food resources by creating slack water, pools for zooplankton production. Bank stabilization and reforestation of cleared areas would also reduce erosion and turbidity, and would provide hard substrates uncommon (and potentially limiting) in streams of this region. These would also offer important feeding areas for fishes by providing substrate for the development of periphyton (e.g., diatoms) and periphyton-associated invertebrates.

<u>Consider fish transplantations with caution</u> – Transplanting fish to increase population size and expand geographic distribution should be avoided if at all possible. It is a measure that is probably unnecessary and potentially harmful. Savannah darter and bluebarred pygmy sunfish are already broadly distributed in the streams and respond numerically to preferred ranges of hydraulic conditions and water quality (Tables 2 and 3). Population size and geographic distribution will increase if favorable habitats are provided for them. Mud sunfish may also be broadly distributed; apparent restriction to two streams may be artifacts of their natural rarity, low population densities of fishes in the streams of this region, and sampling that has been insufficient for their documentation.

Taxonomic debate and the lack of genetic study of Savannah darter, genetic distinctions among different populations of bluebarred pygmy sunfish, and the extreme rarity of mud sunfish all argue against relocations of fish from one location to another. If transplantations are attempted, they should be restricted to locations within the same drainage (i.e., transplantations between the Spirit Creek drainage and the Brier Creek drainage should be avoided).

Establish captive propagation program for the bluebarred pygmy sunfish- The Savannah dater and mud sunfish are both considered Currently Stable by the American Fisheries Society and neither is listed as threatened or endangered by the sates of South Carolina or Georgia. In contrast, the bluebarred pygmy sunfish is considered vulnerable by the American Fisheries Society, a species of Special Concern by South Carolina, and Critically Imperiled by Georgia. Pygmy sunfishes, however, unlike most darters and sunfishes, are readily maintained in small containers and have been bred by aquarists for decades (Nachstedt and Tusche, 1961; Innes 1966). Propagation of this species, then, is a very practical option for establishing captive populations. Such populations could be used to study genetics, behavior, life history, and environmental requirements. They would also provide a reservoir of individuals for restocking habitats following catastrophic events (e.g., development, de-watering, drought).

The captive propagation of pygmy sunfishes has been assigned high priority by the American Zoo and Aquarium Association (AZA) for its member institutions. The Riverbanks Zoological Park in Columbia, South Carolina, has established a program to breed and maintain all species (M. Salmon, pers. comm.). Goals of the Riverbanks Pygmy Sunfish Project are: 1) establish breeding populations of the three rare species of pygmy sunfishes [inclusive of the bluebarred pygmy sunfish] with separate management of Ecologically Significant Units; 2) catalog genetic material; 3) facilitate release of captive-bred fish into areas of traditional range; 4) possibly formulate a Memorandum of Understanding with the U.S. Fish and Wildlife Service to establish populations on federal lands.

Judicious collecting of bluebarred pygmy sunfish from locations at Fort Gordon where they are abundant (e.g., Sandy Run Creek impoundments, Spirit Creek at North Range Road) would assist the Riverbanks Pygmy Sunfish Project in meeting those goals with negligible impact on local populations. Support required from Fort Gordon to initiate this effort would be minimal (i.e., providing access and opportunity for designated collectors) but could result in substantial benefits. Immediate returns would include additional information on the biology of the Fort Gordon populations for future management decisions (e.g., creating optimal spawning conditions). Long-term returns would include established captive populations that could serve as reservoirs for future management actions (e.g., restocking or establishment of new populations). We recommend, however that habitat restoration guidelines should be developed from existing data and from additional field studies on site and at other localities, prior to release of captively bred fishes.

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Appendix A. Recent records for Savannah darter at Fort Gordon, GA. Surveys conducted by Waterways Experiment Station. Specimens deposited in the Museum of Zoology, University of Louisiana at Monroe.

Location	Station	Date	Gear	Number
Spirit Creek	Range Road	10 Nov 97	Seine	5
Sandy Run Creek	Union Mill Pond Outflow	12 Nov 97 12 Mar 98 25 Jun 98	Seine Seine LT [1]	16 30 1
Sandy Run Creek	Reach Below Union Mill	13 Nov 97 12 Mar 98	Seine Seine	1 2
Boggy Gut Creek	Gibson Road	13 Nov 97 11 Mar 98	Seine Seine	15 13
Boggy Gut Creek	Harlem Road	12 Nov 97 11 Mar 98	Seine Seine	3 4

Head Stall Creek	Near Highway 221	12 Nov 97	Seine	1
Head Stall Creek	Near Reeves	12 Nov 97 13 Mar 98	Seine Seine	9 1
Brier Creek	Upper Reach	11 Nov 97 23 Jun 98	Seine LT	8 1
Brier Creek	Lower Reach	11 Nov 97	Seine	1
Total Number			Seine LT	109 2

1 LT = Light-trap

Appendix B. Recent records for bluebarred pygmy sunfish at Fort Gordon, GA. Surveys conducted by Waterways Experiment Station. Specimens deposited in the Museum of Zoology, University of Louisiana at Monroe.

Location	Station	Date	Gear	Number
Spirit (McCoy's) Creek	North Range	10 Nov 97 11 Nov 97 11 Mar 98 11 Mar 98 25 Jun 98	Seine LT Seine LT LT	20 3 21 3 17
Sandy Run Creek	Leitner Pond	13 Nov 97 14 Nov 97 11 Mar 98 11 Mar 98 24 Jun 98	Seine LT Seine LT LT	5 1 16 3 2
Sandy Run Creek	Reach between Ponds	11 Mar 98	LT	2
Sandy Run Creek	Lower Leitner Pond	13 Nov 97 14 Nov 97 11 Mar 98 12 Mar 98 24 Jun 98	Seine LT Seine LT LT	5 1 2 1 4
Sandy Run Creek	Union Mill Pond	13 Nov 97 14 Nov 97 11 Mar 98	Seine LT Seine	5 1 6
Sandy Run Creek	Union Mill Pond Outflow	12 Nov 97 12 Mar 98	Seine Seine LT LT	41 6 2 3

		13 Mar 98 25 Jun 98		
Boggy Gut Creek	Gibson Road	13 Nov 97 13 Nov 97 11 Mar 98	Seine LT Seine	18 2 8
Boggy Gut Creek	Harlem Road	12 Nov 97 12 Mar 98 23 Jun 98	Seine LT LT	1 1 1
Brier Creek	Upper Reach	23 Jun 98	LT	20
Brier Creek	Lower Reach	23 Jun 98	LT	2
Total Number			Seine LT	154 69

Appendix C. Total records for Mud sunfish at Fort Gordon, GA. Surveys conducted by Waterways Experiment Station. Specimens deposited in the Museum of Zoology, University of Louisiana at Monroe.

Location	Station	Date	Gear	Number
Boggy Gut Creek	Gibson Road	08 Dec 95 17 Oct 96	Seine Seine	2 1
Sand Run Creek	Union Mill Pond Outflow	12 Noc 97	Seine	1
Total Number			Seine	4

APPENDIX Z
Vertebrate Pest Control Responsibility Matrix

Vertebrate Pest Control Responsibility Matrix

Purpose - To provide accurate and consistent information to customers regarding who to call for pest management support. Regardless of lead assignment, each organization will work to aid and assist other organizations as required to ensure that the needs of the customer are addressed in a safe, timely and efficient manner.

	Fort Gordon Cantonment Area (except housing areas)	RCI Family Housing Fort Gordon (Exterior)	RCI Family Housing Fort Gordon (Interior)	Fort Gordon Training Areas
Dogs, Cats	DPW Base Ops. Contractor	DPW Base Ops. Contractor	N/A	DPW Base Ops. Contractor
Large Mammals (deer, feral hogs, bears, coyotes)	NRB Fish and Wildlife	NRB Fish and Wildlife	N/A	NRB Fish and Wildlife
Meso-Mammals (raccoon, opossums, skunks, armadillos, beavers)	NRB Fish and Wildlife	NRB Fish and Wildlife	N/A	NRB Fish and Wildlife
Small Mammals (rats, mice, squirrels and all other vertebrate mammal pests)	DPW Base Ops. Contractor	RCI Contractor	RCI Contractor	DPW Base Ops. Contractor
Bats	NRB Fish and Wildlife	NRB Fish and Wildlife	NRB Fish and Wildlife	NRB Fish and Wildlife
Birds, non-MBTA protected (pigeons, starlings, house sparrows)	DPW Base Ops. Contractor	RCI Contractor	RCI Contractor	DPW Base Ops. Contractor
Birds, MBTA protected (all birds except pigeons, starlings, house sparrows)	NRB Fish and Wildlife	NRB Fish and Wildlife	RCI Contractor, Consult NRB Fish and Wildlife	NRB Fish and Wildlife
Snakes*	NRB Fish and Wildlife	NRB Fish and Wildlife	RCI Contractor	NRB Fish and Wildlife
Dead Animals**	DPW Base Ops. Contractor	RCI Contractor	RCI Contractor	NRB Fish and Wildlife
Dangerous/Aggressive Animals*	DES Military Police or Conservation Law Enforcement	DES Military Police or Conservation Law Enforcement	DES Military Police or Conservation Law Enforcement	DES Military Police or Conservation Law Enforcement

***** DES is uniquely resourced to provide prompt 24/7 response to emergency calls regarding snakes or other potentially dangerous wildlife within cantonment area, Family Housing (RCI) and along roadways and throughout the installation. DES will secure area and call RCI or Base Ops contractor or NRB Fish &Wildlife to take action as required. The Natural Resource Branch will provide technical support, training, educational materials, permits and direct support as needed to safely address calls related to snakes and other potentially dangerous wildlife.

** All dead deer should be reported to NRB Fish and Wildlife

Contact Phone Numbers: DES/MPs: 791-4380 DPW Base Ops: 791-5520 RCI: 772-9562 NRB Fish & Wildlife: 791-6135/2397