

# INTEGRATED PEST MANAGEMENT PLAN



**VIRGINIA ARMY NATIONAL GUARD**

**2008-2013**

**Prepared for VAARNG by:**



**AND**

**C. W. Bennett  
Integrated Consulting, LLC**





# VAARNG INTEGRATED PEST MANAGEMENT

## QUICK REFERENCE GUIDE



### PRINCIPLES OF IPM

IPM IS A MULTIDISCIPLINARY APPROACH TO CONTROL PESTS (DISEASE VECTORS, NUISANCE ORGANISMS, AND UNWANTED VEGETATION). IT COMBINES MECHANICAL AND PHYSICAL MEASURES WITH CULTURAL AND CHEMICAL MEASURES. FOR EXAMPLE: KEEPING THE MESS AREA CLEAN AND PREVENTING ACCESS TO RODENTS BY SEALING OFF ENTRANCES (CRACKS AND HOLES) CAN ELIMINATE (OR AT LEAST REDUCE) THE NEED FOR MOUSE TRAPS OR POISONS.

TAKE TIME TO LEARN ABOUT THE PEST YOU ARE TRYING TO CONTROL BEFORE YOU CHOOSE YOUR STRATEGY. COMBINING SEVERAL TECHNIQUES AND EMPLOYING IPM WILL AID IN YOUR SUCCESS. IF CHEMICAL TREATMENT IS A NECESSARY PART OF YOUR ASSAULT, REMEMBER A FEW KEY THINGS:

**DO:**

- KEEP RECORDS OF PESTICIDE APPLICATION (ESPECIALLY CONTRACTED SERVICES)
- REPORT PESTICIDE USE QUARTERLY
- FOLLOW THE REQUIREMENTS OF THE LABEL AT ALL TIMES
- TRIPLE RINSE EMPTY APPLICATION EQUIPMENT AFTER PROPERLY USING ALL CONTENTS -- APPLY THE RINSE WATER JUST AS THE PESTICIDE
- ACQUIRE ALL PESTICIDES THROUGH THE SUPPLY SYSTEM

**DO NOT:**

- PURCHASE AND APPLY OVER THE COUNTER PESTICIDES
- DISCARD EXCESS PESTICIDES INTO SINKS OR TRASH RECEPTACLES
- APPLY PESTICIDES IF YOU ARE NOT AUTHORIZED BY DOD OR VDACS (TO INCLUDE CONTRACTORS)
- ALLOW THE USE OF PESTICIDES NOT AUTHORIZED BY VAARNG

THE INTEGRATED PEST MANAGEMENT PLAN (IPMP) THAT ACCOMPANIES THIS GUIDE HAS DETAILED INFORMATION ON POLICIES AND PROCEDURES FOR THE VAARNG, INCLUDING THE SELF-HELP PROGRAM. PEST OUTLINES FOR ORGANISMS IN VIRGINIA ARE IN THE IPMP. SOME COMMON PESTS ARE DETAILED ON THE BACK OF THIS GUIDE.

**AN EXCEL SPREADSHEET IS AVAILABLE ON THE VAARNG PEST MANAGEMENT WEBPAGE TO FACILITATE CALCULATING AND REPORTING PESTICIDE USE DATA.**

<b>CONTACT NUMBERS</b>	
VAARNG Pest Management	434-298-6391
Fort Pickett Pest Management	434-292-2333
VAARNG Environmental	434-298-6413
Fort Pickett Environmental	434-292-2144
DOD Pesticide Hotline	410-436-3773

<b>REFERENCES</b>
AR 200-1
DODI 4150.7
FIFRA

<b>WEBSITES</b>
VAARNG PEST MANAGEMENT <a href="http://vko.va.ngb.army.mil/VirginiaGuard/environmental/IPM.htm">http://vko.va.ngb.army.mil/VirginiaGuard/environmental/IPM.htm</a>
VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES <a href="http://www.vdacs.virginia.gov/pesticides/index.shtm">http://www.vdacs.virginia.gov/pesticides/index.shtm</a>
U.S. ARMY ENVIRONMENTAL COMMAND <a href="http://aec.army.mil/usaec/pest/index.html">http://aec.army.mil/usaec/pest/index.html</a>
ARMED FORCES PEST MANAGEMENT BOARD <a href="http://www.afpmb.org/index.htm">http://www.afpmb.org/index.htm</a>

THIS QUICK REFERENCE GUIDE TO COMMON PESTS IS **NOT** DESIGNED TO REPLACE THE FULL PEST OUTLINES IN THE IPMP



**MOSQUITOS**  
ELIMINATE STANDING WATER



**RODENTS**  
KEEP AREAS SANITIZED;  
ELIMINATE ACCESS



**ANTS**  
KEEP AREAS SANITIZED;  
SEAL CRACKS IN STRUCTURES



**TICKS**  
USE PERMANONE TO TREAT  
UNIFORMS;  
USE DEET ON SKIN;  
MOW OR CHEMICALLY  
TREAT BIVOUAC AREAS



**BAGWORMS**  
REMOVE BY HAND;  
MAY KILL ORNAMENTAL TREES



**SNAKES**  
A NATURAL PREDATOR  
OF RODENTS



**WASPS**  
POISON FREE WASP  
KILLER IS AVAILABLE



**UNDESIRABLE PLANTS**



**KUDZU**  
INVASIVE EXOTIC;  
NOTIFY PMC



**TREE OF HEAVEN**  
INVASIVE EXOTIC;  
NOTIFY PMC



**POISON IVY**  
TREAT CHEMICALLY  
(GLYPHOSATE)

**TIPS**

**SANITIZE**

- KEEP LIVING AREAS FREE OF FOOD CRUMBS
- KEEP EXTERIORS MOWED AND TRIMMED
- ELIMINATE HARBORAGE AREAS
- ELIMINATE MOISTURE UNDER BUILDINGS
- KEEP GRASS MOWED HIGH (IT WILL HELP CHOKE AND SHADE OUT WEEDS)
- SANITIZE HEAVY EQUIPMENT BEFORE MOVING TO A NEW SITE

**SEAL**

- ELIMINATE CRACKS INSIDE AND OUTSIDE BUILDINGS

**LET NATURE DO THE WORK**

- MANY PESTS HAVE NATURAL PREDATORS
- USE NATIVE PLANT SPECIES IN LANDSCAPING

**USE THE RIGHT TOOL**

- RESIDUAL HERBICIDES WILL KEEP FENCE LINES CLEAR ALL SEASON
- USE STRING TRIMMERS INSTEAD OF HERBICIDES IN HIGH VISIBILITY AREAS

**INTEGRATED PEST MANAGEMENT PLAN FOR**  
**VIRGINIA ARMY NATIONAL GUARD**

REVIEWED BY:

\_\_\_\_\_ DATE: \_\_\_\_\_  
Gilbert E. Hanzlik Jr.  
LTC, EN, VAARNG  
Assistant Chief of Staff, Facilities and Engineering Management

\_\_\_\_\_ DATE: \_\_\_\_\_  
Douglas M. Hamm  
Environmental Program Manager, VAARNG-FM-E

\_\_\_\_\_ DATE: \_\_\_\_\_  
James C. Shaver Jr.  
CPT, FA, VAARNG  
Pest Management Coordinator

\_\_\_\_\_ DATE: \_\_\_\_\_  
Annette D. Morris  
LTC, MS, VAARNG  
Occupational Health Nurse

APPROVED BY:

\_\_\_\_\_ DATE: \_\_\_\_\_  
Robert B. Newman Jr.  
Maj Gen, VaANG  
The Adjutant General

\_\_\_\_\_ DATE: \_\_\_\_\_  
Kenneth E. Conley  
Pest Management Consultant, NGB

**INTEGRATED PEST MANAGEMENT PLAN  
FOR  
VIRGINIA ARMY NATIONAL GUARD**

**TABLE OF CONTENTS**

<b>SECTION</b>	<b>Page</b>
<b><u>EXECUTIVE SUMMARY</u></b>	1
<b><u>1. INTRODUCTION</u></b>	3
<u>1.1 Purpose</u>	3
<u>1.2 Authority</u>	3
<u>1.3 Program Objective</u>	3
<u>1.4 Plan Format</u>	3
<b><u>2. RESPONSIBILITIES</u></b>	4
<u>2.1 Adjutant General</u>	4
<u>2.2 Director of Installation Management Agency</u>	4
<u>2.3 Environmental Office</u>	4
<u>2.4 Occupational Safety and Health Office</u>	5
<u>2.5 Pest Management Coordinator</u>	5
<u>2.6 Quality Assurance Evaluator, Pest Management</u>	5
<u>2.7 Contracting Officers Representative, Pest Management</u>	6
<u>2.8 Building Occupants/Facility Managers</u>	7
<u>2.9 Pest Management Personnel</u>	7
<b><u>3. GENERAL</u></b>	8
<u>3.1 Installation Description</u>	8
<u>3.1.1 Fort Pickett and SMR</u>	8
<u>3.1.2 Other Installations and Facilities</u>	11
<u>3.2 Inventory of Land Use and Layout of Facilities</u>	12
<u>3.3 Unique Features and Missions</u>	12
<u>3.4 Plan Maintenance</u>	12
<b><u>4. PEST MANAGEMENT PRIORITIES</u></b>	12
<u>4.1 Disease Vectors and Medically Important Pests</u>	13
<u>4.2 Quarantine Pests</u>	13
<u>4.3 Vertebrate Pests</u>	14
<u>4.4 Real Property Pests (Structural/Wood Destroying Pests)</u>	14
<u>4.5 Stored Products Pests</u>	14
<u>4.6 Ornamental Plant and Turf Pests</u>	15
<u>4.7 Undesirable Vegetation</u>	15
<u>4.8 Household and Nuisance Pests</u>	15
<u>4.9 Other Pest Management Requirements</u>	15
<b><u>5. INTEGRATED PEST MANAGEMENT (IPM)</u></b>	17
<u>5.1 IPM Principles</u>	17
<u>5.2 IPM Outlines</u>	17

<b><u>6. HEALTH AND SAFETY</u></b>	18
<u>6.1 Medical Surveillance of Pest Management Personnel</u>	18
<u>6.2 Hazard Communication</u>	18
<u>6.3 Transporting Pesticides</u>	19
<u>6.4 Personal Protective Equipment</u>	19
<u>6.5 Fire Protection</u>	19
<u>6.6 Pest Control Vehicles</u>	20
<b><u>7. ENVIRONMENTAL CONSIDERATIONS</u></b>	20
<u>7.1 Protection of the Public</u>	20
<u>7.2 Sensitive Areas</u>	20
<u>7.3 Endangered/Protected Species and Critical Habitats</u>	21
<u>7.4 Environmental Documentation</u>	22
<u>7.5 Pesticide Spills and Remediation</u>	24
<u>7.6 Pollution Control/Abatement Projects</u>	24
<u>7.7 Pollution Prevention (P2)</u>	24
<u>7.8 Prohibited Activities</u>	24
<u>7.9 Pesticide Use Reduction</u>	25
<b><u>8. ADMINISTRATION</u></b>	25
<u>8.1 Contracts</u>	25
<u>8.1.1 MTC - Fort Pickett</u>	25
<u>8.1.2 Statewide Facilities</u>	25
<u>8.2 Work Orders</u>	25
<u>8.3 Interservice Support Agreements (ISA) and Memorandums of Agreement (MOA)</u>	25
<u>8.4 Agricultural Outleases</u>	25
<u>8.5 Resources (Current and Proposed)</u>	26
<u>8.5.1 Staffing</u>	26
<u>8.5.2 Materials and Equipment</u>	26
<u>8.5.3 Facilities (Mixing and Storage Sites)</u>	26
<u>8.6 Reports and Records</u>	26
<u>8.7 Training, Certification, and Licensing</u>	27
<u>8.8 Quality Assurance/Quality Control</u>	27
<u>8.9 Design/Review of New Construction</u>	28
<u>8.10 5-Year Plan</u>	28
<b><u>9. COORDINATION - FEDERAL, STATE, LOCAL</u></b>	28
<b><u>10. SALE AND DISTRIBUTION OF PESTICIDES</u></b>	29
<u>10.1 Family Housing Self-Help</u>	29
<u>10.2 Other Activities</u>	29
<b><u>11. PEST MANAGEMENT SERVICES PROVIDED TO OTHER ACTIVITIES</u></b>	29
<u>11.1 Tenant Activities</u>	29
<u>11.2 Agencies Located Off the Installation</u>	30
<b><u>12. REGULATED PESTS</u></b>	30
<u>12.1 Quarantine Pests</u>	30
<u>12.2 Retrograde Cargo</u>	30
<u>12.3 Noxious Weeds</u>	30

<b><u>13. PEST MANAGEMENT REFERENCES</u></b>	30
<u>13.1 Federal and State Laws</u>	30
<u>13.2 DoD Regulations, Memorandums, and Agreements</u>	31
<u>13.3 Army Regulations</u>	31
<u>13.4 Technical Bulletins and Manuals</u>	31
<u>13.5 USACHPPM Guides</u>	32
<u>13.6 AFPMB Technical Information Manuals</u>	32
<u>13.7 Other References, Manuals, Books, and Guides</u>	34
<u>13.8 Periodicals</u>	34

## **APPENDICES**

- A [Integrated Pest Management Outlines for the Virginia National Guard](#)
- B [Virginia National Guard Facilities List](#)
- C [Virginia National Guard Integrated Pest Management 5-Year Plan](#)
- D [Biological Data on 25 Common Species of Mosquito Found in Virginia](#)
- E [Pre-Fire Plans for Installations/Facilities that Store Pesticides](#)
- F [Endangered and Threatened Species Lists for the State of Virginia](#)
- G [Pesticide Spill Cleanup and Management](#)
- H [Pest Management Certificates of Training/Competency](#)
- I [Federal Resources Available to Support VAARNG Pest Management Program](#)
- J [Virginia National Guard Local and State of Virginia Points of Contact](#)
- K [Virginia National Guard Self-Help Program](#)
- L [Environmental Documentation](#)
- M [Aerial Validation Plans](#)
- N [Pesticides Used By VAARNG](#)
- O [Fort Pickett BASH Plan](#)

## **EXECUTIVE SUMMARY**

The purpose of this document is to describe pest management activities performed by and for the Virginia Army National Guard (VAARNG). The VAARNG maintains over 65 facilities located across the state. The ARNG Maneuver Training Center (MTC) at Fort Pickett, the principal VAARNG installation, is located in south central Virginia near the town of Blackstone approximately 35 miles west of Petersburg. Other facilities include the State Military Reservation (SMR) at Camp Pendleton located in Virginia Beach, the Army Aviation Support Facility (AASF) located in Sandston, and various smaller satellite sites such as readiness centers and Field Maintenance Shops (FMS) located throughout the state.

The VAARNG has both a state and a federal mission. The Mission Statement reads *“To provide an organization manned, equipped and trained to protect and serve our communities, Commonwealth and Nation.”* When called by the Governor, the state mission supports civil authorities in the protection of life and property and preservation of peace, order, and public safety. When called by the President in times of war and national emergency, the federal mission provides trained, equipped personnel and units capable of rapid deployment. The community level mission as a “good neighbor” is supported by civilian and government agency use of various facilities for training, educational, and recreational purposes. VAARNG personnel also participate in local events statewide for public involvement and outreach.

The contents of this plan apply to all activities and individuals working, residing or otherwise doing business on VAARNG installations, and are implemented to the maximum extent possible. Pest management operations are conducted in a manner respectful to the health and safety of personnel and the environment. Pest management responsibility begins with those individuals who occupy or maintain buildings or open space on the installation. Non-chemical control efforts are used to the maximum extent possible before pesticides are used. This is done by using Integrated Pest Management (IPM) principles which consists of combining mechanical and physical, cultural, biological, and chemical control techniques to achieve effective results with minimal environmental contamination. This plan is a working document and will be updated in an ongoing basis to reflect actual pest management practices.

The Integrated Pest Management Plan for VAARNG describes the pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety, and environmental requirements of the program. The program primarily uses state-certified contract and Department of Military Affairs (DMA) pest management technicians to control pests.

Pests covered in the plan include cockroaches and other crawling insects, medically important pests such as ticks and mosquitoes, rodents and other vertebrate pests, and weeds and other unwanted vegetation. Without control, these pests could interfere

with the military mission, damage real property, damage natural resources, increase maintenance costs and expose installation personnel to diseases. Actual pest management procedures are found in the Integrated Pest Management Outlines included as [Appendix A](#). A list of pest management sites is given in [Appendix B](#).

## **SECTION 1 - INTRODUCTION AND BACKGROUND**

### **1.1 PURPOSE**

This integrated pest management plan (IPMP) is a framework through which integrated pest management is defined and accomplished at Virginia Army National Guard facilities. The plan identifies elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. This plan is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques.

### **1.2 AUTHORITY**

[DoD Instruction 4150.7, DoD Pest Management Program](#), 22 April 1996.  
[AR 200-1](#), Environmental Protection and Enhancement, 13 December 2007.  
Memorandum, NGB/TAG All States, 21 January 1997, subject: (All States Log Number P97-0027) Integrated Pest Management.

### **1.3 PROGRAM OBJECTIVE**

Integrated Pest Management is defined as the coordinated use of pest and environmental information along with available pest control methods, including cultural, biological, genetic and chemical methods, to prevent unacceptable levels of pest damage by the most economical means, and with the least possible hazard to humans, materiel, property, and the environment. This plan provides guidance for operating and maintaining an effective IPM program. Adherence to the plan will ensure effective, economical, and environmentally sound pest management, and will assist in compliance with laws, regulations, and policies applicable to the VAARNG.

### **1.4 PLAN FORMAT**

Two sources were consulted to determine the format and components for the VAARNG Plan. These were: Enclosure 8. DoD Instruction 4150.7, *DoD Pest Management Program*, 22 April 1996 ([IPMP Section 13.B.1](#)) and the Army Environmental Center (AEC) publication, *Guidelines to Prepare Pest Management Plans for Army Installations and Activities*, September 1996 ([IPMP Section 13.7a](#)). Although the suggested elements of Integrated Pest Management Plans are similar in both publications, the order in which they appear is not. This Plan more closely follows the suggested format and includes the elements found in the AEC publication.

## **SECTION 2 - RESPONSIBILITIES**

### **2.1 ADJUTANT GENERAL**

- a. Ensure that adequate funds and staffing are provided to support installation pest management program requirements.
- b. Designate a Pest Management Coordinator (PMC) for all pest management activities.
- c. Approve and support the Integrated Pest Management Plan.
- d. Ensure that installation personnel performing pest management receive adequate training and obtain pest management certification as required.
- e. Ensure that all pest management operations are conducted safely and have minimal impact on the environment.

### **2.2 ASSISTANT CHIEF OF STAFF FACILITIES ENGINEERING and MANAGEMENT**

- a. Determine the pest management requirements for VAARNG.
- b. Request and evaluate contract pest management operations. Notify the Contract Officer Representative (COR) and PMC of changes needed or deviations observed regarding pest management contract operations.
- c. Modify pest management contract specifications if they are found not to incorporate the latest and most effective and least toxic IPM methodologies, in coordination with the PMC and other appropriate personnel.
- d. Monitor pest management contract operations for compliance with health, safety, and environmental standards.
- e. Maintain adequate records of pest management operations.

### **2.3 VAARNG ENVIRONMENTAL OFFICE**

- a. Provide coordinated environmental oversight to the VAARNG Pest Management Program. To facilitate this responsibility, the Pest Management Coordinator is located in this office.
- b. Advocate IPM principles and actively foster the pursuit of non-chemical control methods and the education of personnel in their use.

## **2.4 OCCUPATIONAL HEALTH NURSE AND SAFETY OFFICER**

- a. Coordinate with local health officials to determine the prevalence of disease vectors and other public health pests in the area surrounding VAARNG sites.
- b. Evaluate the health and safety aspects of the pest management program.

## **2.5 PEST MANAGEMENT COORDINATOR (PMC)**

- a. Prepare, monitor, and update the VAARNG IPMP.
- b. Coordinate with activities conducting pest surveillance or controlling pests to ensure all applicable information is recorded and reported as required by this plan. Monitor the sale and distribution of pesticides on installations.
- c. Function as a point of contact between those individuals who store and apply pesticides (e.g., Facilities Maintenance, pest management contractors, tenant activities) and activities or individuals who document or deal with pesticide use in their programs (e.g. Environmental Office, Safety Office, Fire Department, Industrial Hygienist).
- d. Oversee the technical aspects of the self-help program with respect to pest management items and training of facility managers.
- e. Coordinate and monitor contracts dealing with pesticide application and keep a copy of each contract on file.
- f. Coordinate with local, State and Federal agencies, as necessary, to conduct the command's pest management program.
- g. Provide answers to questions concerning pest management from Installation Commanders and Higher Headquarters [National Guard Bureau (NGB), and Department of the Army (DA)].

## **2.6 QUALITY ASSURANCE EVALUATORS (QAE) OF PEST MANAGEMENT CONTRACTORS**

- a. Obtain training in accordance with the DoD Pest Management Training and Certification Manual (DOD 4150.7-M), in the appropriate pest categories, unless a DoD/state-certified pesticide applicator is available to assist the QAE.
- b. Evaluate contract pest management operations to ensure contract specifications are met.
- c. Evaluate the functions/tasks of contract pest controllers while in progress to determine if effective pest management is being obtained.

- d. Notify the Contracting Officers' Representative (COR) and PMC of changes needed or deviations observed regarding pest management contract operations.
- e. Monitor pest management contract operations for compliance with health, safety, and environmental standards.
- f. Document the results of evaluation criteria of contract pest management operations.
- g. Monitor type, concentration, and method of application of pesticides used by contractor.

## **2.7 CONTRACTING OFFICERS' REPRESENTATIVE (COR) FOR PEST MANAGEMENT CONTRACTS**

- a. Oversee contract pest management operations to ensure contract specifications are met.
- b. Ensure pest management contract specifications refer to, or are based upon, specific IPM procedures detailed in Pest Management Outlines ([Appendix A](#)).
- c. Modify pest management contract specifications if they are found not to incorporate the latest and most effective and least toxic IPM methodologies, in coordination with the QAE and PMC.
- d. VAARNG is implementing an Environmental Management System (eMS), and as such requires all contracts involving pest management to include the following eMS language.

"The VAARNG is committed to reducing reliance on chemical pesticide control methods. An Integrated Pest Management Plan (IPMP) is maintained which covers pesticide applications in detail. The VAARNG has identified self-help methods which anyone may perform without notification or the requirement to provide evidence of a certified pesticide applicator license. These approved self-help methods are listed in the IPMP.

If you apply pesticides on VAARNG property, you must do so in accordance with label directions and properly manage all empty pesticide containers. You must use only the amounts of pesticide necessary to complete the application and not over-apply pesticides, or unnecessarily affect non-target organisms. You must provide complete pesticide application information and submit these to the appropriate point of contact at the worksite, who will in turn forward them to the VAARNG Environmental Office.

Your company's applicators are required to maintain certification, and will be required to provide proof of certification prior to performing applications on VAARNG property."

## **2.8 UNIT COMMANDER/FACILITY MANAGERS**

- a. Apply good sanitary practices to prevent pest infestations.
- b. Use all pest management techniques available through self-help to the fullest extent  
before requesting further assistance from Facilities Engineering and Management.
- c. Except for pesticides used as part of the Self-Help pest control program, only certified applicators will apply those pesticides approved for use by the PMC.
- d. Cooperate fully with CFMO personnel and contractors in scheduling pest management operations, to include preparing the areas to be treated.

## **2.9 VAARNG PEST MANAGEMENT PERSONNEL**

- a. Use IPM techniques to the maximum extent possible.
- b. Control pests according to the provisions of this plan.
- c. Operate in a manner that minimizes risk to the environment and personnel.
- d. Provide written records of pest surveillance and control efforts to the VAARNG PMC.
- e. Maintain appropriate certifications and seek additional training and education in IPM techniques.

## **SECTION 3 – SITE DESCRIPTION AND MISSION**

### **3.1 SITE DESCRIPTION**

The VAARNG operates from facilities, shops, and readiness centers across the Commonwealth of Virginia. The ARNG MTC-Fort Pickett in south central Virginia is the primary training installation for the VAARNG. The terms “Fort Pickett” and “MTC” are used interchangeably. SMR-Camp Pendleton is a smaller, satellite installation located in Virginia Beach. The Headquarters (Army) of the VAARNG is located in Building 316 on the MTC. Other properties consist of readiness centers, the Army Aviation Support Facility (AASF), Combined Support Maintenance Shops (CSMS), Field Maintenance Shops (FMS), and various assorted facilities with buildings on small parcels of land. A listing of all locations is provided in [Appendix B](#).

#### **3.1.1 ARNG MTC-Fort Pickett**

Fort Pickett originally consisted of approximately 45,148 acres federally owned when the installation was constructed in 1942 as a result of WWII. In 1995 the Base Realignment and Closure (BRAC) commission recommended the closure of Fort Pickett (Environmental Assessment 1997). Through the BRAC process, 3,474 acres were identified as surplus to the Department of Defense (DoD) needs. This consisted of an agricultural research station leased by Virginia Polytechnic Institute and State University, portions of the cantonment area, and Blackstone Army Airfield. All excess areas identified in the BRAC process were formally transferred in April 2000. The remaining property transferred to the VAARNG on October 1, 1997.

The mission of the MTC is to provide a training site capable of handling up to brigade size elements for live fire and maneuver training of reserve and active component forces of all services. The primary uses of the MTC are live fire and maneuver training of combat, combat support, and combat service support units. Most units combine live fire exercises with maneuver training. All arms (air and ground) of all the branches of service, train at the MTC. Units training at the MTC are capable of firing all weapons in the Army's inventory with the exception of air defense weapons in an air defense mode.

The VAARNG took over operational control of the MTC on 1 October 1997 through a Facility Use Agreement. Under the Facility Use Agreement, the Department of Army retains ownership of the land, and the VAARNG is authorized to use the land for military training activities. Because of the size and location of the MTC, the installation offers unique training opportunities for ARNG units from multiple states, the active military and a variety of federal, state and civilian agencies and organizations.

For VAARNG units located throughout central and southwestern Virginia, the MTC is the closest major training site that meets the training circular guidance for driving

time and cost efficiency. In addition, it offers realistic training for units throughout the year rather than just during the two week annual training period. The installation is located two miles east of the town of Blackstone and 35 miles southwest of the city of Petersburg.

**a. Location.** A map of the installation is presented in [Appendix B](#). The installation is contained within 4 counties: Nottoway, Dinwiddie, Brunswick, and Lunenburg.

**b. Topography.** The installation is located in the eastern portion of the piedmont physiographic province of Virginia. The region has well defined old age erosional surfaces with rolling hills, gentle slopes, and shallow stream valleys. The installation generally slopes to the east with elevations averaging between 410 meters (1,350 ft) above mean sea level (msl) along the western boundary to 90 meters (300 ft) above msl along the fall line to the east. Elevation is less than 60 meters (200 ft) above msl in some floodplain areas to the southeast.

**c. Geology.** The installation lies atop gneissic granite and granodiorite and biotite gneiss (Virginia Department of Mineral Resources, 1993). The bedrock is overlain with a nearly continuous layer of loose, weathered material composed of soil, saprolite, and alluvium. Soils developed from these materials are generally acidic.

**d. Soils and Surface Drainage.** Soils in the area were formed in place from highly weathered residuum of igneous and metamorphic parent materials. Soils formed from the materials mentioned in 3.1.1.c. are typically acidic in nature. Appling, Ashlar, Cecil, Chastain, Chewacla, Helena, Wedowee, and Wehadkee soil series occur in varying associations on post. The installation is located in the Roanoke River drainage basin and the Chowan River sub-basin. The Nottoway River, part of the Chowan River drainage comprises the primary east flowing drainage through the MTC.

**e. Climate.** The region is classified as humid subtropical. The climate is characterized by generally mild winters and hot humid summers. The average growing season length is approximately 190 days. The average annual precipitation is approximately 41 inches, which is rather evenly distributed throughout the year. The average summer temperature is 76.6 degrees F, and the average winter temperature is 38.7 degrees F.

**f. Vegetation.** Regionally, the vegetation of the MTC area is part of the oak-hickory - pine region described by Braun (1950). Many of the plant species are typical of the southeastern piedmont with some distinct coastal plain influences (Fleming and Van Alstine 1994). Furthermore, because of the unique land use associated with the military mission, there are several occurrences of rare and endangered species on the installation. Prescribed burns are regularly undertaken during appropriate conditions and seasons to reduce the risk of wildfires and for ecosystem management.

**g. Critical Habitat.** The MTC maintains habitat enhancement for the federally endangered plant Michaux's sumac. This species thrives in a fire-dependent habitat. Prescribed burns and fires due to ordnance training result in conditions that stimulate establishment of this species.

### **3.1.2 SMR-Camp Pendleton**

The SMR is a state owned facility located on General Booth Boulevard in the city of Virginia Beach, Virginia. The 328-acre installation is bordered by the Atlantic Ocean to the east, General Booth Boulevard to the west, Naval Air Station Oceana Dam Neck Annex to the south, and the Croatan residential neighborhood to the north. The facility is used mainly for military training of reserve personnel of the VAARNG and Virginia Air National Guard (VAARNG).

**a. Location.** A map of the installation is presented in [Appendix B](#).

**b. Geology.** The area is characterized by unconsolidated and semi-consolidated sand, gravel, clay, and some limestone.

**c. Topography.** SMR lies within the coastal plain region of Virginia which is characterized by a flat topography. The most prominent topographic features on the installation are the sand ridges and dunes which parallel the Atlantic Ocean. Although the actual beachfront is only 1200 feet, the 20 foot high sand ridge, which is highly developed in the area, extends from Sandbridge south to False Cape.

**d. Soils and Surface Drainage.** According to the City of Virginia Beach Soil Survey, some 19 different soil types exist on the SMR. Most of these soils are silty and sandy loams belonging to several different soil series. Soil transects reveal that the uppermost three feet of soil consists of a clay and silt mix, with a sandy soil below this depth. A drainage divide, which characterizes the installation, is located just east of the main entrance and runs in a north-south direction. Storm drainage is predominantly transported directly or indirectly into Lake Christine via culverts, ditches, piping, and swales. A small strip of SMR paralleling and west of General Booth Boulevard drains westerly toward Owl Creek.

**e. Climate.** The Virginia Beach area is characterized as having a temperate climate with moderate seasonal changes. Summer temperatures average about 78 degrees F in July, with winter temperatures averaging about 41 degrees F. Annual precipitation is 45 inches, with rainfall fairly evenly distributed throughout the four seasons. On the average of once a year, tropical storms of hurricane force pass within 250 miles of the area. Most tropical storms occur between August and October, with 40% of the storms occurring in September. Strong and persistent winds generated by these storms may cause severe area flooding.

**f. Vegetation.** Four distinct vegetation zones exist. The most predominant zone consists of maintained fields planted with a variety of lawn grasses. The second zone

is comprised of forested areas located along General Booth Boulevard and surrounding Lake Christine. The forested zone extends up to the maintained fields and/or paved areas on the SMR. While each forested area contains different species, dominant vegetation includes loblolly pine, live oak, and wax myrtle.

The third zone is a scrub/shrub fringe adjacent to portions of Lake Christine. The zone is characterized by low-lying vegetation. The fourth zone is the area of coastal dunes located along the eastern boundary of the SMR. These dunes, which are about 20 feet high are stabilized with native dune grasses.

**g. Critical Habitat.** There are currently no pest management activities that affect the habitat of Threatened, Endangered or protected species on the facility. However, alligator weed control in Lake Christine could affect the Northern Diamondback Terrapin habitat. Also, Loggerhead Sea Turtle nesting habit occurs along the beach. This should be noted in case dogfly control is proposed for the beach area in the future. SMR lies within the range of the Red Cockaded Woodpecker (RCW). Mature forest areas can be habitat for the RCW as well as the Canebreak Rattle Snake.

### **3.1.3 Other Installations and Facilities**

**a. Location.** More detailed information on the site can be obtained by contacting the site manager (see [Appendix J](#)).

**b. Readiness Centers, AASF, CSMS, FMS.** These facilities may consist of one to several buildings, usually on a parcel of land of five acres or less. More detailed information is available by contacting the facility manager (see [Appendix B](#)). The Facilities Inventory and Stationing Plan (FISP) are available at the Construction Facilities Management Office. VAARNG HQ may also be consulted for information on the facilities.

## **3.2 INVENTORY OF LAND USE AND LAYOUT OF FACILITIES**

The layout of major facilities on the MTC, SMR, and other VAARNG properties can be best characterized by maps ([Appendix B](#)).

## **3.3 UNIQUE FEATURES AND MISSIONS OF VAARNG**

VAARNG facilities are located across the Commonwealth of Virginia and, therefore, have historical, political, military, and logistical roles which are significantly intertwined with the functioning of the state and local governments.

The VAARNG has both federal and state missions. When called by the Governor, the State mission supports civil authorities in the protection of life and property and preservation of peace, order, and public safety. When called by the President in times of war and national emergency, the federal mission provides trained and equipped

personnel and units capable of rapid deployment. The community level mission as a “good neighbor” is supported by civilian and government agency use of various facilities for training, educational, and recreational purposes. VAARNG personnel also participate in local events statewide for public involvement and outreach.

### **3.4 PLAN MAINTENANCE**

This Integrated Pest Management Plan is maintained by the VAARNG PMC. Updates and changes are made continually as IPM techniques become available. Proposed changes to this plan that may have a significant effect on implementation will be sent to the NGB Pest Management Consultant for approval prior to adoption. The IPMP will be reviewed annually by the NGB Pest Management Consultant for cumulative changes. Major review and revision of the IPMP will be conducted every five years.

## **SECTION 4 - PEST MANAGEMENT PRIORITIES**

### **4.1 DISEASE VECTORS AND MEDICALLY IMPORTANT ARTHROPODS**

**Mosquitoes.** Mosquitoes historically have been a significant health threat at several VAARNG facilities, as well as being a nuisance that can interfere with the training mission. Most mosquito breeding that does occur on the grounds of the smaller facilities is in artificial containers and small temporary pools of water. Several viruses may be transmitted by species found near VAARNG facilities. A listing of mosquito species occurring in the state, their pest status, and the diseases they are capable of transmitting may be found in [Appendix D](#). Of particular concern are the various species of mosquitoes involved in the cycle for Eastern Equine Encephalitis and West Nile virus. Eastern Equine Encephalitis disease has produced several fatal cases in Rhode Island and in the Norfolk, VA area recently and is of concern to in coastal Virginia facilities. The West Nile Virus is transmitted by mosquitoes that have bitten infected birds, with crows, blue jays and raptors being the most common carriers of the virus. Most people bitten by infected mosquitoes do not become sick and most of those who do become sick show only mild symptoms. A few people do suffer serious illness, especially encephalitis (inflammation of the brain) or meningitis (inflammation of the lining of the brain or spinal cord). The virus is not spread from person to person or directly from birds to humans.

Fogging for adult mosquitoes is not done at most installations. Aerial or ground applications are performed by the City of Virginia Beach. These may impact mosquito control at the SMR. Routine mosquito control involves identifying and eliminating temporary water-holding breeding sites. If mosquito-borne diseases are detected in surrounding jurisdictions, then larval control may be initiated, depending upon the breeding habits of the potential vector. These functions are performed by local mosquito abatement districts.

**Ticks.** The MTC contains prime habitat to support **ticks** and their natural animal hosts. In fact, ticks and tick-borne diseases are known to occur at various locations throughout the state. Of particular concern is the **Lone Star tick** (*Amblyomma americanum*), a vector of human monocytic ehrlichiosis (HME). Also, included on the list of important vectors are the **American dog tick** (*Dermacentor variabilis*) that can transmit Rocky Mountain Spotted Fever and the **black-legged tick** (= deer tick) (*Ixodes scapularis*) that can carry Lyme disease (LD) and human granulocytic ehrlichiosis (HGE). Preventive and protective measures are stressed through public education by the VAARNG. Routine tick control on VAARNG property is limited to Fort Pickett and SMR. Bivouac sites are treated during annual training season as needed. A Buffalo Turbine is used to place a residual insecticide on this vegetation along field edges where ticks and chiggers quest.

**Bees and wasps** are found throughout VAARNG facilities. The stings are painful and can illicit serious allergic responses in some people. These insects are most prevalent during late summer and fall at almost all facilities. If a user encounters a honey bee swarm they should contact the local [Virginia Department of Agriculture and Consumer Services county office](#) <http://www.vdacs.virginia.gov/orgdirectory/bees.shtml>, or the local chapter of the Virginia Beekeepers Association (<http://www.virginiabeekeepers.org/>) to find a local beekeeper to capture the swarm.

**Filth flies** have created problems during the warm months in the past. Most are directly related to sanitation deficiencies.

## 4.2 QUARANTINE PESTS

**Red Imported Fire Ants** (RIFA) can be a nuisance as well as a health hazard. RIFA has been found in Virginia, imported on nursery stock from infested areas. A quarantine program was put in place on moving soil, soil moving equipment, hay, and other materials to prevent movement. The quarantine areas were then treated and the RIFA eradicated. No quarantine is currently in effect in Virginia. However, VAARNG personnel should be aware that RIFA can be imported on equipment and supplies coming from infested areas in Texas, Alabama, Louisiana, Arkansas, Tennessee, South Carolina, North Carolina, California, Mississippi, Georgia and Florida where many Army and Army National Guard installations are located.

**Gypsy Moth.** Gypsy Moth populations fluctuate and when moth populations peak, can cause severe defoliation and mortality of trees on VAARNG facilities. The importation of Asian gypsy moths into North Carolina is a concern for inadvertent introduction into Virginia. These pests can impact aesthetic and erosion control efforts. High numbers of adult and larval gypsy moths can also have human health implications due to irritating airborne scales and hairs generated from this insect. Although this region's gypsy moth populations have recently plummeted due to a naturally occurring pathogenic fungus, *Entomophaga maimaiga*, it is yet unclear whether the fungus' suppressive effect will continue in future years. Equipment must

be cleaned before leaving installations to reduce the chance of physically carrying moths egg masses or larvae between locations.

### **4.3 VERTEBRATE PESTS**

**Birds.** Nuisance birds exist at VAARNG facilities. Larger birds such as gulls and migratory birds can create an air traffic safety concern. A Bird Air Strike Hazard (BASH) program is required of military airfields where there is a significant threat from birds. Minimizing the availability of food provided by human-generated garbage is critical to decreasing the attractiveness of the surrounding area to shorebirds and migrants. Gulls can also perforate rubber membranes on roofs of buildings. Pigeons, starlings, and house sparrows roost under building eaves and around areas where food is an attractant. Architectural features of some buildings can be attractive roosting and nesting sites. The Fort Pickett BASH Plan is provided as [Appendix N](#)

**Rodents.** Rats and mice have been pests in food service facilities. The Hantavirus has been associated with the presence of mice in the barracks and buildings at Fort Pickett. Groundhogs create burrows in the cantonment area that may be hazardous to personnel and equipment. Groundhogs can also be a nuisance around and under buildings where they take up residence. These animals are carefully captured, removed alive, and relocated to a natural area on the installation. Beavers block stream culverts to create dams along waterways. These blockages can cause water to spill over roadways if left in place. Beavers also create wetlands that function as important erosion and sediment control structures. One method in use on the MTC to combat this problem is the replacement of many culverts with low water stream crossings. Where this is not feasible, blockages can be physically removed by DPW personnel after coordination with the VAARNG Environmental Office prior to initiating work. In situations where the problem is posing a safety hazard or the dams are being rebuilt too quickly, trapping can be used to control the beaver population. This should be the last resort.

**Feral/wild animals.** Stray cats and, to a lesser degree abandoned dogs are occasionally reported on the MTC. Feral/wild vertebrate control is performed by the Fish and Game Office. At other VAARNG facilities stray animal control is accomplished by local animal control authorities, or contract pest management technicians.

**Snakes and Squirrels.** Snakes and squirrels occasionally enter structures on VAARNG property. If this happens on Fort Pickett, the animals are carefully captured, removed alive, and relocated to a natural area on the installation. Proper sealing of structures will minimize incursion of these animals. Care should be taken not to wantonly kill snakes as they are an important predator of rodents. In extreme cases, the animals are humanely destroyed, in accordance with state law.

**Bats.** Bats are unique in that they may be considered pests if they enter buildings to roost and litter the facilities with guano, but they are also an important predator of mosquitoes and other flying insects. This predatory characteristic of bats makes them a significant factor in IPM. Installing bat boxes throughout the MTC cantonment area, or other facilities where bats are a nuisance, provides them with an alternative roosting site and draw them away from the buildings.

#### **4.4 REAL PROPERTY PESTS (STRUCTURAL/WOOD DESTROYING)**

**Subterranean termites** cause damage to wooden buildings and other structures on the installation. Surveys of wooden structures and treatment when termites are found have kept damage to a minimum. Warranties are maintained on buildings treated in the past.

**Carpenter ants** and **carpenter bees.** These insects also invade wooden structures and cause structural damage, particularly where wet conditions exist. In addition, the holes bored may provide access to other pests.

#### **4.5 STORED PRODUCTS PESTS**

Food items stored in the MTC Ration Distribution Center (Building 216) and food stored in food service facilities may become infested by stored products pests. “First in, first out” rotation procedures for infestable commodities that have been instituted in Troop Issue Subsistence Activities (TISA) DoD-wide have substantially reduced the probability that goods become infested. This procedure is also used at the MTC. However, some goods may be pre-infested at the production source. Commonly found stored product pests include: **saw-toothed grain beetles, red flour beetles, carpet beetles** and other **dermestids.** Warehouse invaders such as **rats, mice,** and **pest birds** can also have economic and health impacts.

#### **4.6 FOREST TREE PESTS**

Forest trees on VAARNG facilities may be attacked by southern Pine Beetles and other pests. These pests may kill entire stands resulting in wasted resources and large blocks of dead timber that is a hazardous training environment. Proper forest management will maintain the stands in a state of vigorous growth that will help prevent major pest outbreaks.

#### **4.7 ORNAMENTAL PLANT AND TURF PESTS**

Trees and shrubs on VAARNG facilities can be infested by various insect pests, resulting in damage or destruction of the plants. **Tent caterpillar** and **Gypsy moth** populations cyclically increase to levels that have caused tree defoliation in the past. **Lacebugs** commonly infest shrubbery. Pests that damage lawns require continuing surveillance and control.

#### **4.8 UNDESIRABLE AND EXOTIC VEGETATION (WEED CONTROL)**

**Weeds** that occur along fence-lines, on road shoulders, on paved surfaces, along decorative perimeter walls, on parade grounds and lawns of historic structures may require control using appropriate herbicides. Some control of unwanted plants is done mechanically (e.g., mowing, string trimmers). Invasive noxious weeds, particularly Kudzu and spotted knapweed, have been a problem at Fort Pickett. Herbicides are used for the control of undesirable and exotic hardwoods (sweetgum, maple, tree of heaven, etc.).

#### **4.9 GENERAL HOUSEHOLD AND NUISANCE PESTS**

Crawling insects (e.g., ants, cockroaches, crickets, ground beetles, earwigs, centipedes, millipedes, silverfish) and spiders may require control in billets, food service facilities, warehouses, offices and other administrative buildings. Pests in this category constitute minor pest problems on the installation. Proper sanitation and housekeeping will do much to discourage these pests. Control is also achieved through the Self-Help Program and through contract pest control services. Contracts are maintained at the VAARNG headquarters.

#### **4.10 OTHER PEST MANAGEMENT REQUIREMENTS**

Pest management technicians are responsible for carcass removal when carcasses are the result of control operations. The Post Commander shall assign the responsibility of animal carcass removal from roadways.

## **SECTION 5 - INTEGRATED PEST MANAGEMENT (IPM)**

Integrated pest management uses multiple techniques to prevent pests from occurring or to keep pest populations at or below an acceptable, non-destructive level.

Although IPM emphasizes the use of non-chemical strategies, chemical control may be an option used in conjunction with other methods. Successful IPM hinges on surveillance to establish the need for control and to monitor the effectiveness once control has been initiated.

### **5.1 IPM PRINCIPLES**

The four basic principles described below are the heart of IPM, and are descriptive of the philosophy used by the VAARNG to manage pests. Specific IPM measures can be found in the IPM Outlines. Specific pesticides approved for use in conjunction with these IPMOs are located in [Appendix A](#). While any one of these methods may solve a pest problem, often several methods are used concurrently, particularly if long-term control is needed. Additional useful information can be found in the Armed Forces Pest Management Board, Technical Guide No. 29, “Integrated Pest Management in and Around Buildings.” For example, screens may be used to prevent mosquitoes from entering buildings, breeding sites may be filled-in or drained to eliminate larval mosquito habitat, and pesticides may be used to kill adult mosquitoes. Screens will protect people inside, but do little to keep people from being bitten outdoors. Larval control may eliminate mosquito breeding on the installation, but may not prevent adult insects from flying onto the installation from surrounding areas. Chemicals may kill most of the flying mosquitoes, but may miss others. Although use of least-toxic pesticides is an integral part of IPM, non-chemical control is stressed. Use of pesticides is almost always a temporary measure and, in the long run, more expensive. Non-chemical control, which may initially be more expensive, will usually be more cost effective in the long run. Non-chemical controls also have the added advantage of being nontoxic, thereby reducing the potential risk to human health and the environment.

**Mechanical and Physical Control.** This type of control alters the environment in which a pest lives, traps and removes pests where they are not wanted, or excludes pests. Examples of this type of control include: harborage elimination in structures through caulking or filling voids, screening, mechanical traps or glue boards, and nets and other barriers to prevent entry into buildings.

**Cultural Control.** Strategies in this method involve manipulating environmental conditions to suppress or eliminate pests. For example, judicious sanitation at dining facilities reduces the attractiveness of the area to flocks of gulls and other birds that may cause increased air strike hazard. Planting or replacing ornamental trees and shrubbery with native plants that are less attractive to defoliating pests is another cultural measure.

**Biological Control.** In this control strategy, predators, parasites or disease organisms are used to control pest populations. For example, wasps that are parasitic on gypsy moth larvae and eggs have been released in previous years by Virginia state and federal officials in efforts to control that pest. Highly specific bacteria, viruses, and fungi have also been used against the gypsy moth. Biological control may be effective alone, but is often used in conjunction with other types of control.

**Chemical Control.** Pesticides are designed to kill specific types of living organisms. At one time, pesticides were considered to be the most effective control available, but pest resistance rendered many ineffective. In recent years, the trend has been to use pesticides that have limited residual action. While this has reduced human exposure and lessened environmental impact, the cost has risen due to requirements for more frequent application. Since personal protection and special handling and storage requirements are necessary with the use of pesticides, the overall cost of control can be quite high when compared with non-chemical control methods.

## **5.2 IPM OUTLINES**

Integrated Pest Management Outlines may be found in [Appendix A](#). Each major pest or category of similar pests is addressed, by site, in separate outlines. New outlines will be added to [Appendix A](#) as new pests or sites are encountered that require surveillance or control.

## **SECTION 6 - HEALTH AND SAFETY**

### **6.1 MEDICAL SURVEILLANCE OF PEST MANAGEMENT PERSONNEL**

The VAARNG does have a forestry department (state employees) whose performance of duties involves the use of significant amounts of pesticides. For contract pest management personnel, it is the responsibility of the contractor/contractor management to ensure that their personnel have appropriate medical screening in accordance with company policies and good health practices. DoD guidance that may be emulated by these non-DoD personnel is provided in U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Technical Guide 114, Guide for Medical Surveillance of Pest Controllers.

Personnel who handle or otherwise come into contact with wild or feral animals on the installation should consider receiving rabies prophylaxis and a booster as determined by an antibody test, every two years. Virginia wildlife authorities should be contacted to handle/trap wild or feral animals.

### **6.2 HAZARD COMMUNICATION**

The VAARNG personnel are given the approved DoD Hazard Communication (HAZCOM) Course relating to hazardous materials in the workplace. This HAZCOM training is mandatory for individuals working with hazardous chemicals. Personnel

can sign up for the course by calling the Safety Office. The currently known HAZCOM training status of personnel who work with, or may come in contact with, pesticides is on file with the PMC. DD Forms 1556, or other appropriate forms, for personnel who have received HAZCOM training are on file at the VAARNG Safety Office.

Material Safety Data Sheets for all pesticides and other toxic substances used in the MTC pest management program can be found in the MTC Environmental Office and Bldg. 303. Contractors providing pest management services at other facilities will provide the facility manager with copies of the MSDS for the pesticides used. These will be maintained by the facility manager. The VAARNG Safety Office stresses the importance of MSDS sheets being accessible, in common areas, to all employees working with pesticides. It is also stressed that a current inventory be maintained of all pesticides used in the workplace.

### **6.3 TRANSPORTING PESTICIDES**

All transportation of pesticides is to be done by contract pest management personnel, with the exception of the pesticides used at MTC by the Forester. It is incumbent upon these certified applicators to assure that transport is being done in accordance with applicable federal and state laws.

### **6.4 PERSONAL PROTECTIVE EQUIPMENT**

Approved masks, respirators, chemical resistant gloves and boots, and protective clothing required for pesticide operations are provided to pesticide applicators and to Quality Assurance Evaluators (QAEs) by the VAARNG or the contractor, as applicable. These items are used during the mixing and application of pesticides as required by applicable laws, regulations, and the pesticide label. Pesticide-contaminated protective clothing will not be laundered at home. The clothing will be laundered at the Pest Control Shop at the MTC or contracted commercially.

Due to the recent awareness of human disease risks that can be associated with rodents and rodent waste (hantaviruses; hantavirus pulmonary syndrome), emphasis is placed on using the appropriate respiratory protection, specifically HEPA filter cartridges, when pest management is necessary in enclosed areas that may be rodent infested. Additional protective measures are followed (e.g., using disposable gloves while disposing of trapped rodents, disinfection measures). Guidance is provided by the Department of Army ([IPMP Reference 13.](#)) and the Centers for Disease Control ([IPMP Reference B 7.](#)).

### **6.5 FIRE PROTECTION**

Currently only limited amounts of pesticides are kept at the MTC. Pre-fire coordination has been conducted between VAARNG's PMC and Fire Inspector to ensure that appropriate storage procedures are met regarding fire prevention ([Appendix E](#)). The PMC has provided pest management facility floor plans and

pesticide inventory to fire officials and will continue to send copies of inventories to the fire department annually or sooner if a major change in the inventory occurs. The MTC Fire Inspector will determine, using the pre-fire plan, which fire control efforts to employ depending on the size and type of fire at the time a fire call is reported.

## **6.6 PEST CONTROL VEHICLES**

Pest control contractors provide their own vehicles. Care is taken to secure pesticide containers to prevent damage to the containers and spillage of the chemicals. At no time are pesticides left unsecured in the vehicles when unattended. Pesticides or contaminated equipment are not placed in the cabs of the vehicles. A portable eye lavage and a spill kit are carried in each pest control vehicle when in use.

## **SECTION 7 - ENVIRONMENTAL CONSIDERATIONS**

### **7.1 PROTECTION OF THE PUBLIC**

Precautions are taken during pesticide application to protect the public, on and off the installation. Pesticides are applied outdoors only when weather conditions meet or exceed label specifications. Whenever pesticides are applied outdoors, care is taken to make sure that any spray drift is kept away from individuals, including the applicator. Public notification, using placards, is done when outdoor turf and vegetation treatments take place. Indoor pesticide application is accomplished by individuals wearing the proper personal protective clothing and equipment.

### **7.2 SENSITIVE AREAS**

Sensitive areas listed on pesticide labels are considered before pest management operations are conducted. No pesticides are applied directly to wetlands or water areas unless the sites are specifically approved on the label and the proposed application is approved by the VAARNG Environmental Office. Pest management procedures and products used in environmentally sensitive areas must conform to the requirements provided in the Integrated Natural Resources Management Plan (INRMP), when completed. Special care is taken regarding pesticide use in health clinics or other areas where contact with chemically sensitive individuals may be present. Pesticide label instructions and guidance provided in the AFPMB TIM No. 20, Pest Management Operations in Medical Treatment Facilities, are followed. Pest management operations which may impact or necessitate the alteration of structures of historical significance will not take place without prior approval of the VAARNG Environmental Office.

### 7.3 ENDANGERED/PROTECTED SPECIES AND CRITICAL HABITAT

The U.S. Fish and Wildlife Service (USFWS), the Virginia Departments of Agriculture and Consumer Services and Game and Inland Fisheries were contacted as part of the Environmental Assessment for the VAARNG. It was concluded that several state or federally listed species are located in the vicinity of the facilities/installations. Fort Pickett hosts one federally endangered plant species. A listing of federal endangered and threatened species is provided in the following tables. Also, a regularly updated list can be found at the USFWS webpage ([http://ecos.fws.gov/tess\\_public/TESSWebpageUsaLists?state=VA](http://ecos.fws.gov/tess_public/TESSWebpageUsaLists?state=VA))

TABLE 4. Federal and State Protected Species Found on Fort Pickett, VA

Common Name	Scientific Name	Status(Federal/State) *
Michaux's sumac	<i>Rhus michauxii</i>	LE / -
Yellow lance	<i>Elliptio lanceolata</i>	C2 / -
Atlantic pigtoe	<i>Fusconaia masoni</i>	C2 / LT
Bachman's sparrow	<i>Aimophila aestivalis</i>	C2 / LT
Roanoke logperch	<i>Percina rex</i>	LE / -
Bald eagle	<i>Haliaeetus leucocephalus</i>	- / LT

\* LE-listed endangered; LT-listed threatened; C2-candidate, category 2: evidence of vulnerability, but insufficient status data exists.

TABLE 5. Federal and State Protected Species Found in the Vicinity of Camp Pendleton, State Military Reservation, VA.

Common Name	Scientific Name	Status *
Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST
Loggerhead sea turtle	<i>Caretta caretta</i>	LT
Funnel-web Spider	<i>Barronopsis jeffersi</i>	G3
Mirid bug	<i>Bothynotus johnstoni</i>	G3

Combneck assassin bug	<i>Ctenotrachelus shermani</i>	G3
Scarce swamp skipper	<i>Euphyes dukesi</i>	G3
Assassin bug	<i>Pnirontis brimleyi</i>	G2
Millipede	<i>Pseudopolydesmus paludicolous</i>	G1
Marsh senna	<i>Chamaerocrista fasciculata</i> <i>var. macrosperma</i>	G5T2
Epiphytic sedge	<i>Carex decompsita</i>	G3
Virginia least trillium	<i>Trillium pusillum</i> <i>var. virginianum</i>	G3T2

\*LT- federally listed threatened, G1-extremely rare and critically imperiled, G2-Very rare and imperiled, G3- either very rare and local throughout its range or found locally (abundantly at some of its locations) in a restricted range, G\_T\_- signifies the rank of subspecies or variety. For example, a G5T1 would apply to a subspecies of a species that is demonstrably secure globally (G5) but the subspecies warrants a rank of T1, critically imperiled. ST- state listed as threatened.

Protected migratory birds which may become a nuisance (e.g., Canada geese, gulls) and which periodically occur on the installation cannot be controlled without a permit [in coordination with the U.S. Fish and Wildlife Service, Migratory Bird Permit Office, P.O. Box 779, Hadley, MA 01035; (413) 253-8643]. Control of migratory birds has not been needed to date.

The VAARNG PMC periodically evaluates ongoing pest management operations and evaluates all new operations to ensure compliance with the Endangered Species Act. No pest management operations are conducted that are likely to have a negative impact on endangered or protected species or their habitats without prior approval from the VAARNG Environmental Manager and the NGB Pest Management Consultant.

#### 7.4 ENVIRONMENTAL DOCUMENTATION

Army proponents are normally required to prepare many types of management plans that must include or be accompanied by appropriate NEPA analysis. NEPA analysis for these types of plans can often be accomplished with a programmatic approach, creating an analysis that covers a number of smaller projects or activities. In cases where such activities are adequately assessed as part of these normal planning

activities, a REC can be prepared for smaller actions that cite the document in which the activities were previously assessed. Care must be taken to ensure that site-specific or case-specific conditions are adequately addressed in the existing programmatic document before a REC can be used, and the REC must reflect this consideration. If additional analyses are required, they can "tier" off the original analyses, eliminating duplication. Tiering, in this manner, is often applicable to Army actions that are long-term, multi-faceted, or multi-site.

A programmatic environmental assessment (PEA) for the Pest Management Program has been developed in accordance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the President's Council on Environmental Quality (CEQ), the Army, and the NGB. Its purpose is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives. The PEA identifies, documents, and evaluates, on a programmatic level, the effects of the ARNG Pest Management Programs. An interdisciplinary team of environmental scientists, biologists, planners, and military technicians have analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action. The NGB's proposed action and alternatives in the PEA, including a No Action alternative, are described in Section 3.0. Conditions existing as of 2004, considered to be the "baseline" conditions, are described in Section 4.0 of the PEA, Environmental Conditions and Consequences. The expected effects of the proposed action, also described in Section 4.0 of the, are presented immediately following the description of baseline conditions for each environmental resource addressed in the PEA. Section 4.13 addresses the potential for cumulative effects, and mitigation measures are identified where appropriate.

A PEA evaluates a proposed action in broad terms. It lays the foundation for subsequent analyses and decision-making. PEAs are intended to eliminate repetitive discussions of the same issues and focus on the key issues at each level of project review. In the PEA, the NGB addresses potential environmental effects of implementing Integrated Pest Management Plans on a broad, programmatic scale. State ARNG organizations will prepare additional NEPA documentation tailored to the circumstances of their particular state or territory. The NGB anticipates some of the ARNG organizations will prepare Records of Environmental Consideration (REC) pursuant to the following Title 32 CFR Part 651 (*Environmental Analysis of Army Actions*) provisions:

"If the proposed action is adequately covered within an existing EA or EIS, a REC [Record of Environmental Consideration] is prepared to that effect. The REC should state the applicable EA or EIS title and date, and identify where it may be reviewed. The REC is then attached to the proponent's record copy of that EA or EIS." 32 CFR 651.12(a)(2). "A Record of Environmental Consideration (REC) is a signed statement submitted with project documentation that briefly documents that an Army action has received environmental review. RECs are prepared ... for actions covered by existing or previous NEPA documentation. A REC briefly describes the proposed

action and timeframe, identifies the proponent and approving official(s), and clearly shows how an action ... is already covered in an existing EA....” 32 CFR 651.19.

The VAARNG leadership has examined the proposed action and its impact along with the NGB PEA. The result of this analysis is that the PEA adequately addresses most of the VAARNG Integrated Pest Management Plan and the implementation thereof. The VAARNG has addressed the state specific details in a REC. A copy of the REC and signed FNSI for the PEA is in [Appendix L](#).

## **7.5 PESTICIDE SPILLS AND REMEDIATION**

A pesticide spill cleanup kit is maintained in the MTC Pest Control Shop, Building 303. Pesticide spill cleanup procedures, notification procedures, and a list of components of the spill kit are provided in [Appendix G](#) of this plan. A spill cleanup kit is kept on each pest control vehicle. Pesticide spill cleanup procedures, notification procedures, and a list of components of the spill kit are provided in AFPMB Technical Guide No. 15 ([IPMP Reference](#)). A hard copy of this technical guide can be found in [Appendix G](#) of this plan. All pesticide spills are reported to the installation/facility hazardous material coordinator and the VAARNG Environmental Office.

## **7.6 POLLUTION CONTROL/ABATEMENT PROJECTS**

There are currently no pollution abatement projects related to pest management operations.

## **7.7 POLLUTION PREVENTION (P2)**

The pest management program, as outlined in this plan complies with Executive Order 12856 of August 3, 1993, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements. The use of pesticides will be considered only after non-chemical control methods have been exhausted. Integrated pest management strategies that stress non-chemical control form the basic framework of the pest management program as outlined in the VAARNG P2 Plan.

## **7.8 PROHIBITED ACTIVITIES**

At no time will a pesticide be used in any manner that is inconsistent with its label. No pesticide will be used when its registration has been suspended or canceled by the EPA or the State of Virginia. Pesticides will not be applied by applicators who are not certified or whose certification has expired or has been suspended. Exception: use of pesticides as a part of the self-help program as provided for in [Appendix L](#).

## **7.9 PESTICIDE USE REDUCTION**

Currently, pesticide use within the VAARNG is minimal. Additional effort to reduce their use would provide minimal results. Facility Managers are encouraged to educate building occupants on maintaining high levels of sanitation to minimize pest problems.

## **SECTION 8 – ADMINISTRATION**

### **8.1 CONTRACTS**

The majority of VAARNG pest management work is performed in house, however, the following work requirements are being or have been fulfilled by contract.

#### **8.1.1 MTC-Fort Pickett**

All pest control, with the exception of subterranean termite control, is performed in house by MTC pesticide applicators. This includes forestry-related herbicide use, general pest control and vertebrate pest control.

#### **8.1.2 Statewide Facilities**

Copies of pest management contract documents are on file at the Facilities Management Office.

### **8.2 WORK ORDERS**

Requests for pest management services from facilities around the state are sent to the Regional Facilities Maintenance Officer. If it is believed that the job order work may have adverse environmental consequences, this person confers with the Environmental Office before proceeding. At Fort Pickett pest control requests are sent to the DPW Service Desk.

### **8.3 INTERSERVICE SUPPORT AGREEMENTS (ISA) AND MEMORANDUMS OF AGREEMENT (MOA)**

Tenant activities received base-operations support (to include pest management services) through ISA and MOA from their supporting installation (i.e. MTC or SMR).

### **8.4 AGRICULTURAL OUTLEASES**

No agriculture or grazing out-leases are currently in place for any main or satellite VAARNG properties.

### **8.5 RESOURCES (CURRENT AND PROPOSED)**

### **8.5.1 Staffing**

The following personnel are directly involved with pest management operations, oversight, or surveillance within the VAARNG:

- VAARNG Environmental Program Manager, VAFM-E, Bldg 316 Fort Pickett
- VAARNG Pest Management Coordinator, VAFM-E, Bldg 316 Fort Pickett
- MTC Environmental Office, Bldg 232 Fort Pickett, VA
- MTC Pest Management Coordinator, Bldg 303, Fort Pickett
- MTC Forestry Supervisor, Bldg 321 Fort Pickett
- SMR Facility Superintendent, Bldg 448,SMR
- Certified Applicators (various personnel located on Fort Pickett and statewide)

### **8.5.2 Materials and Equipment**

With the exception of pest management on the MTC, all materials and equipment are furnished by the contractor. On the MTC, materials and equipment may be provided by the government or the contractor. Only pesticides and pesticide application equipment required for personal protective measures and unit-level field sanitation teams are maintained on any other installation/facility. The inventory of pesticides on hand, at all locations that store significant amounts, is presented in [Appendix M](#). These inventories are updated as changes occur. As a minimum, an updated pesticide inventory is included in the plan's Annual Update.

### **8.5.3 Facilities (Mixing and Storage Sites)**

On Fort Pickett, Building 303 provides for both mixing and storage. Elsewhere, all mixing or storage sites are off-post and are the responsibility of the contractor.

## **8.6 REPORTS AND RECORDS**

Records of all pest management operations performed by contractors and self-help are maintained on the installation. The VAARNG PMC and pest management contractors coordinate to ensure all activities provide the necessary pesticide use and pest management information necessary for DoD reporting requirements.

Daily pesticide application and surveillance records are maintained by the applicators using Pest Management Maintenance Record (DD Form 1532-1). Additionally, any pest surveillance performed by Medical and Veterinary activities is documented on these forms. These forms provide a permanent historical record of pest management operations for each building, structure or outdoor site on the installation.

The monthly Pest Management Report (DD Form 1532) will be used to report all pest management operations for the VAARNG. This information must be reported to the

National Guard Bureau Environmental Office (NGB-ARE), through Environmental Quality Reports and Installation Status Reports. These reports are prepared by the appropriate personnel (applicators or facility managers) and provided to the VAARNG PMC quarterly. The final quarterly report for federal fiscal year is due to the PMC by 5 OCT each year.

The VAARNG plans to adopt the newly developed Pest Management Tracking System (PMTS) for record keeping once the suggested hardware and software configuration is available.

The PMC maintains a current inventory of stored pesticides. Copies of the inventory are updated when major changes occur.

## **8.7 TRAINING, CERTIFICATION, AND LICENSING**

Government (VAARNG) employees who apply pesticides as a part of their jobs are state licensed and certified for public property or commercial application. Training and certification is provided through the Virginia State University Cooperative Extension Service or through other appropriate organizations. Certified personnel are recertified every two years. Copies of the current certificates are presented in [Appendix H](#).

Personnel who are certified in pesticide application attend local pest management classes, workshops, and seminars, in order to keep abreast of pest problems and pest management techniques that are unique to the area. By attending local seminars, pest management personnel learn to solve problems by talking to people in the same geographic area that have solved similar problems in the past. The time and labor expended in this type of training is easily recouped through improved efficiency in pest management operations on VAARNG facilities. Local pest management training consists of at least eight hours per year. Other personnel who deal directly with pest management operations, but who may not need to be certified, are also encouraged to attend local seminars to better understand the pest management needs of the VAARNG.

## **8.8 QUALITY ASSURANCE/QUALITY CONTROL**

Quality assurance should be performed on-site by the QAE using parameters set forth in the Performance Work Statements of the respective contracts. The VAARNG PMC functions as the certified QAE for pest control contracts.

## **8.9 DESIGN REVIEW OF NEW CONSTRUCTION**

Construction projects on VAARNG property are reviewed with pest prevention and control in mind. The Architecture and Engineering Section reviews the design of new buildings or other structures and conducts a pest evaluation in the constructed facility prior to completion of the project to ensure that insect and rodent entry points and potential harborage have been eliminated.

## **8.10 5-YEAR PLAN**

Many administrative elements of the program such as recurring and projected requirements are addressed in the 5-year plan ([Appendix C](#)). This document serves as a tool to identify these requirements and the time frames for implementation. The 5-year plan also helps installation personnel to anticipate program changes and requirements.

## **SECTION 9 -COORDINATION; FEDERAL, STATE, LOCAL**

The Army Pest Management Program is responsible for protecting personnel, materials, and the environment from illness and damage by pests, wherever in the world they may be. The program includes both medical and operational responsibilities. While these responsibilities do overlap, U.S. Army Medical Command (MEDCOM) focuses on preventing and minimizing medical consequences of pests and pest management operations while the Assistant Chief of Staff for Installation Management and the Army Environmental Command (AEC) concentrate on safe, effective implementation of day to day pest management operations and environmental considerations of pest management operations. Organizations and personnel that are involved with, or who have impact on, the VAARNG Pest Management Program are further explained in this section. A list of these and other relevant DoD and other federal organizations is provided in [Appendix I](#). A list of Points of Contact for selected VAARNG, state, and local personnel directly or indirectly involved in Pest Management are provided in [Appendix J](#).

The NGB Pest Management Consultant (NGB PMC) has oversight responsibilities for the VAARNG Pest Management Program. This includes reviewing the Integrated Pest Management Plan, and giving special attention to any operation that: uses restricted use pesticides; uses any pesticide that may significantly contaminate surface or ground water; includes 259 or more hectares (640 acres) in one pesticide application; may adversely affect endangered or other protected species or habitats; or involves aerial application of pesticides.

The AEC Pest Management Consultant (AEC PMC) has similar responsibilities to the NGB PMC, but with a broader scope and area of responsibility (Army wide). Coordination takes place between the AEC PMC, the NGB PMC, and the VAARNG Pest Management Coordinator.

Liaison is maintained between the VAARNG PMC and state Public Health personnel to determine the prevalence of disease vectors and other public health pests in the area surrounding the installations/facilities.

The U.S. Fish and Wildlife Service, the National Park Service, and the Virginia Department of Game and Inland Fisheries are consulted whenever any proposed pest management activity may be detrimental to protected, rare, threatened, or endangered species or sensitive areas.

Contact is maintained with the Virginia Office of Pesticide Services to ensure local pesticide use regulations are being met.

Contact is maintained with the U.S. Department of Agriculture, Forest Service, regarding gypsy moth egg mass and defoliation surveys of trees on VAARNG property.

## **SECTION 10 - SALE AND DISTRIBUTION OF PESTICIDES**

### **10.1 SELF-HELP.**

There is no family housing on VAARNG facilities. However, VAARNG is implementing a self-help program to allow individuals to take care of pest problems using low/non-toxic products before contacting a pest control professional for help. If one person at a facility is assigned the responsibility to take care of all the pest control problems, then it is a part of their job and the person must be certified. Therefore, each individual must use self-help to control pests in only their own area. A list of self-help products can be found in [Appendix K](#).

### **10.2 OTHER ACTIVITIES.**

Fort Pickett operates an Army and Air Force Exchange Service (AAFES) Post Exchange (PX). The PX will not carry general use pesticides. The PX may carry limited quantities of commercially produced EPA-approved personal protective repellents.

## **SECTION 11- PEST MANAGEMENT SERVICES PROVIDED TO OTHER ACTIVITIES**

### **11.1 - TENANT ACTIVITIES.**

Pest management services are provided to all tenant activities on VAARNG facilities and sites. Tenants must coordinate all pest management through VAARNG.

### **11.2 AGENCIES LOCATED OFF THE INSTALLATIONS**

There are no agencies located off the installation that require pest management support from VAARNG.

## **SECTION 12 - REGULATED PESTS**

### **12.1 QUARANTINE PESTS**

The VAARNG lies within the USDA, Animal and Plant Health Inspection Service (APHIS) high-risk quarantine area for gypsy moth. Surveillance and, if established thresholds are exceeded, control of gypsy moth populations on VAARNG property is coordinated with the Virginia Department of Agriculture and the USDA Forest Service. Also, parts of the state are quarantined for red imported fire ants from time to time. All existing infestations have been eradicated to date. The VAARNG personnel will comply with all federal and state regulations when moving quarantined material outside of the quarantine area.

### **12.2 RETROGRADE CARGO**

Retrograde cargo is that material being received from a foreign area of operation. Retrograde cargo is unlikely to be received at VAARNG installations without first being screened and processed through other military and/or civilian entry points. In the event that it is, coordination will be made with the USDA and other appropriate agencies prior to the return of such material.

### **12.3 NOXIOUS WEEDS**

The VAARNG complies with all federal and state noxious weed laws. Historically, several species of noxious weeds have been encountered on VAARNG installations, particularly the MTC. Management of noxious weeds is generally considered a natural resources concern, and so will be dealt with more thoroughly in the Installation Natural Resources Management Plan (INRMP). Close coordination is conducted between Natural Resources staff and the VAARNG PMC. More information on noxious weeds can be found at the United State Department of Agriculture website ([http://www.srs.fs.usda.gov/pubs/gtr/gtr\\_srs062/index.htm](http://www.srs.fs.usda.gov/pubs/gtr/gtr_srs062/index.htm)).

## **13.0 PEST MANAGEMENT REFERENCES.**

### **A. Federal Laws.**

1. [The Federal Insecticide, Fungicide and Rodenticide Act \(through PL 100-460, 100-464 to 100-526, and 100-532\).](#)
2. [Title 29, CFR, Current revision, Section 1910, Occupational Safety and Health Standards.](#)
3. [Federal Noxious Weed Act \[7 U.S.C. 2801-2814\]:](#)

4. [Food Quality Protection Act \(FQPA\), 1996, Section 303](#)
5. [Endangered Species Act, 1973](#)
6. [Food, Drug, and Cosmetic Act](#)
7. [Occupational Safety and Health Act, 29 U.S.C 651-678](#)
8. [Pollution Prevention Act of 1990, PL 101-508](#)

B. Directives and Instructions

1. [Department of Defense Instruction 4150.7, Department of Defense Pest Management Program, 22 April 1996.](#)
2. [EO 12856: Federal Compliance with Right-to-Know Laws and Pollution Prevention.](#)
3. EO 11987 (Carter, 1980) Exotic Organisms: Control noxious species, prevent restrict introductions. (**Revoked by EO 13112, Invasive Species**)
4. [EO 13112, Invasive Species](#) (**Amended by EO 13286, Amendment of Executive Orders, and Other Actions, in Connection With the Transfer of Certain Functions to the Secretary of Homeland Security**)
5. [Presidential Memorandum, "Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds", subject: using native plants in landscaping, 26 April 1994.](#)
6. [AFI 91-202, BASH Reduction Program, 11 June 2003.](#)
7. [Center for Disease Control](#)

C. Regulations.

1. [AR 11-34, The Army Respiratory Protection Program, 15 February 1990.](#)
2. [AR 40-5, Preventive Medicine, 15 October 1990.](#)
3. [AR 200-1, Environmental Protection and Enhancement, 13 December 2007.](#)
4. [AR 385-32, Protective Clothing and Equipment, February 2000.](#)

5. NGR No. 385-10, Army National Guard Safety Program, 25 November 1983.

D. Technical Manuals.

1. [TM 5-629, Weed Control and Plant Growth Regulation, 24 May 1989.](#)
2. Military Pest Management Handbook, Chapters 1-10, with Appendices, available from the Armed Forces Pest Management Board website, <http://www.afpmb.org/mpmh/mpmh.pdf>

E. Technical Guides from the U.S. Army Center for Health Promotion and Preventive Medicine.

1. [No. 116, Guide for Fish Kill Investigations, May 1980.](#)
2. [No. 138, Guide to Commensal Rodent Control, December 1991.](#)
3. [No. 142, Managing Health Hazards Associated with Bird and Bat Excrement, December 1992.](#)
4. [No. 196, Guide to Poisonous and Toxic Plants, July 1994.](#)
5. [No. 208, Procedures for Thermal Control of Cockroaches in Army Food Service Facilities, January 1997.](#)

F. Armed Forces Pest Management Board Technical Guides.

1. [No. 13, Ultra Low Volume Dispersal of Insecticides by Ground Equipment, December 1999.](#)
2. [No. 14, Protective Equipment of Pest Control Personnel, March 1992.](#)
3. [No. 15, Pesticide Spill Prevention Management, June 1992.](#)
4. [No. 16, Pesticide Fires: Prevention, Control, and Cleanup, June 1981.](#)
5. [No. 17, Military Handbook, Design of Pest Management Facilities, 1 November 1991.](#)
6. [No. 18, Installation Pest Management Program Guide, March 11 2003.](#)
7. [No. 20, Pest Management Operations in Medical Treatment Facilities, September 2002.](#)
8. [No. 21, Pesticide Disposal Guide for Pest Control Shops, July 2002.](#)

9. [No. 22, Guidelines for Testing Experimental Pesticides on DOD Property, June 2001.](#)
10. [No. 24, Contingency Pest Management Pocket Guide, April 15 2002.](#)
11. [No. 26, Tick-Borne Diseases, Vector Surveillance and Control, June 1998.](#)
12. [No. 27, Stored-Product Pest Monitoring Methods, September 2000.](#)
13. [No. 29, Integrated Pest Management In and Around Buildings, July 2003.](#)
14. [No. 30, Filth Flies: Significance, Surveillance and Control in Contingency Operations](#)
15. [No. 31, Contingency Retrograde Washdowns: Cleaning and Inspection Procedures, December 1993.](#)
16. [No. 34, Bee Resource Manual, with emphasis on The Africanized Honey Bee, August 2002.](#)
17. [No. 36, Personal Protective Techniques Against Insects and Other Arthropods of Military Significance, April 2002.](#)
18. [No. 37, Guidelines for Reducing Feral/Stray Cat Populations on Military Installations in the United States, January 1996.](#)
19. [No. 39, Guidelines for Preparing DoD Pest Control Contracts Using Integrated Pest Management](#)
20. [No. 40, Methods for Trapping and Sampling Small Mammals for Virologic Testing](#)
21. [No. 41, Protection from Rodent-borne Diseases with special emphasis on occupational exposure to hantavirus](#)
22. [No. 42, Self-Help Pest Management](#)
23. [No. 43, Guide to Pest Surveillance During Contingency Operations](#)

G. [Other References, Manuals, Books and Guides.](#)

1. [MIL-STD-904B, Guidelines for Detection, Evaluation and Prevention of Pest Infestation of Subsistence, 10 March 2000.](#) (Note! This link takes you to the

Defense Standardization Project homepage. Click on “Online Specs.” Then go to the “Assist Quick Search” and search for Document ID MIL-STD-904B.)

2. [TB Med 561, Occupational and Environmental Health, Pest Surveillance, June 1992.](#)

3. *Mallis Handbook of Pest Control*, 7th Edition, PCT Books, 4012 Bridge Ave, Cleveland, OH 44113, 1100 pp., \$89.00

#### H. Periodicals.

1. *Pest Control* (Magazine Published Monthly, \$22/year), P.O. Box 6215, Duluth, MN 55806-9915.

2. *Pest Control Technology* (Magazine Published Monthly, \$30/year), PCT, 4012 Bridge Ave, Cleveland, OH 44113.

3. *Pest Management Bulletin*, Periodic Publication of U.S. Army Center for Health Promotion and Preventive Medicine, Entomological Sciences Program, Aberdeen Proving Ground, MD 21010-5403 [Phone DSN 584-3613 or Commercial (410) 436-3613].

This is available on the U.S. Army Center for Health Promotion and Preventive Medicine’s homepage at <http://chppm-www.apgea.army.mil/ento>

**APPENDIX A**

**INTEGRATED PEST MANAGEMENT OUTLINES**

**FOR**

**THE VIRGINIA ARMY NATIONAL GUARD**

*Use of trademarked names does not imply endorsement by the U.S. Army or the Virginia Army National Guard but is intended only to assist in identification of a specific product.*

## INDEX OF INTEGRATED PEST MANAGEMENT OUTLINES

No.PEST	SITE
1. <a href="#">German Cockroaches</a>	Barracks, Offices, Food Service Facilities, etc.
2. <a href="#">American Cockroaches</a>	Crawl Spaces, Steam Tunnels, Sewers
3. <a href="#">Filth Flies</a>	Food Service Facilities
4. <a href="#">Ticks</a> Areas	Wood and Shrub Margins, Overgrown
5. <a href="#">Structure Invading Ants</a>	Buildings and Other Structures
6. <a href="#">Fire Ants</a>	Lawn, Common Areas, and Training Sites
7. <a href="#">Stored Product Insects</a>	Food Handling Facilities
8. <a href="#">Mosquitoes</a>	Training Sites - Bivouac Areas
9. <a href="#">Carpenter Ants</a>	Wooden Buildings and Structures
10. <a href="#">Minor Nuisance Crawling Pests</a>	Barracks, Offices, Administrative Buildings, etc.
11. <a href="#">Bees and Wasps</a>	Occupied Buildings, Equipment
12. <a href="#">Subterranean Termites</a>	Building and Other Structures
13. <a href="#">Fleas</a>	Buildings and Other Structures
14. <a href="#">Mites</a>	In or Around Buildings
15. <a href="#">Tent Caterpillars</a>	Shade and Ornamental Trees
16. <a href="#">Gypsy Moths</a>	Forest, Shade and Ornamental Trees
17. <a href="#">Rodents</a>	Offices, Barracks, Food Service and Storage Facilities

- |  |  |
|--|--|
| 18. <a href="#">Birds (Pigeons, Starlings, etc.)</a> | Warehouses, Loading Docks and Other Buildings                  |
| 19. <a href="#">Birds (Geese)</a>                    | Lawn Areas   |
| 20. <a href="#">Incidental Vertebrate Pests</a>      | In, Under, and Around Post Buildings                           |
| 21. <a href="#">All Vegetation</a>                   | Utility Poles, Hydrant Bases, Sidewalks, Around Buildings, etc |
| 22. <a href="#">Ornamental Shrub Insect Pests</a>    | Common Areas   |
| 23. <a href="#">Turf Insect Pests</a>                | Lawns, Turf Areas  |
| 24. <a href="#">Hardwoods</a>                        | Road Shoulders, Firebreaks                                     |
| 25. <a href="#">Spotted Knapweed</a>                 | Maneuver Areas   |
| 26. <a href="#">Kudzu</a>                            | Maneuver Areas, Forest Restoration                             |

As additional outlines are prepared or current outlines are updated, copies will be provided. Current information on pest management products can be obtained from the DoD Pesticide Hotline (see [Appendix J](#)). In all cases it is important to remember: **THE LABEL IS THE LAW.**

# VAARNG Integrated Pest Management Outline Number 1

**Pest: German Cockroaches**

**Site: Barracks, Offices, Food Service Facilities, etc.**

**1. Purpose:** To control cockroaches in dining facilities and other buildings thereby reducing contamination of food and distress to personnel and preserving morale and a wholesome atmosphere.

## **2. Surveillance**

- a. Conducted By:** Food Service Personnel; PVNTMED personnel; Pest Mgt Technicians.
- b. Methods & Frequency:** Visual observations by workers, sanitary inspections, and sticky trapping (at least quarterly). Sticky trap results are documented. Pre and post-treatment trap results are important to determine if control measures are effective. Trap Indices (TI; average number of roaches per trap) are established by PVNTMED. Broadly,  $TI < 1$  = minor infestation,  $TI > 2$  require major non-chemical and possibly chemical measures. Consult USACHPPM or Cooperative Extension Service for further details regarding trap indices. Chemical control will be used only to supplement non-chemical control methods as needed.



## **3. Pest Management Techniques**

- a. Non-chemical**
- (1) Type: Mechanical & Physical
- (a) Method & Location: Eliminate cockroach harborage by caulking (or filling with other materials) minor cracks, crevices, holes and openings that could be used by cockroaches. Identify and remove all old, non-functioning or unnecessary equipment in food preparation areas. Submit work orders for structural repairs that provide harborage. Control the moisture problems by fixing leaks and controlling condensation.
- (b) Conducted By: Food Service Managers. Facilities Division Preventive Maintenance together with Pest Management Technicians.
- (2) Type: Cultural

(a) **Method & Location:** Clean spilled food and store food in sealed containers. Clean all organic deposits under and behind appliances. Promptly dispose of empty cardboard boxes, and keep stored material off floors in food preparation areas to allow thorough cleaning. Keep items in food storage rooms elevated off the floor, on shelves. Use raw food commodities on a first-in, first-used basis to prevent goods from becoming infested.

(b) **Conducted By:** Food Service Facility managers and employees

(3) **Type:** Biological-None

**b. Chemical**

(1) **Basis for Treatment:** Cockroaches present based upon trap surveillance and inspection.

(2) **Method & Location:** Apply bait stations or gel baits in locations where cockroaches have been seen (e.g., under appliances, sinks and cabinets in kitchen and bathrooms). Place stations along junctions between walls and floors for maximum effectiveness. Place on horizontal vs. vertical surfaces, if a choice exists and if station will not get wet from cleaning activities. **LABEL, DATE AND PROMPTLY REMOVE AND/OR REPLACE OLD STATIONS** (preferably in 30 days; maximum 60 days). Use the recommended number of stations per given area.

(3) **Conducted By:** Pest Management Technicians or Building Occupants using Self-Help materials

(4) **Pesticide:** Cockroach bait stations and gel baits

(5) **Control Standard:** Continue LABELED & DATED bait stations use for 30-60 days. If cockroaches still present, remove and replace bait stations and/or initiate alternative control measures.

**c. Chemical**

(1) **Basis for Treatment:** Cockroaches present after non-chemical measures and baiting have been attempted and/or cockroaches are detected in large numbers.

(2) **Method & Location:** Apply a light dusting, crack and crevice, to harborage areas where cockroaches have been detected.

(3) **Conducted By:** Pest Management Technicians

(4) **Pesticide:** Boric acid dust

(5) **Control Standard:** PVNTMED and Pest Management Surveillance using sticky traps have determined significant reduction in population (e.g., Trap Index less than 1 cockroach)

**d. Chemical**

(1) **Basis for Treatment:** Cockroaches still present after non-chemical methods, bait stations, and dusting have been tried.

(2) **Method & Location:** Apply residual insecticide to harborage areas where cockroaches have been detected.

(3) **Conducted By:** Pest Management Technicians

(4) **Pesticide:** Residual Insecticide

(5) **Control Standard:** PVNTMED and Pest Management Surveillance using sticky traps have determined population reduction.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Prior coordination with management should result in no food items out and all food preparation surfaces covered, prior to application of sprayed pesticides.

**5. PROHIBITED PRACTICES:** Do not apply pesticides to any unprotected food preparation surface.

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** In most cases good sanitation, removing harborage areas and a good baiting program will keep cockroach populations under control. Followed by a good monitoring program to make sure populations stay below threshold levels.

## VAARNG Integrated Pest Management Outline Number 2

**Pest: American Cockroaches**

**Site: Crawl spaces, Steam tunnels, Sewers and adjacent areas.**

**1. Purpose:** To control American Cockroaches in above sites thereby reducing nuisance and contamination to personnel and equipment.

### **2. Surveillance**

- a. Conducted By:** Utility workers, Building Occupants, Pest Management Technicians; PVNTMED Svc, upon request.
- b. Methods & Frequency:** Visual observation in manholes, crawl spaces, and other places where these cockroaches have been a problem. Adhesive traps, as necessary, for confirmation. Chemical control will be used only to supplement non-chemical control methods.



### **3. Pest Management Techniques**

#### **a. Non-chemical**

**(1) Type:** Mechanical and Physical

- (a) Method & Location:** Eliminate moisture in basements and other below-ground areas in buildings that could support roaches. Ventilate wet or damp areas under buildings. Floor drains in basements or ground level should have grates or screens over the openings with a mesh size less than 1/8 inch. Utility doors should fit tightly and pipe chases and other entry points should be sealed. Use strategically-placed sticky traps in potential harborage areas and areas of human activity.

**(b) Conducted By:** Facilities Division Personnel

**(2) Type:** Cultural

- (a) Method & Location:** Detect and eliminate food items, trash that may have been left in normally inaccessible areas by workers. Eliminate leaking pipes in crawl spaces that may emit water and steam that support these insects.

**(b) Conducted By:** Facilities Division Personnel

**(3) Type:** Biological-None

**b. Chemical**

- (1) **Basis for Treatment:** Cockroaches and cockroach evidence (fragments, egg cases, droppings) are detected and follow up trapping determines a viable population exists.
- (2) **Method & Location:** Apply DATED large-sized bait stations or gel baits in locations where cockroaches have been seen. Place stations along junctions between walls and floors for maximum effectiveness. Remove and/or replace 30-60 days after setting out.
- (3) **Conducted By:** Pest Management Technicians and building occupants using Self-Help materials
- (4) **Pesticide:** Cockroach bait stations and gel baits
- (5) **Control Standard:** Continue bait stations use for 30-60 days. If cockroaches still present, remove and replace bait stations and/or initiate alternative control measures.

**c. Chemical**

- (1) **Basis for Treatment:** Cockroaches present after other measures have been tried or cockroaches are detected in large numbers.
- (2) **Method & Location:** Apply residual pesticide with a 2-gallon sprayer to harborage areas and other areas where cockroaches are found.
- (3) **Conducted By:** Pest Management Technicians
- (4) **Pesticide:** Residual insecticide
- (5) **Control Standard:** No living cockroaches observed following treatment. Post-treatment sticky trap surveillance reveals no or few cockroaches. Spot treat areas where follow-up control is indicated.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** American cockroaches are not a problem as long as they stay in the sewer system. However, at times they may invade family housing units or other buildings. Treatment should proceed from the place where cockroaches cause

problems in buildings back to their harborage sites in sewers or other underground places. If this is not done, then treatment in underground harborage sites may drive additional insects into buildings not previously experiencing problems. This may also be avoided by using baits that do not drive cockroaches from treated areas.

## VAARNG Integrated Pest Management Outline Number 3

**Pest: Filth Flies**

**Site: Food Service Facilities**

**1.Purpose:** To control filth flies in and around areas where food is served thereby preserving food wholesomeness and maintaining personnel morale.

### 2. Surveillance

- a. **Conducted By:** Food service personnel, PVNTMED Svc, and Pest Management Technicians
- b. **Methods & Frequency:** Visual observations daily by food service personnel. PVNTMED Svc during sanitary inspections. Pest Management Technicians during scheduled visits to facilities. Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Management Techniques

#### a. Non-chemical

- (1) **Type:** Mechanical and Physical
  - (a) **Method & Location:** Sticky fly strips may be used in areas that are not directly over prepared food or food preparation surfaces. This method may be effective when only a few flies are found indoors. These glue strips may be a source of contamination and annoyance if they are neglected or bumped into. Ultraviolet electric fly devices (stuns and captures flies on glue surface, not zapper types) may be used in kitchen and eating areas, but again not directly over food preparation surfaces. These have been proven effective under certain circumstances.
  - (b) **Conducted By:** Food service personnel and Pest Management Technicians.
- (2) **Type:** Mechanical and Physical
  - (a) **Method & Location:** Screens should be used to prevent fly entry when doors and windows are to be left open. Vents should also be screened to prevent flies from entering the structure. Automatic self-closing devices should be placed on outer doors

to reduce the time open doors may allow fly entry. Air curtains may also be used at entry points, but must be installed and maintained correctly to keep blow flies AWAY from the entrance and not INTO the entrance. They should also cover the entire door width and have sufficient air-moving strength.

**(b) Conducted By:** Building maintenance personnel. Keeping doors closed when not in use is the responsibility of food service personnel.

**(3) Type:** Cultural

**(a) Method & Location:** Enforce high sanitary standards to reduce food attractants to flies. Clean up spilled food from work surfaces, walls, and floors. Wash dirty dishes and cooking utensils following use. Do not leave exposed food in the facility overnight. Place refuse in sealed bags. Place bags in containers with tight fitting lids and keep containers closed when not in use. Clean inner and outer surfaces of trash cans regularly and check and clean under trash can liners. Do not place dumpsters within 50 feet of the facility.

**(b) Conducted By:** Food service Personnel.

**b. Chemical**

**(1) Basis for Treatment:** Flies are present in large numbers.

**(2) Method & Location:** Baits are placed around the perimeter of structure.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Fly baits

**(5) Control Standard:** Flies are killed after feeding on bait. Fewer than 5 flies observed after treatment for a 24- hour period

**c. Chemical**

**(1) Basis for Treatment:** Flies are present in large numbers and a major nuisance.

**(2) Method & Location:** Spray directly on flies.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Pyrethrum Aerosol Spray

**(5) Control Standard:** Flies dead after contact with spray.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Good sanitation should virtually eliminate fly problems at food service facilities. Refuse containers need to be cleaned weekly in the summer months to prevent flies from breeding. There is no Self-Help pesticide for use in food-service and preparation areas.

**Pest: Ticks**

**Site: Wood And Shrub Margins, Overgrown Areas**

**1. Purpose:** To control ticks thereby reducing the threat of disease.

## **2. Surveillance**

- a. **Conducted By:** Pest Management Technicians, State Health Department or USACHPPM-North, upon request.
- b. **Methods & Frequency:** Visual/specimen confirmation after complaint. Drag area using a white cloth attached to wooden dowels, to confirm tick presence. Ticks are not unusual given wooded habitat around family housing areas. Chemical control will be used only to supplement non-chemical control methods as needed.



## **3. Pest Management Techniques**

### **a. Non-chemical**

- (1) **Type:** Mechanical
  - (a) **Method & Location:** Mow and otherwise keep clear overgrown areas next to wood margins with substantial under story. Rake up leaf litter in smaller, contained areas that receive high human use. Controlled burning, where environmentally acceptable, has been shown to reduce tick populations for six months to a year.
  - (b) **Conducted By:** Grounds Maintenance Personnel
- (2) **Type:** Cultural
  - (a) **Method & Location:** User's should wear proper clothing such as long pants with the legs tucked into their socks and boots. Tick infested areas should be avoided for use when an alternative site is feasible.
  - (b) **Conducted By:** Grounds Maintenance Personnel and individual users.

### **b. Chemical**

**(1) Basis for Treatment:** Confirmed tick presence in a defined area where individual users will be entering.

**(2) Method & Location:** Apply to skin and clothing.

**(3) Conducted By:** Individual users

**(4) Pesticide:** See DoD Arthropod Repellent System.

**(5) Control Standard:** No ticks attached to users.

**c. Chemical.**

**(1) Basis for Treatment:** Confirmed tick presence in a defined area is going to interfere with activities. If uniform is worn properly the need for an area treatment is rare.

**(2) Method & Location:** Apply insecticide with a power sprayer to ground surfaces and low growing vegetation that serves as harborage for ticks.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide

**(5) Control Standard:** No live ticks observed in the treated area for 30 days following treatment.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Post the treatment area before, during and after treatment has occurred.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Deer ticks in Virginia have been found to harbor the Lyme disease pathogen at a moderate rate. Personal Protective measures (PPM) are essential; education is the key element in PPM. Confirmation of tick presence is essential before any treatment occurs. Ticks removed from personnel should be assessed for the presence of human pathogens (e.g. Lyme disease agent) through submission to the USACHPPM Tick Testing Program, Aberdeen Proving Ground.

## VAARNG Integrated Pest Management Outline Number 5

**Pest:** Structure Invading Ants

**Site:** Buildings and Other Structures

**1. Purpose:** To eliminate ants from Buildings and Other Structures.

### 2. Surveillance

**a. Conducted By:** Occupant and Pest Management Technicians



**b. Methods & Frequency:** Visual observation following complaints. Chemical control will be used only to supplement non-chemical control methods as needed.

### 3. Pest Management Techniques

#### a. Non-chemical

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Caulk pipe penetrations, cracks in molding, walls, window sills through which ants may gain access to kitchen area. Doors and windows should seal tightly. Trees and shrubs should be trimmed back away from the structure.

**(b) Conducted By:** Facilities Division, Preventive Maintenance

**(2) Type:** Cultural

**(a) Method & Location:** Spilled food items, including pet food, should be cleaned up immediately. Partially used food products should be stored in sealed containers. Garbage should be removed daily in ant infested structures.

**(b) Conducted By:** Occupants

#### b. Chemical

**(1) Basis for Treatment:** Ants are identified as odorous house, pavement, thief, pharaoh, or little black ants.

**(2) Method & Location:** Bait stations or gel baits placed in infested areas where ants are seen foraging.

**(3) Conducted By:** Pest Management Technicians or Building Occupant using Self-Help materials

**(4) Pesticide:** Ant bait stations or gel baits

**(5) Control Standard:** Ant numbers decline in first week after treatment with no live ants being seen between week 1 and week 5 after treatment.

### **c. Chemical**

**(1) Basis for Treatment:** Heavy ant infestation evident and baits are not working.

**(2) Method & Location:** Spray foundations and door sills outside buildings using a 2-gallon sprayer.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide

**(5) Control Standard:** Ants no longer seen

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Ants are a minor problem. Placement of an insecticide barrier around external building openings appears to control ants before they can enter. Ant problems occasionally occur in other buildings than those in this outline. However, the same information contained in this outline applies. Proper ant identification is essential to effective control ant infestations. Ants should be given a taste test of several baits to see which ones they prefer and to insure bait is still good.

## **VAARNG Integrated Pest Management Outline Number 6**

**Pest: Fire Ants**

**Site: Lawns, Common Areas, and Training Sites**

**1. Purpose:** To eliminate fire ant colonies from the above sites to prevent painful stings and annoyance to users.

## **2. Surveillance**

**a. Conducted By:** Individual users and Grounds Maintenance

**b. Methods & Frequency:** Visual observation following complaints by users. Reporting of fire ant mound sightings by the grounds maintenance after mowing. Chemical control will be used only to supplement non-chemical control methods as needed.



## **3. Pest Management Techniques**

### **a. Non-chemical**

**(1) Type:** Mechanical & Physical: None.

### **b. Chemical**

**(1) Basis for Treatment:** Fire ant mounds found in areas individuals are using and could cause a nuisance.

**(2) Method & Location:** Baits broadcast over area of infestation or applied to individual mounds.

**(3) Conducted By:** Pest Management Technicians or Individuals using Self-Help materials

**(4) Pesticide:** Fire Ant Baits (Amdro)

**(5) Control Standard:** Ant numbers decline in first week after treatment with no live ants being seen between week 1 and week 5 after treatment.

**c. Chemical**

**(1) Basis for Treatment:** Fire ant mounds found in areas individuals are using frequently and pose an immediate danger.

**(2) Method & Location:** Individual mounds drenched.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Insecticidal drench

**(5) Control Standard:** No ants seen after one week after treatment.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. Remarks:** None

**Pest: Stored Products Insects**

**Site: Food Handling Facilities**

**1. Purpose:** To control insects which damage and contaminate food and fiber products thereby causing economic loss.

**2. Surveillance**

**a. Conducted By:** Food Service Personnel

**b. Methods & Frequency:** Visual observations for insects and/or conditions that could favor insect infestations in stored food products. .

**3. Pest Management Techniques**

**a. Non-Chemical**

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Clean up spilled food materials that may attract and provide a food source for insects at least daily. Vacuuming works better than sweeping in particle-filled cracks and crevices.

**(b) Conducted By:** Facility Personnel

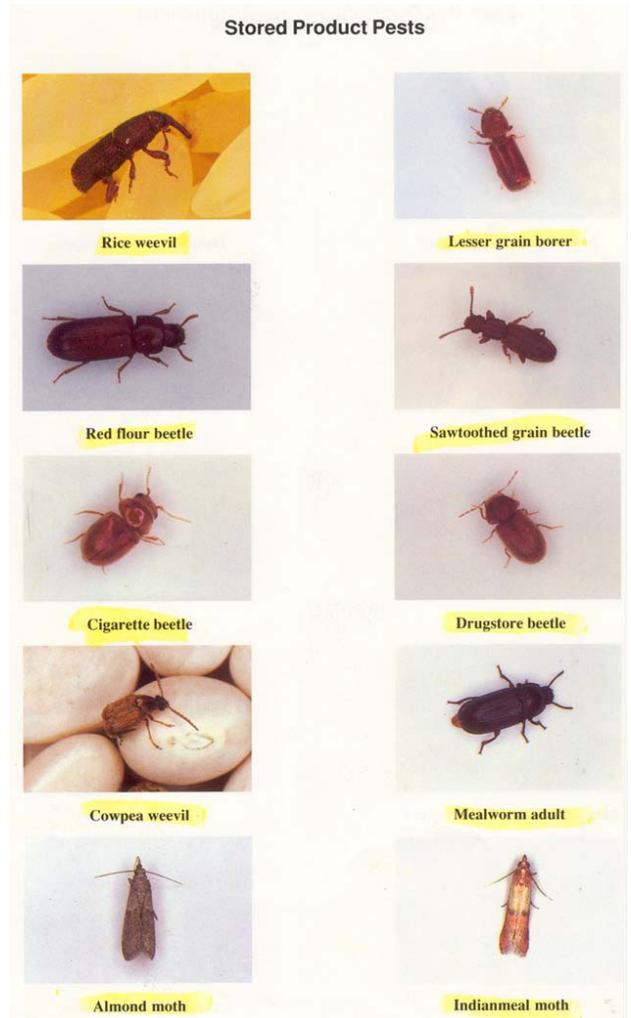
**(2) Type:** Cultural

**(a) Method & Location:** Damaged goods should be kept in tight-fitting containers. Infested products are removed immediately upon discovery and disposed of in the trash.

**(b) Conducted By:** Facility Personnel

**(3) Type:** Mechanical and Physical

**(a) Method & Location:** Examine and, if infested, remove bait from rodent bait boxes.



**(b) Conducted By:** Pest Management Technicians

**b. Chemical:** None.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** None

## VAARNG Integrated Pest Management Outline Number 8

**Pest: Mosquitoes**

**Site: Training Sites - Bivouac Areas**

**1. Purpose:** To control biting mosquitoes in order to reduce human annoyance and the risk of disease.



### **2. Surveillance**

**a. Conducted By:** Range Control, Pest Management Technicians. PVNTMED Svc, upon request.

**b. Methods & Frequency:** Soldiers and Grounds Maintenance personnel detect and report biting mosquitoes. Pest Management Technicians monitor potential breeding sources, particularly during the outdoor seasons. PVNTMED Svc can, if requested conduct larval and adult mosquito surveillance using dippers and traps. See [Appendix D](#) for a list of the 25 most common mosquito species in Virginia and their biological data. Chemical control will be used only to supplement non-chemical control methods as needed.

### **3. Pest Management Techniques**

#### **a. Non-chemical**

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Screens should be placed in windows on buildings occupied at night to exclude adult mosquitoes. Temporary standing water sites should be graded or filled to eliminate mosquito breeding. Precautions must be taken not to damage wetlands. Eliminate artificial container breeding sites.

**(b) Conducted By:** Facilities Division Personnel

**(2) Type:** Biological. *Bacillus thuringiensis israeliensis* (Bti).

**(a) Method & Location:** Applied to mosquito larvae found in standing water and that cannot be eliminated by normal sanitary practices.

**(b) Conducted By:** Pest Management Technicians

**(3) Type:** Cultural

**(a) Method & Location:** Remove and discard any refuse or materials capable of holding water (e.g., unused flower pots, tires, broken appliances). When used tires are waiting to be discarded they should be emptied of water, stacked and covered with a tarp to eliminate breeding habitat.

**(b) Conducted By:** Facilities Division Personnel

**b. Chemical**

**(1) Basis for Treatment:** Complaints from bivouac area occupants, threshold level of adult mosquitoes in light traps and in bite counts.

**(2) Method & Location:** DoD Arthropod Repellent System. Application of repellent to skin and clothing.

**(3) Conducted by:** Individuals

**(4) Pesticide:** Insect Repellent, Individual Application; NSN: 6840-01-284-3982  
[for use on skin]

**Pesticide:** Insect Repellent, Clothing Application, Kit (Individual Dynamic Adsorption - IDA Kit); NSN: 6840-01-345-0237

**c. Chemical**

**(1) Method & Location:** ULV application (fogging)

**(2) Conducted By:** Pest Management Technicians

**(3) Pesticide:** ULV aerosol product

**(4) Control Standard:** Fewer complaints, man-biting species of mosquitoes in light traps below control threshold.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Do not alter or disrupt designated wetlands. Do not apply ULV product with wind speeds greater than 10 mph. . High winds disperse the insecticide cloud and render the treatment ineffective.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** **Maximum use of the DoD Arthropod Repellent System should be encouraged.** Contact is maintained with local health authorities (civilian and military PVNTMED Svc personnel) regarding the potential threat of mosquito-borne disease or exotic mosquito species.

## VAARNG Integrated Pest Management Outline Number 9

### **Pest: Carpenter Ants**

#### **Site: Wooden Buildings and Structures**

**1. Purpose:** To control carpenter ants that are destroying wood in structures, thereby causing economic damage.

#### **2. Surveillance**

**a. Conducted By:** Occupants, Facilities Division Buildings Maintenance Personnel, Pest Management Technicians



**b. Methods & Frequency:** Visual ongoing by occupants, visual during inspections done by Pest Management personnel for other wood destroying pests, such as termites, as they occur. Further and intensive surveys need to be done to find the nest, which is not always easy. It is usually hidden, sometimes in the upper portions or wall voids of wood-constructed buildings and also in logs or trees outdoors. Nest can sometimes be located by putting out food at night, when ants are most active, and following the foragers back to the nest. Chemical control will be used only to supplement non-chemical control methods as needed.

#### **3. Pest Management Techniques**

##### **a. Non-chemical**

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Damaged wood should be replaced (preferably with pressure-treated wood). Carpenter ants usually live in damp wood that is soft. Moisture control under and around buildings should be considered to reduce the possibility of carpenter ant infestations or to prevent them from returning.

**(b) Conducted By:** Pest Management Technicians and Facilities Division Preventive Maintenance Personnel

**(2) Type:** Cultural

**(a) Method & Location:** Do not place firewood or other wood against the outside of the building - this can: 1) bring wood infested with carpenter ants into proximity to the building, 2) provide an attractant to carpenter ants, and 3) hold moisture next to the building. Do not allow lawn sprinklers to constantly hit wooden portions of the building or allow water to puddle next to building foundations. Trim tree branches that are dead or diseased and that are touching buildings.

**(b) Conducted By:** Building Occupants

**b. Chemical**

**(1) Basis for Treatment:** Presence of ants in and around wooden buildings.

**(2) Method & Location:** Dust or bait formulations applied to trails, cracks and crevices where ants are observed, and into voids where nests are located.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Insecticide dust or bait

**(5) Control Standard:** No live ants observed 2 days after treatment began and for a period of 5 weeks following the treatment start date.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** None

## VAARNG Integrated Pest Management Outline Number 10

**Pest:** Minor Nuisance Crawling Pests (crickets, earwigs, spiders, millipedes, centipedes, silverfish)

**Site:** Administrative Buildings, and Other Sites

**1. Purpose:** To control crawling insects and thereby reduce the nuisance to personnel.

### 2. Surveillance

**a. Conducted By:** Occupants and Pest Management Technicians

**b. Methods & Frequency:** On going, visual observation following occupant complaint. Sticky trap surveillance for general crawling pests or for cockroaches can prove helpful. Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Management Techniques

#### a. Non-chemical

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Sticky traps can be placed along baseboards where pests are seen or where crickets are heard. Caulk pipe penetrations, cracks in molding, walls, window sills through which ants may gain access to the structure. Remove mulch, leaf litter trash and other debris from the building perimeter. Spiders and their webs can be eliminated by using a broom or vacuum cleaner in most cases.

**(b) Conducted By:** Building occupants, Pest Management Technicians and Facilities Division Preventive Maintenance Personnel.

**(2) Type:** Cultural

**(a) Method & Location:** Some of these pests often hide in areas that are cluttered with trash, old boxes, and debris. Cleanup of these types of items may reduce pest infestation. Use yellow light bulbs outside of entrance door to attract less insects to the structure.

**(b) Conducted By:** Occupant

## **b. Chemical**

**(1) Basis for Treatment: EXTREME CIRCUMSTANCES EXIST.** Large numbers of pests are detected. Household goods are at risk. Non-chemical measures failed to control problem.

**(2) Method & Location:** 2-gallon sprayer; foundations outside buildings and door thresholds; baseboards and voids inside buildings where pests may hide. Verify label for allowable target pests.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide

**(5) Control Standard:** Pests are no longer a problem. No live arthropods after 24 hours and control up to 30 days after treatment.

## **c. Chemical**

**(1) Basis for Treatment:** Pests infestation areas are focused and identifiable.

**(2) Method & Location:** Aerosol spray, using fine-tipped nozzle and/or dust, in harborage cracks.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Aerosol insecticide product

**(5) Control Standard:** Crawling arthropods killed in one half hour after treatment and on contact for 24 hours.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** None

## VAARNG Integrated Pest Management Outline Number 11

**Pest: Bees and Wasps**

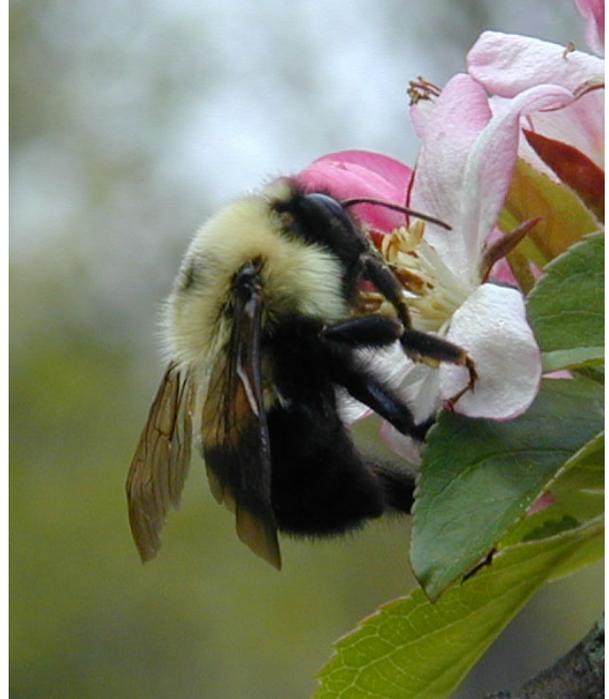
**Site: Occupied Buildings, Equipment,  
Range Observation Towers**

**1. Purpose:** To control stinging insects in and around occupied buildings thereby reducing health threat and annoyance

### 2. Surveillance

**a. Conducted By:** Pest Management Technicians

**b. Methods & Frequency:** Visual observations following occupant complaints. Spring and Fall are the more active times. Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Management Techniques

#### a. Non-chemical

##### (1) Type: Mechanical and Physical

**(a) Method & Location:** Screening windows and doors; removal of wasp nests in their early stages; and removal of honeybee swarms by a beekeeper. Also, spraying bees with  $\frac{1}{4}$  cup of dishwashing liquid in a gallon of water in a mist spray pattern will knock wasp or bees down by covering them to prevent breathing. Mud dauber nests can be knocked down by using a broom.

**(b) Conducted By:** Occupant (screens, nest removal), Pest Management Technicians (nest removal).

##### (2) Type: Cultural

**(a) Method & Location:** Empty organic and drink container refuse regularly from outdoor refuse containers near areas of human activities and buildings. Make sure

material is bagged and sealed, and keep all refuse containers doors and lids tightly closed. Rinse and put away recyclable beverage cans.

**(b) Conducted By:** Building Occupants, Refuse collectors

**b. Chemical**

**(1) Basis for Treatment:** Bees and wasps found in or around buildings in more than incidental numbers.

**(2) Method & Location:** Hand-held aerosol applied directly to insects and nests. Treat early in the morning or late at night when most insects are at the nest and the cooler temperatures make the insects less active.

**(3) Conducted By:** Pest Management Technicians or Building Occupants using Self-Help materials

**(4) Pesticide:** Victor Non-Toxic Wasp and Hornet Killer

**(5) Control Standard:** Bees and wasps are killed following treatment and control last for 7 days.

**c. Chemical**

**(1) Basis for Treatment:** Wasps found hibernating in observation towers and are getting inside towers in large numbers. After sealing the towers to prevent wasps from getting inside has been completed.

**(2) Method & Location:** Apply insecticide to eaves on the outside of the towers before Fall hibernation.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide

**(5) Control Standard:** Wasps are killed following treatment and fewer wasp over winter inside observation towers.

**d. Chemical**

**(1) Basis for Treatment:** Carpenter Bee galleries detected in wooden structures.

**(2) Method & Location:** Dust placed in and around entrance holes. Holes filled with caulk or steel wool.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide (dust)

**(5) Control Standard:** No further activity or evidence (droppings) observed.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Protective clothing including thick gloves, thick coveralls, and a veil covering the head should be used if bee or wasp nests or hives are being controlled. Workers sensitive/allergic to bee venom should not attempt control efforts. These individuals should also consult medical authorities to see if it would be appropriate to carry an epi-pen while doing routine pest management operations where venomous insects may be encountered.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Because honeybees are beneficial, attempts are made to contact beekeepers to remove swarms. County Extension Offices as well as the University of Virginia Cooperative Extension Service can prove helpful in locating nearby beekeepers.

## VAARNG Integrated Pest Management Outline Number 12

**Pest: Subterranean Termites**

**Site: Buildings and Other Structures**

**1. Purpose:** To prevent termites from causing economic damage to wooden structures especially those of historic importance.

### 2. Surveillance

**a. Conducted By:** Pest Management Technicians

**b. Methods & Frequency:** Visual observation for termites and/or conditions that could favor termite infestations. Ideally all buildings should be examined annually. Guidance from the Armed Forces Pest Management Board is provided in Technical Guide No. 35. The AFPMB recommends that, at a minimum, all buildings should be surveyed at least once every two years. Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Management Techniques

#### a. Non-chemical

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Ventilate wet or damp areas under buildings. Use a vapor barrier in crawl space to reduce moisture. Repair and replace infested wood and structural material. Monitor new construction to ensure wooden construction waste is not used as fill for concrete foundations and steps. Tree and large shrub stumps located near buildings are removed so as not to attract termites. Soil at grade level is removed when found within 4 inches of wooden structural elements to eliminate earth to wood contact. Expansion joints in concrete floors and around plumbing that penetrates slabs are sealed with an elastomeric sealant.

**(b) Conducted By:** Facilities Division Personnel, Pest Management Personnel.

**(2) Type:** Mechanical and Physical

**(a) Method & Location:** Termite swarms within existing structures should be removed by vacuuming. Spraying them with a pesticide is not advised.

**(b) Conducted By:** Pest Management Personnel, Building Maintenance Personnel

**b. Chemical**

**(1) Basis for Treatment:** Pre-treat soil under new construction. Treat active termite infestations when they are found.

**(2) Method & Location:** Power soil injection around building foundation.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual Non-Repellent Termiticide (Termidor, Premise)

**(5) Control Standard:** No subsequent termite infestations or damage from treated structures for five years after application.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Avoid getting pesticide in areas where water can become contaminated and in air ducts of buildings. Do not apply when people are in buildings.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** None

## VAARNG Integrated Pest Management Outline Number 13

**Pest:** Fleas

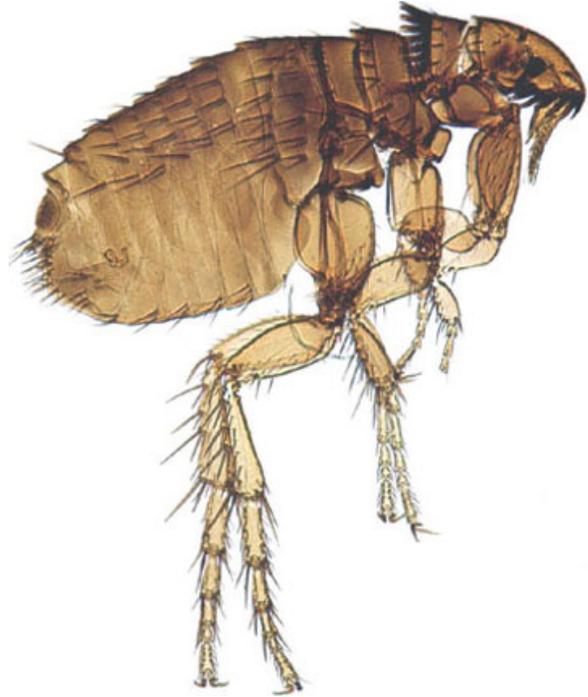
**Site:** Occupied buildings

**1. Purpose:** To control fleas in buildings to reduce the pain, discomfort, and potential health difficulties to occupants and pets.

### 2. Surveillance

**a. Conducted By:** Building Occupants

**b. Methods & Frequency:** Visual observations, as required. Surveys include looking for possible hosts such as stray cats or wild animals in the area and conducting live trapping when necessary to remove these flea hosts. Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Management Techniques

**a. Non-chemical**

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Frequent and thorough vacuuming carpets and upholstered furniture will help control fleas. Be sure to empty the cleaner bag immediately after vacuuming because the fleas that have been removed are not usually killed. Pet bedding can also be vacuumed and periodically washed in hot water and detergent. Steam cleaning of carpet can also reduce flea populations. Frequent use of flea combs on pets, particularly after being outdoors, thereby preventing flea populations from becoming established indoors.

**(b) Conducted By:** Building Occupants

**(2) Type:** Cultural

**(a) Method & Location:** Dogs and cats at risk from fleas should be frequently bathed, and if needed, treated with an approved insecticide to control fleas. Local

veterinarians may give advice on the safety and effectiveness of various products that are available. Stray dogs and cats will not be encouraged to be in the area by deliberate feeding or by poor sanitation. Refuse receptacles have tight-fitting lids which prevent potential flea hosts access to food.

**(b) Conducted By:** Occupants/owners

### **b. Chemical**

**(1) Basis For Treatment:** Fleas are present in large numbers and causing a nuisance.

**(2) Method & Location:** Using a 2-gallon sprayer, treat interior of buildings IAW label directions. Aerosol spray spot treatments.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide and Aerosol IGR applied together.

**(5) Control Standard:** For IGR (Insect Growth Regulator), no live fleas 90 days following treatment. This product will prevent flea larvae from developing into pupae, but will not kill pupal or adult fleas at time of application. For adulticides, no live fleas 5 days following treatment.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Fleas may become a serious problem if a building that contain pets are vacated for extended periods. During that time flea larvae develop into pupae and emerge into adults in the presence of pets or people. When this happens, many newly emerged, hungry adult fleas are suddenly present. Fleas also can be a problem in buildings that have feral cats living under them. Adult fleas may enter the first floors through small cracks or other openings and/or be brought in by people entering the building. To remedy this problem, capture and remove the cats (see [Incidental Vertebrate Pest outline sheet](#)).

## **VAARNG Integrated Pest Management Outline Number 14**

**Pest: Mites**

**Site: In and Around Buildings**

**1. Purpose:** To control mites on or in buildings that cause discomfort to occupants.

**2. Surveillance**

**a. Conducted By:** Occupants, Pest Management Technicians

**b. Methods & Frequency:** Visual observation, as needed (usually during the spring and fall). Chemical control will be used only to supplement non-chemical control methods as needed.



**3. Pest Management Techniques**

**a. Non-chemical**

**(1) Type:** Mechanical

**(a) Method & Location:** Keep window sills and door frames tightly sealed with weather-stripping.

**(b) Conducted By:** Occupants and Facilities Division Preventive Maintenance Personnel

**(2) Type:** Cultural

**(a) Method & Location:** Monitor house plants to ensure they are not infested; discourage pestiferous birds (starlings, house sparrows) from nesting on windowsills, ledges and other areas on buildings. If bird are present nest will need to be removed.

**(b) Conducted By:** Occupants, Pest Management Technician

**b. Chemical**

**(1) Basis for Treatment:** Mites are detected.

**(2) Method & Location:** Apply spray with 2-gallon sprayer to external building surfaces where mites are seen.

**(3) Conducted By:** Pest Management Personnel

**(4) Pesticide:** Residual insecticide

**(5) Control Standard:** No call backs after treatment indicates a successful treatment.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Do not treat interiors while building is occupied.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Gloves and a respirator will need to be worn when removing dead animals or nest materials to avoid fungal spores or other disease-producing organisms associated with droppings.

## VAARNG Integrated Pest Management Outline Number 15

**Pest:** Tent Caterpillars and Bagworms

**Site:** Shade and Ornamental Trees

**1. Purpose:** To control tent caterpillars and bagworms which are unsightly and which can defoliate, weaken and eventually kill trees.

### 2. Surveillance

**a. Conducted By:** Pest Management Technicians

**b. Methods & Frequency:** Weekly, through the spring months. Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Management Techniques

#### a. Non-chemical

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** For tent caterpillars, prune out egg masses from trees during the dormant season. Remove tents from trees. This should be done in the evening, since the insects leave the tents during the day to feed. This method works when the tents are easy to reach; however, for tents higher in trees or when the tents are extensive, then alternate control methods may be needed. Caterpillars can be killed by placing in a jar with soapy water solution, and discarding. For bagworms, pick them in winter when they are easy to see, i.e., the bags are brown against the green junipers and cedars. This will remove the eggs that are laid in the bags. Discard bags in the trash.

**(b) Conducted By:** Pest Management Technicians and Grounds Maintenance Personnel

(2)

**Type:** Biological

**(a) Method &**

**Location:** Apply *Bacillus thuringiensis* (Bt), a bacteria specific to caterpillars of this type.

**(b) Conducted**

**By:** Pest Management Technicians



**b. Chemical**

**(1) Basis for Treatment:** Presence of caterpillars in trees; Bt and hand removal have failed to correct the problem.

**(2) Method & Location:** Apply pesticide with power sprayer to affected trees.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide

**(5) Control Standard:** No live caterpillars 5 days following treatment.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Post areas with signs saying pesticide treatment will/has been done.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Bt should be applied to all leaf surfaces of the trees. Heavy rains following treatment may necessitate re-treatment.

## VAARNG Integrated Pest Management Outline Number 16

**Pest:** Gypsy moths

**Site:** Shade And  
Ornamental Trees

**1. Purpose:** To control gypsy moths that can defoliate, weaken, and kill trees.

### 2. Surveillance

#### a. Conducted By:

Pest Management Technicians, USDA and State Forest Service Personnel

#### b. Methods &

**Frequency:** Daily, through the spring months look for caterpillars. In the early summer months, erect pheromone traps to capture and quantify adult male moths that can help to determine the population level and anticipated degree of infestation in the following year. As time allows in the fall, look for egg masses on tree trunks and nearby structures. Consult with the US Forest Service to participate in cooperative survey agreements that determine treatment thresholds and may result in participation in Federally-funded suppression programs. Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Control Techniques

#### a. Non-chemical

##### (1) Type: Mechanical and Physical

**(a) Method & Location:** Apply barrier sticky tape around trunks to capture migrating larvae. Wrap burlap or fabric around trunk and remove larvae that harbor beneath it during the daylight hours. Caterpillars can be killed by placing in a jar with soapy water solution, and discarding. Egg masses can also be removed by hand.

**(b) Conducted By:** Pest Management Technicians and Grounds Maintenance Personnel

**(2) Type:** Mechanical and Physical

**(a) Method & Location:** Apply barrier sticky tape around trunks to capture migrating larvae. Wrap burlap or fabric around trunk and remove larvae that harbor beneath it during the daylight hours. Caterpillars can be killed by placing in a jar with soapy water solution, and discarding.

**(b) Conducted By:** Pest Management Technicians and Grounds Maintenance Personnel and the MTC Forestry Office

**(3) Type:** Biological

**(a) Method & Location:** Apply *Bacillus thuringiensis* (Bt), a bacteria specific to caterpillars of this type. Apply approved virus or fungal products labeled specifically for gypsy moth, as they become available.

**(b) Conducted By:** Pest Management Technicians

**b. Chemical**

**(1) Basis for Treatment:** U.S. Forest Service determines if aerial treatment is warranted for control.

**(2) Method & Location:** Cooperative aerial spray, County & State of Virginia

**(3) Conducted By:** U.S. Forest Service/Virginia State Contractors

**(4) Pesticide:** Forest Service Choice

**(5) Control Standard:** No living later-larval instars after treatment.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Post areas with signs saying pesticide treatment will/has been done.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Bt should be applied to all leaf surfaces of the trees. Heavy rains following treatment may necessitate re-treatment. Presently, Gypsy moth populations are in decline in the region due to a naturally occurring fungus *Entomophaga maimaiga*. If populations continue to be in check, than VAARNG surveillance efforts can be curtailed.

## VAARNG Integrated Pest Management Outline Number 17

**Pest: Rodents**

**Site: Occupied Buildings**

**1. Purpose:** To control mice and rats where food commodities and other materials may be damaged or contaminated.

### 2. Surveillance

**a. Conducted By:** Occupants

and, Pest Management

Technicians.

#### **b. Methods & Frequency:**

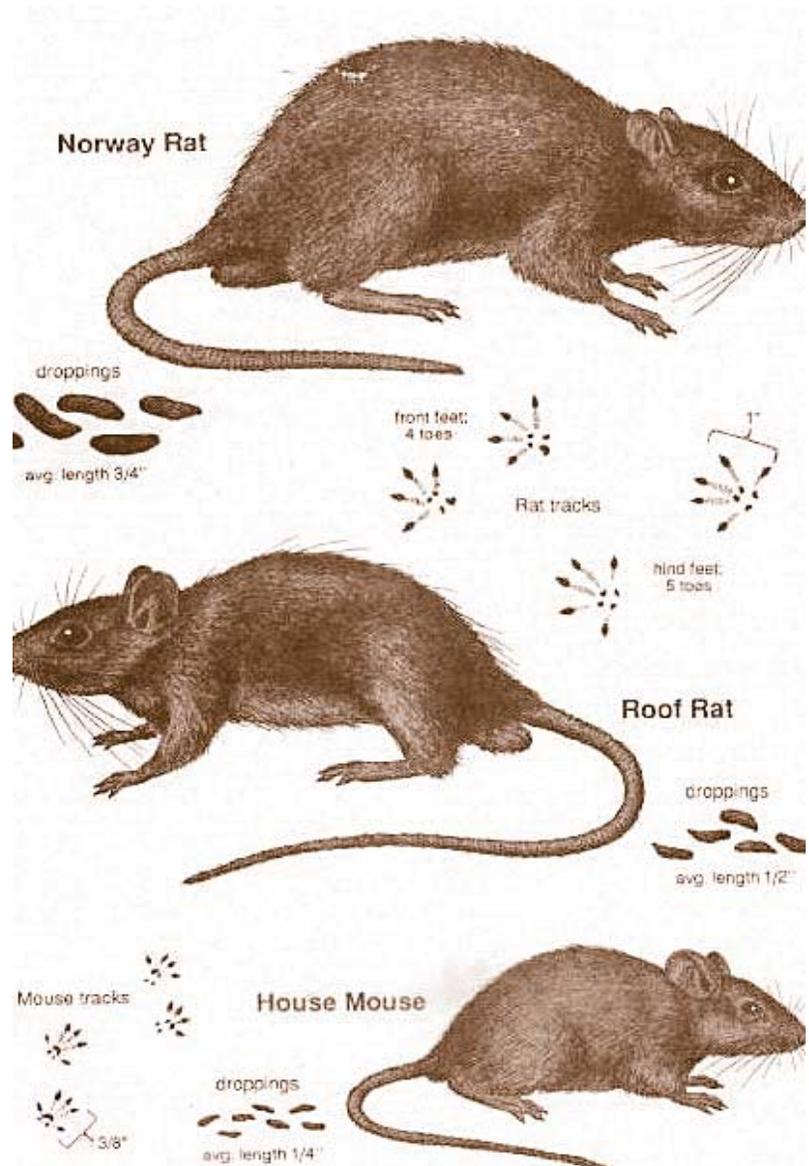
Visual observation for damage, droppings, or rub marks done by Facility personnel, Detection in Glue Boards, as monitored by Pest Management Technicians. Chemical control will be used only to supplement non-chemical control methods as needed.

### 3. Pest Management Techniques

#### **a. Non-chemical**

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Eliminate openings to buildings that are 1/4 inch or greater. Keep exterior foundation of structure free of weeds and debris that provide rodent habitat. Pay particular attention to loading doors since they do not always close tightly. Small snap traps and glue boards may be used when a mouse infestation is found. Traps should be placed along runways (along walls) no more than six feet apart in areas with mouse activity. Traps should be baited with peanut butter, dried rolled oatmeal, bacon squares, or small wads of cotton. Snap traps



should be set at 90 degree angles to the runway or wall with the trigger side toward the wall. Mice are curious creatures so if you do not catch anything the first few nights you should change your trap location. If rats are detected, use larger glue boards (or make them) capable of effectively capturing them.

**(b) Conducted By:** Facilities Division Preventive Maintenance personnel are responsible for structural modifications such as weather stripping, door repairs, etc. Facility personnel may set traps or glue boards for minor infestations, available through the Self-Help program. Pest Management Personnel primarily responsible if extensive trapping is required.

**(2) Type:** Cultural

**(a) Method & Location:** Enforce high sanitary standards thereby reducing food and water essential for rodent survival. Clean up spilled food products immediately or daily at the latest. Remove bags, boxes, broken or unused equipment, and other potential harborage from food storage areas. Remove broken and unnecessary equipment in storage rooms, work areas, and in the outdoor areas of the facility. Keep salvage and break areas clean at all times. Keep food in closed containers. Store pallets of food at least 24 inches from walls to permit routine cleaning, inspection, and control.

**(b) Conducted By:** Facility Personnel

**b. Chemical**

**(1) Basis for Treatment:** Rodents or evidence of rodents found during surveillance. Non-chemical measures have been, or are concurrently being employed and have failed to work.

**(2) Method & Location:** Read label directions. Place Bait Stations in safe locations and document the location of each station.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Dry bait formulation (Single Dose Anticoagulants)

**(5) Control Standard:** No further product damage and a noticeable decline in droppings. If there is no evidence of rodents following 30 days of baiting, then the bait stations should be removed unless there is a past history of repeated infestations (e.g., 3-4 times per year). Bait stations should be serviced at least monthly and insect infested bait should be removed.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Due to recent concerns regarding the risk of rodent-borne hantavirus which can cause serious human illness, proper personal protective equipment (including respirators outfitted with HEPA filters) must be worn if work is done in confined rodent infested spaces. Additional precautions including providing sunlight, ventilation, and disinfecting the rodent contaminated areas with a 10% bleach solution is also advised. Traps containing rodents should only be handled with disposable gloves and the trap and rodent should be disposed of in a doubled plastic bag. Further instructions are available from USACHPPM-North.

**5. PROHIBITED PRACTICES:** Do not place rodenticides where food preparation surfaces may be contaminated or where bait will be accessible to children or pets. Bait should be placed in tamper proof containers.

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Pesticides should be considered the last option in controlling rodents. Emphasis should be placed on blocking building access to rodents. As long as entry points into buildings exist, then trapping or baiting may be the only alternatives for control. The presence of spilled food products and/or poor housekeeping will adversely impact any baiting or trapping program.

## VAARNG Integrated Pest Management Outline Number 18

**Pest:** Birds (Pigeons, Starlings, House Sparrows)

**Site:** Warehouses, Loading Docks, & Other Buildings

**1. Purpose:** To control birds which nest, roost, or loaf in or on buildings or other areas where they will present a health hazard.

### 2. Surveillance

**a. Conducted By:** Building occupants and/or Pest Management Technicians

#### **b. Methods & Frequency:**

Visual observation of birds or droppings. Chemical control is only recommended in extreme cases where birds are nesting above or on aircraft. In most cases, control should be achieved with non-chemical methods and using chemical avicides has the potential of killing endangered or threatened birds and non-target species.



### 3. Pest Management Techniques

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** The preferred method of bird control is exclusion. Openings to the outside of buildings and should be screened or closed to prevent bird entry. Minor repairs can be done by occupants major repairs may require work by Facilities Division Preventive Maintenance. Baited live traps can be used to capture and relocate birds from inside buildings and from roosting areas on or near buildings. Architectural modifications of ridges and openings used for nesting and roosting on can be done on buildings where this is a problem. In some cases, material designed to discourage nesting (e.g., spike strips or netting) can be used. Also where legal, safe, and environmentally friendly, shooting birds can be an option. This is only used when there are only a few isolated birds since it is labor intensive and hazardous.

**(b) Conducted By:** Building Occupants, Facilities Division Preventive Maintenance, Pest Management Technicians (trapping)

**(2) Type:** Cultural

**(a) Method & Location:** Loading dock doors and unscreened windows should be kept closed when not in used. People should not feed birds especially pigeons. Empty organic refuse regularly from outdoor refuse containers near buildings, make sure material is bagged and sealed, and keep all refuse container doors tightly closed.



**(b) Conducted By:** Building Occupants and Refuse Collectors

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Precautions should taken if any architectural modifications are attempted that may involve buildings or structures that are historically significant. If in doubt, check with the Chief, Environmental Office.

**5. PROHIBITED PRACTICES:** Electronic and ultrasonic bird repelling devices and scare devices such as owl decoys have proven ineffective and their use is prohibited by DODINST 4150.7.

**6. ENVIRONMENTAL CONCERNS:** The species listed above are non-native and are not protected under the Migratory Bird Treaty Act. They, therefore, can be controlled or managed. The identity of any pest species should be certain before any manipulations take place. Most other wild bird species are protected by law.

**7. REMARKS:** Personal protective measures, including respiratory protection using HEPA filters, should be used if significant deposits of droppings are encountered during cleanup or structural modifications. Consultation with the Safety Office is advised. Note; although **Canada Geese** do occur at VAARNG installations, no control or management measures have been necessary, (see IPM Outline #19). If safety, health, or aesthetic impacts become significant, management measures will not be attempted unless full coordination has taken place with Federal and State Wildlife Officials.

## VAARNG Integrated Pest Management Outline Number 19

**Pest:** Canada Geese

**Site:** Lawns, Grassy Areas

**1. Purpose:** To reduce the number of resident and transient geese which occur on the airfield.

### 2. Surveillance

**a. Conducted By:**  
Pest Management Technicians

#### b. Methods &

**Frequency:** Visual observations, specifically the number of animals, or evidence that geese are present (i.e., feces or grass destruction due to feeding). Chemical control will be used only to supplement non-chemical control methods as needed.



### 3. Pest Management Techniques

#### a. Non-Chemical

**(1) Type:** Mechanical/Physical/Cultural

**(a) Method & Location:** Geese can be mechanically excluded by proper placement of physical barriers, such as snow fencing or similar materials placed around the edges of the airfield. Monofilament fishing line can be placed in a grid-type fashion 11-20" above ponds or grassy areas inhabited by geese. Lengths of engineer survey flagging tied to tall stakes driven into the ground, large plastic garbage bags attached by one corner to tall poles, scarecrows that include: bald eagle or swan decoys, human or alligator effigies, in addition to bright-flashing strobe lights, can all be used to visually deter or reduce the number of geese entering within an area. Hazing devices, such as cracker shells, screamers, bangers (pyrotechnics), propane cannons, air horns or sirens, geese in distress tapes, have shown some usefulness in displacing geese and are considered legal within the United States.

**(b) Conducted By:** Grounds Maintenance and Pest Management Technicians

**(2) Type:** Cultural and Biological

**(a) Method & Location:** Culturally speaking, the most important thing to accomplish is to **KEEP PEOPLE FROM FEEDING THE GEESE**. Biological means include scare tactics with trained dogs that retrieve dummies projected over a flock of the birds has been used, but prior to using this method, a permit is required upon checking with state and federal authorities.

**(b) Conducted By:** Pest Management Technicians

### **b. Chemical**

**(1) Basis for Treatment:** Geese represent a danger to people, and if all other methods fail, chemical means may offer a temporary solution.

**(2) Method & Location:** ReJexit has been used for repelling geese from lakefront areas with a marginal degree of success. Methyl anthranilate, the active ingredient, tends to make all grassy areas sprayed repulsive to geese, and they will tend to avoid eating grass treated with the chemical. Boom-spraying grassy areas at the medium rate listed on the label, is effective temporarily. Personnel may find that the odor smells sickeningly sweet like grape kool-aid, especially on warmer days.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide Common Name:** ReJexit Ag-36

**(5) Control Standard:** Reduced number of geese coming into an area for 14 days after treatment.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** None

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Geese are protected under the Migratory Bird Act as well as laws of the State of Virginia regarding game animals. Any request for control should be closely coordinated with USDA Wildlife Services (formerly Animal Damage Control) and the Virginia Department of Fish and Game.

## VAARNG Integrated Pest Management Outline Number 20

**Pest: Incidental Vertebrate Pests**  
(Squirrels, Birds, Feral Cats, Dogs)

**Site: In, Under, And Around Buildings**

**1. Purpose:** To remove unwelcome wild, feral, stray, or peridomestic vertebrates from areas and structures where human activities occur and where these activities as well as human health may be affected by the animals presence. To prevent or control a flea infestation traced to feral cats. Chemical control is not recommended since control should be achieved with non-chemical methods.



### 2. Surveillance

**a. Conducted By:** Occupants and Residents, Pest Management Technicians

**b. Methods & Frequency:** Ongoing observation during normal worker/resident activities. Visual observation after complaint received.

### 3. Pest Management Techniques

#### a. Non-chemical

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Setting live traps (e.g., stray or feral cats, squirrels) in or under buildings and structures. Captured strays are taken to the animal pound. Wild animals are destroyed on site, as required by state law.

**(b) Conducted By:** Pest Management Technicians

**(2) Type:** Mechanical and Physical

**(a) Method & Location:** Gloved-hand or net removal of accidental unintentional invader (e.g., birds) in building. Release animal alive in more natural area on post away from human activity.

**(b) Conducted By:** Pest Management Technicians

**(3) Type:** Mechanical and Physical

**(a) Method & Location:** Closing/fixing entry points in structures that have experienced invading animals. This includes fixing broken windows or doors, closing holes leading to crawlspaces, attics, and sealing gaps under doors. Keeping tree braches trimmed back away from structures.

**(b) Conducted By:** Facilities Division Personnel, Pest Management Technicians

**4. PRECAUTIONS FOR SENSITIVE AREAS:** No animal will be handled inhumanely or treated in such a way to violate any state or federal laws governing wildlife.

**5. PROHIBITED PRACTICES:** Any inhumane treatment of animals

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Pest Management Technicians should be vaccinated against rabies (with booster every two years) if handling vertebrates (e.g., stray/feral cats and dogs) and must wear strong protective (leather) gloves when transporting traps or otherwise handling animals.

## VAARNG Integrated Pest Management Outline Number 21

**Pest:** All Vegetation

**Site:** Utility Poles, Hydrant Bases, Sidewalks, Around Building Foundations, Parking Lots, Fence Lines and Road Shoulders

**1. Purpose:** Utility pole and hydrant bases, sidewalks, around building foundations, parking lots, and fence lines

### 2. Surveillance

**a. Conducted By:** Grounds Maintenance Personnel

**b. Methods & Frequency:**

Visual observations; bi-weekly through the growing season (March through September).

Chemical control will be used

only to supplement non-chemical control methods as needed.



### 3. Pest Control Techniques

#### a. Non-chemical

##### (1) Type: Mechanical and Physical

**(a) Method & Location:** Weed eaters can be used, but are very labor-intensive. In addition, once vegetation is cut, new growth will quickly replace those parts of the plants that have been removed. This method is practical when very few sites are maintained.

**(b) Conducted By:** Grounds Maintenance Personnel

##### (2) Type: Physical

**(a) Method & Location:** Hot water treatment is labor intensive; however, plant part remnants inhibit re-infestation. Perennial weeds may need subsequent treatment to provide complete control. Also barriers, such as mulch, can be used around building perimeters, along sidewalks and under fences to suppress weeds where it is feasible.

**(b) Conducted By:** Pest Management Personnel or Grounds Maintenance Personnel

**(3) Type:** Mechanical and Physical

**(a) Method & Location:** Road graders are used to scrape vegetation from road shoulders. This work is done in conjunction with road shoulder maintenance. Open storage areas are also bladed to remove vegetation and improve the surface of the ground for equipment or vehicular storage. Currently, trials are being conducted at select locations to determine the efficacy of thermal treatment (superheated water).

**(b) Conducted By:** Roads and Grounds Personnel

**b. Chemical**

**(1) Basis for Treatment:** Vegetation is present around the bases of hydrants and utility poles, along fence lines, and on or along sidewalks and building perimeters.

**(2) Method & Location:** Hand or power sprayer. Chemical is applied IAW label directions to unwanted vegetation.

**(3) Conducted By:** Pest Management Personnel

**(4) Pesticide:** Selective herbicide (Roundup®) (glyphosate)

**(4a) Pesticide:** Nonselective residual herbicide (pendimethalin)

**(5) Control Standard:** Treated vegetation is killed within two weeks following treatment

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Avoid contact with foliage, green stems or fruit of crops, desirable plants and trees. Avoid direct application to any body of water unless the herbicides are specifically formulated for use in wet environments. Avoid drift that could damage desirable plants; do not spray if wind is over 5 miles per hour. Post areas with warning signs prior to and after treatment.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** Glyphosate causes eye irritation and is harmful if swallowed. It may also cause skin irritation. Wear chemical-resistant gloves and goggles. Do not mix, store, or apply this product in galvanized steel or unlined steel containers (except stainless steel). This product reacts with such containers to produce hydrogen gas. This gas mixture could flash or explode. When mixed with pendimethalin, a pre-emergent herbicide, vegetation control is extended.

## VAARNG Integrated Pest Management Outline Number 22

**Pest: Ornamental Shrub Insect Pests**  
(e.g., aphids, scale insects)

**Site: Common Areas**

**1. Purpose:** To maintain vitality and reduce mortality of ornamental shrubs

### 2. Surveillance

**a. Conducted By:** Pest Management Technicians and Grounds Maintenance Personnel

**b. Methods & Frequency:** Visual observations, at least three times per year; April, June, and August. Chemical control will be used only to supplement non-chemical control as needed.



### 3. Pest Management Techniques

#### a. Non-Chemical

**(1) Type:** Mechanical/Physical/Cultural

**(a) Method & Location:** Prune and remove heavily infested branches. Maintain shrub vigor with fertilizer. Replace dying plants with pest resistant, preferably native species. Locations include high visibility landscaped common areas.

**(b) Conducted By:** Grounds Maintenance and Pest Management Technicians

**(2) Type:** Cultural and Biological

**(a) Method & Location:** Closely examine beneficial fauna on individual shrubs in order to maximize the use of beneficial insects as control strategies. If the population of lady beetles, or lacewings appears high and/or if aphid mummies (dead carcasses

in which parasitic wasps have emerged from) are present, delay pesticide treatment and conduct a follow-up examination in 7-10 days.

**(b) Conducted By:** Pest Management Technicians

**b. Chemical**

**(1) Basis for Treatment:** High populations of aphids, or mealybugs are detected on shrub and beneficial fauna is not adequate to maintain a healthy shrub.

**(2) Method & Location:** Spray foliage and branches of ornamental shrub.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Insecticidal Soap

**(4a) Pesticide:** Horticultural Insecticide/Fungicide Oil

**(5) Control Standard:** Shrub no longer infested after follow-up examination (7-10 days)

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Post treatment area with warning sign prior to, during, and 24 hours after treatment. To avoid possible shrub damage, do not spray horticultural oil below 50 degrees and above 90 degrees Fahrenheit.

**5. PROHIBITED PRACTICES:** Do not spray when winds exceed 5 mph.

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** A variety of low human toxicity products are available; however resistant strains give the best overall level of long-term control. Release of bio-control predators tends to not be cost effective as the predators quickly disperse from the point of release. Encouraging natural populations of predators through discriminate use of insecticidal compounds at appropriate time may be all that is required.

## VAARNG Integrated Pest Management Outline Number 23

**Pest: Turf Insect Pests (Webworms, Grubs, and Others)**

**Site: Lawns And Grassy Areas**

**1. Purpose:** To maintain vitality and attractiveness of lawns, grassy areas, and ball field.

### **2. Surveillance**

**a. Conducted By:** Roads & Grounds personnel, Pest Management Technicians

**b. Methods & Frequency:** For **webworms** use soap drench monitor by marking off three -4ft. square sections of turf, mix 2 tablespoons of liquid soap in a gallon of water in a sprinkling can, and pour evenly over sample areas. Soap irritates caterpillars causing them to crawl to surface. For **grubs**, in late May examine underneath the turf by using a spade to cut three sides of a 1-foot square to a depth of 1-4 inches, fold back turf, and count exposed grubs. Low numbers may be beneficial to maintain grub bacterial pathogens. Also watch for large flocks of foraging birds (e.g., blackbirds) throughout the warm season. Chemical control will be used only to supplement non-chemical control methods as needed.



### **3. Pest Management Techniques**

#### **a. Non-chemical**

**(1) Type:** Mechanical and Physical

**(a) Method & Location:** Properly mow (not too short, not too often), fertilize, practice good weed control and water grassy areas at appropriate intervals in order to improve the ability of the turf to recover from insect damage. Modify/ drain continual wet spots (IAW wetland preservation laws) to reduce favorable grub habitat.

**(b) Conducted By:** Roads & Grounds personnel, family housing area residents.

**(2) Type:** Mechanical and Physical

**(a) Method & Location:** Top dress turf with a thin layer of composted organic matter mixed half-and-half with medium-grade sand. Sand helps prevent compaction and organic matter acts as an inoculant of insect-fighting microbes.

**(b) Conducted By:** Roads & Grounds personnel

**(3) Type:** Cultural

**(a) Method & Location:** Select pest-resistant grasses, grass species blends, and high endophytic-bearing ryegrass, in appropriate areas. Endophytic grasses contain a symbiotic fungus in their tissues that repels or kills common leaf-and stem-eating lawn insects (e.g. webworms). This does not prove effective for root-feeding grub insects.

**(b) Conducted By:** Roads & Grounds personnel

**(4) Type:** Cultural/biological

**(a) Method & Location:** Refrain from using insecticides in a scheduled, preventive manner to allow natural enemies to keep pest insect populations below the management threshold.

**(b) Conducted By:** Roads & Grounds personnel

**b. Chemical**

**(1) Basis for Treatment:** Excessive (intolerable) numbers of target pest insects are present and non-chemical control methods are not adequate to control population. If the number of webworms reaches 4-6 or more per square foot area. If the number of annual white grubs(Japanese beetle, Oriental beetle, or Asiatic Garden beetle) reaches 5-10 or more per square foot.

**(2) Method & Location:** Apply selectively to problem areas according to label specifications.

**(3) Conducted By:** Pest Management Technicians

**(4) Pesticide:** Residual insecticide

**(5) Control Standard:** Excessive (intolerable) number of target insect pests are reduced to a tolerable level.

**4. PRECAUTIONS FOR SENSITIVE AREAS:** Post warning signs for before, during, and after pesticide treatment occurs. Do not let people onto pesticide-treated areas within 24 hours of treatment, based upon the toxicity of the material used (see pesticide label). Do not treat turf with certain pesticides if rain is expected.

**5. PROHIBITED PRACTICES:** None

**6. ENVIRONMENTAL CONCERNS:** None

**7. REMARKS:** The presence and damage associated with moles can often be attributed to their foraging behavior for turf dwelling insects, particularly grubs. Control of grubs can also control the unsightly presence of mole tunnels through lawns.

## INTEGRATED PEST MANAGEMENT OUTLINE NO. 24

**PEST: Hardwood Trees and Brush, including stumps.**

**SITE:** Woody brush along fence-lines and open maneuver areas.

**1. Purpose:** To improve habitat for wildlife and reduce fuel for uncontrolled fires. Stump treatment may be applied to prevent re-growth.

### **2. Surveillance.**

**A. Conducted by:** MTC Forestry Office conducts surveys by visual observation during planned work. Forestry personnel and QAEs may perform surveys for quality assurance of contractual pest management services.

**B. Methods:** Visual observations.

**C. Frequency:** MTC Forestry Office annually conducts visual observations, prior to the prescribed burn season (November – March). Surveys may include observations conducted during the previous or current growing season to determine the need for control measures. The MTC Forestry Office QAE performs surveys during or as follow up after contract performance.

### **3. Pest Management Techniques.**

#### **A. Non-chemical**

**(1) Type:** Mechanical and Physical.

**a. Method and Location:** Mechanical removal is used to cull hardwoods in timber stands by using chain saws or other mechanical devices.

**b. Conducted by:** The MTC Forestry Office.

**(2) Type:** Biological.

**a. Method and Location:** None applied.

**(3) Type:** Cultural.



**a. Method and Location:** Prescribed burning is the primary control method (5,000 acres annually on Fort Pickett). Burns are performed on 3-year intervals to kill hardwoods and to remove fuel for wildfire.

**b. Conducted by:** The MTC Forestry Office.

**B. Chemical.**



**(1) Basis for Treatment:** Broadleaf trees or brush are cut and stump treatment is required to prevent re-sprouting. Most of these sites are within developed areas.

**(2) Method and Location:** Compressed air sprayers are normally used to treat individual stumps. Powered hydraulic sprayers may be used in the event there are many stumps to treat at a specific site. Examples of sites are fence lines.

**(3) Conducted by:** MTC Forestry Office personnel.

**(4) Pesticide.**

<b>Pesticide</b>	<b>EPA Reg No.</b>	<b>Site</b>
Arsenal	241-346	Applications to unwanted vegetation are IAW label directions.
Remedy	62719-70	Post-emergent herbicide application is performed using a boom sprayer, handgun from a powered sprayer, or compressed air sprayer on selected turf.
Garlon 4	62719-40	Post-emergent herbicide application is performed using a boom sprayer, handgun from a powered sprayer, or compressed air sprayer on selected turf.

**(5) Control Standard:** Mechanical methods minimize damage to desirable vegetation. Prescribed burns create mortality in most broadleaf vegetation after burning. No re-sprouting to chemically treated stumps.

**4. Precautions for Sensitive Areas:** Use extreme caution to minimize damage to desirable vegetation when performing chemical control.

**5. Prohibited Practices:** Do not get herbicides into streams or other freshwater sources.

**6. Environmental Concerns:** None.

**7. Remarks:** Refer to the Integrated Natural Resource Management Plan for additional information regarding forestry management.

## INTEGRATED PEST MANAGEMENT OUTLINE NO. 25

**PEST: Spotted Knapweed (*Centaurea biebersteinii*)**

**SITE:** Rights-of-way, old fields, vacant lots, or the yards of abandoned or little-used buildings.

**1. Purpose:** To eradicate or control spotted knapweed in order to prevent the destruction of more favorable plants and restore native ecosystems.

### **2. Surveillance.**

**A. Conducted by:** Building occupants or facility managers may conduct initial observations and submit service orders. Most surveys are to be performed by grounds maintenance personnel. Grounds maintenance personnel may conduct surveys in response to service requests. Pest management or ground maintenance QAEs may perform surveys for quality assurance of contractual pest management services.

**B. Methods:** Visual observations for the presence of the plants when they are in bloom in the mid-summer.

**C. Frequency:** Building occupants or facility managers conduct surveillance during the performance of their assigned tasks.

### **3. Pest Management Techniques.**

#### **A. Non-chemical.**

##### **1. Type: Mechanical and Physical.**

**a. Method and Location:** Mowing, tillage, or prescribed burning can prepare areas for more efficient herbicide applications. However, tillage and prescribed burning should not be used on steeply sloping lands where erosion is a risk. Mowing can't eliminate this weed by itself, but can be used to expose rosettes for treatment in the spring and fall. For small infestations, digging and hand removal have been effective.



**b. Conducted by:** Contractors, pest management personnel, or grounds maintenance personnel.

**2. Type: Biological:** Several species of beetles, flies and moths are used for biological control of this weed and have proven effective at significantly reducing spotted knapweed populations.

**3. Type: Cultural:** None.

## **B. Chemical.**

**1. Basis for Treatment:** The presence of spotted knapweed and non-chemical controls have not been successful.

**2. Method and Location:** Herbicides should be applied in the fall to the rosette stage or in the spring to the bud-to-bloom stage in the spring.

**3. Conducted by:** Pest Management Technicians or Contractors.

**4. Pesticide:** Picloram (Tordon) at the rate of 0.25 – 0.5 pounds per acre or Dicamba (Banvel) at the rate of 1 – 2 pounds per acre or clopyralid and 2,4-D (Curtail) at the rate of 0.19 + 0.28 – 1 + 1.5 pounds per acre.

**5. Control Standard:** 90% of the target plants have died within one month after application.

**4. Precautions for Sensitive Areas:** Avoid destruction of non-target foliage and avoid drift. Do not apply in areas in which endangered or threatened animal and plant species are found without consultation with the US Fish and Wildlife Service.

**5. Prohibited practices:** None

**6. Environmental Concerns:** Picloram and dicamba should not be used where ground or surface water may be contaminated.

**7. Remarks:** Elimination of spotted knapweed is multi-year project. Seeds can persist in the soil for eight years or more.

## INTEGRATED PEST MANAGEMENT OUTLINE NO. 26

### PEST: Kudzu (*Pueraria lobata*)

**SITE:** Rights-of-way, old fields, vacant lots, or the yards of abandoned or little-used buildings.

**1. Purpose:** To eradicate every kudzu plant in order to prevent the destruction of more favorable plants.

#### 2. Surveillance.

**A. Conducted by:** Building occupants or facility managers may conduct initial observations and submit service orders. The Forestry Office handles all kudzu control on Fort Pickett, including surveying, mechanical control and chemical control.

**B. Methods:** Visual observations for the presence of the vine. Kudzu is a large, trifoliolate-leaved, semi-woody, trailing or climbing perennial vine that belongs to the legume family.

**C. Frequency:** Building occupants or facility managers conduct surveillance during the performance of their assigned tasks.

#### 3. Pest Management Techniques.

##### A. Non-chemical.

##### 1. Type: Mechanical and Physical.

**a. Method and Location:** Mowing, tillage, or prescribed burning can prepare areas for more efficient herbicide applications.

However, tillage and prescribed burning should not be used on steeply sloping lands where erosion is a risk. If kudzu is growing in a place that can be fenced in grazing with farm animals (sheep) is an option.

**b. Conducted by:** Contractors, pest management personnel, or grounds maintenance personnel.

##### 2. Type: Biological: None.





**3. Type: Cultural:** None.

**a. Method and Location:**  
None applied.

**B. Chemical.**

**1. Basis for Treatment:** The presence of kudzu and non-chemical controls has not been successful.

**2. Method and Location:** Herbicides should be applied between May and October. If a patch is ten years or older then it will probably be harder to get control.

**3. Conducted by:** Pest Management Technicians or Contractors.

**4. Pesticide:** Residual Herbicide

**5. Control Standard:** 90% of the kudzu plants have died within 2 weeks after application.

**4. Precautions for Sensitive Areas:** Avoid destruction of non-target foliage and avoid drift. Do not apply in areas in which endangered or threatened animal and plant species are found.

**5. Prohibited practices:** None

**6. Environmental Concerns:** None.

**7. Remarks:** Consult the Forestry Office prior to application of these pesticides.



## INTEGRATED PEST MANAGEMENT OUTLINE NO. 27

**PEST: Tree of Heaven.**

**SITE:** Along fence-lines and in open maneuver areas.

**1. Purpose:** To improve habitat for wildlife and promote biodiversity. Stump treatment may be applied to prevent re-growth.

### **2. Surveillance.**

**A. Conducted by:** MTC Forestry Office conducts surveys by visual observation during planned work. Forestry personnel and QAEs may perform surveys for quality assurance of contractual pest management services.

**B. Methods:** Visual observations.

**C. Frequency:** MTC Forestry Office annually conducts visual observations, prior to the prescribed burn season (November – March). Surveys may include observations conducted during the previous or current growing season to determine the need for control measures. The MTC Forestry Office QAE performs surveys during or as follow up after contract performance.

### **3. Pest Management Techniques.**

#### **A. Non-chemical**

**(1) Type:** Mechanical and Physical.

**a. Method and Location:** Mechanical removal is used to remove mature Tree of Heaven in timber stands by using chain saws or other mechanical devices prior to harvest.

**b. Conducted by:** The MTC Forestry Office.

**(2) Type:** Biological.

a. Method and Location: None applied.

**(3) Type:** Cultural.



**a. Method and Location:** Prescribed burning is the primary control method (5,000 acres annually on Fort Pickett). Burns are performed on 3-year intervals to kill hardwoods and to remove fuel for wildfire.

**b. Conducted by:** The MTC Forestry Office.

**B. Chemical.**

**(1) Basis for Treatment:** Broadleaf trees or brush are cut and stump treatment is required to prevent re-sprouting. Most of these sites are within developed areas.

**(2) Method and Location:** Compressed air sprayers are normally used to treat individual stumps. Powered hydraulic sprayers may be used in the event there are many stumps to treat at a specific site. Examples of sites are fence lines.

**(3) Conducted by:** MTC Forestry Office personnel.

**(4) Pesticide.**

<b>Pesticide</b>	<b>EPA Reg No.</b>	<b>Site</b>
Arsenal	241-346	Applications to unwanted vegetation are IAW label directions.
Accord or Roundup		Post-emergent herbicide application is performed using a handgun from a powered sprayer, or compressed air sprayer on labeled sites.
Garlon 4	62719-40	Post-emergent herbicide application is performed using a boom sprayer, handgun from a powered sprayer, or compressed air sprayer on labeled sites.

**(5) Control Standard:** Mechanical methods minimize damage to desirable vegetation. Prescribed burns create mortality in most broadleaf vegetation after burning. No re-sprouting to chemically treated stumps.

**4. Precautions for Sensitive Areas:** Use extreme caution to minimize damage to desirable vegetation when performing chemical control.

**5. Prohibited Practices:** Do not get herbicides into streams or other freshwater sources.

**6. Environmental Concerns:** Tree of Heaven can be used to remediate brownfield sites due to its nature of sequestering toxic metals and other pollutants within the plant tissue. Once removed from the site it should be landfilled and not incinerated.

**7. Remarks:** Refer to the Integrated Natural Resource Management Plan for additional information regarding forestry management. See

[http://na.fs.fed.us/fhp/invasive\\_plants/weeds/tree-of-heaven.pdf](http://na.fs.fed.us/fhp/invasive_plants/weeds/tree-of-heaven.pdf) or

<http://www.naturalresources.umd/Pages/Tree-of-heaven.htm> for more information.

## **APPENDIX B**

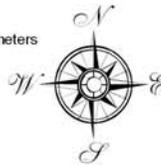
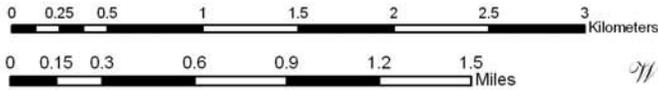
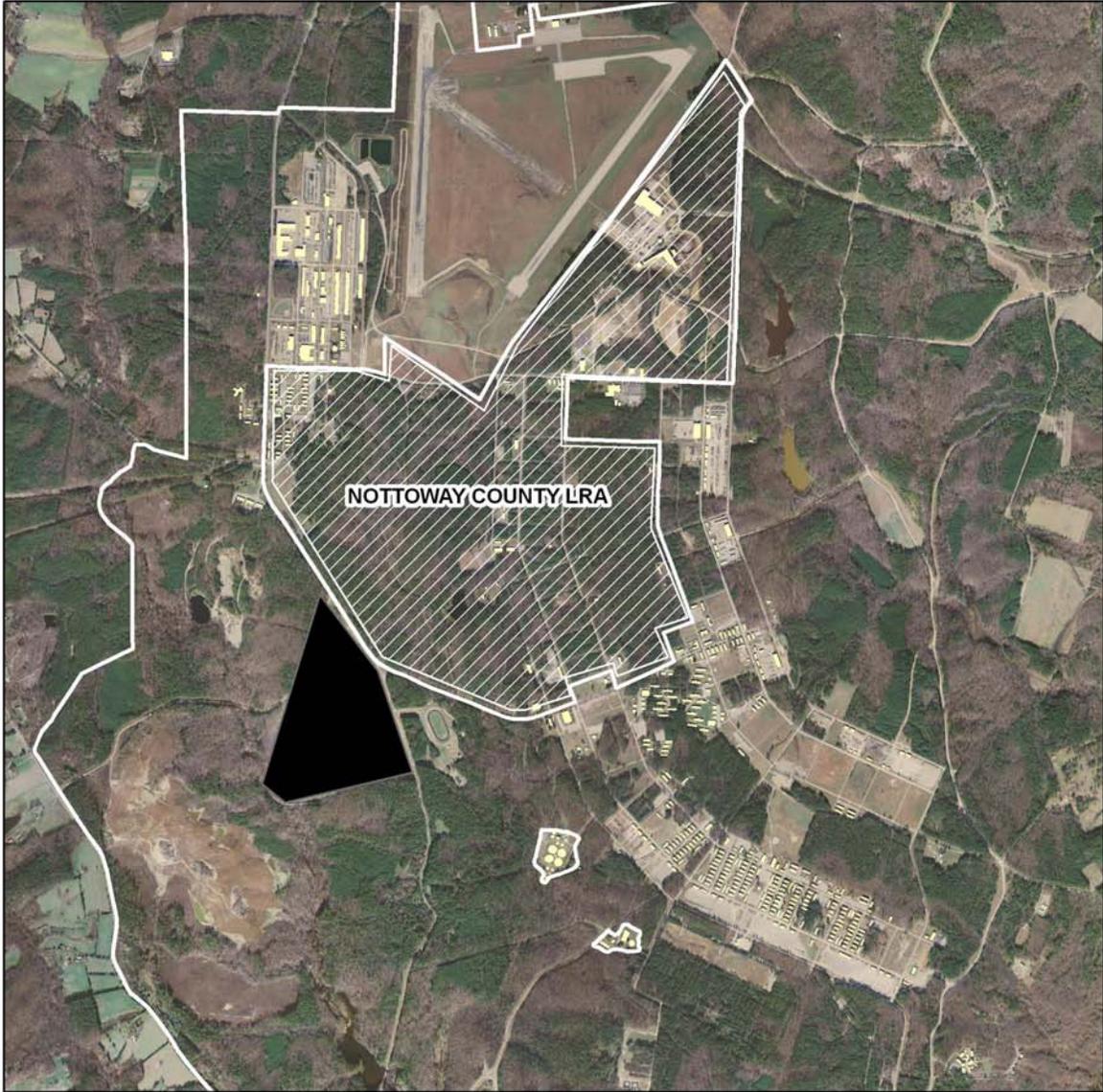
### **VIRGINIA ARMY NATIONAL GUARD**

#### **FACILITIES LIST and MAPS**

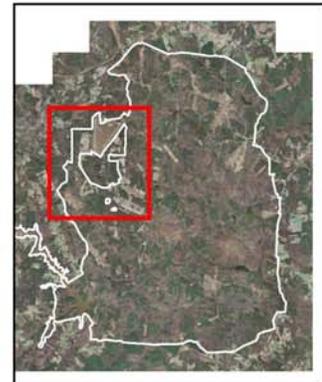
*The Facility Inventory Stationing Plan (FISP) is maintained at the Installation Management Agency, Joint Force Headquarters, Virginia National Guard, Fort Pickett, Virginia. This document provides specific information on each facility utilized by the VAARNG.*

VIRGINIA 1:32,500

# FORT PICKETT MAIN POST



## OVERVIEW



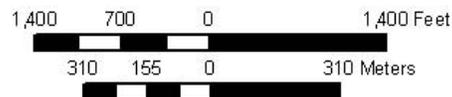
This map of ARNG-MTC Fort Pickett was produced by:  
VAARNG-FM-E Office, Building 316 Fort Pickett, Blackstone, VA 23824  
Author: CPT Jaycee Shaver (434) 298-6391. 11 FEB 08

Not all data layers represented maintain the same accuracy level, therefore the map scale applied does not necessarily equate to the implied horizontal and vertical positional accuracy.

No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.



### SMR, Virginia Beach, VA



This map of VAARNG-FM-E Fort Pickett was produced by the USFMEB ISO I&C, Building 201, 11th St, Pickett Park, Blackstone, VA 23024-0114-212-414.

Not all data layers represented maintain the same accuracy level, therefore the map scale applied does not necessarily equate to the implied horizontal and vertical positional accuracy.

No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.

Obtain unique address code for this map when requesting reports and/or web data.



#### Document Information

Author: CPT J.C. Shaver Jr.  
Publication Date: 24 JUL 07





# Virginia National Guard Facilities



VAFME GIS Office  
September 15, 2004  
facilitiesmap.mxd

**APPENDIX C**

**VIRGINIA ARMY NATIONAL GUARD**

**INTEGRATED PEST MANAGEMENT**

**5-YEAR PLAN**

## **5-YEAR PLAN FOR PEST MANAGEMENT SERVICES**

**1. PURPOSE.** This appendix identifies anticipated personnel and equipment requirements, and other program needs to meet regulatory and installation needs.

**2. FY 08**

**A. Installation Integrated Pest Management Plan (IPMP):**

**1.** Review of all pesticides used on the installation by USACHPPM Entomological Science Program (Pesticide Hotline) for state and EPA registration.

**2.** Coordinate and obtain approval from MACOM Pest Management Consultant, Kenneth Conley.

**B. Initial certification for the following individuals:**

**1.** None currently identified.

**C. Recertification for the individuals in [Appendix H](#):**

**D. Other training needs (COR, QAE, etc training):**

**1.** Record keeping and reporting with the VAARNG PestMgtRecordv4.0.

**E. Equipment needs:**

**1.** Annual service, repair parts, and winterizing.

**F. Other program needs:**

**1.** HAZMAT/Industrial Hygiene inspection of pesticide storage/mixing facilities (semi-annual).

**2.** Request program support from outside agencies for services (i.e. USACHPPM, AEC, etc.)

**3.** Implement self-help program to allow users to assist in pest control and lower need for contract pest control services.

**4.** Contracts for Pest Control Services:

- a. Complete an indefinite quantity contract with 4 option years for all pest control services by the end of the fiscal year for MTC-Fort Pickett and other facilities as necessary.
- b. Submit all pest control contracts to the MACOM Pest Management Consultant for approval prior to solicitation.

**G.** Environmental Performance Assessment System (EPAS) issues (review and resolution of findings not previously addressed):

**3.** FY 09

**A.** Installation Integrated Pest Management Plan (IPMP):

1. Internal review of IPMP third quarter of the fiscal year.
2. Coordinate and obtain approval for changes from MACOM Pest Management Consultant by the second quarter of the fiscal year.

**B.** Initial certification for the following individuals:

1. VAARNG PMC/QAE.

**C.** Recertification for the following individuals:

1. None currently identified.

**D.** Other training needs (COR, QAE, etc training):

1. Recertify VAARNG PMC/QAE.

**E.** Equipment needs:

1. Annual service, repair parts, and winterizing.
2. Replace the following equipment:

- a. None.

**F.** Facilities needs:

1. Creation of HAZMAT pharmacy to facilitate self-help product distribution.

**G.** Other program needs:

1. HAZMAT/Industrial Hygiene inspection of pesticide storage/mixing facilities (semi-annual).

2. Request program support from outside agencies for services (i.e. USACHPPM, AEC, etc.)

3. Contracts:

a. Review contract specifications for modifications or rewrite.

b. Modify or rewrite contract specifications or extend option.

c. Obtain MACOM Senior Pest Management Consultant approval for contract modifications or new contracts prior solicitation.

**4. FY 10**

**A. Installation Integrated Pest Management Plan (IPMP):**

1. Internal review of IPMP third quarter of the fiscal year.

2. Coordinate and obtain approval from MACOM Pest Management Consultant by the fourth quarter of the fiscal year.

**B. Initial certification for the following individuals:**

1. None.

**C. Recertification for the individuals in [Appendix H](#).**

**D. Other training needs (COR, QAE, etc training):**

1. None.

**E. Equipment needs:**

1. Annual service, repair parts, and winterizing.

2. Replace the following equipment:

a. None anticipated.

**F. Facilities needs:**

1. None.

**G. Other program needs:**

1. HAZMAT/Industrial Hygiene inspection of pesticide storage/mixing facilities (semi-annual).
2. Request program support from outside agencies for services (i.e. CHPPM, AEC, etc.)
3. Contracts:
  - a. Review contract specifications for modifications or rewrite.
  - b. Modify or rewrite contract specifications or extend option.
  - c. Obtain MACOM Senior Pest Management Consultant approval for contract modifications or new contracts prior solicitation.

**5. FY 11**

**A. Installation Integrated Pest Management Plan (IPMP):**

1. Internal review of IPMP third quarter of the fiscal year.
2. Coordinate and obtain approval from MACOM Pest Management Consultant by the fourth quarter of the fiscal year.

**B. Initial certification for the following individuals:**

1. None anticipated.

**C. Recertification for the individuals in [Appendix H](#):**

**D. Other training needs (COR, QAE, etc training):**

1. None

**E. Equipment needs:**

1. Annual service, repair parts, and winterizing.
2. Replace the following equipment:
  - a. None anticipated.

**F. Facilities needs:**

1. None.

**G. Other program needs:**

1. HAZMAT/Industrial Hygiene inspection of pesticide storage/mixing facilities (semi-annual).

2. Request program support from outside agencies for services (i.e. CHPPM, AEC, etc.)

3. Contracts:

- a. Review contract specifications for modifications or rewrite.

- b. Modify or rewrite contract specifications or extend option.

- c. Obtain MACOM Pest Management Consultant approval for contract modifications or new contracts prior solicitation.

**6. FY 12**

**A. Installation Integrated Pest Management Plan (IPMP):**

1. Internal review of IPMP third quarter of the fiscal year.

2. Coordinate and obtain approval from MACOM Pest Management Consultant by the fourth quarter of the fiscal year.

**B. Initial certification for the following individuals:**

**C. Recertification for the individuals in [Appendix H](#):**

**D. Other training needs (COR, QAE, etc training):**

1. None anticipated.

**E. Equipment needs:**

1. Annual service, repair parts, and winterizing.

2. Replace the following equipment:

- a. None anticipated.

**F. Facilities needs:**

1. None.

**G. Other program needs:**

1. HAZMAT/Industrial Hygiene inspection of pesticide storage/mixing facilities (semi-annual).

2. Request program support from outside agencies for services (i.e. CHPPM, AEC, etc.)

3. Contracts:

- a. Review contract specifications for modifications or rewrite.

- b. Modify or rewrite contract specifications or extend option.

- c. Obtain MACOM Pest Management Consultant approval for contract modifications or new contracts prior solicitation.

## **APPENDIX D**

### **BIOLOGICAL DATA ON 25 COMMON SPECIES OF MOSQUITO FOUND IN VIRGINIA**

**Biological Data on 25 Species of Mosquito found in Virginia**

<b>Mosquito Species</b>	<b>Larval Habit at</b>	<b>Biting Time</b>	<b>Flight Range (A)</b>	<b>Disease Carried (B)</b>
<b>Aedes albopictus</b>	<b>AC, TH</b>	<b>C, N, D</b>	<b>100-300 yd.</b>	<b>DV, WNV, WEE</b>
<b>vexans</b>	<b>FW, GP, IP</b>	<b>C, N</b>	<b>1 to 5 miles</b>	<b>EEE, WEE, CE, DF, WNV</b>
<b>Anopheles atropos</b>	<b>SM</b>	<b>C, N</b>	<b>1 to 5 miles</b>	<b>WNV</b>
<b>bradleyi crucians</b>	<b>SM, FS, LM</b>	<b>C</b>	<b>1 to 2 miles</b>	<b>EEE, WNV</b>
<b>punctipennis</b>	<b>WP</b>	<b>C, N</b>	<b>0 to ¼ mile</b>	<b>CE, DH, WNV</b>
<b>quadrimaculatus</b>	<b>FW, GP, LM</b>	<b>C</b>	<b>½ to 1 mile</b>	<b>EEE, WEE, WNV</b>
<b>Coquillittidia perturbans</b>	<b>RE, LM, DD</b>	<b>C</b>	<b>1 to 5 miles</b>	<b>FV, WNV</b>
<b>Culex erraticus</b>	<b>WP</b>	<b>N</b>	<b>0 to ¼ miles</b>	<b>WNV</b>
<b>nigripalpus</b>	<b>GP, FW, DD</b>	<b>C</b>	<b>½ to 1 mile</b>	<b>WNV</b>
<b>pipiens</b>	<b>AC, SCB, GRP</b>	<b>C, N</b>	<b>¼ to ½ mile</b>	<b>CE, WEE, FV, DH, FIL, WNV</b>
<b>restuans</b>	<b>WP,</b>	<b>C, N</b>	<b>1 to 2</b>	<b>EEE,</b>

	<b>GRP, DD</b>		<b>miles</b>	<b>WEE, DH, FV, WNV</b>
<b>salinarius</b>	<b>GP, LM, FS</b>	<b>C, N</b>	<b>¼ to 5 miles</b>	<b>SLE, DH, FV, WNV</b>
<b>territans</b>	<b>WP</b>	<b>N</b>	<b>0 to 1/8 mile</b>	<b>WNV</b>
<b>Culiseta melanura</b>	<b>FS, WP</b>	<b>C, N</b>	<b>½ to 1 mile</b>	<b>EEE, FV, CE, WNV</b>
<b>Psorophora ciliata</b>	<b>WP</b>	<b>C, N</b>	<b>1 to 2 miles</b>	<b>EEE, WNV</b>
<b>columbiae</b>	<b>IP, RF, GRP</b>	<b>C, N</b>	<b>1 to 5 miles</b>	<b>CE, EEE, SLE, WEE, FIL, WNV</b>
<b>ferox</b>	<b>WP</b>	<b>C, N</b>	<b>1 to 2 miles</b>	<b>WNV</b>
<b>howardii</b>	<b>WP</b>	<b>C, N</b>	<b>1 to 2 miles</b>	
<b>Onchlerotatus atlanticus tormento</b>	<b>WP</b>	<b>C, D</b>	<b>¼ to ½ mile</b>	<b>CE, WNV</b>
<b>canadensis</b>	<b>WP, DD, FS</b>	<b>C, D</b>	<b>0 to ¼ mile</b>	<b>CE, DH, WNV</b>
<b>Fulvis pallens</b>	<b>WP</b>	<b>C, N, D</b>	<b>2-5 miles</b>	
<b>infirmatus</b>	<b>WP, GP, LM, FS</b>	<b>C, D</b>	<b>¼ to 1 mile</b>	
<b>sollicitans</b>	<b>SM</b>	<b>C, D</b>	<b>5 to 40</b>	<b>CE, EEE,</b>

			miles	DH,W EE, VEE, WNV
taeniorhynchus	SM	C, N, D	5 to 40 miles	CE, SLE, WNV
triseriatus	TH, AC	D	½ to 1 mile	CE, EEE, DH, WEE, WNV

The data shown in this table is from the Center for Disease (<http://www.cdc.gov>) Control and the Virginia Department of Health (<http://www.deh.enr.state.nc.us/>). These sites can be checked for updates on mosquito vectored diseases.

#### DEFINITIONS OF SYMBOLS

#### NOTES:

- A. Values given are estimates of normal flight ranges. For some species, seasonal dispersion may be 10 times these values.
- B. Laboratory tests confirmed that these mosquito species can be carriers of these diseases.

#### Habitat:

- AC Artificial containers
- DD Drainage ditches
- FS Freshwater swamps
- FW Flood waters
- WP Woodland pools
- GP Grassland pools
- GRP Ground pools
- IP Irrigated pastures
- LM Lake Margins
- RE Rooted emerged vegetation
- RF Rice fields
- SCB Sewage catch basins
- SM Salt marshes

**Biting Time:**

C Crepuscular (dusk and dawn)

D Day

N Night

**DISEASES TRANSMITTED:**

CE California Encephalitis

DF Dengue Fever

DH Dog Heartworm

EEE Eastern Equine Encephalitis

FV Flanders Virus

SLE St. Louis Encephalitis

VEE Venezuelan Equine Encephalitis

WEE Western Equine Encephalitis

FIL Filariasis

YF Yellow Fever

WNV West Nile Virus

**APPENDIX E**

**PRE-FIRE PLANS**

**FOR**

**INSTALLATIONS/FACILITIES**

**THAT STORE PESTICIDES**

*Installations/facilities that store appreciable amounts of pesticides will complete the Pre-Fire Plan. A copy for each installation/facility will be provided to the Pest Management Coordinator to place in this Appendix. Further information on Pre-fire Planning is available in Armed Forces Pest Management Board Technical Information Memorandum No. 16, Pesticide Fires: Prevention, Control, and Cleanup.*

## **PRE-FIRE PLANNING**

The success of minimizing the hazard to the health and environment during a pesticide fire will depend upon the adequacy of pre-fire planning. Time-consuming preparations and difficult decisions should be made in advance rather than during an emergency situation. Significant amounts of pesticides are located at Fort Picket Center, with a much smaller amount at SMP Virginia Beach. Good inventory control will minimize the pesticide inventory to, at most, a season's usage level. Facilities with only minor stock (a few cans of aerosol, a few ant/roach bait station, etc.) are not required to have a pre-fire plan. The Pre-Fire Plan should be updated annually or as significant changes occur in either pesticides stored or modifications to the storage facility. The Plan will address the following:

1. Facility Floor Plan. Include a floor plan of the facility that indicates where permanent inside walls, all external openings such as door and windows, and pesticides are located.

2. Pesticide Inventory. A copy of a current pesticide inventory should be provided to the local fire department. Updates to this list should be provided quarterly or semi-annually, based on stock level changes.

3. Access Routes. Primary and alternate access routes to the pesticide storage facility from all directions should be included because primary access may be blocked by toxic smoke. Smoke from a pesticide fire is not a nuisance that can be driven through, but must be presumed highly toxic.

4. Evacuation Routes. Evacuation routes that have been established with the installation police, or supporting law enforcement agency, should be identified. Evacuation routes, as with access routes, must be developed in all directions so that toxic smoke can be avoided. This plan should include procedures to secure the area to prevent unauthorized entry.

5. Water Runoff Control. Planning water runoff control is a very important part of pre-fire planning. Identify where there is a potential for water runoff and determine how to prevent contamination of waterways. Arrangements for equipment and supplies necessary to construct dikes or dams should be included in the pre-fire plan. Do not rely solely on equipment and supplies located at or near the storage area as they may be inaccessible because of toxic smoke.

6. Map of Area. Provide a map (may be hand drawn) of the area surrounding the pesticide facility. The map should include: location of water supplies; perimeter fences, with all gates shown; adjacent buildings/activities with contents/functions of each shown; nearby ditches, underground drains, creeks and rivers with arrows to show direction of flow; building access and evacuation routes; where and how runoff may be blocked and north arrow.

7. Emergency Telephone Numbers. Include a list of telephone numbers where key personnel can be contacted day or night. As a minimum this list should include: installation police/security, installation spill coordinator, VAARNG Environmental Office, local hospital/poison control center, CHEMTREC, Regional US EPA Office and comparable State agency.

**Blank Forms provided in this Appendix should be completed at installation/facility level, with a copy provided to the VAARNG Pest Management Coordinator.**

**PRE-FIRE PLAN**

- 1. Installation Name: Maneuver Training Center Fort Pickett
- 2. Location: Warehouse Row and 9th Street
- 3. Pesticide Storage Building: Building 303
- 4. Building Point of Contact: Mr. Gilliam Winn

Work Telephone Number: 434-292-2333

**5. EMERGENCY TELEPHONE NUMBERS:**

- Installation Police/Security: ..... 911
- Installation/Local Fire Department: ..... 911
- Installation Spill Coordinator: ..... 434-292-2144/2664
- Environmental Office: ..... 434-298-6391 (or above)
- Southside Regional Medical Center: ..... 804-862-5000
- CHEMTREC: ..... 1-800-424-9300
- Region III US EPA Office: ..... 1-800-438-2474
- DOD Pesticide Hotline: ..... 1-800-555-6788

## **APPENDIX F**

### **ENDANGERED AND THREATENED SPECIES LISTS**

**FOR**

**THE STATE OF VIRGINIA**

*More detailed information on rare, threatened, and endangered species that occur on VAARNG installations and facilities is available from the VAARNG Environmental Office. The VAARNG Integrated Natural Resources Management Plan (INRMP) should be consulted before conducting pest management operations.*



## U.S. Fish & Wildlife Service

### USFWS Threatened and Endangered Species System (TESS)

[TESS](#)

[Contact ECOS](#)

## Virginia

### Notes:

- *This report shows the listed species associated in some way with this state.*
- *This list does not include experimental populations and similarity of appearance listings.*
- *This list includes non-nesting sea turtles and whales in State/Territory coastal waters.*
- *This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.*
- *Click on the highlighted scientific names below to view a Species Profile for each listing.*

### Listings and occurrences for Virginia -- 65 listings

- **60 occurring in Virginia**
- **5 not occurring in Virginia**
- **2 species listed in some other state occurring in Virginia**

### Animals -- 50 listings

- **46 occurring in Virginia**
- **4 not occurring in Virginia**
- **1 species listed in some other state occurring in Virginia**

### Statu s

### *Species listed in this state and that occur in this state*

- |   |   |
|---|---|
| E | Bat, gray ( <a href="#">Myotis grisescens</a> )   |
| E | Bat, Indiana ( <a href="#">Myotis sodalis</a> )   |
| E | Bat, Virginia big-eared ( <a href="#">Corynorhinus (=Plecotus) townsendii virginianus</a> ) |

- E Bean, purple ([Villosa perpurpurea](#))
- E Blossom, green (pearlymussel) ([Epioblasma torulosa gubernaculum](#))
- T Chub, slender ([Erimystax cahni](#))
- T Chub, spotfin Entire ([Erimonax monachus](#))
- E Combshell, Cumberlandian Entire Range; Except where listed as Experimental Populations ([Epioblasma brevidens](#))
- E Darter, duskytail Entire ([Etheostoma percnurum](#))
- E Fanshell ([Cyprogenia stegaria](#))
- E Isopod, Lee County cave ([Lirceus usdagalun](#))
- T Isopod, Madison Cave ([Antrolana lira](#))
- E Logperch, Roanoke ([Percina rex](#))
- T Madtom, yellowfin except where XN ([Noturus flavipinnis](#))
- E Monkeyface, Appalachian (pearlymussel) ([Quadrula sparsa](#))
- E Monkeyface, Cumberland (pearlymussel) Entire Range; Except where listed as Experimental Populations ([Quadrula intermedia](#))
- E Mucket, pink (pearlymussel) ([Lampsilis abrupta](#))
- E Mussel, oyster Entire Range; Except where listed as Experimental Populations ([Epioblasma capsaeformis](#))
- E Pearlymussel, birdwing Entire Range; Except where listed as Experimental Populations ([Conradilla caelata](#))
- E Pearlymussel, cracking Entire Range; Except where listed as Experimental Populations ([Hemistena lata](#))
- E Pearlymussel, dromedary Entire Range; Except where listed as Experimental Populations ([Dromus dromas](#))
- E Pearlymussel, littlewing ([Pegias fabula](#))
- E Pigtoe, finerayed Entire Range; Except where listed as Experimental Populations ([Fusconaia cuneolus](#))
- E Pigtoe, rough ([Pleurobema plenum](#))
- E Pigtoe, shiny Entire Range; Except where listed as Experimental Populations ([Fusconaia cor](#))

T	Plover, piping except Great Lakes watershed ( <a href="#"><i>Charadrius melodus</i></a> )
E	Puma (=cougar), eastern ( <a href="#"><i>Puma (=Felis) concolor couguar</i></a> )
E	Rabbitsfoot, rough ( <a href="#"><i>Quadrula cylindrica strigillata</i></a> )
E	Riffleshell, tan ( <a href="#"><i>Epioblasma florentina walkeri (=E. walkeri)</i></a> )
E	Salamander, Shenandoah ( <a href="#"><i>Plethodon shenandoah</i></a> )
T	Sea turtle, green except where endangered ( <a href="#"><i>Chelonia mydas</i></a> )
E	Sea turtle, hawksbill ( <a href="#"><i>Eretmochelys imbricata</i></a> )
E	Sea turtle, Kemp's ridley ( <a href="#"><i>Lepidochelys kempii</i></a> )
E	Sea turtle, leatherback ( <a href="#"><i>Dermochelys coriacea</i></a> )
T	Sea turtle, loggerhead ( <a href="#"><i>Caretta caretta</i></a> )
E	Snail, Virginia fringed mountain ( <a href="#"><i>Polygyriscus virginianus</i></a> )
E	Spiny mussel, James ( <a href="#"><i>Pleurobema collina</i></a> )
E	Squirrel, Virginia northern flying ( <a href="#"><i>Glaucomys sabrinus fuscus</i></a> )
E	Sturgeon, shortnose ( <a href="#"><i>Acipenser brevirostrum</i></a> )
E	Tern, roseate northeast U.S. nesting pop. ( <a href="#"><i>Sterna dougallii dougallii</i></a> )
T	Tiger beetle, northeastern beach ( <a href="#"><i>Cicindela dorsalis dorsalis</i></a> )
E	Wedgemussel, dwarf ( <a href="#"><i>Alasmidonta heterodon</i></a> )
E	Whale, finback ( <a href="#"><i>Balaenoptera physalus</i></a> )
E	Whale, humpback ( <a href="#"><i>Megaptera novaeangliae</i></a> )
E	Whale, right ( <a href="#"><i>Balaena glacialis (incl. australis)</i></a> )
E	Woodpecker, red-cockaded ( <a href="#"><i>Picoides borealis</i></a> )

**Statu**  
**s**

**Species listed in this state that do not occur in this state**

E	Bean, Cumberland (pearly mussel) Entire Range; Except where listed as Experimental Populations ( <a href="#"><i>Villosa trabalis</i></a> )
---	--

E	Beetle, American burying ( <a href="#">Nicrophorus americanus</a> )
E	Curlew, Eskimo ( <a href="#">Numenius borealis</a> )
E	Wolf, gray Lower 48 States, except where delisted; where XN; and Mexico. ( <a href="#">Canis lupus</a> )

**Statu  
s**

***Listed species occurring in this state that are not listed in this state***

E	Squirrel, Delmarva Peninsula fox Entire population, except Assawoman Wildlife Area in Sussex Co., DE ( <a href="#">Sciurus niger cinereus</a> )
---	---

**Plants -- 15 listings**

- 14 occurring in Virginia
- 1 not occurring in Virginia
- 1 species listed in some other state occurring in Virginia

**Statu  
s**

***Species listed in this state and that occur in this state***

T	Amaranth, seabeach ( <a href="#">Amaranthus pumilus</a> )
T	Birch, Virginia round-leaf ( <a href="#">Betula uber</a> )
E	Bittercress, small-anthered ( <a href="#">Cardamine micranthera</a> )
E	Bulrush, Northeastern ( <a href="#">Scirpus ancistrochaetus</a> )
E	Coneflower, smooth ( <a href="#">Echinacea laevigata</a> )
T	Joint-vetch, sensitive ( <a href="#">Aeschynomene virginica</a> )
E	Mallow, Peter's Mountain ( <a href="#">Iliamna corei</a> )
T	Orchid, eastern prairie fringed ( <a href="#">Platanthera leucophaea</a> )
T	Pink, swamp ( <a href="#">Helonias bullata</a> )
T	Pogonia, small whorled ( <a href="#">Isotria medeoloides</a> )
E	Rock-cress, shale barren ( <a href="#">Arabis serotina</a> )
T	Sneezeweed, Virginia ( <a href="#">Helenium virginicum</a> )
T	Spiraea, Virginia ( <a href="#">Spiraea virginiana</a> )

E Sumac, Michaux's ([Rhus michauxii](#))

**Statu**  
**s**

***Species listed in this state that do not occur in this state***

E Chaffseed, American ([Schwalbea americana](#))

**Statu**  
**s**

***Listed species occurring in this state that are not listed in this state***

E Harperella ([Ptilimnium nodosum](#))

---

Also, a regularly updated list can be found at the USFWS webpage  
“[http://ecos.fws.gov/tess\\_public/StateListingAndOccurrence.do?state=VA](http://ecos.fws.gov/tess_public/StateListingAndOccurrence.do?state=VA)”

**APPENDIX G**

**PESTICIDE SPILL  
CLEANUP MANAGEMENT**

## **PESTICIDE SPILL CLEANUP MANAGEMENT**

**1. PURPOSE.** This appendix outlines procedures for the containment, cleanup and decontamination of pesticide spills and the safety precautions associated with these operations.

### **2. GENERAL.**

**a.** Extreme caution shall be exercised by the pest controllers to prevent spillage of pesticides during storage, transportation, mixing, application or any other handling of pesticides.

**b.** The contracted pest controller is responsible for spill cleanup except in the cases where spills occur with pesticides stored for the self-help program.

**c.** All pesticide spills shall be immediately reported to the Pest Management Coordinator and the Fire Department.

**d.** All pesticide spills shall be handled in accordance with this appendix; the Armed Forces [Pest Management Board Technical Guide \(TG\) # 15, Pesticide Spill Prevention and Management](#); the Installation Spill Contingency Plan; and the Spill Prevention, Control, and Countermeasures Plan.

**e.** Pesticide spill cleanup equipment will be maintained at the self-help pesticide storage area and on contracted pest control vehicles. Suggested contents of spill cleanup kits are listed below and in [Technical Guide # 15](#).

### **3. PESTICIDE STORAGE**

Proper storage of pesticides should be accomplished employing the following procedures:

**a.** Store all pesticides with labels plainly visible. Containers should be checked at least monthly to ensure that lids are tight and containers are not damaged. They should be stored in rows off the ground to provide effective access.

**b.** Incompatible pesticides, such as herbicides and insecticides, must be stored separately, maintaining sufficiently safe segregation, in order to avoid cross-contamination or adverse reactions, for example, phenoxy and urea herbicides should be physically separated (not share the same air ventilation system)

from all insecticides. Where separate air supplies are not feasible, the pesticides should be arranged so that clean air flows continuously from the insecticides past the herbicides and out of the facility.

c. Containers must be stored in well ventilated (six room air changes per hour), dry storage areas. Temperatures should be between 40°-100° F. Stored pesticides should be protected from freezing temperatures and direct sunlight.

d. Emergency procedures (fire, spill, etc.) should be conspicuously posted near work areas and exits. A complete inventory of the pesticides contained in the storage area should be given to the local fire department along with the name and phone number of the pest control shop supervisor and building custodian.

Note: The VAARNG currently only has two pesticide storage facilities located at the MTC and SMR respectively.

**4. PROCEDURES.** For more detailed procedures for handling pesticide spills refer to [TG #15](#).

a. **Reporting.** The pesticide spill must be reported to the Pest Management Coordinator and the Fire Department. This may be done by telephone. Any need for first aid or fire equipment must be reported.

b. **Identification.** Identify the pesticide involved in the spill. Retain the container and label for Spill Response personnel.

c. **Care of Injured and/or Contaminated Personnel.** Immediately determine if the pest controllers or other individuals are injured and/or contaminated.

(1) Remove injured and/or contaminated personnel from the spill site to a safe area upwind from the spill.

(2) If necessary, remove contaminated clothing from the victim and wash all contamination off the victim using soap and water.

(3) Seek and/or administer first aid for the injured and/or contaminated personnel which may include flushing contaminated eyes with clean water for 15 minutes.

d. **Site Security.** Secure the spill site from entry by unauthorized personnel by roping off the area and posting warning signs.

e. **Containment and Control.**

(1) If the pesticide container is still leaking, prevent further leakage by repositioning the pesticide container or repackaging.

(2) Prevent the spill from spreading by trenching or encircling the area with a dike of sand, absorbent material, or, as a last resort, soil or rags.

(3) Cover the spill: If the spill is liquid, use an absorbent material; if dry material, use a polyethylene or plastic tarpaulin and secure. Note: Use absorbent materials sparingly as they must be disposed of as hazardous wastes.

**f. Cleanup.** Adequate cleanup of spilled pesticides is essential in order to remove any health or environmental hazards. When cleaning up pesticide spills, it is advisable not to work alone and to make sure the area is properly ventilated.

(1) Dry spills (dusts, wettable powders, granular formulations) should be picked up in the following manner:

(a) Immediately cover dry spills to prevent them from becoming airborne (if indoors, a cover may not be necessary). This can be done by placing a polyethylene or plastic tarpaulin over the spilled material. Weight the edges of the tarp. Simultaneously roll the tarp and sweep up the spilled pesticide using a broom, shovel or dust pan. Do not allow the pesticide to become airborne while sweeping.

(b) Collect the pesticide and place it in heavy duty plastic bags. Properly secure and label the bags, identifying the pesticide. Set the bags aside for later disposal.

(2) Liquid spills should be cleaned up in the following manner:

(a) Place an appropriate absorbent material (floor-sweeping compound, sawdust, kitty litter, etc.) over the spilled pesticide. Work the absorbent into the spill using a broom or other tool to force the absorbent into close contact with the spilled pesticide.

(b) Collect all of the spent absorbent material and place into a properly labeled leak proof container (e.g. a heavy-duty plastic bag). Set the containers aside for later disposal.

(c) Contaminated soil should be removed to a depth of at least three inches below the wet surface line and placed in properly labeled leak proof drums for disposal.

**g. Decontamination.**

(1) Decontamination solutions can be used for decontaminating surfaces and materials where spills of dust, granular, wettable powders, or liquid pesticides have occurred. The bulk of the spilled pesticide should be cleaned up or removed prior to applying any decontaminant.

(2) Several materials may be used to decontaminate pesticides. Due to the many different pesticides available and the necessity to use the correct decontamination material, all decontamination activities must be carried out only after appropriate decontamination methods have been determined by the Environmental Coordinator and/or Spill Response Team. Many pesticides, especially the organophosphates, decompose when treated with lye or lime. Fewer pesticides are decomposed by bleach. Other pesticides cannot be effectively decontaminated and should only be treated with detergent and water to assist in removal. The following table is a guide for decontaminating certain pesticides:

<u>Use Lye or Lime for:</u>	<u>Use Chlorine Bleach for:</u>	<u>Do Not Use Any Decontamination Chemicals for these Pesticides:</u>
acephate	calcium cyanide	alachlor
atrazine	chlorpyrifos	chloramben
captan	fonophos	chlorinated hydrocarbons
carbaryl		diuron
dalapon		methoxychlor
diazinon		pentachlorophenol
dichlorvos		picloram
dimethoate		2,4-D
malathion		bromacil
naled		glyphosate
propoxur		simazine

**WARNING:** There is a slight potential for creating toxic by-products when using these procedures. In critical situations, samples of affected soil, sediment, water, etc. should be sent to a laboratory for analysis to determine if decontamination was successful.

(a) Pesticides amenable to treatment using lye or lime may be decontaminated when mixed with an excess quantity of either of these materials. Lye or lime can be used in either the dry form or as a 10% solution in water. Caution: caustic soda (lye) can cause severe eye damage to personnel not properly protected. Protect against contact by wearing unventilated goggles, long-sleeved work clothes with coveralls, neoprene

gloves, and a chemical-resistant apron. An approved respirator should also be worn. Do not use lye on aluminum surfaces.

(b) For pesticides that can be degraded by treatment with bleach, in general use one gallon of household bleach (which contains approximately 5% sodium hypochlorite) per pound or gallon of pesticide spilled. If bleaching powder is used, first mix it with water (one gallon of water per pound of bleach) and add a small amount of liquid detergent. For safety reasons, a preliminary test must be run using small amounts of bleach and the spilled pesticide. The reaction resulting from this test must be observed to make sure the reaction is not too vigorous. **Do not store in close proximity to, or mix chlorine bleach with amine-containing pesticides. Mingling of these materials can cause a violent reaction resulting in fire. Calcium hypochlorite is not recommended as a decontaminating agent because of the fire hazard.**

(c) Spilled granular/bait materials need only to be swept up. When there is doubt concerning which decontaminant is appropriate, only water and a detergent should be used.

(3) Nonporous surfaces should be washed with detergent and water. The decontamination solution determined to be correct should be thoroughly worked into the surface. The decontamination solution should then be soaked up using absorbent material. The spent absorbent material is then placed into a labeled leak proof container for disposal.

(4) Porous materials such as wood may not be adequately decontaminated. If contamination is great enough to warrant, these materials should be replaced.

(5) Tools, vehicles, equipment and any contaminated metal or other nonporous objects can be readily decontaminated using detergent and the appropriate decontamination solution.

**h. Disposal.** All contaminated materials that cannot be effectively decontaminated as described above must be placed in properly labeled, sealed, leak proof containers. Disposal of these containers shall be in accordance with instructions determined by the Hazardous Waste Manager.

**i. Supervision.** All containment and control, cleanup, decontamination and disposal activities shall be carried out under the direct supervision of the Hazardous Waste Manager.

**j.** The contents of a spill kit are tailored to match the type and amount of pesticide that is stored in a facility or carried in a vehicle. The lists

below are minimum requirements that may need to be supplemented for large pest control operations or extensive treatments.

**Recommended cleanup equipment for minor spills.**

1 - 5 gallon open-head drum	1 - dustpan
2 - pairs of neoprene gloves	1 - shop brush
1 - pair of unvented goggles	5-30 lbs absorbent material
6 - polyethylene bags large enough to contain the largest possible spill (w/ties)	

Whenever any of the above items are used, they shall be cleaned and/or replaced.

**5. EMERGENCY TELEPHONE NUMBERS.** Appendix J lists points of contact and their telephone numbers. CHEMTREC can be called for assistance in the event of a pesticide spill, leak or exposure using their toll-free number: 800-424-9300.

**6. REFERENCES.**

a. [Armed Forces Pest Management Board Technical Guide No. 15: Pesticide Spill Prevention and Management](#), June 1992.

b. [Appendix J](#), Pest Management Resources and Points of Contact.

**APPENDIX H**

**PEST MANAGEMENT CERTIFICATES**

**OF**

**TRAINING/COMPETENCY**

*Copies of Certificates for VAARNG personnel involved in the Pest Management Program that relate to Pest Management, Hazard Communication, Transportation of Hazardous Materials are to be placed in this Appendix. These are scanned PDF documents. Right click and open for better resolution when viewing or printing.*

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES  
**PESTICIDE APPLICATOR**

Expires  
06/30/2009

JOHN W. CHENNEY  
VA ARMY NATI



Certificate Number  
93659-TL

M. Payne Sumner  
Authorized Representative

VALID ONLY FOR CATEGORIES LISTED  
 6C REGISTERED APPLICATOR 06/30/2009



Sign Here *John W. Chenney*  
 Director of Pesticides

Cut and Keep in  
Your wallet.

For Questions /Concerns call:  
Office of Pesticide Services  
(804)786-3798

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES  
 P O BOX 1163, RICHMOND VA 23219-1163

PESTICIDE APPLICATOR CERTIFICATE

Issued  
06/07/2007

Expires  
06/30/2009

REGISTRATION FEE  
\$300.00 0555

Fee Paid  
\$300.00

Certificate Number  
93659-TL

Issued in accordance with applicable  
 applicable laws, rules and regulations

by the holder who has agreed to comply with all

JOHN W. CHENNEY  
VA ARMY NATI  
AD



Donald G Blankenship, Deputy Commissioner  
 Commissioner

M. Payne Sumner  
Authorized Representative

RECEIVED

JUN 15 2007

VAFBI

Virginia Department of Agriculture and Consumer Services

P. O. Box 1166, Richmond, Virginia 23218

PESTICIDE APPLICATOR CERTIFICATE

CERTIFICATE NUMBER

ISSUED 05/19/2007

RENEWED 05/19/2007

EXPIRES 05/19/2010

EXPIRES 05/19/2007

EXPIRES 05/19/2010

Issued in accordance with application duly executed by the person shown below who has agreed to comply with all applicable laws, rules and regulations and has paid the required fee.

ELIZABETH A. JONES  
DEPT OF AGRICULTURE  
BUD 500 WAREHOUSE  
RT FICELLE  
BLACKSTONE VA 24062



Donald Blankenship  
Deputy Commissioner

Deputy Commissioner  
Authorized Representative

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES  
**PESTICIDE APPLICATOR  
 CERTIFICATE**

Expires	GOVT EMPLOYEE FOR RL# 5447	Certificate Number 94418-G
HILTON J HAYNES DEPT OF MILITARY AFFAIRS RIVES ROAD, BLDG. 237 BLACKSTONE, VA 23824		 <b>W. Wayne Suller</b> Authorized Representative
<small>(Valid only for)</small> <b>VALID ONLY FOR CATEGORIES LISTED</b> 2 FOREST PEST CONTROL 06/30/2008		
 <small>Signature Pesticide Applicator</small>		

**Cut and Keep in  
Your wallet.**

**For Questions /Concerns call:  
Office of Pesticide Services  
(804)786-3796**

**VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES  
 P O BOX 1163, RICHMOND VA 23219-1163**

**PESTICIDE APPLICATOR CERTIFICATE**

Issued	GOVT EMPLOYEE	Fee Paid	Certificate Number
07/23/2007	FOR RL# 5447	EXEMPT	94418-G
Expires			
06/30/2008			



Issued in accordance with application duly executed by the person shown below who has agreed to comply with all applicable laws, rules and regulations

HILTON J HAYNES  
 DEPT OF MILITARY AFFAIRS  
 RIVES ROAD, BLDG. 237  
 BLACKSTONE, VA 23824



**Virginia Department of Agriculture and Consumer Services**

P. O. Box 1163, Richmond, Virginia 23211

**PESTICIDE APPLICATOR CERTIFICATE**

CLASSIFICATION  
02/17/2006

GOVT EMPLOYEE  
FULL TIME

CERTIFICATE  
NUMBER  
W418-B

EXPIRES  
02/10/2008

FEE TYPE  
EXEMPT

Issued in accordance with application duly executed by the person shown  
below who has agreed to comply with all applicable laws, rules and regulations  
and has paid the required fee.

RYLTON J. HAYES  
VA DEPT OF AGRICULTURE AND CONSUMER SERVICES  
900 NATURAL RESOURCES DR  
SUITE 830  
CHARLOTTESVILLE VA 22902



*Rylyton J. Hayes*  
COMMISSIONER

*[Signature]*  
AUTHORIZED REPRESENTATIVE

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

Expires **06/30/2009** Certificate Number **93732-T**

**ALAN B. KINKEE**  
DEPT OF MILITARY AFFAIRS  
BLDG 216 PORT HICKETT  
BLACKSTONE, VA 23024

**W. Wayne Surles**  
Authorized Representative

**VALID ONLY FOR CATEGORIES LISTED**  
CC REGISTERED TECHNICIAN 06/30/2009

Signature \_\_\_\_\_ Pesticide Applicator

Cut and Keep In  
Your wallet.

For Questions /Concerns call:  
Office of Pesticide Services  
(804)786-3798

**VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES**  
P O BOX 1163, RICHMOND VA 23219-1163

**PESTICIDE APPLICATOR CERTIFICATE**

Issued	REGISTERED FROM	Fee Paid	Certificate Number
06/07/2007	DOB Bldg 5447	EXEMPT	93732-T
Expires			
06/30/2009			

Issued in accordance with applicable  
applicable laws, rules and regulations

Applicant who has agreed to comply with all

**ALAN B. KINKEE**  
DEPT OF MILITARY AFFAIRS  
BLDG 216 PORT HICKETT  
BLACKSTONE, VA 23024

Donald G Blankenship, Deputy Commissioner  
Commissioner

W. Wayne Surles  
Authorized Representative

ACADEMY OF HEALTH SCIENCES  
UNITED STATES ARMY



CERTIFICATE

JAMES C. SHAVER

has successfully completed the

DOD PEST MGT QUALITY ASSURANCE EVALUATOR COURSE  
6H-F33/322-F31

Fort Sam Houston, Texas  
14 November 2006 to 17 November 2006

*David L. Maness*  
DAVID L. MANESS  
Colonel, MIC  
Det10, AHS

AMEDD&S Form 2006, 15 JUL 03  
(Previous editions may be used.)

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES  
PESTICIDE APPLICATOR

Expires	CERTIFICATE	Certificate Number
06/30/2009	REGISTERED TECH	99318-C
	WFR BL# 5447	

ROBERT J. WELLS



Wayne Scales  
Herbicide Representative

Valid Dates

VALID ONLY FOR CATEGORIES LISTED  
AT REGISTERED TECHNICIAN 06/30/2009



*Robert J. Wells*

By: Herb Pesticide Applicator

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

Expires 06/30/2009

Certificate Number 93753-T

JAMES WILLIAMS  
DEPT OF MILITARY AFFAIRS  
BLDG 210  
BLACKSTONE, VA 23021

M. Kayne Surles  
Authorized Representative

(Only New)

VALID ONLY FOR CATEGORIES LISTED

60 REGISTERED TECHNICIAN 06/30/2011

Sign Here Pesticide Applicator

Cut and Keep in Your wallet.

For Questions (Concerns) call: Office of Pesticide Services (804)786-3798

VIRGINIA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES P O BOX 1163, RICHMOND VA 23219-1163

PESTICIDE APPLICATOR CERTIFICATE

Issued	REGISTERED TECH	Fee Paid	Certificate Number
06/07/2007	FOR BLDG 2407	EXEMPT	93751-T
Expires			
06/30/2009			

Issued in accordance with applicable laws, rules, and regulations of the Commonwealth of Virginia by the Department of Agriculture and Consumer Services to the applicant below who has agreed to comply with the laws, rules, and regulations of the Commonwealth of Virginia.

JAMES WILLIAMS  
DEPT OF MILITARY AFFAIRS  
BLDG 210  
BLACKSTONE, VA 23021

Donald G Blankenship, Deputy Commissioner  
Commissioner



M. Kayne Surles  
Authorized Representative

RECEIVED  
JUN 12 2007

Virginia Department of Agriculture and Consumer Services

P. O. Box 1163, Richmond, Virginia 23218

PESTICIDE APPLICATOR CERTIFICATE

ISSUE  
DATE 07/21/07  
CLASS  
DATE 07/21/07

NAME: Robert Lee  
ADDRESS: 1012 E. 11th St.

CERTIFICATE  
NUMBER  
76558-B  
EXPIRES  
12/31/11

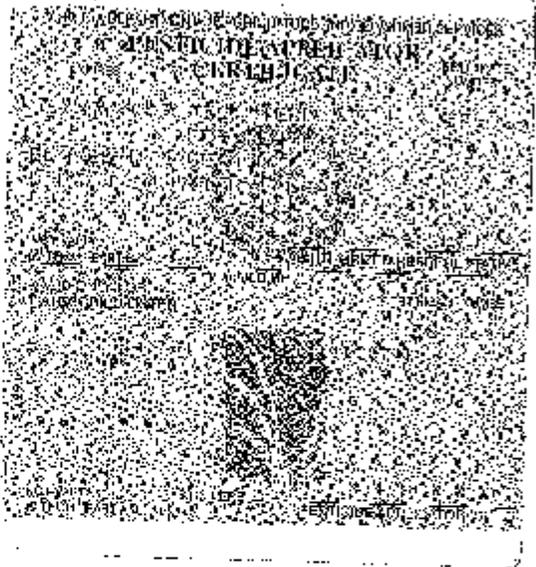
Issued in accordance with application duly executed by the person shown below who has agreed to comply with all applicable laws, rules and regulations and has paid the required fee.

APPLICANT



*J. Carlton Lantieri*  
COMMISSIONER

*Robert Lee*  
APPLICANT REPRESENTATIVE



**APPENDIX I**

**FEDERAL RESOURCES AVAILABLE TO SUPPORT  
THE VIRGINIA ARMY NATIONAL GUARD  
PEST MANAGEMENT PROGRAM**

**NATIONAL GUARD BUREAU** (MACOM Pest Management Consultant)

Kenneth E. Conley  
Pest Management Consultant  
(NGB-ARE)  
111 South George Mason Drive  
Arlington, VA 22204-1382

DSN: 327-9952  
Comm: (703) 607-9952

**CHEMTREC** (for assistance in a chemical emergency involving a spill, leak or exposure) 1-800-424-9300

**NATIONAL PESTICIDE TELECOMMUNICATIONS NETWORK**

1-800-858-7378

(up-to-date technical reference material on toxicity, human and environmental health effects, disposal, and proper use of each pesticide)

**DEPARTMENT OF DEFENSE (DOD)**

**Armed Forces Pest Management Board (AFPMB)**

The mission of the AFPMB is to recommend policy, provide scientific advice, and enhance coordination among the DOD components on all matters related to pest management. The AFPMB approves introduction, stock and deletion of pest management material in the DOD supply system; coordinates and develops requirements for pest management related research and testing within DOD; and operates the Defense Pest Management Information Analysis Center (DPMIAC). DPMIAC maintains a military entomology and pest management information data base. Scientific information pertinent to the military pest management program is indexed, abstracted, stored, analyzed, disseminated, and retrieved on request.

Armed Forces Pest Management Board  
Forest Glen Section  
Walter Reed Army Medical Center  
Washington, DC 20307-5001  
DSN: 295-7476  
Comm: (301) 295-7476  
Fax: 7473

Defense Pest Management Information Analysis Center (DPMIAC)

(24 hour telephone recorder for information about Armed Forces Pest Management Board information and publications such as Technical Information Memorandum and the Technical Information Bulletins)

DSN: 295-7476

Comm: (301) 295-7476

Fax: 7482

WWW Home Page: <http://www.afpmb.acq.osd.mil/>

**DEPARTMENT OF THE ARMY (DA)**

The conservation division of the Director of Environmental Programs is responsible for developing Army policies, standards, and procedures relative to pest management programs, operations, pesticides, and related issues. Performs reviews to assure adherence to policies and provide technical advice as appropriate. Represents Army installations on the AFPMB, and with other government agencies. Establishes Army program requirements relative to Research and Development; interacts with other DA programs and disciplines.

Headquarters, Department of the Army  
Assistant Chief of Staff for Installation Management  
Directorate of Environmental Programs, Conservation Division  
ATTN: DAIM-ED-N (Pest Mgmt)  
600 Army Pentagon  
Washington, DC 20310-0600

DSN: 223-0680

Comm: (703) 693-0680

Fax: (703) 697-0338

**U. S. Army Center For Health Promotion and Preventive Medicine  
(USACHPPM)**

The pest management program is responsible for providing technical assistance and support in all aspects of vector borne disease, pesticides, and integrated pest management. USACHPPM maintains laboratories and a staff of military and civilian entomologist and technicians for the purpose of providing assistance to the Army pest management community. USACHPPM

operates the DOD Pesticide Hotline, produces technical guides, identifies arthropods, provides resistance test kits, and performs resistance testing. Examples of on-site services provided are: Pest Management Program Reviews, MEDCOM Pest Management Assistance Visits, Pest Resistance Evaluations, Lyme Disease Risk Assessments, Environmental Compliance Audits, and Pesticide Risk Management Studies. Other services are available by request and are tailored to the needs of the requesting organization.

COMMANDER  
USACHPPM  
ATTN: MCHB-TS-OEN  
Aberdeen Proving Ground, Maryland 21010-5422

DOD Pesticide Hotline (for information concerning federal pesticide information, EPA or state registered pesticides and pesticide labels)  
DSN: 584-3773  
Comm: (410) 436-3773  
Fax: 2037

WWW Home Page: <http://www.chppm.apgea.army.mil/>

#### USACHPPM-North

COMMANDER, USACHPPM-North  
ATTN: MCHB-AN-ES (C, ESD)  
4411 LLEWELLYN AVE  
FORT MEADE MD 20755-5225

DSN: 923-6502/5812  
Comm: (301) 677-6502/5812  
FAX: 7132

WWW Home Page: <http://www.chppm.apgea.army.mil/dsa-n/index.htm>

#### Army Medical Department Center and School (AMEDD C&S)

The Medical Zoology Branch of the AMEDD C&S is the Army's designated center for DoD pest management certification training. Provides training to enlisted, officer, and civilian personnel. Involved in development of educational materials, including videos and graphic aids. Provides technical input to correspondence course.

Army Medical Department Center and School

Preventive Medicine Division, Medical Zoology Branch  
ATTN: HSHA-MP  
Fort Sam Houston, TX 78234-6142

DSN: 471-5270/4278  
Comm: (210) 221-5270/4278  
Fax: 5948

Walter Reed Army Institute of Research (WRAIR)

The Department of Entomology, WRAIR, implements an extensive program of basic and applied research on vectors of arthropod-borne diseases of military significance. Major areas of emphasis include: 1) design and evaluation of improved methods of biosystematics to include vector genetics, molecular taxonomy, and development and production of computerized interactive taxonomic keys for use by far-forward deployed preventive medicine personnel; 2) selection and development of rapid assays for detection and identification of parasites in vectors; 3) identification of arthropods responsible for transmission of infectious diseases and maintenance of reference insect collections of important vectors; 4) investigation of parasite vector host interactions and risk factors for prediction and disruption of natural transmission cycles; 5) culturing of malaria and *Leishmania* parasites and development of animal models to support vaccine development and diagnostics studies; 6) investigation of repellent mechanisms and optimization, composition, formulation and delivery of candidate repellents; 7) preparation of field sites for vaccine, drug, and repellent testing, and 8) design and evaluation of integrated vector control measures for preventing diseases.

Walter Reed Army Institute of Research  
Department of Entomology  
Building 40, Room 1089  
Washington, DC 20307-5100

DSN: 291-3719  
Comm: (202) 782-3719      Fax: 4598

## **DEPARTMENT OF THE INTERIOR**

### U.S. Fish and Wildlife Service

Southeast Region WWW Home Page: <http://www.fws.gov/r4eao/index.html>

Law Enforcement Office: Louisville, KY (502) 582-5989

Wildlife Habitat and Management Field Office: Memphis, TN (901)327-7631

## **DEPARTMENT OF AGRICULTURE**

### U.S. Forest Service

Forester, Daniel Boone National Forest, 1700 Bypass Road, Winchester, KY  
40391

(606) 745-3100

Regional Forester, 1720 Peachtree Road NW, Atlanta, GA 30367

(404) 347-4178

Southern Region WWW Home Page:

<http://www.fs.fed.us/intro/directory/rg8.htm>

### Animal Plant Health Inspection Service (APHIS)

APHIS WWW Home Page: <http://www.aphis.usda.gov/>

Release Permits: USDA, APHIS, BBEP, Riverdale, MD 20737 (301) 734-  
7612

Wildlife Services WWW Home Page: <http://www.aphis.usda.gov/ws/>

Cooperative State Research, Education, and Extension Service (see also state  
POCs - [App. P](#))

CSREES WWW Home Page: <http://www.reeusda.gov/>

### Natural Resources Conservation Service

NRCS WWW Home Page: <http://www.nrcs.usda.gov/>

### USDA-ARS Southern Weed Science Laboratory

Charles T. Bryson, Botanist  
Experiment Station & Lee Roads  
P.O. Box 350  
Stoneville, MS 38776

Comm: (601) 686-5259

Fax: 5422      cbryson@ag.gov

## **APPENDIX J**

### **VIRGINIA ARMY NATIONAL GUARD**

### **LOCAL AND STATE OF VIRGINIA POINTS OF CONTACT**

*Installations/facilities should enter the appropriate local phone numbers/names for governmental or local organizations which are resources for information or that may have some concern associated with pest management activities.*

**STATE OF VIRGINIA**

Department of Environment & Natural Resources: ..... 804-698-4000  
Wildlife Resources Commission: .....804-367-1000  
Forest Resources: .....434-392-4159  
Public Health Pest Management: ..... 804-786-2373  
Department of Agriculture & Consumer Services: .....804-786-2373  
Department of Health and Human Services: ..... 804-864-7003  
Virginia-USDA (APHIS) Liaison: .....  
    APHIS -- Animal and Plant Health Inspection Service

**VIRGINIA ARMY NATIONAL GUARD**

Environmental Office (HQ, VAARNG): .....434-298-6413  
Pest Management Coordinator: .....434-298-6391

**LOCAL (Fort Pickett)**

County/Local Health Department: .....434-645-7595  
Southside Community Hospital: .....434-392-8800  
Local Animal Control: .....434-292-5262  
Local Fire Department (non-emergency): .....434-292-2217  
Facility Environmental Coordinator: .....434-292-2144

## **Appendix K**

### **Virginia Army National Guard Self-Help Program**

# Virginia Army National Guard Self-Help Program

## *Table of Contents*

<b>Section #</b>	<b>Title</b>
1	<a href="#">Self-Help Pesticide List</a>
2	<a href="#">Installation Stinging Insect Self-Help Pest Management Program</a>
Attachments: <a href="#">(1) Bees, Wasps, and Hornets: A Self-Help Guide to Identification, Biology, and Control</a>	
3	<a href="#">Self Help Pest Control For Virginia Army National Guard</a>
Attachments: <a href="#">(1)VAARNG Self Help: Cockroaches and Their Control</a> <a href="#">(2)VAARNG Self Help: Ants and Their Control</a> <a href="#">(3)VAARNG Self Help: The House Mouse and It's Control</a>	
4	<a href="#">Sources Of Supply</a>

## **SELF-HELP PESTICIDES**

The following pest control products are authorized for use in Virginia National Guard self-help programs:

1. Cockroach bait station, regular size, NSN 6840-01-180-0167.
2. Cockroach bait station, large size, NSN 6840-01-224-1269.
3. Ant Control System (bait), nonstandard; local purchase item.
6. Maxforce Pharaoh Ant Bait, NSN 6840-01-298-1122.
7. Amdro Fire Ant Bait, NSN 6840-01-287-3913; coded for local purchase.
8. Victor Poison-Free Wasp and Hornet Killer.
9. DEET insect repellent, personal application, 2-ounce tubes, NSN 6840-01-284-3982.
10. Permanone Tick Repellent, NSN 6840-01-278-1336.
11. Trap, roach (Mr. Sticky or similar), NSN 3740-01-096-1632.
12. Trap, rodent, glue, NSN 3740-01-240-6170.
13. Mouse trap, spring, NSN 3740-00-252-3384.
14. Swatter, fly, NSN 3740-00-252-3383.
15. Sticky tape or ribbon, fly, nonstandard; local purchase item.
16. Repel Insect Repellent Spray (29% DEET)

# **INSTALLATION STINGING INSECT SELF-HELP PEST MANAGEMENT PROGRAM For INSTALLATION MAINTENANCE PERSONNEL**

References: (a) DOD Instruction 4150.7  
(b) AR 200.5

Attachments: (1) Bees, Wasps, and Hornets: A Self-Help Guide to Identification, Biology, and Control

## **A. PURPOSE.**

The Stinging Insect Self-Help (SISH) pest management program authorizes the use of specific Ready-To-Use (RTU) aerosol bee, wasp, and hornet control pesticides by installation maintenance personnel who will encounter these stinging insects during the normal course of their assigned duties. This program is implemented to protect installation personnel while they are working.

## **B. PESTICIDE PURCHASE, STORAGE, AND USE**

- The pesticides shall be included in the Activity Hazardous Material Tracking System and stored accordingly.
- A maximum of 2 cans shall be issued at one time to any IMP.
- Empty RTU containers are returned, accounted for, and disposed of properly.

## **C. RESPONSIBILITIES:**

### **1. Installation HAZMIN Center shall:**

- Only order RTU pesticides approved by the cognizant pest management professional,
- Ensure that RTU pesticides purchased are included in the Activity Hazardous Material Tracking System
- Store the pesticides in accordance with label directions and with DoD, VAARNG, and Installation standards
- Issue the RTU pesticides only to installation personnel who have successfully completed this testing
- Issue a maximum of 2 cans of the bee, wasp, and hornet pesticide to one employee per time and not issue any further pesticide to them until the previously issued cans (full, partially full, or empty) are returned

- Ensure that empty RTU containers are accounted for, and disposed of properly as directed on the label.

2. The Pest Management Coordinator (PMC) is responsible for:

- Administration of the SISH program
- Determining if SISH candidates have a requirement for use of this pesticide during their assigned duties.
- Issuance of training materials to each SISH program candidate
- Record keeping of personnel folders of SISH program personnel
- Notifying the HAZMIN center of personnel who have successfully completed testing and are permitted to be issued the bee, wasp, and hornet aerosol (if applicable)
- Reminding SISH personnel to read the pesticide label each time the product is issued
- Having Material Safety Data Sheets for the RTU pesticides readily available for review by any applicable personnel
- Ensuring that the SISH program personnel have access to, and understand that they must use applicable personnel protection equipment that is required by the pesticide label (such as safety glasses or goggles)
- Maintain records of pesticide use in the SISH program

E. Permitted Bee/Wasp/Hornet Pesticides:

1. From [Appendix L](#) of this plan.
2. Other Products as approved.

## Attachment (1)

# BEES, WASPS, AND HORNETS (A Self-Help Guide to Identification, Biology, and Control)

Figure 12-4 (page 2) forwards a basic key to the identification of stinging bees, wasps, and hornets commonly encountered in the mid and north Atlantic coast States. Most important is to be able to recognize them and/or their nests as this will directly affect HOW and IF to control them. Many groups of these insects are “social” and can act as a single unit. This creates risk during control operations because numerous insects will attack simultaneously, and with vehemence, to defend their nest/hive.

Several different species of bees, wasps, and hornets are capable of inflicting severe stings, most of these insects can sting multiple times, and social species will aggressively attack en masse. Some people are “sensitive” to venomous stings causing an allergic or more serious physical reaction. Therefore, it is very important for the maintenance worker to identify the stinging insect(s) before control is attempted as the job may be too big and dangerous for your training and equipment. More people die annually from allergic or severe allergic (anaphylactic) reaction caused by insect stings than from snake bites.

Pesticide applications will only provide temporary relief from these insects. Habitat modification, building practices (exclusion), or nest removal will provide a more permanent control. The maintenance worker should report to the trouble desk repeated encounters with this group of insects so that more permanent controls can be implemented.

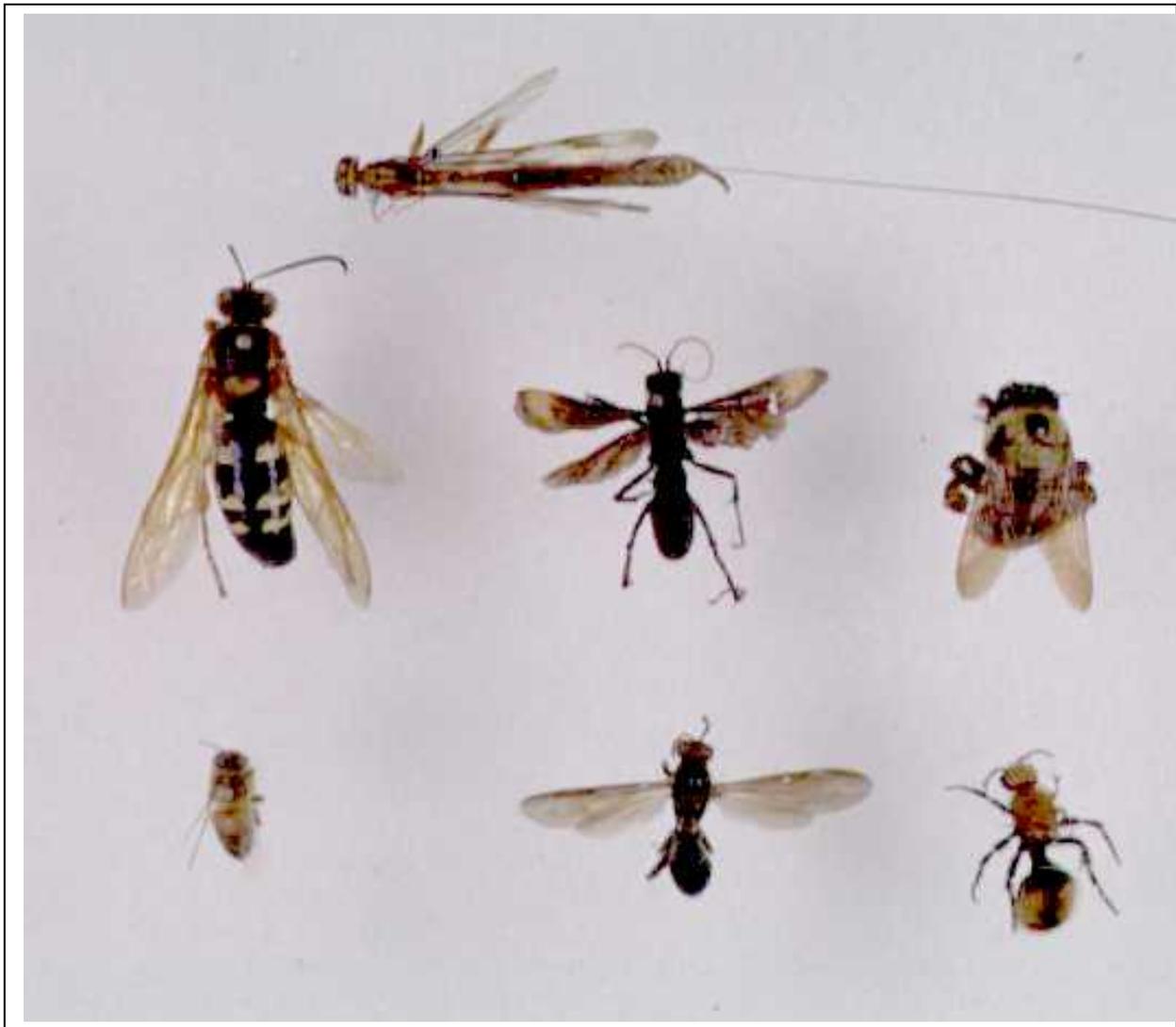
## BEES, WASPS, AND HORNET ADULTS AND NESTS

**1. Honey Bees.** Honey bees are a highly organized social group of insects with a queen, drones, and potentially hundreds to thousands of workers. In most cases in the Northeast U.S., honey bees are fairly docile and will not attack humans unless the nest is disturbed. However, because of their large numbers, honey bee nests must be respected as they will attack en masse inflicting multiple stings.

The honey bee is about ½” long, black and yellow in color, with fuzzy hair on most of it’s body. Nests will be found in building walls, hollow trees, hollow pillars, and sometimes as a free-standing aerial nest. Honeybees are active during the day and tend to be quiet during the cooler nighttime and evening, staying close or in the nest.

**Do Not Kill Honey Bees Unless Necessary.** The honey bee is an excellent pollinator of plants and is considered a beneficial insect. The best way to control them is to pre-arrange to have a local bee keeper come to your facility and remove the bee hive.

### Stinging Hymenoptera



Nest removal by a bee keeper should always be the first control option. The names of local bee keepers can be obtained by contacting the University Cooperative Extension Service. Your Pest Management Coordinator should maintain a list of local bee keepers that may provide assistance for nest removal. This list should be maintained in the Integrated Pest Management Plan and updated annually.

- **Honey Bee Nest Control.** Most honey bee nests will be large. The maintenance worker should not attempt control. While aerial nests are easy to gauge size, nests in wall voids or other concealed locations should be assumed to be large. Contact the Public Works trouble desk, and report the problem.
  2. **Bumble Bees.** The bumble bee is larger than a honey bee (approximately ½” to ¾” inch long). The whole insect (except for the head) will be covered in yellowish, blackish, or brownish fuzzy hairs. Bumble bees normally nest in holes in the ground, however, their nests can be found in other locations including empty cardboard boxes, trash piles, under logs, in piles of grass clippings, under cement slabs, etc. The adults are frequently found flying about flowers or ornamental plants. Bumble bees are generally docile unless disturbed and single bees should generally be ignored. Bumble bees are social insects and will attack en masse if the nest is disturbed. Individual bumble bees can sting repeatedly whereas individual honey bees are capable of stinging only once per insect.
- **Bumble Bee Nest Control.** Bumble bee nests do not tend to be as large as honey bee nests, but because the insect can sting multiple times, and will attack en masse when the nest is disturbed, caution and solid decision making are required when considering control. Smaller nests can be controlled with the RTU wasp and hornet spray. Larger nests should not be controlled by the maintenance worker, rather reported to the trouble desk. If in doubt, contact the trouble desk and have the job done by professional pest control.
  3. **Paper Wasps.** Eastern species of paper wasps are ½” to 1” in length, typically a brownish color, and may have yellow or orange highlights. Identification of the nest is the easiest way to identify this group of wasps. Many people call this group “umbrella” wasps because of the umbrella shaped paper comb nest. Generally, the nest is a single tier, open paper comb with the cells pointed downwards. The nests will be found beneath something structural such as eaves, soffits, window enclosures, under porches, under wooden shelves, below or in electrical enclosures, in tightly enclosed ornamentals plantings, etc. Paper wasp colonies can contain from a few up to a few hundred adults. The size of the comb is a direct indicator of the number of

adult wasps attending the nest. Paper wasps are generally docile and will not attack en masse like honey bees. However, paper wasps can sting repeatedly.

- **Congregation of Paper Wasps.** Paper wasps overwinter as adults. In the fall, hundreds to thousands of them may congregate on the highest structure in an area such as a church bell tower, an airport control tower, or the peak of the administrative building. While this may seem intimidating, generally control is not required as they will move on after a while. After congregation, these insects will hunt for protected sites to overwinter and will enter buildings around windows, under soffits, past loose flashing, and into any location that may provide shelter. On warm winter days, paper wasps can become active and enter the interior of the buildings (false spring), causing a nuisance to occupants. Generally, these wasps are not aggressive. A fly swatter or rolled up magazine should effect control.
- **Paper Wasp Nest Control.** Paper wasps nests will be commonly encountered by the maintenance individual. The nests will increase in size as the summer season progresses. Generally, most paper wasp nests can be controlled using the RTU aerosol. Exercise common sense if the nest appears large, or if there are multiple nests in an area where you intend to work. When a nest is sprayed, the whole group at the nest will get aggressive, so quickly move away from the area after spraying. After the adults die, knock the nest off (if possible). It is best to control paper wasps at dawn, dusk, or at night when the adults are at the nest site and the insects are most quiet, however smaller nests can be controlled at any time.

**5. Mud Daubers.** Mud Daubers are "solitary" wasps (i.e. one adult maintains one nesting site) that build small "pipe" shaped mud nests on the underside of roof, soffit, porch, and other structural lumbers. The adults are brown, and about ¾" long. The mud tube nest is the key to identification of this species. Like the paper wasps, these wasps seldom sting unless disturbed.

- **Mud Dauber Nest Control.** Mud dauber nests will be commonly encountered by the maintenance person and is a species that can generally be controlled with the RTU aerosol. Exercise caution when multiple nests are in the same location or if the nests are in a confined location. Spray the attending adult with the RTU aerosol and quickly move away from the area. Then knock off the mud tubes using a screw driver or some other tool. Adult mud daubers can and will sting repeatedly. Again, control is best done at dawn, dusk, or at night, when the adult is present, and most docile.

**6. Cicada Killers.** The cicada killer is a very large wasp (1" to 2" long) that is generally seen flying close to the ground. These wasps nest in the soil. Because of it's size, many fear this insect. The body is shiny black with bright yellow highlights.

Cicada killers are solitary wasps are generally not aggressive. There is little chance of being stung unless the insect is handled, agitated, or stepped on with bare feet. Control by the maintenance worker is generally not required.

**7. Other Lawn Nesting Wasps.** A few other species of wasps in the mid and north Atlantic States also are solitary lawn nesters. The nest is typically identified as a single round hole in turf with a small untidy mound of excavated soil around the entrance. Control by the maintenance worker is not required. Generally, control of any lawn nesting species should not be performed unless there is a huge number of nests causing turf damage or their presence in a frequently occupied area threatens human health. This work should be done professionally.

**8. Carpenter Bees.** Carpenter bees are also solitary. The adults look like a very large bumble bee. Like the cicada killer, the size of this insect makes it intimidating. Carpenter bees are most likely seen flying close to flowers to collect pollen, or to wooden structures where they nest. These insects make a ½” to ¾” round hole in wood such as eaves, porch ceilings, wooden shake, window sills, telephone poles, fence posts, etc. where they place their young. Unpainted, soft woods are preferred. Carpenter bees are not aggressive, however they can sting repeatedly when handled or agitated. More than likely, the maintenance worker will encounter the holes of the carpenter bee rather than the bee itself. Since these holes are often used year after year by succeeding generations of carpenter bees, they should be sealed. Do not spray the RTU aerosol into the hole as it will likely splash back at you. Report the carpenter bee holes to the trouble desk so that the holes may be caulked and the surface repainted.

**9. Yellow Jackets.** Yellow jacket wasps are black and yellow insects about 1/2 inch in length. This group is social and build large paper comb nests in the ground, in wall voids, or other well protected areas. A yellow jacket colony will grow throughout the summer and have thousands of workers by the fall of the year. Yellow jackets can sting repeatedly and will attack en masse if the nest is disturbed. Yellow jackets could be described as an insect with a bad attitude and many feel that this is the most dangerous of the stinging wasps because of their unpredictable behavior.

Yellow jacket wasps tend to scavenge at human food sources. Often, they will be found foraging open trash cans, trash dumpsters, outdoor food serving areas, etc. Keeping areas clean, trash cans covered, soda cans properly disposed of etc. will lessen the attractiveness of an area and generally result in adequate control.

- **Yellow Jacket Nest Control.** Caution is the key word here. Yellow jackets will fiercely defend their nest. Most incidents, when people are repeatedly stung, occur when a person unknowingly disturbs an underground nest. The nests could be secreted in an ornamental garden, in tall unmowed grass, under foundations, under large rocks, or in some location that offers concealment for the yellow jacket entrance. Generally speaking, the RTU aerosol is a poor defense against a nest full of defensive yellow jackets. The maintenance worker should NOT attempt to control yellow jacket nests that are underground or in wall voids unless you are **sure** that the nest is small, and you are **experienced** in yellow jacket control. To gauge the size of a yellow jacket colony: 1) consider the time of year (hives start small in the spring and get larger as the season progresses), and 2) watch the entrance. If it is August and you observe yellow jackets coming and going every second or two, assume it is a large colony: Do NOT attempt control. If you are going to attempt control, perform the work at dawn, dusk, or at night when most of the adults are in the nest, and the insects are least active. Usually the best choice for control is to inform the trouble desk that there is a yellow jacket nest that needs professional pest control.

**10. Hornets (Bald Face and European) .** Bald face and European hornets are about 3/4” in length, generally brown and black in color, with vivid yellow markings on the face. These group of social, stinging insects will build spectacular and fear provoking aerial nests in plain view. The nests are large, grayish-brown, and tear-drop shaped paper carton structure. You will find them hanging from a tree branch, in a tall ornamental bush, or attached to the eave of a dwelling. The nest will enclose many tiers and be tended by thousands of insects by the end of the summer. The bald faced hornet and the European hornet are two common varieties found throughout the United States. They are very aggressive when disturbed, can sting repeatedly, will attack en mass, and generally should only be controlled by experienced pest control personnel.

- **Hornet Nest Control.** Maintenance personnel should NOT attempt control of aerial hornet nests unless they are very small (smaller than a softball). If the nests are bigger, or if there is any doubt about personal safety or risk, do NOT attempt control and report nest location(s) to the trouble desk. Spraying an aerial nest with an RTU aerosol will generally split open the carton nest, agitate the hornets to a stinging frenzy, resulting in their attack of anything close. RTU aerosols are a very poor defense against frenzied hornets. If control will be attempted, perform it at dawn, dusk, or after dark when the hornets are in the nest, and most quiet.
- **Nest Removal.** Experienced hornet controllers (professional pest controllers) may actually climb to the hornet nest site, block the entrance hole located at the bottom apex of the nest (thereby trapping the hornets inside), cut off the limb that the nest is

attached to, and place the entire nest in plastic bag. Maintenance workers should NEVER try this. You are likely to punch a small hole in the delicate cardboard like nest carton material, resulting in the entire hive departing through the new exit hole and aggressively defending their hive.

**11. Summary.** The decision to control stinging wasps, hornets, and bees is based on common sense. If you have any doubts, report the problem for professional control. Self help and the issuance of RTU aerosol bee and wasp control pesticides to maintenance workers does not make the maintenance worker a professional pest controller. The RTU aerosol is a tool to assist the maintenance worker to control small, non-threatening stinging insect nests so that designated tasks can be completed without loss of time waiting for professional pest control to arrive. Trying to control too large of a nest could result in multiple stings, loss of work time, and a long-remembered painful experience.

# **SELF HELP PEST CONTROL FOR VIRGINIA ARMY NATIONAL GUARD**

Ref: (a) DOD Instruction 4150.7  
(b) AR 200-1

Encl: (1) VAARNG Self Help: Cockroaches and Their Control  
(2) VAARNG Self Help: Ants and Their Control  
(3) VAARNG Self Help: The House Mouse and its Control

## **1. PURPOSE.**

To assist VAARNG personnel by providing direction for self-help pest control procedures.

## **2. BACKGROUND.**

In 1980, the first self-help pest control program was tried in family housing on a military installation. The program was very successful. Self-help pest control in housing, barracks, galleys and offices is now in effect on many activities throughout the military community. This would be the first self-help program for the VAARNG. The pesticides used in these programs are very effective and easy to use.

## **3. PROCEDURES.**

Self-help involves the use of pesticides by non-trained personnel. The guidance for their use is supplied by the VAARNG. Materials are supplied through the VAARNG supply system and outside sources. Primary control efforts are provided by VAARNG personnel. Some pests however, may require use of contracted services.

Only certain pesticides are compatible with self-help. These materials were selected because of their combination of safety and effectiveness. Pesticides should not be applied when the identification of the pest species is not known. Proper survey techniques are the key to successful pest control.

## **4. REPORTING.**

Records of all pest management operations performed by contractors and self-help are maintained on the installation. The VAARNG PMC and Pest Management contractor coordinate to ensure that all activities provide the necessary pesticide use and pest management information necessary for DoD reporting requirements. Daily

pesticide application and surveillance records are maintained by the Pest Management Contractor using Pest Management Maintenance Record (DD Form 1532-1).

## VAARNG Self Help: COCKROACHES AND THEIR CONTROL

### COCKROACHES

Generally, cockroaches are the most abundant and troublesome pests in offices, galleys and other Navy buildings. The cockroaches repulsive appearance, bad odor and filthy habits make them particularly objectionable. Cockroaches co-exist with man exceedingly well. Because of their extraordinary reproductive potential, a few roaches become a substantial problem in a short while.

#### 1. Pest Identification

There are several thousand species of cockroaches throughout the world. Four species are of primary economic importance: German, Brown Banded, Oriental and American. However, seven species/groups are most commonly found in our buildings (depending on geographic area). The Asian cockroach (a recently introduced species) is being noted with increasing frequency.



GERMAN  
COCKROACH

##### a. German

**Cockroach:** The german cockroach is the most common pest in homes, barracks, mess halls, and warehouses. It is a **small** brownish insect about 5/8 of an inch long and easily identified by two **longitudinal black bars** on the pronotum (a disc-like plate behind the head). This roach is most commonly found in places close to food and water such as galleys, heads and pantries. They secrete a fluid which leaves a characteristic odor indicative of their presence. German cockroaches can be found in almost all geographical areas in the United States.

b. Asian Cockroach: Believed to have been introduced to Florida in 1985, the asian cockroach is quickly becoming established. This roach is similar in size and appearance to the german roach. However, it's behavioral patterns are quite different. While the german roach prefers to live indoors and is repulsed by light and man's presence, the asian cockroach lives outdoors in warm climates, is attracted to

lights and takes little notice of man's presence. If the temperature is 70 degrees F. or higher at dusk, they fly towards any light source. They are very good flyers. Their geographical distribution is currently limited to warmer climates, but they have been identified as far north as Michigan.

- c. Brown-Banded Cockroach: The brown-banded cockroach is a small yellowish to brown species also about 5/8 of an inch long with two lighter horizontal bands across the wings and the abdomen. This roach is not as widespread as the



BROWN  
BANDED  
COCKROACH

German roach. It prefers to hide in dark, warm places such as electric clocks, radios, and television sets. The female frequently glues her egg capsules beneath furniture and behind pictures. The geographic distribution is nationwide.

- d. Oriental Cockroach: The oriental cockroach is a medium size black species 3/4 to 1 inch long with wings that appear to be only 1/2 as long as the body. The oriental roach prefers warm, damp places such as cellars and sewers. It is more prevalent in the northern states than in the



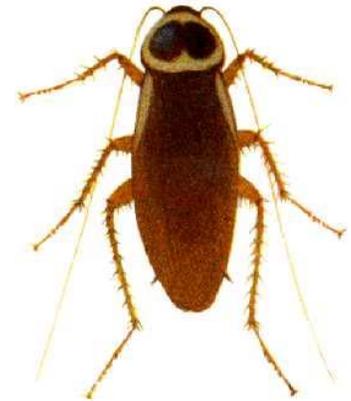
southern United States. It has a very distinct repulsive odor when found in large numbers. The female of this species appears to be wingless and is often referred to as a "black waterbug".

- e. American Cockroach: The american cockroach is one of the largest of the seven roaches, and also one of the filthiest. It is about 1-1/4 to 1-1/2 inches long with a dark brown to mahogany color with somewhat obscure yellow margins on the pronotum. In the north, the american roach is found in warm, damp places such as sewers, steam tunnels, and damp basements. It lives almost exclusively indoors. In southern climates, it lives more outdoors than in and is capable of flight.

- f. Brown Cockroach: This species is rapidly becoming a household pest in the southern United States and is frequently more common in these areas than the american cockroach. Most common in the southeastern U.S., its size and appearance are not easily differentiated from the american cockroach. Also in the same genus as the

american and brown cockroaches is the smoky brown cockroach which may be an occasional pest in southern climes.

g. Australian Cockroach: The Australian cockroach is slightly smaller in size (about 1" long) but similar in appearance to the American roach. It is a less serious pest than the American roach. It can be recognized by the vivid pale area surrounding the edge of the pronotum. This roach is much more abundant in Florida and California than in more northern, colder climes



h. Wood Cockroaches: These cockroaches are dark brown, about the same size as the brown-banded cockroach, but have the sides of the thorax and front half of the wings have a yellow border. Found mostly in the eastern United States, their range can extend into Canada. They are natives of the woods but will occasionally invade homes by coming in with firewood or other items stored outside. They are generally considered a minor pest.

## 2. Inspection and Survey:

Cockroaches are seldom seen during daylight hours. In colder climates, they will live year round in structures. In warmer climates, once these pests gain entry into buildings they will seek out safe harborages from which they can make their forays, usually during dark periods. Inspection for infestations will normally involve flushing of pests from harborages, sticky traps or inspection for droppings.

a. Visual Sighting: A good flashlight is an essential tool for cockroach inspections. Cracks and crevices should be examined with specific attention near sources of food and water, or in damp areas. An indicator of a heavy infestation is fecal spotting near likely harborages.

b. Trapping: Sticky traps are excellent tools for survey. They are inexpensive, non-toxic and easy to use. Placement of sticky traps near suspected cockroach harborages for 24 hours will provide quantitative results of current infestations. However, catching no roaches does not necessarily mean there are no roaches. Trap catches are proportionate to roach population size and activity in the area where the trap is placed.

### 3. Control Methods

a. Sanitation: Because of cockroach habits, good sanitation is imperative to achieve and maintain good control. In the absence of reasonably good sanitation, chemical control measures cannot be expected to be fully effective.

b. Exclusion: Cockroaches may gain entry to buildings by secreting themselves or their egg cases in packages which we bring in. (ex: cartons of groceries, cases of soda (pop), boxes of vending machine foods). It is impossible to inspect all incoming parcels, but effort should be made to inspect as many as practical. Movement between buildings may be along steam and water lines, or in sanitary and storm drain sewers. In warmer climates where they can live outdoors most of the year, they may simply walk into any structure foraging for food. The use of effective exclusion practices such as caulking and sealing cracks and other possible entrances will do much to augment a cockroach program.

#### c. Chemical Control

Baits: COMBAT™ bait is recommended for cockroach control in buildings. COMBAT™ is packaged in tamper resistant plastic bait stations. The bait stations come in 2 sizes: (1) Large size for American, brown and oriental roaches and (2) Regular size for German, and brown banded roaches.

#### Proper bait station placement is critical to success.

Follow the label directions for the use and placement of the bait station. Place one bait station within all areas where cockroaches have been sighted, where they are suspected, or where cockroach fecal was noted. The number of bait stations will vary with the amount of shelf, closet and floor space and with the degree of infestation. As a general rule, 4-6 bait stations are adequate for every 100 square feet (10' x 10' room) of infested area. The typical head or small galley require a minimum of 8 bait stations for adequate coverage. Use a higher number of bait stations where the infestations are heaviest.

Placement should be concentrated where there is a food source, in areas that have not been treated with other chemicals or where there are access routes from untreated adjoining areas. The bait must be placed where cockroaches live or travel so the insects have maximum access to it. For active infestations, the bait stations should be replaced every 90 days.

Used bait stations should be disposed of by wrapping them up and placing them in a garbage can. Of course, like any other insecticide, these bait stations should be handled with care. Keep out of the reach of children, and do not contaminate water, food or feed by storage or disposal.

## VAARNG Self Help: ANTS AND THEIR CONTROL

### ANTS

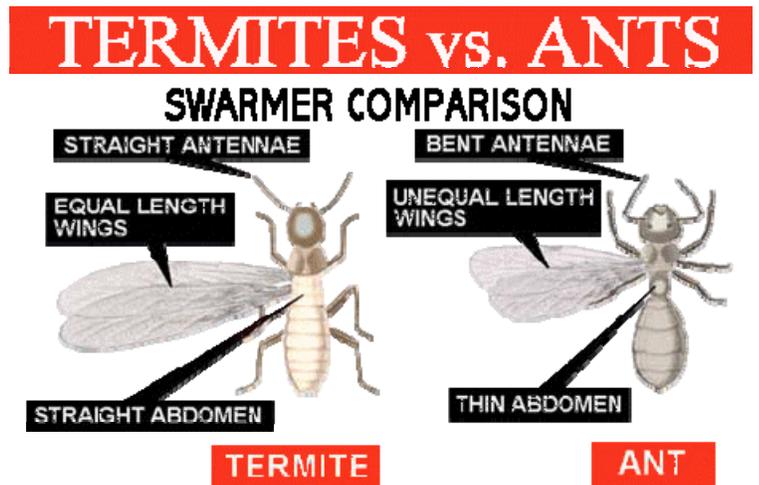
Ants are important pests and are particularly annoying in offices, work areas, galleys and pantries where they forage for food. Outdoors they may interfere with human activities, sting or bite man or his animals.

Ants should not be confused with termites. Both carpenter ants and termites "swarm" at various times of the year. It is not uncommon for a termite complaint to be recorded, but upon identification, ants are identified as the swarmers. In both cases, the flying insects are the reproductive adults. Ants have a thin waist (pedicel), elbowed antennae, and the forewings are distinctly larger than the hind set of wings.

Termites have a fat waist (actually, no waist is evident), the antennae straight, and all four wings are of equal size.

#### 1. Pest Identification

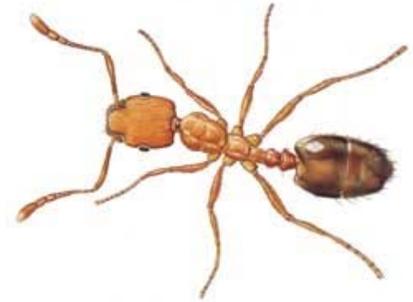
Ants are among the most abundant of insect species. They can be divided into three groups based on their relationship to man: (1) species which nest indoors, (2) species which nest outdoors and invade man's structures and (3) venomous ants. The nesting relationship may change as climate changes. A species found almost exclusively in structures in the north may be found both in and out of structures in the south.



#### a. Species Which Nest Indoors:

(1) Pharaoh Ants:

Pharaoh ants are light yellowish to reddish-brown in color with workers measuring 1/15 to 1/12" long. They are becoming an increasingly common pest. Their nests are located between walls, above ceilings, or under floors. They will eat just about anything. They can be a problem to control because if the colony is stressed by pesticides, it will split into many sub-colonies. Therefore, control techniques must be very effective in the first round, otherwise the problem will probably get worse.



(2) Other House Infesting Ants: These ants range from 1/15 to 1/4 of an inch in length.

Odorous House Ant  
*Tapinoma sessile*



There are several different species of small house ants that range in color from a light yellow to a reddish yellow and jet black. These ants will nest in walls, woodwork, and beneath masonry. They will feed on all types of food material, such as sweets, fruits or nuts, and fatty, greasy, or oily materials. The Argentine ant is a severe pest in southern climates. The thief ant and the odorous house ant are two more common species which commonly nest indoors.

b. Species That Nest Outdoors:

There are many species of ants which nest outdoors and will forage indoors for food. The pavement ant prefers to nest under rocks, next to buildings and under cracks of pavements. The large yellow ant (citronella ant) nest near structures. The winged reproductive's are usually confused with termites. Field ants tend to nest in open areas building small mounds. They will occasionally invade structures.

c. Venomous Ants: Many of the ants of these species (*Solenopsis spp.*) are called fire ants because of their venomous sting. Four species found in the United States are noteworthy as significant threats to man and his domestic animals. They are the native fire ant, the red

ENCLOSURE



imported fire ant, the black imported fire ant and the southern fire ant. Generally, these species are tropical-subtropical in nature and will not be found in colder climates. Fire ants build distinct mounds. Large colonies contain up to 1/2 million workers. Fire ants exhibit very aggressive behavior when the colonies are disturbed. Their sting will cause intense irritation and may cause severe reactions in sensitive people and animals.

## 2. Inspection and Survey:

The first step in any ant management program is to determine where the ants have been found. An interview of the building staff will generally reveal much useful information.

It is very important to determine which species (one or more may be involved) are present and, if possible, the nest locations. Use of non-toxic baits is a very effective tool. Survey bait items may include, but are not limited to, peanut butter, jelly, hamburger, bacon grease, french fries, or honey. The combination of a sweet and a meat/grease is a very enticing combination. Map the premises and note the locations of the baits and where ants are captured each day.

Notations of ant sightings (foraging ants) should be made on the map to try to locate the nests. If you are not sure what species you have collected, place the specimens in a vial of 70% ethyl alcohol. Rubbing alcohol is also acceptable. Send the vial to your Engineering Field Division Entomologist for proper identification.

## 3. Control Methods:

Sanitation in itself will not solve the problem. However, it will help a great deal.

(a) Toxic Baits: Toxic Baits are an effective tool for controlling ants. Pharaoh ants are a special problem because their colonies "bud" under insecticidal pressure. When dealing with pharaoh ants, use Hydramethylnon baits (MAXFORCE™ Pharaoh Ant Bait Stations). They have been the most effective to date against the pharaoh ant. Other type of insecticidal baits (i.e. methoprene, or chlorpyrifos active ingredients) have a delayed action and are generally not successful with pharaohs.

Ant traps in general are effective against most species of ants, depending on the attractiveness of the bait. Bait stations should be replaced regularly and an ample number of them should be used. COMBAT™ Ant Bait Stations (Hydramethylnon active ingredient) are effective. Through a process called trophylaxis, which is the passing of food throughout an ant colony, the poisoned bait reaches the reproductive queen and eliminates the colony.

As with cockroach control, proper placement of the bait stations is critical to success. The placement information in Enclosure (1) is appropriate for ants as well as cockroaches. Follow all label directions. **The label is the law.**

# VAARNG Self Help: THE HOUSE MOUSE AND ITS CONTROL

## HOUSE MOUSE

The house mouse, (Mus musculus) is considered one of the most troublesome and economically important rodents in the United States. House mice live and thrive under a variety of habitats from homes to open fields. The house mouse consumes and contaminates food meant for humans and may cause damage to structures and property. They may also be a source for fleas as well as transmit disease themselves.

### 1. Pest Identification

The house mouse is found throughout the United States and the world. It is a slender, graceful, small animal weighing approximately one-half to three-quarters of an ounce and measures 5 to 7 inches in length from the head to tip of the tail. The tail is slightly longer than the body. The fur is fine, from brown to black with a lighter belly coat. Its nose is pointed and its eyes and ears are large. The mouse reaches sexual maturity within one and one-half months and can produce as many as 8 litters of 5 to 6 individuals per year. The normal life span of the house mouse is 1 year.



### 2. Inspection and Survey

The normal harborages indoors are in convenient spaces between walls, in cabinets and other furniture, and in stored products. Outdoors they will nest in weeds, rubbish or in grasslands. Their normal range is 10 to 30 feet from their nests. Its food preferences are cereal grains, but will eat all edible materials. The mouse is a nibbler compared to the voracious appetite of rats. The mouse will grow in a dry habitat and metabolize water from its food source, therefore a water source is not always required.

House mice are usually nocturnal and secretive. They are rarely seen during the day except when infestations are very heavy. Therefore, it is necessary to interpret signs indicating the presence of mice. Inspection techniques will involve searching for "signs" in the areas of suspected harborage. Signs are found along walls, under piles of rubbish, behind or under storage areas, and in thick vegetation. The following signs are indicative of a house mouse infestation.

a. Fecal droppings: Fecal droppings are usually dark, moist, soft and shiny. In a few days the droppings become dry and hard. When examined under a magnifier or microscope, hairs are usually evident in mouse droppings. House mouse droppings will average 1/4 inch or less and are pointed at the ends.

b. Runways: The house mouse is a creature of habit and will utilize the same runways between their food source, and harborage areas. Because of their keenly developed sense of touch they prefer body contact with a vertical surface such as a wall or fence. Consequently, they will develop a pathway that can be recognized both outdoors and indoors.

(1) Rub Marks: Mice do not leave obvious rub marks like rats unless there is an extremely heavy infestation. The rub marks of mice will be very low to the floor, and appear more as worn paint or paper rather than oily paint or paper. If rub marks are grossly evident, then the infestation of rodents is probably rats.

c. Tracks: Wherever there is dust, or when powder or flour is placed out in suspected runways, the tracks left by the animals feet provides direction towards their harborages.

### 3. Control Methods

a. Sanitation: Most house mouse infestations can usually be traced to poor sanitary conditions. A good control program should include removal of a food supply by improving refuse storage and removal.

b. Elimination of Shelter: Trash and waste materials should not be allowed to accumulate to prevent their use as shelters. Lumber and all other materials useful as shelters should be stacked on platforms, at least 18 inches above the ground, and at least 18 inches away from walls. Vegetation near buildings should be eliminated.

c. Rodent Proofing: House mice can enter through openings as small as 1/4 inch. Structural openings around pipes and electrical conduits should be sealed. All openings less than 4 feet above ground should be sealed with metal plates or concrete. Doors should be self-closing and tight fitting at the bottom. Spaces at the bottoms may be sealed by attaching metal strips.

d. Trapping: Trapping is recommended for house mouse control. A large number of snap traps should be set in likely areas of activity. Several varieties of wood snap types are available. Placement of the traps is important. Traps should be placed in runways along walls, and not in the open. The traps should be placed against the wall, and perpendicular to the wall, with the trigger portion near the wall. Traps must be inspected daily, and cleaned if mice were killed. Mice can become trap shy. Changing the bait will help to alleviate this problem. Quite often, changing the location of the trap will help greatly. In addition to snap type traps, several new mouse traps have been used with great success. These are usually metal boxes with one or more openings with trade names like "Ketch-all" or "Tin Cat". These traps rely on mouse curiosity, causing them to enter. Some of these traps have snap devices to kill and collect the mice as they

enter, and others are constructed so that mice cannot escape once they enter. These must be inspected frequently to dispose of dead or trapped mice.

Sticky traps for mice are also available. Like the snap traps, they are easy to use, and non-toxic. When a mouse is caught in a sticky trap, the entire trap can be disposed of without handling the mouse.



## SOURCES OF SUPPLY

### COMBAT™ BAIT STATIONS

LARGE SIZE: NSN 6840-01-224-1269,

FOR COCKROACHES

Amidinohydrazone 1.65%, Eight stations per box, 12 boxes per package. \$45.46 per package

### COMBAT™ BAIT STATIONS

REGULAR SIZE, NSN 6840-01-180-0167,

FOR COCKROACHES

Amidinohydrazone 1.65%, Twelve stations per box, 12 boxes per package. \$31.82 per package

MAXFORCE™ BAIT STATIONS Pharaoh Ant Bait: NSN 6840-01-298-1122:

Hydramethylnon Insecticide. 24 Bait Stations per package. 4 packages per box. \$\_\_\_\_.

### INSECT REPELLENT

Permethrin for cloth impregnation:

CLOTHING NSN 6840-01-278-1336 (Permanone Tick Repellent), Aerosol Can: Twelve Six ounce cans per box. \$32.37/box

### INSECT REPELLENT

DEET for skin application:

PERSONAL APPLICATION (This is the new formulation) NSN 6840-01-284-3982

Commercial Sources for Sticky Traps, Snap Traps etc.

(1) Brody Enterprises

9 Arlington Place

Fair Lawn, NJ 07410

1-800-GLU-TRAP

(2) Hoffman Industries

3942 Frankford Ave.

Philadelphia, PA 19142

1-800-228-0041

(3) Cornell Chemical Co.

5185 Raynor Ave.

Linthicum Hts., MD 21090

301-636-2400

Contact: Don Klein

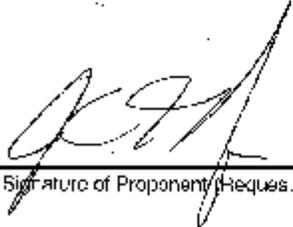
Sources for Victor Non-Toxic Wasp and Hornet Killer.

(1) See a list of suppliers at (<http://www.victorpest.com/>) or call Victor Pest at 1-800-800-1819.



## **APPENDIX L**

### **Environmental Documentation**

ARNG RECORD OF ENVIRONMENTAL CONSIDERATION	
1. PROJECT NAME: Virginia Army National Guard Integrated Pest Management Plan Revision	
2. PROJECT NUMBER: FY08 VAFM05	3. DATE: 29-Jan-08
4. PROJECT START DATE (dd-mmm-yy): 1-Apr-08	
5. PROJECT END DATE (dd-mmm-yy): 1-Apr-12	
6. DESCRIPTION AND LOCATION OF THE PROPOSED ACTION: The VAARNG would implement the IPMP Revision prepared by Integrated Consulting, LLC, covering FY08 through FY12. The initial IPMP was prepared in 1998. The revised IPMP covers all of the NGB IPMP and associated PLA.	
7. CHOOSE ONE OF THE FOLLOWING: <input checked="" type="checkbox"/> An existing <b>Environmental Assessment</b> adequately covers the scope of this project. EA Date (dd-mmm-yy) _____ Conducted By: J.M. Walter Associates, INC. <input type="checkbox"/> An existing <b>Environmental Impact Statement</b> adequately covers the scope of this project. EIS Date (dd-mmm-yy) _____ Conducted By: _____ <input type="checkbox"/> After reviewing the screening criteria and completing the ARNG Environmental Checklist, this project qualifies for a <b>Categorical Exclusion</b> (select one below). Categorical Exclusion Code: _____ See 32 CFR 651 App. B <input type="checkbox"/> This project is exempt from NEPA requirements under the provisions of: The superseding law: _____	
8. REMARKS: FNSI attached.	
 _____ Signature of Proponent (Requester) CPT James C. Shaver Jr. _____ Printed Name of Proponent (Requester) 29 JAN 08 _____ Date Signed	 _____ Signature of Environmental Program Manager James B. Daniel II (acting) _____ Printed Name of Env. Program Manager 29 JAN 08 _____ Date Signed

# **Finding of No Significant Impact For the Virginia Army National Guard Pest Management Program**

## **A. Description of Proposed Action and Alternatives**

The National Guard Bureau (NGB), as a major command under the Department of Army, has taken the general guidelines from the Department of Defense (DOD) Pest Management policy and is continuing to develop the Pest Management Program for the Army National Guard (ARNG). The ARNG's pest management program objective is to use the integrated pest management approach for the judicious use of both non-chemical and chemical control techniques to achieve effective pest controls with minimal environmental impacts. Integrated pest management as used by the ARNG, is a decision making process designed to (1) identify the conditions causing a particular pest problem to occur; (2) devise way to change those conditions to discourage recurrence of the problem; and (3) select the least toxic mix of strategies and tactics to directly suppress the pest population.

The ARNG proposes to use the integrated pest management approach by developing Installation Integrated Pest Management Plans (IPMP's) to reduce the use of chemical treatment techniques by 50% over historic usage levels while also achieving effective pest control. These plans cover certification, reporting, and all other pest management activities. The reduction of chemical control techniques will, in some cases, be accompanied by an increase in the use of mechanical, cultural and biological approaches. The goals of the Integrated Pest Management Plans are (1) to promote health, safety, and welfare of unit personnel through and effective pest management program; (2) to promote installation protection; (3) to ensure a professionally trained pest management force while supporting the mission of the ARNG to provide combat ready units for the national defense; and (4) minimize impacts on the natural and human environments.

The affected environment of the proposed action includes facilities administered by the National Guard of the 50 States, the District of Columbia, and the territories of Puerto Rico, the Virgin Islands and Guam.

The analysis of the potential environmental impacts is provided in the Programmatic Environmental Assessment (PEA) for the ARGN Pest Management Program. Alternative B is the preferred alternative. This alternative is the integrated approach that provides for the protection of personnel and the environment, while offering the greatest long term potential for the effective pest control. Areas considered in the document include: land use, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomic resources, environmental justice, infrastructure, hazardous materials and toxic wastes, and cumulative impacts. Other alternatives considered in the analysis include strict non-chemical pest management

(Alternative A) and strict chemical pest control techniques (Alternative C) as well as the No Action Alternative (Alternative D). Alternative A was not considered to be an effective pest management technique under most circumstances and Alternative C would have greater potential negative impacts on the personnel and the environment. The No Action Alternative would also be a less effective means of pest management in lieu of more effective, integrated approaches proposed by the Preferred Alternative.

## **B. Potential Environmental Impacts.**

The preferred alternative would have minor, but not significant, negative impacts on the following:

- 1. Air Resources.** Air resources may be affected by temporary and limited site-specific impacts due to non-chemical management techniques such as mechanical removal or prescribed burns, and chemical techniques such as hand-spraying. In order to minimize these effects the ARNG would utilize Best Management Practices (BMP) such as coordinating mechanical removal or control burn operations with appropriate government agencies and performing spray operations in strict accordance with the product labels and EPA approved guidance. Pesticides would not be sprayed when wind speeds exceed 15 mph.
- 2. Noise.** Noise levels may temporarily increase to non-significant levels, caused by outside weed management techniques.
- 3. Soils.** Soil erosion may occur from mechanical vegetation removal. However, using appropriate pest management practices would minimize impacts. Soils that are subjected to substantially increased surface water runoff, or wind or water induced soil erosion because of weed removal would be reseeded with native seed stocks according to the ARNG policy. Pesticide use could potentially contaminate local soils. These risks would be lowered by using and applying the pesticide as specified by the manufacturer, properly disposing of it, and making an appropriate choice of pesticides with short residual times.
- 4. Water Resources.** Water resources may be affected by minor, site specific soil erosion caused by increased sediment runoff resulting from the mechanical removal of vegetation. To minimize these effects the ARNG would use BMP such as reseeded effected areas with native seed stock. Using and applying pesticides as specified by the manufacturer and choosing pesticides with short residual effects would further minimize the risks. During any aquatic or wetlands application of pesticides a buffer would be established around floodplains and areas of surface water. Techniques, such as spot application, using short residual pesticides, and avoiding sensitive areas would be employed to reduce pesticide runoff and leachate.
- 5. Biological Resources.** The introduction of exotic species for pest control could potentially have a local impact on flora and fauna. However, impacts from introducing exotic species would be minimal. Only biological materials approved

by the U.S. Department of Agriculture would be used, and their use would be coordinated with the appropriate Federal and State Officials.

There is a potential for short term impacts caused by the mechanical removal of vegetation located in and around wetlands. Impacts would be mitigated through the use of BMPs such as establishing buffer zones around such sensitive areas.

Direct impacts to threatened or endangered individuals could occur at the site specific level. To reduce this potential, no pesticides would be applied within 100 feet of known threatened or endangered species unless use in such a site is specifically approved by the agency with jurisdiction by law. When compared to the current practices, impacts to non target species, endangered and threatened species, and wetlands would be less likely to occur.

### **C. Commitment to Implementation.**

The National Guard Bureau (NGB) affirms it's commitment to implement this PEA in accordance with the NEPA. Implementation is dependent on funding. The NGB will ensure that adequate funds are requested in future years budgets to achieve the goals and objectives of this PEA

### **D. Public Review and Comment**

The Draft Environmental Assessment was made available for public comment from 15 April-15 May 2004. No comments were received. The Final Environmental Assessment and DFNSI were made available to be obtained on the internet at <http://www.arng.army.mil/nepa/> or by calling Maj. Steve Morgan at (703) 607-7958 or emailing MAJ Steve Morgan at [Steven.Morgan@ngb.army.mil](mailto:Steven.Morgan@ngb.army.mil) No comments were received.

### **E. Finding of No Significant Impact**

A careful review of the Programmatic Environmental Assessment has concluded that the implementation of the preferred alternative for the ARNG Pest Management Program would not constitute a major federal action significantly affecting the quality of the natural or human environment. This analysis fulfills the requirements of the National Environmental Policy Act (NEPA) and the Council on Environmental Quality Regulations. An Environmental Impact Statement will not be prepared and the National Guard Bureau is issuing this Finding of No Significant Impact.

9 AUGUST 2004  
Date

  
Gerald I. Walter  
Lieutenant Colonel, US Army  
Chief, Environmental  
Programs Division

## **APPENDIX M**

### **Aerial Validation Plans**

## Aerial Validation Plan for Fort Pickett Range #3

### 1. Introductory information:

*a. Army activity preparing the request:* ARNG-MTC Fort Pickett

*b. Date of preparation:* 5 SEP 07

*c. Name of person preparing the statement:* Don Knight, Sustainable Range Program Coordinator, (434) 292-2420, [don.knight@us.army.mil](mailto:don.knight@us.army.mil)

### 2. Body of the AVP will include complete information on each of the following topics:

#### *a. Rationale.*

**(1) What would an aerial application accomplish?** - Aerial herbicide application would be used to control the young hardwood and pine trees that are growing throughout the target area on Range #3, which is our M203 40mm Grenade Launcher and hand-held rocket range.

**(2) What is the problem (health related, property damage, crops, forests, and so forth)?** – The rapid growth and spread of the young trees within the target area of this range is rapidly obscuring view of the targets. As they grow larger, they also present a serious safety hazard for premature detonation of a high-explosive 40mm grenade or live rocket warhead.

**(3) What is the pest (and for insects, the life stages) to be controlled?** – The primary species to be controlled are Sweet Gum, Oak and Loblolly Pine trees

**(4) Why is the proposed aerial application important to the Commander?** – This application is important for two main reasons. The first and foremost is safety. Range #3 is a permanently duded high-hazard impact area. Due to the small size and extreme sensitivity of unexploded 40mm HE rounds, LAW, RAAWS, and AT-4 Rocket warheads, hand control of the nuisance trees in a weed and shrub covered impact area is extremely dangerous and is not an option for solving the problem. Also, some of the nuisance species are growing relatively close to the firing line. As these young trees rapidly grow larger, they will soon become a very real hazard for causing the premature detonation of a high-explosive projectile, which could shower the soldiers on the firing line with shrapnel. The second reason is affect on quality of training. These nuisance trees are rapidly obscuring view of the target, which degrades training value to the units conducting live-fire on Range #3. If left uncontrolled, these trees will eventually eliminate line of sight to all targets, and make the range unusable.

**(5) How does the proposed aerial application influence the installation mission?** – Aerial application to control the nuisance trees on Range #3 will enhance the installation mission of providing training opportunities to DoD forces, and it is the safest, most logical and most cost effective means of achieving control of this problem.

**(6) What are the surveillance criteria to demonstrate the need and effect of the requested aerial application? Describe the pre and post surveillance procedures.** – The targets on Range #3 were 100% visible from firing positions in the 2003-2004 timeframe, with no obstruction from woody vegetation. Obstruction began in 2005, with an approximate 25% decrease in target visibility. Current visibility has decreased to approximately 50%, and some targets can no longer be effectively engaged without firing through young trees or brush. This is in violation of TC 25-8, which states that 90% of a target must be visible from the firing position. Upon successful completion of the herbicide application, ample time for vegetation to die and dry out, and prescribed burning to consume the dead vegetation, targets will again be 100% visible from the firing positions.

**(7) What is the impact if the requested aerial application is not done?** – Continued degradation, to the point of elimination of live-fire training on the only HE 40mm and HE Rocket range on Fort Pickett. Also, the risk of premature detonation of an HE round will steadily increase.

***b. Description of the target area.***

**(1) Size.** – 12.13 Acres

**(2) Land usage (agriculture, recreation, residential, commercial, industrial, and so forth).** – Permanently duded high-hazard impact area.

**(3) Proximity to inhabited areas.** – 1.5 miles to nearest full-time inhabited area. Approximately 400 meters to nearest part-time inhabited area (office of nearby training facility – occupied periodically during normal duty hours).

**(4) What natural resources (endangered species, wildlife communities, agriculture, livestock areas, vegetative cover, and so forth) will influence the proposed aerial application?** – None.

**(5) Are there topographical features that will influence the proposed aerial application?** – The topography of the target area is favorable to aerial application, as it is a relatively flat non-wetland area.

**(6) Are there water resources (aquatic areas, drainage patterns, potable water supplies, and so forth) that will influence the proposed aerial application?** – The most current wetland survey information we have (2006-2007 survey) indicates no wetlands within the project area. There are two small wetlands near the project area:

- (a) Approximately 50 meters to the south east of the project area there is a Palustrine scrub-shrub wetland (0.93 acres).
- (b) Approximately 20 meters to the south west of the project area there is a Palustrine emergent wetland (0.46 acres).

Drift would be the only potential impact to these wetlands. This potential will be controlled by carefully monitoring wind speed and direction, and only flying when conditions are appropriate.

**(7) Are there climatological factors that will influence the proposed aerial application?** –

- (a) Helicopter will not spray herbicide if/when wind speeds exceed 5 mph.
- (b) Will not spray within 2-3 hours of expected precipitation.
- (c) Will not spray immediately after precipitation, until target area foliage dries.

**c. Pesticide information (Provide data for each chemical).**

**(1) Pesticide of choice, its National Stock Number (NSN), and EPA registration number and formulation. –**

- (a) CHOPPER(made by BASF), EPA Registration # 241-296  
Active Ingredient: Isopropylamine Salt of Imazapyr 27.6%  
Inert Ingredients 72.4%

- (b) KRENITE S (made by DuPont), EPA Registration # 352-395  
Active ingredient: Ammonium salt of fosamine 41.5%  
Inert Ingredients 58.5%

\*\*NOTE – This combination of chemicals is recommended by the Virginia Department of Forestry for pre-planting site prep.

- (2) Application rate. –** CHOPPER: 40 oz. per acre  
KRENITE S: 8 qt. per acre.

**(3) Toxicity for target and non-target species. –**

- (a) CHOPPER – LD50: > 5000 kg/mg
- (b) KRENITE S – LD50: > 5000 kg/mg

**(4) Persistence and degradation characteristics. -** Herbaceous species will regenerate fairly quickly after control with these chemicals.

**(5) Are there label restrictions? –**

- (a) Minimum PPE – long sleeve shirt, long pants, shoes, socks, and rubber gloves (for those mixing/applying chemicals).
- (b) Early Entry Period for these chemicals – 12 hours. Those making early entry into treated area must wear minimum PPE.
- (b) Do apply directly to bodies of water (this mix not for aquatic use).

**d. Application information.**

**(1) Who will make the aerial application (DOD, contract, or other)? -** UAP Timberland LLC

**(2) Are the aerial applicators licensed and certified to perform an aerial application?** - Yes. UAP Timberland LLC has extensive background and experience in aerial herbicide application for the military, other government agencies (forestry, etc.), and in the civilian sector.

**(3) Method of application:**

**Type of Aircraft** – Helicopter

**Altitude** – 80 ft.

**Airspeed** – 60-70 Knots

**Spray Swath** – 60 ft.

**(4) Number of applications and approximate dates of applications.** – One application, mid to late September 2007 (\*if approved in time). If unable to make application before late September 2007, likely application date will be May-June 2008. A possible second application (selective spot application) may be required during the following growing season to obtain total control of the more mature nuisance trees.

*e. Alternative methods (IPM).*

**(1) List alternative control methods.**

- (a) Mechanical Control
- (b) Physical Control
- (c) Prescribed Burning
- (d) Take No Action

**(2) Why were these alternatives rejected as the solution to the problem? –**

(a) Mechanical Control – it is too dangerous to put any type of vehicle into the high-hazard impact area.

(b) Physical Control – it is extremely dangerous for anyone to enter the high-hazard impact area on foot. This would require an effective prescribed burn prior to entry into the impact area, followed by a complete surface sweep by trained EOD personnel, and the systematic disposal of all UXO through demolitions. The whole process is unjustifiably dangerous and cost prohibitive.

(c) Prescribed Burning – the nuisance trees and in the target area have reached a height where they have become resistant to the intensity of fire that can be achieved in the target area. A hot burn in the target area last year had little effect on the nuisance trees.

(d) Take No Action – Not a viable alternative.

*f. Sensitive areas.*

**(1) Are there areas to be avoided or treated with caution (protected species habitats,**

crop lands, lakes, rivers, streams, and so forth)? – No.

(2) What measures will be used to reduce the effects on these areas? – NA.

(3) How will the proposed aerial application affect the natural resources in the target

area? – 90-95% control of vegetation in the target area is expected from the proposed aerial application. Herbaceous species will begin to reestablish fairly quickly. We desire to control all vegetation in the target area through this application, to enhance the effectiveness of a follow-up prescribed burn. There could be some minor effects to the trees along the borders of the target area if drift occurs during application. These trees are of the same types as the target species, and we do not consider this a major concern in this particular instance.

*g. Federal, State, and County coordination.*

(1) Are there Federal, State, or county requirements to satisfy before an aerial application is done? - Federal Requirement – Record of Environmental Consideration (REC). State – No. County – No.

(2) Indicate if these requirements have been met. – REC in progress.

*h. Environmental documentation.* Has the environmental documentation for the proposed aerial application been reviewed and approved per AR 200-2?



**Appendix N**  
**Pesticides Used By VAARNG**

**Pesticide Inventory**  
**Building #303, Fort Pickett**

Product	Container	EPA#	QTY	Comments
2,4-D, 4 LB/GA amine salt		228-181- 40206		
Arsenal, 27.69%	2.5 GA Plastic	#241-273	5 EA	
Baygon, 2% bait	Plastic Jar	#3125- 121- ZA516	5 LB	Use up and don't reorder. This has been replaced by gel baits and granular baits.
Crossbow, 0.34% trichlopyr	GA	#62719- 260-55467	2.5 GA	
Demon TC	1 GA	#10182- 107	2 GA	
Diazinon, 48.2% EC	1 GA	#19713-91	2 GA	Dispose of through DRMO.
Ditrac, 0.005% rodenticide bait	1.5 OZ bag	#12455-29	360 EA	This is a <b>multi-dose</b> anticoagulant. It is ineffective. Dispose of through DRMO.
Dursban TC 4 lb/ga EC chlorpyrifos	GA	#62719-47	2 GA	Dispose of through DRMO.
Embark		#7182-11- AA		Dispose of through DRMO.

Product	Container	EPA#	Quantity	Comments
Endosulfan,		#19713-399	5 GA	Use up & don't reorder.
EZ-Ject, 83.5% imazapyr		#61202-1		
Ficam W, 76% WP	1 LB	#45639-1	2 LB	Use up & don't reorder.
Hitman, deltamethrin, 0.02% granules		#432-857-1270	20 LB	
Hyvar X-L, 2 LB/GA bromacil				
K2 Pyrethrins, 0.1% OS	Pint Can	# 7405-73-10320	30 EA	Use up & don't reorder. This duplicates the ULD Pyrethrin.
K6 Wasp Killer, 0.1% pyrethrins	14 OZ cans	#706-101-10320	24 EA	
L.O. Sect, 3% dursban	1 Quart	#1769-330	2 EA	Dispose of through DRMO.
Liqua-Tox, anticoagulant rodenticide	1.7 OZ Pkts	#12455-61	25 EA	

Product	Container	EPA#	Quantity	Comments
Pramitol 25E	GA	#66222-22	6 GA	Use up & don't reorder. This has been replaced by Arsenal.
Roundup Herbicide, 41% glyphosate	Plastic Jug	# 42750-61	6 Gallon	
Sevin Flowable, 22.5% carbaryl	Quart	#264-334-71004	3 QT	
Sevin XLR	2.5 GA Plastic	#264-333	5 EA	
Sevin, 44 % carbaryl	GA	#264-333	31 GA	
Talon G 0.4% bait	Plastic	#10182-40	24lbs	
Talstar, 7.9% bifenthrin	0.75 GA	#279-3206	7 EA	
ULD Pyerthrin Space Spray, 3.0% pyrethrins	GA	#499-450	4 Gallon	
Zinc Phosphide, 2% rodenticide bait	1 LB jars	#7173-196	6 LB	

## **Appendix O**

### **Ft. Pickett B.A.S.H. Plan**

# VIRGINIA ARMY NATIONAL GUARD

## MANEUVER TRAINING CENTER FORT PICKETT



## BIRD AIRPLANE STRIKE HAZARD (BASH) CONTROL PLAN



PREPARED BY:

DIVISION OF PLANS, TRAINING & SECURITY

1 October 2007

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Blackstone Army Airfield (AAF) Bird Aircraft Strike Hazard (BASH) Plan

1. Enclosed is BAAF BASH Plan, 1 October 2007, which provides guidance for the BASH program.
2. This plan fulfills requirements set forth in Federal Aviation Administration guidelines, United States Air Force Instructions and United States Navy regulations. It is effective for planning and execution purposes upon receipt.
3. This plan will be reviewed annually and updated as required.
4. This document is UNCLASSIFIED and does not fall within the scope of directives governing protection of information affecting the national security.

ROBERT L. SPARKS  
COL EN VaARNG  
Commanding

## **BAAF BASH PLAN SUMMARY**

1. **PURPOSE**. To provide an installation program to minimize wildlife strike potential to aircraft.
2. **CONDITIONS FOR IMPLEMENTATION**. This plan considers hazards from both the indigenous bird population and seasonal bird migrations in addition to terrestrial animals. Implementation of specific portions of the plan is continuous, while other portions will be implemented as required by wildlife activity. The wildlife of most concern at BAAF is the bird and deer population.
3. **OPERATIONS TO BE CONDUCTED**.
  - a. Conduct Bird Hazard Working Group (BHWG) meetings semi-annually and other times as required.
  - b. Review and refine procedures for reporting hazardous wildlife activity that may present a hazard to flight operations on the airfield, within the confines of MTC Special Use Airspace (SUA).
  - c. Improve provisions to disseminate information and avoidance procedures to all training and transient aircrews for specific wildlife hazards.
  - d. Ensure procedures are implemented to eliminate or reduce environmental conditions that attract wildlife to the airfield.
  - e. Develop procedures to disperse wildlife from the airfield.
4. **TASKED AND SUPPORTING ORGANIZATIONS**. See Appendix 1.

**BAAF BASH PLAN**  
**TABLE OF CONTENTS**

<u>CONTENTS</u>	<u>PAGE NO.</u>
Plan Summary	2
Table of Contents	3
BAAF BASH Plan	4
Appendix 1 - Tasked and Supporting Organizations	6
Appendix 2 – Task and Responsibilities	7
Appendix 3 - Local Wildlife Information and Hazards	14
Appendix 4 - Bird & Deer Watch Conditions	20
Appendix 5 – Reports and Forms	24
Appendix 6 – USAF Wildlife Strikes by Count	25
Appendix 7 – Self Inspection Checklist	26

## **BLACKSTONE ARMY AIRFIELD BIRD AIRPLANE STRIKE HAZARD PLAN**

### **1. REFERENCES**

a. FAA Advisory Circular 53/5200-33, Hazardous Wildlife Attractants At or Near Airports, dated 1 May 1997.

b. Air Force Pamphlet 91-212, Bird Aircraft Strike Hazard (Bash) Management Techniques, dated 1 Feb 2004.

2. **SITUATION**. A bird/wildlife aircraft strike hazard exists at BAAF and in its vicinity due primarily to resident and migratory bird species as well as local deer populations. This plan establishes procedures to minimize the hazard at BAAF. No single solution exists to the BASH problem and a variety of techniques and organizations are involved in the control program. This plan is designed to:

- a. Establish a Bird Hazard Working Group (BHWG) and designate responsibilities to its members.
- b. Establish procedures to identify and communicate hazardous situations to aircrews.
- c. Establish aircraft and airfield operating procedures to avoid high-hazard situations.
- d. Provide for dissemination of information to all training and transient aircrews on wildlife hazards and avoidance procedures, especially for birds and deer.
- e. Establish guidelines to reduce airfield attractiveness to wildlife.
- f. Provide guidelines for dispersing wildlife when they gather on the airfield.
- g. **FRIENDLY FORCES.**

(1). Army National Guard Maneuver Training Center Fort Pickett

(a) Division of Plans, Training and Security

(a) Division of Public Works

(b) Virginia Army National Guard Aviation Safety Officer

(2) Army Aviation Support Facility

(3) 437th Airlift Wing, Charleston AFB, SC

(4) 305th Air Mobility Wing, McGuire AFB, NJ

(5) 57<sup>th</sup> Weapons Squadron, McGuire, AFB, NJ

h. ENEMY FORCES. NA

3. **MISSION.** To mitigate the risk of incurring damaging aircraft wildlife strikes

4. **EXECUTION.**

a. **Concept of Operations.** Responsibility for overall implementation of this plan is the Division of Plans, Training and Security (DPTS). Reducing the wildlife strike hazard at Blackstone AAF requires a cooperative effort between several installation activities and possibly agencies that are external to the MTC. Each activity tasked in this plan has the responsibility to implement their portion. Responsibility for producing and monitoring compliance of this plan is the installation Air Traffic and Airspace Manager.

b. **Bird Hazard Working Group (BHWG).**

(1) **Function.** The BHWG will review data on wildlife hazards, identify and initiate actions to reduce hazards, review and implement changes in operational procedures, and prepare informational programs for aircrews and supporting agencies. Serves as point of contact for BASH issues that occur off the installation.

(2) **Authority.** The BHWG submits all recommendations to the BHWG chairman for approval. Implementation is through the normal chain of command.

(3) **Composition.** The chairperson will be the Air Traffic and Airspace Manager. As a minimum, the group will consist of the representatives from safety, Public Works Roads and Grounds, Natural Resources, training units and representatives from other organizations as required.

(4) **Meeting Schedule.** Quarterly or as required by the BHWG Chairperson. Other reduction/avoidance meetings may be held as appropriate, but will report any findings and recommendations at the next BHWG meeting.

c. **TASKS.** Appendix 2 outlines general and continuing tasks and responsibilities for each organization supporting this plan. Also addressed are specific tasks to counter hazards that are discovered and will remain in effect only until the hazard is removed or reduced sufficiently as determined by the seasonal nature of the hazard or by the BHWG.

**B.A.S.H. APPENDIX 1**  
**TASKED AND SUPPORTING ORGANIZATIONS**

1. Army National Guard Maneuver Training Center Fort Pickett
  - a Division of Plans, Training and Security
    - (1) Plans and Operations Branch
  - b Division of Public Works
    - (1) Roads and Grounds Branch
    - (2) Environmental Engineering Branch
    - (3) Natural Resources Office
    - (4) Buildings and Structures Branch
2. Virginia Army Aviation Safety Officer
3. Army Aviation Support Facility
4. 437th Airlift Wing, Charleston AFB, SC
  - a. 437<sup>th</sup> AW/SEF
  - b. 437<sup>th</sup> OG
5. 305<sup>th</sup> Air Mobility Wing, McGuire AFB, NJ
6. 57<sup>th</sup> Weapons Squadron, McGuire AFB, NJ
7. USAF Safety Center BASH Team

**B.A.S.H. APPENDIX 2  
TASKS AND RESPONSIBILITIES**

**1. Air Traffic and Airspace Manager:**

- a. Chair the BHWG meeting.
- b. Reviews and approve/disapprove recommendations of the BHWG.
- c. Issues specific guidance to the affected agencies concerning actions required implementing this plan.
- d. Seek funding and other resources necessary to accomplish all work required under this plan.
- e. Coordinate with Division of Public Works for procedures to reduce available bird roosts within and on hangars and other facilities within their area of responsibility
- f. Suggest to pilots, schedulers and appropriate Base Operations that operational changes be initiated to avoid areas and times of known hazardous bird concentrations; pending aircraft availability and mission permitting.
- g. Issue specific guidance to installation personnel for the reporting of all potential wildlife strikes or other hazards.
- h. Monitor conditions and notify the DPW Roads and Grounds Supervisor when the grass height in the airfield clear zones exceeds 14 inches and needs mowing.
- i. Issue bird/deer watch advisories as required by FAA Order 7110.65.
- j. Ensure transient aircraft comply with applicable sections of this plan to the maximum extent possible, including posting this document to the Fort Pickett web site.
- k. Provide dispersal personnel access to the runway under bird/deer watch condition MODERATE or SEVERE, as required.
- l. During Night Vision Goggle (NVG)/Blacked-Out Operations, brief aircrews on previous bird/deer sightings or increased activity.

**2. AW/SEF:**

- a. If possible, provide a representative to the installation BHWG.
- b. Monitor the installation compliance with AFI and report all wildlife aircraft strikes and hazards occurring at the MTC to the BHWG.
- c. Report on Blackstone AAF BASH program at Wing safety meetings.
- d. Monitor all MTC BASH activities or initiatives for compliance with this SOP and USAF directives.
- e. Disseminate BASH data to BHWG and Charleston and McGuire AFB flying units. Assure that specific guidance is issued to aircrews on procedures to be followed under bird/deer watch conditions at Blackstone.
- f. Provide the BHWG with the current BASH guidance from USAF headquarters.
- g. Provide any additional information on migratory, local and seasonal bird activities through contact with the U.S. Fish and Wildlife Service, Audubon Society and other agencies.
- h. Monitor wildlife activity and strike statistics and advise the chairman of the working group when a meeting is deemed necessary.
- i. Establish a Blackstone AAF wildlife awareness program for flight crews by best practical means and provide information on local wildlife hazards and reporting procedures.
- j. Evaluate current conditions and Bird Avoidance Model/Avian Hazard Advisory System (BAM/AHAS) data to recommend appropriate pattern and low-level restrictions for flying operations at or near Blackstone AAF.
- k. Establishes and maintains a Blackstone BASH program continuity folder with any pertinent BASH data and information to assure continuity of knowledge.
- l. Randomly monitor aircrew preflight briefings to ensure existing Blackstone AAF BASH procedures are briefed.
- m. Verify operational changes to avoid areas and times of known hazardous bird concentrations, mission permitting. Coordinate traffic pattern restrictions with the Air Traffic and Airspace Manger.

### **3. DPTS GIS/ITAM Office**

(a) Provide a representative to the BHWG.

(b) Provide maps of flight training areas/ranges and low-level routes that include descriptions of known wildlife refuges, bodies of water, landfills and other significant bird attractions in the local flying area.

(c) Post this document on the Fort Pickett web site.

(d) Report any significant wildlife activity noted during periodic observations to the Air Traffic and Airspace Manager, as appropriate. The frequency of required observations make this an excellent opportunity to link wildlife movements with any significant local wildlife survey or bird counting activity.

(e) In cooperation with the Natural Resources Office, develop, maintain, publish and maintain an installation habitat map.

#### **4. Division of Public Works**

a. Modify airfield habitat consistent with runway lateral and approach zone management criteria IAW with the guidelines of UFC 3-260-01 and consistent with the authority vested in the MTC as a property owner/airfield operator.

b. Correct environmental conditions that increase BASH potential with due regard for manpower, fiscal or environmentally mandated constraints.

c. Actively pursue additional funds to support this plan.

d. Eliminate Roosting Sites. Vegetation management of roost sites will control blackbird and starling roosts where possible. Trees may be pruned to reduce the number of perches available and entire trees or stands removed if necessary.

e. Bird-Proof Buildings and Hangars. Pigeons, sparrows, and starlings frequently roost in buildings and hangars and must be minimized. Denying access by screening windows, closing doors and blocking entry holes is most effective. When necessary, other methods should be considered.

f. Netting. Install under superstructure to exclude pest birds from roosting areas. Ensure no gaps or holes are present for birds to get through.

g. Door Coverings. Use netting or plastic strips suspended over the doors to exclude birds. Ensure no tears or holes are present which allow birds to enter.

h. Sharp Projections. Use in limited areas such as ledges, overhangs, or small places where birds cannot be allowed. Expense prohibits their use over the entire structure but may be the only practical solution to eliminating Turkey Vulture roosting sites on the installation water towers.

i. When planning new structures, consider design features that limit attractiveness to wildlife.

**5. DPW Roads and Grounds Branch:**

- a. Coordinate with the post Natural Resources Office on projects to eliminate wildlife habitats on the airfield. Examples include leveling high spots or filling low spots to reduce attractiveness to wildlife and prevent standing water.
- b. Remove dead vegetation such as brush piles and excessive grass clippings and the cover it affords as soon as possible.
- c. When participating in planning, constructing or repairing facilities consider design features that limit attractiveness to wildlife.
- e. Maintain the grass height within prescribed limits.

**6. Natural Resources Office:**

- a. Provide Natural Resources representative to the BHWG.
- b. Identify environmental conditions that increase BASH potential.
- c. Obtain bird migratory activities through US Fish and Wildlife Service.
- d. Receive and tentatively identify wildlife remains from runway and taxiway incidents, notify Safety, and hold remains until picked up by the installation safety manager and notify appropriate Command Posts, if their aircraft are involved in a BASH incident.
- e. Disperse wildlife from the airfield. Active controls, listed in AF Pamphlet 91-212, Chapter 2, include information on the following
  - (1) Pyrotechnics.
  - (2) Bioacoustics.
  - (3) Depredation.
  - (4) Other Bird Control Methods.
  - (5) Ineffective Methods of Control.
  - (6) Personnel and Equipment.

f. Provide dispersal personnel under bird/deer watch condition MODERATE or SEVERE, as required.

g. Report any significant wildlife activity noted during periodic observations to the Air Traffic and Airspace, as appropriate. The frequency of required observations makes this an excellent opportunity to link wildlife movements with any significant local wildlife survey or bird counting activity.

h. Provide pertinent information to the BHWG prior to migratory seasons.

i. Advise the BHWG of environmental modifications.

j. Develop procedures for identification, removal or control of wildlife attractants.

k. When new structures are being planned, assist in the design process, focusing or recommending features that limit attractiveness to wildlife.

l. Assist in writing categorical exclusions and environmental impact assessments and statements, as required.

m. Coordinate wildlife and land management practices, as appropriate, with the USAF and USN Safety Offices (BASH team) to ensure compatibility with safe flying operations.

n. Address BASH issues in the Integrated Natural Resources Management Plan (INRMP) and the Integrated Pest Management Plan.

o. Coordinate permit application procedures with Department of Game and Inland Fisheries and US Fish and Wildlife to ensure operations are handled in accordance with Endangered Species Act, National Environmental Policy Act and Migratory Bird Treaty Act.

p. Ensure appropriate permits are in hand prior to depredation attempts. NOTE: Ensure personnel are trained on the proper use of all wildlife dispersal equipment and dispersal techniques. This training is to be considered as annual recurring training and documented in all personnel's training records. Coordinate with Fort Pickett Police Department, and the Ammunition Supply Point Manager or Quality Assurance Specialist for training/storage requirements and disposition prior to obtaining any pyrotechnics.

q. Incorporate passive airfield hazard control methods listed in AF Pamphlet 91-212, Chapter 2, into existing Natural Resources or training regulations to reduce BASH potential, including:

(1) Grass Height.

- (2) Herbicides and Growth Retardant.
- (3) Planting Bare Areas.
- (4) Fertilizing.
- (5). Managing Reforested Areas.
- (6) Landscaping.
- (7) Removal or reducing edge effects.
- (8) Controlling Drainage.

r. Additional Airfield Hazard Control Methods:

(1) Dead Animals. Dead animals will be removed immediately from the field to avoid attracting vultures or other wildlife. Coordinate with the Nottoway County Animal Control Officer through the Fort Pickett Police Department.

(2) Pest Control. Invertebrates and rodents are important food sources for many birds. Public Works personnel should periodically survey and reduce these pests when required. The installation safety officer may assist by coordinating with external agencies, such as the United States Public Health Service, U.S Army Medical Command environmental hygiene specialists etc. Control of insects and rodents, through use of insecticides and any rodenticide will be within Environmental Protection Agency approved methods. Control should begin early in the spring and must be coordinated with the animal control section of the Integrated Natural Resources Management Plan.

(3) Erosion Control Vegetation. Vegetation should be used which is appropriate for this area and supports BASH reduction philosophy (i.e. do not control erosion using plants which produce seeds at heights below 14-18 inches). There is a definite tradeoff between a monoculture reducing the avian presence and the needs to support the environment. All due regard will be given to striking a balance between the two. Risk analysis is an integral part of the management process.

(4) Pellet Guns. Shoot birds for a short-term solution. Experience has shown all birds cannot be removed using this technique. Proper safety equipment is necessary. Ensure proper coordination is conducted prior to the use of pellet guns or any other weapon used for animal depredation.

(5). Trapping/Removal. Use large cage with food, water, and other birds to trap pest birds. Birds can either be released away from the hangar or killed. Permits from the US Fish and Wildlife Service and the state wildlife agencies are required to kill protected birds.

s. Coordinate with Department of Game and Inland Fisheries agents, Safety, Police Department and Range Operations to train in the use of government firearms necessary for dispersal purposes

t. Continue and expand, if possible, game plots (specifically dove plots) that attracts wildlife in the training areas. Evaluate siting criteria to pull wildlife away from the airfield, ideally site them on the installation perimeter as far from the airfield as practical.

u. Evaluate the pros and cons of controlled burning in the vicinity of the airfield as a means to control noxious weeds or scrub growth. Address the rapid and more palatable regrowth and the potential attraction of wildlife. Additionally address the potential for attracting birds that feed on dead or exposed insects. Consider burning only as a last resort or to diminish an increased fuel load.

#### **7. Wing Safety:**

a. Ensure aircrews participate in the MTC Fort Pickett BASH reduction program by promptly reporting all wildlife strikes and hazardous conditions encountered at Blackstone AAF.

b. Ensure unit personnel report all wildlife sightings on or near the airfield to Charleston and McGuire AFB Base Operations and BASH team. The report will include number, location, and direction of travel and if a runway intrusion occurred.

c. Select low-level routes based on bird hazard data, such as the BAM, and AHAS and local migration data.

d. Obtain and post current wildlife activity data and ensure it is readily available for aircrew briefing and planning activities.

e. Brief aircrews on seasonal wildlife hazards.

f. Will utilize the Air Force Safety Automated System (AFSAS) for reporting all bird strikes occurring at Fort Pickett located at <http://einstein.saia.af.mil>

#### **8. AIRCREWS:**

a. If an aircrew observes or encounters any wildlife activity that constitutes a hazard, the aircrew should contact ATC or Range Operations.

b. The following information should be included:

(1) Call Sign & Tail Number

- (2) Location
- (3) Altitude
- (4) Time of sighting
- (5) Type of bird/wildlife
- (6) Approximate number
- (7) Behavior (Direction of movement, stationary)

**B.A.S.H. APPENDIX 3**  
**LOCAL WILDLIFE INFORMATION AND HAZARDS**

1. GENERAL LAND USE:

a. The Maneuver Training Center is located in southern Virginia, approximately 45 miles southwest of Richmond. The area is largely forested (75%) and a significant part of the local economy is forestry related. The remaining area is devoted to agriculture, with major production of corn, wheat, soybeans and hay. Some acreage is devoted to pastureland for beef production also.

b. The installation is comprised of over 40,000 acres in portions of four counties. Approximately 7,000 acres are devoted to administrative facilities, troop housing areas and ranges.

c. Approximately 82% of the installation is forested, 25,000 of which are managed for commercial timber production. The remaining acreage is a mix of non-marketable pine and marketable oak forest. There is an active and on-going effort to reduce the forested areas, in favor of grass and scrub brush lands that more readily accommodate mechanized and armor training.

d. Large areas of the installation are managed for deer, quail and turkey. Public hunting is allowed in most of the maneuver areas.

e. Falling within the Chowan River basin in the eastern piedmont, the post is located at the mid-point between the Atlantic Ocean and the Blue Ridge Mountains. The terrain is classified as a rolling plain with elevations ranging from approximately 190 feet to 450 feet.

2. SURROUNDING AREA:

a. The Bird Hazard Working Group will evaluate the area surrounding the ARNG MTC for habitat detrimental to this BASH plan.

b. This evaluation will be used to identify specific hazards such as wildlife refuges, wetlands, lakes and landfills, to avoid over flying. Through negotiation with the local community, hazards should be modified when possible.

c. Local conditions that bear consideration by the BHWG are:

(1) Nottoway County landfill, 4.2 nautical miles northwest of the airfield.

(2) Dearing Pond, (N37° 3' 37.02", W77° 56' 23.13"), a 5-acre stocked, wooded recreational area, 1.0 nautical miles east of the airfield. This site is very attractive to wildlife and is maintained in a pristine state by the Natural Resources Office. This site is very attractive to native and migrant birds.

(3) Butterwood Pond (N37° 4' 2.85", W77° 56' 28.17"), a 5-acre stocked, wooded recreational area, 0.8 nautical miles east of the airfield. This site is very attractive to wildlife and is maintained in a pristine state by the Natural Resources Office.

(4) Private pond 2.7 nautical miles north-northeast of the airfield. This pond is home for approximately 50 resident Canada geese (*Branta Canadensis*). Though year around residents, these geese are capable of flight and may attract migratory waterfowl. These geese are one of the more severe threats in the area because of their flocking nature and size.

(5) Central Vehicle Wash Facility, (N37° 4' 26.66", W77° 57' 54.11") adjacent to the western perimeter of the airfield but 0.8 nautical miles from the primary runway. The settling ponds (approximately 3 acres) have nearly vertical walls that reduce the attractiveness for wading birds. Though it is not stocked with fish, the basins are home to amphibians that may attract diving or skimming birds and serve as a temporary rest area for migratory waterfowl. Effective ground maintenance reduces the habitat for insects and the subsequent attractiveness to birds. Although it is too early to detect a recurring pattern, the winter of 2006-2007 saw a dramatic rise in migratory Canada geese at this facility. After

(6) A bald eagle (*Haliaeetus leucocephalus*) nest site (N36° 59' 50.85", W77° 55' 46.10"), 4.7 nautical miles south east of the departure end of runway 22. A nesting pair has occupied this site since 1999.

(7) The Nottoway Reservoir located, at the southwestern corner of the installation (N37° 58' 28.74", W77° 58' 36.08"), is a attractive area for migratory waterfowl, wading and diving birds and in all probability is the food source for the eagles mentioned in (6) above.

(8) Engineer Floating Bridge site (N37° 6' 29.19", W77° 56' 13.58") located northeast of the airfield is an attractive site for resting migrant waterfowl and resident birds that frequent larger bodies of water. This site is approximately 16 feet deep, well stocked with fish and covers approximately 2 acres.

(9) The airfield is bounded on the north, south, east and northwest by property deeded to Nottoway County as part of the Base Realignment and Closure (BRAC) process. The property boundary is within 250 feet of the runway 4-22. The Local Redevelopment Authority is aggressively recruiting industries of all types to occupy this land and an additional 1,400 acres, south of the airfield. The MTC has no control over this area, including mowing, housekeeping and desirable habitat avoidance. As of the publication date there have been no additional industrial activities with any significant impact on airfield operations.

(a) A multi-million dollar saw mill has been constructed within several hundred feet of runway 4-22. This facility may well provide habitat for rodents and additional roosting sites in open-ended buildings, unprocessed logs, stacks of dimensional lumber, and elevated open metal frame structures (dust collectors, cranes, material handling systems). Careful attention must be drawn to the probability of there being an increasing starling and pigeon population in the vicinity of the airfield. As of this update, the sawmill has proven to be a good neighbor with good housekeeping techniques; however, there has been a progressive accumulation of unusable logs and debris over the past year. The dump site continues to be enlarged supplying habitat for wildlife that provides food for raptors and carnivorous mammals.

(10) Open top dumpsters are a target for crows and other scavengers. These dumpsters are not under MTC control; rather they belong to the Town of Blackstone and are dumped every 7-10 days. It is reasonable to expect that as long as the public can surreptitiously dump their household waste in this dumpster, this will continue to provide rodent habitat and a food station for birds. The MTC dumpsters have a top and waste is deposited through side doors. They are dumped on a recurring basis and on-demand. Units depositing trash in them do not always close the side doors. This is true across the installation as well.

(11) The MTC hanger is metal bow truss and block construction with no netting to prevent birds from roosting/nesting in the eaves or trusses. Several windows are missing and the doors still allow some entry points even when closed. The hangers owned by the Town of Blackstone are metal clad wooden A-frame rafter and joist construction.

(12) Immediately north of the airfield is a 1,000-acre (+/-) agricultural research facility owned by Virginia Polytechnic Institute and State University. The majority of research conducted revolves around forage crops, tobacco and tomatoes, but there are a number of attracts for wildlife. Included, as potential attractants, are fruit trees, fruit bearing bushes such as blackberries, and a variety of ground cover and water. No specific hazard has been associated with this facility.

(13) Attempts to scare the birds away may be futile. The airfield has no assigned manning. Persistence in a BASH program may not be as viable at Blackstone when compared to other facilities.

### 3. HABITAT MAP:

a. A habitat survey will be conducted to identify major habitat types available to wildlife. A map will be made based on this survey.

b. When a specific hazard is identified and the location of the activity isolated, the habitat map should be consulted to determine if a specific attractant exists which might be altered within the scope of this plan and legal limitation (jurisdiction) of the MTC.

c. The habitat map will also be used as a guide for a long-range engineer program to reduce actual and potential hazardous environmental factors on BAAF.

#### 4. BIRDS:

a. Since 1986, bird strikes have caused nearly \$500 million in damage to USAF aircraft as well as 33 fatalities. On average, USAF aircraft incur 2,500 bird strikes per year, most of which occur during fall and spring migration. About 69% of all USAF bird strikes are below 1,000 feet above ground level and 26% of known USAF strikes occur along low-level training routes and ranges. These low-level strikes represent 65% of the damage caused by bird strikes to USAF aircraft. A synopsis of bird strikes and dollar damage to Air Force aircraft by common species in the MTC area is located at Appendix 6.

b. Raptors and blackbirds/starlings represent a year-round hazard at Blackstone AAF. Raptors, specifically black and turkey vultures (*Cathartes aura* and *Coragyps atratus* respectively) are the most significant hazard, based on body weight, soaring habits and population density during late fall and winter months.

(1) A recent unscientific survey revealed 62 airborne vultures within two nautical miles of the airfield. The birds congregate in the local area and have established roosts on the three installation water towers. The tower are (N37° 2' 25.52", W77° 56' 28.46"), (N37° 4' 6.40", W77° 58' 025.71"), and (N37° 3' 16.47", W77° 57' 6.86"). The period from late October to early March is the peak density period for this behavior.

(2) Normally the majority of the birds will stay on the roost site and warm themselves until the sun is well above the horizon. About 1-1 ½ hours past sunrise they will take to the air and soar at various altitudes in 1 to 3 loose clusters. The author assumes they are beginning to pick up the first thermals as opposed to responding to flocking habit. They will disperse about 2 ½ - 3 hours after sunrise.

(3) Two to 2 ½ hours prior to sunset the vultures will again begin to assemble in the general area of the water towers and reverse the process described above. Observers have noted the majority of the birds have settled on the roost ½ to 1 hour prior to sunset.

c. There are quail (*Colinus virginianus*), wild turkeys (*Meleagris gallopavo*), blackbirds (all species), grackles (*Quiscalus* sp.), starlings (*Sturnus vulgaris*), ducks, and Canada geese on or near the installation. Large portions of the installation are suitable quail and turkey habitat. Favoring different environments, they have not posed a BASH problem at Blackstone. The turkeys will generally remain near the woodline and the quail will remain in more open areas. With the industrialization around the airfield, quail, which have suffered a dramatic population decrease in recent years, may be eliminated as a substantial BASH concern. The inverse is true for the wild turkey population, which has soared in the past year. As many as 30 birds have been sighted in close proximity to the primary runway. In fact there has been one significant turkey

and plane interaction that resulted in mission cancellations for two weeks and over \$3500 in repairs to the aircraft.

d. The threat from small birds that flock densely must also be considered a serious threat. European starlings house sparrows (*Passer domesticus*), and rock doves/domestic pigeons (*Columbia livia*), all of which live on the airdrome are not federally protected in the United States and require no federal depredation permit. The BASH potential is most significant starting in late-October and continuing as late as early-March, throughout daylight hours. For the past five years, 2-3 Northern Harriers (*Circus cyaneus*) have taken up winter residency at the airfield. The presence of the starlings was dramatically reduced after the appearance of these raptors, even though starlings are not a primary food source for the Harriers.

e. During the migration season, transient aircrews will receive a briefing that indicates a heightened state of awareness for aircrews. Birds will generally not fly in poor weather, and will often look for the same favorable conditions desired by pilots.

5. **OTHER WILDLIFE:** Other species, which are known to inhabit the installation and present a potential hazard to flight operations, include deer, dogs, and various smaller forms of wildlife (raccoons, rabbits, etc). The environment surrounding the airfield is ideal deer habitat. On the MTC there are approximately 30,000 acres of deer habitat. There have historically been two herds of deer that are airfield residents. The deer population has exploded as Force Protection measures reduced the number of hunters on the installation. As many as 60 deer have been counted on the airfield at one time. Predation has been the only option after one deer strike by a USMC KC-130 and several near misses. With the cooperation of the Virginia Department of Game and Inland Fisheries, approximately 80% of the deer population has been removed. The combination of available food sources and natural cover result in a habitat condition rated “good to excellent”. Industrialization has not reduced the deer population in the vicinity of the airfield.

## **6. BIRD AVOIDANCE MODEL (BAM):**

a. BAM and interpreting the output. The USAF BAM is a GIS-based system that allows for a great visual representation of the bird hazard through the map images created. It is separated into 26 2-week intervals for year-round coverage and is further subdivided into 4 daily periods (dawn, day, dusk, and night).

b. Species Represented. Sixty species were included in this version of the BAM. Referencing the historical database and discerning the species with the highest overall risk to low-level flight chose the species. Also, size and behavior (especially flocking and migratory aspects) were key characteristics used to decide the 60 species included in the BAM.

c. Data Use. The BAM relies primarily on the Christmas Bird Counts (CBC) and Breeding Bird Surveys (BBS); these two datasets provide great information for the 60 species represented; the winter and summer distributions are shown using the CBC and BBS; however, fall and

spring distributions are not taken into account through these two sources, therefore, interpolation (between the CBC and BBS data) was required in order to represent the two transition seasons.

d. Hazard Assessment. The bird species were compiled into 16 different groups and behavioral patterns were aggregated (assessed activity during the four daily periods). Summing the bird mass for each 1 square kilometer grid created the hazard surface.

e. Limitations of the new BAM.

(1) Historical in that it can't adjust for real-time fluctuations

(2) Developed for low-level and not the airfield environment

(3) Heavily reliant on CBC and BBS data

(4) Routes (March 1997 NIMA data) are fixed in the first version

(5) Application Model is not bird-specific; No capability to assess single species contributions;

(6) Hazard assessment is not the total bird mass per square kilometer since 60 species are included in the model

(7) Birds on the ground or in the air - BAM was not designed to identify between the two due to data limitations.

(8) Nocturnal species absent from BAM; were not considered a threat to low-level flight.

f. BAM in the future. The BAM and its implementation/use will certainly be changing in the near future. Please consult the web sites below for updates. The first version of the new GIS-based BAM provides the most complete and comprehensive historical bird hazard assessment so please use it to mission plan. The current version also provides a strong platform in which to build off of as new distribution and bird abundance data becomes available. Subsequent versions will be greater defined with stronger trend information. Additionally, NEXRAD Weather Radar data will be added to the BAM to aid in the fall and spring migration assessments. More importantly, NEXRAD will be used to provide 24-hour forecasts to aircrews.

g. The Air Force BASH team may be contacted at DSN 246-5674/5679/5673. The website for USAF BASH is: [http://afsafety.af.mil/sef/bash/sefw\\_home.shtml](http://afsafety.af.mil/sef/bash/sefw_home.shtml) and BAM website images may be viewed at <http://www.usahas.com/bam/>.

h. [Http://www.safetycenter.navy.mil/aviation/Operations/BASH/bash.htm](http://www.safetycenter.navy.mil/aviation/Operations/BASH/bash.htm) is the website for the Navy BASH program. Additional information may be obtained by contacting Aviation Facilities Branch Head: Fuels, BASH, CFFR, Code 114, DSN 564-7281 or e-mail: [rthompson@safetycenter.navy.mil](mailto:rthompson@safetycenter.navy.mil)

i. BAM models may be found at <http://bam.geoinsight.com/Model>.

**B.A.S.H. APPENDIX 4**  
**BIRD & DEER WATCH CONDITIONS**

**1. GENERAL.** This operation establishes procedures to be used for the immediate exchange of information between ground agencies and aircrews concerning the existence and location of wildlife posing a hazard to safe flying operations. Rapid reporting of bird or deer activity is particularly essential. All personnel working on or near the airfield must be perceptive to wildlife activity and must immediately notify the Airspace and Air Traffic Manager if there is potential for a hazardous situation.

a. Declare bird/deer watch conditions based on the following:

(1). Information relayed by aircraft.

(2) Observations made by tower, firefighters, police officers and transient personnel.

(3) Weather, time of day, and seasonal conditions, such as hunting, which make an influx of deer onto the airfield likely.

**2. BIRD WATCH CONDITIONS (BWC).** The following terminology will be used for rapid communications to disseminate bird activity information and implement unit operational procedures. Bird locations and direction of flight should be given with the BWC.

a. **BWC LOW.** Bird activity on and around the airfield representing low potential for strikes.

b. **BWC MODERATE.** Concentrations of birds (for example, flocks of 5 to 15 large waterfowl, raptors, gulls, etc or 15 to 30 small birds terns, swallows, etc) observable in locations, such as in the traffic pattern loitering at or below 2,000 feet MSL, that represent an increased potential for strikes and probable hazard to safe flying operations.

c. **BWC SEVERE.** Heavy concentrations of birds (for example, flocks of more than 15 large birds or 30 small birds) on or immediately above the active runway, taxiways, in-field areas and departure or arrival routes, loitering at 2,000 feet MSL or below, that represent a high potential for strikes.

d. **Consider the following during periods of increased bird activity:**

(1) When increased bird activity is observed, airfield personnel will evaluate the amount and location of bird activity and consider the *potential* for bird strikes before making a recommendation to the appropriate Wing Command Posts to revisit the number of aircraft and

times that training sorties are sent to Blackstone AAF. **Numbers alone should not determine BWC.**

(2). Change pattern direction (i.e. left vs. right) or pattern altitudes to avoid bird concentrations.

(3) Restrict pattern operations to full-stop landings or restricted low approaches.

(4) Avoid takeoffs and landings an hour prior to and after sunrise/sunset.

### **3. BWC Restrictions.**

a. **BWC Low** - No operating restrictions.

b. **BWC Moderate** - Initial takeoffs and final landings allowed only when departure and arrival routes will avoid bird activity. Local IFR/VFR traffic pattern activity may be modified or prohibited.

c. **BWC Severe** - Recommendation that all takeoffs and landings be prohibited. Final authority rests with the aircraft or mission commander contingent on mission requirements.

**4. DEER WATCH CONDITIONS (DWC).** The following terminology and procedures will be used for rapid communications to disseminate deer activity information and implement unit operational procedures. Deer locations and direction of movement should be given with the DWC.

(1) **DWC LOW.** No deer sighted within the airfield perimeter. **Minimal threat to flying operations.**

(2) **DWC MODERATE.** 1-5 deer sighted within the boundaries, but no closer than 200 feet to a landing surface. **Increased threat to flying operations.** This condition requires increased vigilance and extreme caution by aircrews.

(3). **DWC SEVERE.** More than 5 deer sighted within the airfield perimeter and/or any deer within 200 feet of a landing surface. **Likely threat to flying operations.**

(4) In the event 3 deer are sighted within the fence perimeter for three or more consecutive nights (DWC MODERATE or SEVERE) with no applicable cause identified, the Natural Resources Office will determine if the Depredation Plan will be activated.

**5. DWC Restrictions.** Ensure compliance with the following:

a. **DWC Low** – No operating restrictions.

b. **DWC Moderate** – Increased vigilance by all agencies. Consider full-stop landings only. Use extreme caution if performing touch and go landings or assaults.

c. **DWC Severe** – No touch and go landings or assault landings authorized. If possible, full-stop landings should be delayed until the DWC has decreased to Moderate or Low. Full stop landings on the main runway using extreme caution will be allowed in the case of greater emergency.

**6. AUTHORITY.** During flight operations the authority to change bird/deer watch conditions at Blackstone Army Airfield is vested with the Air Traffic and Airspace Manager. Once a bird/deer watch condition has been changed to MODERATE or SEVERE, it is the responsibility of the installation personnel to ensure immediate dispersal actions are implemented to downgrade the condition. SEVERE should last no more than 15-20 minutes. Once the hazard has been minimized, dispersal personnel will contact the Airfield Manager who will downgrade the bird or deer condition.

**7. COMMUNICATIONS.** Bird/deer watch conditions will be disseminated by the following means:

(1) Bird/deer watch conditions other than LOW at BAAF will be included in all pilot briefings or upon initial contact with installation personnel by radio.

(2) At training areas outside the airfield, all Drop Zone Safety Officers, (DZSO), Combat Control Team (CCT) personnel, Tactical Air Control Party (TACP) personnel, Range Safety Officers, Range Officers-in-Charge (OIC) and ground or air Forward Air Controllers may upgrade the bird/deer watch condition as necessary for a specific local hazard. If condition is upgraded, responsible individual making the upgrade must immediately notify any inbound aircrews.

(3) If the bird density increases significantly during spring or winter months, the Air Traffic and Airspace Manager will notify the appropriate Wing Current Operations for possible scheduling changes to avoid peak periods (such as avoidance of transition work +/- 1 hours around sunrise/sunset). These periods would correspond to the USAF definition of Phase II activity. This notification may be by e-mail or telephone.

**8. NVG/BLACKED-OUT OPERATIONS.** Aircrews will be briefed on any previous wildlife sightings or increased activity that would affect their operations during NVG/Blacked-Out Operations. If a bird/deer activity report is received from an airborne aircraft, drop/landing or range officer or any other individual or agency, the Air Traffic and Airspace Manager will be immediately notified. Aviation units training on the installation that have an organic Operations section will be notified also.

## **9. DEPREDAATION.**

a. If bird or deer activity presents an immediate hazard to aircraft operations and normal dispersal methods are ineffective, a bird/deer depredation operation may be necessary. Assistance from the United States Fish and Wildlife Service, the Virginia Department of Game and Inland Fisheries or other agencies is desirable for a depredation program.

b. The Air Traffic and Airspace Manager and installation Natural Resources Office are the points of contact for wildlife depredation. They will consult with the United States Fish and Wildlife Service prior to initiating bird depredation to prevent unintentional killing of environmentally protected birds. The approval authority for any depredation attempt is the Natural Resources Office.

c. The airfield normally will be NOTAMed closed while a planned depredation takes place unless there is constant communication/contact with the depredation team.

**B.A.S.H. APPENDIX 5  
REPORTS AND FORMS**

**1. GENERAL:** Procedures and forms report wildlife strikes would be IAW service regulations. For damaging strikes, the installation staff will assist in notifying the flying unit's command post.

**2. NON-DAMAGING STRIKE REPORT:**

a. A non-damaging strike is any wildlife strike that does not damage the aircraft or cause damage to the aircraft will be IAW service regulations.

**3. DAMAGING STRIKE REPORT:** Wildlife strikes, which cause reportable aircraft damage, are reported to appropriate agencies IAW with service regulations.

**4. BIRD/WILDLIFE REMAINS IDENTIFICATION:**

a. Wildlife remains taken from aircraft or airfields following all strikes on U.S. Air Force aircraft will be forwarded to Smithsonian Institution. All remains such as downy feathers can be used for positive identification, and are not to be discarded.

b. The State Aviation Safety Officer will forward the remains to:

Smithsonian Institution, Natural History Bldg.  
Division of Birds, Attn: Dr. Carla Dove  
NHBE 610 MRC 116  
10th and Constitution Ave NW  
Washington DC 20560

## B.A.S.H. APPENDIX 6

### USAF WILDLIFE STRIKES BY COUNT

The species listed below have a significant presence on the MTC. The table is only to illustrate the degree of damage by lost dollar value that birds cause for aviation. The figures shown reduce the maintenance dollars, aircraft availability and impact on operational tempo.

<b>COMMON NAME</b>	<b>STRIKE COUNT</b>	<b>COST</b>
American Mourning Dove	526	\$935,271.74
Hawks, Eagles, Turkey Vulture	459	\$36,344,115.50
Eastern Meadowlark	348	\$417,687.74
Red-tailed Hawk	328	\$12,560,477.70
Killdeer	245	\$152,738.00
Starling/Blackbird	325	\$12,767,647.55
Rock Dove/Pigeon	229	\$1,573,899.97
American Crow	67	\$401,353.44

**B.A.S.H. APPENDIX 7**  
**SELF-INSPECTION CHECKLIST**

1. Is the BASH plan current and readily accessible?
2. If the installation has an aviation mission, has a BASH reduction program and written plan been established?
3. Is the BASH plan reviewed annually?
4. Are changes and annual reviews posted to the plan?
5. Does the program establish a Bird Hazard Working Group (BHWG)?
6. Are installation agencies such as Safety, Public Works, Natural Resources and Range Operations assigned responsibilities for the BASH program?
7. Are written orders on file listing the personnel establishing the BHWG, the chairperson and the authority/need for a BASH working group?
8. Does the BHWG meet at least semiannually as a separate meeting or along with another meeting containing the same members?
9. Are BASH topics included in flight safety briefings?
10. Are posters, pictures, maps, etc., related to BASH posted in the aircrew briefing areas, safety bulletin boards and flight planning areas or available to transient aircrews or training units?
11. Are local bird problems documented?
12. Are both damaging and non-damaging bird strikes recorded?
13. Are all non-damaging bird strikes reported?
14. Are bird remains (feathers, beaks, feet) collected as a result of a bird strike?
15. Are bird remains sent to the Smithsonian Institution for identification?
16. Is the bird strike information tracked to facilitate the identification of trends (for example, type of bird, route, time of day, type of aircraft)?
17. As part of the bird awareness program, do you have a bird identification book?

18. Are daily surveys taken of the airfield and surrounding area to observe potential and actual bird hazards?
19. Are records of daily observations kept in order to establish trends?
20. During the surveys, are areas like standing water, food sources, or areas for protection noted?
21. Is the vegetation on the airfield particularly attractive to birds?
22. Does the mowing guideline specify that the grass be maintained at a height of 7-14 inches?
23. Is controlled burning practiced on the airfield and in the training areas?
24. Are trees or shrubs located within Primary Surface and Clear Zone of the runways removed?
25. If no to Item 24, are these trees or shrubs attractive to birds?
26. Are birds attracted to the taxiways or active runways?
27. Has it been determined what type birds are attracted to the taxiways and runways?
28. Are there areas with water (ponds, lakes, swamps, etc.) attractive to birds?
29. Are the birds, feeding in these wet areas?
30. Has it been determined what types of birds are attracted to these wet areas?
31. Do wet areas contain vegetation along their perimeters?
32. Do the wet areas contain fish or amphibians (frogs or salamanders)?
33. Are there other areas near the runways that attract birds?
34. Has it been determined what is attracting the birds?
35. Has it been determined what type of bird is being attracted to these other areas?
37. Does farming in the surrounding area attract birds?
38. Does the base outlease cropland on adjacent areas?
39. Are there garbage dumps, landfills, or sewage lagoons in the area near the installation?

40. Do the landfills or sewage lagoons attract birds?
41. Are there other areas attractive to birds near the base (for example, lakes, ponds, swamps and wildlife areas)?
42. Have aircraft hangars and buildings been inspected for pest birds?
43. Are hangar doors left open all the time?
44. Is the cost of cleaning up the bird droppings and any damage incurred less than any type of solution to the problem?
45. Is there an active hunting presence on post?
46. Are game birds and deer controlled so they do not interfere with flying operations?
47. Does the control tower warn operations and pilots of birds in the airdrome?
48. Are there designated bird control teams that actually manages and controls birds and maintain bird dispersal equipment and permits?
49. Is the control team actively patrolling the airdrome?
50. Does the BHWG suggest ways of altering the situation or changing the habitat to discourage birds from the areas before using elimination or reduction techniques?