

DRAFT FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment for Programmatic Permit for Incidental Take of Bald Eagles at Aberdeen Proving Ground, Maryland

Introduction

Pursuant to the Council on Environmental Quality (CEQ) regulations (Title 40 of the Code of Federal Regulations [CFR] Parts 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969 (Title 42 of the United States Code [U.S.C.] 4371 et seq), and Title 32 CFR Part 651 (*Environmental Analysis of Army Actions*), Aberdeen Proving Ground (APG) conducted an Environmental Assessment (EA) of the potential environmental effects associated with an application (and issuance) of a programmatic permit for incidental take of bald eagles. Pursuant to the implementing regulations of the NEPA of 1969 (Title 40 CFR Part 1508.09), as amended, an EA is a document that provides decision-makers with information regarding potential environmental consequences of alternatives including the No Action Alternative.

Purpose and Need

The purpose of the Proposed Action is for APG to obtain a programmatic permit as authorized under the Bald and Golden Eagle Protection Act (BGEPA). Since 2006, APG has operated in accordance with an Endangered Species Act (ESA) Section 7 Biological Opinion for bald eagles that was issued by the United States Fish and Wildlife Service (USFWS). The Biological Opinion includes specific requirements to minimize the potential of military operations to impact bald eagles. The Biological Opinion also includes an incidental take statement that grants APG a yearly allowance for eagle disturbances (takes). After the bald eagle was de-listed from the ESA, APG's ESA incidental take statement was grandfathered under the BGEPA with a USFWS-issued permit (Title 50 CFR Part 22.28). This permit expired in 2013 as APG was coordinating with the USFWS for a new permit.

As authorized by BGEPA, APG is applying for a USFWS-issued permit for incidental take of bald eagles. APG may apply for either a standard (one-time take) or programmatic permit. The USFWS defines programmatic take as take that is recurring but not caused solely by indirect effects, and that occurs over the long-term and/or in a location or locations that cannot be specifically identified.

Since issuance of the 2006 Biological Opinion, the population of bald eagles at APG has nearly doubled. Due to the on-going military mission and the increasing population of bald eagles at APG, it is unlikely that the incidence of eagle take at APG can be entirely eliminated despite the implementation of minimization measures. Therefore, a programmatic permit is appropriate for APG. The programmatic permit will incorporate a more flexible and adaptive eagle management strategy than APG's previous permit, and will more fully balance an evolving military mission with an expanding eagle population.

Proposed Action

The proposed action is for APG to apply for a programmatic permit for incidental eagle take under Title 50 CFR Parts 22.26 and 22.27. Part 22.26 covers eagle take that is associated with, but not the purpose of, an activity, while Part 22.27 addresses removal of eagle nests. The programmatic permit will incorporate a flexible and adaptive eagle management strategy in order to minimize impacts to the eagles, and more fully balance an expanding eagle population with an evolving military mission. In support of the permit application, APG would submit its Eagle Conservation Plan with the programmatic permit application. The conservation measures, as developed in the Eagle Conservation Plan, would be incorporated into the programmatic permit to reduce eagle disturbances and on-going mortalities to a level where remaining take is unavoidable. The programmatic permit would include allowances for potential nest removals under very specific circumstances, an allowance not addressed by APG's previous permit. The programmatic permit would replace the expired Title 50 CFR Part 22.28 permit, and supersede the incidental take allowance, terms, and conditions of the 2006 Biological Opinion. The programmatic permit would be valid for five years, with an option to renew every five years.

Alternatives Considered

Three alternatives were considered in the EA: 1) Alternative #1 – Unchanged Take Allowance with Existing Conservation Measures, 2) Alternative #2 – Increased Take Allowance with Tiered Conservation Measures, and 3) No Action Alternative.

Under Alternative #1, APG would request the same incidental take allowance for eagle mortality and nest disturbance as granted under the 2006 Biological Opinion. Under Alternative #1, the permit would require continued compliance with conservation measures (originally required under the Biological Opinion) that are already implemented at APG to avoid or reduce eagle take. These measures are burial of overhead power lines, maintenance of avian protective equipment on electrical infrastructure, and biological studies (population and productivity surveys). This alternative would not support a long-term programmatic management of bald eagles at APG. The proposed incidental take allowances and minimization measures would be similar to those authorized or required by the 2006 Biological Opinion, and would not account for an increasing eagle population. APG requires a higher incidental take allowance than Alternative #1 proposes. Therefore, Alternative #1 was removed from further analysis.

Under Alternative #2 (Preferred Alternative), APG would request a higher incidental take allowance than previously granted under the 2006 Biological Opinion. The proposed increased take allowance for mortalities is justified based on the expanding eagle population at APG. APG would implement conservation measures in a tiered approach. The conservation measures would avoid or reduce eagle take to the maximum extent possible where remaining take is unavoidable, include adaptive management strategies, and promote conservation benefits. The Preferred Alternative complies with the BGEPA and is consistent with the eagle take permit criteria for preservation of the bald eagle.

The CEQ Regulation 1502.14 requires that a No Action Alternative be evaluated. The inclusion of the No Action Alternative serves as a benchmark for evaluation of the potential impacts of the proposed action. Under the No Action Alternative, APG would not apply for a programmatic permit for incidental eagle take. APG would continue to operate under its current bald eagle management strategy, and in accordance with the guidance set forth in the 2006 Biological Opinion. However, APG would not have a BGEPA permit to authorize incidental take, and would be liable for an enforcement action at the discretion of the USFWS Office of Law Enforcement for any eagle take or disturbance incurred on the installation. The No Action Alternative is not feasible and would not address the purpose and need for the proposed action.

Factors Considered in Determining That No Environmental Impact Statement Is Required

Implementation of the Proposed Action would not have significant direct, indirect, or cumulative impacts to land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, socioeconomics, transportation, utilities, and hazardous and toxic substances, and solid waste. Impacts to biological resources (forests) would be long-term and beneficial, because the Preferred Alternative would promote forest stand improvements. Impacts to cultural resources (pertaining to the cultural significance of the bald eagle to Native American tribes) would inherently be considered negative, because APG would continue to incur incidental takes of bald eagles despite implementation of minimization measures. However, APG would off-set this impact by beneficially providing recovered eagle parts and carcasses to the National Eagle Repository for distribution to the tribes.

The incidental take of individual eagles or nests under a programmatic permit would be off-set by the conservation measures required by the permit. The conservation measures would reduce the potential of takes to a level where remaining take is unavoidable, and would ensure the maximum protection practicable to the bald eagles while sustaining the military mission.

The potential for cumulative effects was evaluated by reviewing other past, present, and reasonably foreseeable future projects that could affect the same environmental resources. The forest stand improvements proposed under the programmatic permit would combine with other beneficial forest mitigation projects to off-set any forest loss due to future development projects on the installation. Cumulative impacts to cultural resources would be no different than those individual impacts under the proposed action.

The EA examined the cumulative impacts to bald eagles at a local and regional level as required by the BGEPA permitting regulation. Given that APG would implement conservation measures as a condition of the programmatic permit, and that the bald eagle population has shown continual growth despite natural and man-induced mortalities and other stressors, there would be no significant adverse cumulative effects to bald eagle populations contributed by APG under the Proposed Action.

Public Review and Comment

The Department of the Army will receive written comments on the draft EA and FONSI for a 30-day period from the date of publication of a Notice of Availability in *The Aegis*, the *Baltimore Sun*, the *Cecil Whig*, and the *Kent County News*. An electronic link to the draft EA and FONSI will be provided in the APG News. Interested parties may also view the draft EA and FONSI at the following locations:

- Baltimore County Public Library, Perry Hall Branch, 9685 Honeygo Boulevard, Perry Hall, Maryland 21128
- Harford County Public Library, Aberdeen Branch, 21 Franklin Street, Aberdeen, Maryland 21001
- Harford County Public Library, Edgewood Branch, 629 Edgewood Road, Edgewood, Maryland, 21040
- Cecil County Public Library, Perryville Branch, 500 Coudon Boulevard, Perryville, Maryland 21903
- Kent County Public Library, Chestertown Branch, 408 High Street, Chestertown, Maryland 21620

Comments may be addressed to:

U.S. Army Garrison Aberdeen Proving Ground
Directorate of Public Works, Environmental Division
ATTN: IMAP-PWE (Mr. Arnold O’Sullivan)
4304 Susquehanna Avenue
Aberdeen Proving Ground, Maryland 21005-5001

Conclusions

On the basis of the EA, it has been determined that implementing the proposed action would have no significant adverse effects on the quality of human life or the natural environment. Preparation of an environmental impact statement is not required before implementing the proposed action.

James E. Davis
Colonel, U.S. Army
Commander, U.S. Army Garrison
Aberdeen Proving Ground

Date

**DRAFT
ENVIRONMENTAL ASSESSMENT FOR
PROGRAMMATIC PERMIT FOR INCIDENTAL TAKE OF BALD EAGLES
AT ABERDEEN PROVING GROUND, MARYLAND**

**ENVIRONMENTAL DIVISION
DIRECTORATE OF PUBLIC WORKS
U.S. ARMY GARRISON ABERDEEN PROVING GROUND**

AUGUST 2015

**Distribution Restriction Statement #12069-A-7
Approved for Public Release
Distribution is Unlimited**

**ENVIRONMENTAL ASSESSMENT FOR
PROGRAMMATIC PERMIT FOR INCIDENTAL TAKE OF BALD EAGLES
AT ABERDEEN PROVING GROUND, MARYLAND**

Prepared By:

Lynda Hartzell
Environmental Division
Directorate of Public Works
U.S. Army Garrison
Aberdeen Proving Ground

Approved By:

Vance G. Hobbs
Chief, Environmental Division
Directorate of Public Works
U.S. Army Garrison
Aberdeen Proving Ground

Approved By:

Joseph Kaffl
Installation Operations Security Officer
Directorate of Plans, Training, Mobilization
and Security
U.S. Army Garrison
Aberdeen Proving Ground

Approved By:

Thomas P. Kuchar
Director, Public Works
U.S. Army Garrison
Aberdeen Proving Ground

Legally Sufficient:

Richard C. Wakeling
Legal Office
Communications and Electronics Command
Aberdeen Proving Ground

Approved By:

James E. Davis
Colonel, U.S. Army
Commander, U.S. Army Garrison
Aberdeen Proving Ground

Date Signed

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LIST OF ACRONYMS AND ABBREVIATIONS

%	percent
ACP	Advanced Conservation Practice
ACUB	Army Compatible Use Buffer
APG	Aberdeen Proving Ground
BCR	Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DEA	Draft Environmental Assessment
EA	Environmental Assessment
ECP	Eagle Conservation Plan
ESA	Endangered Species Act
FEA	Final Environmental Assessment
FONSI	Finding of No Significant Impact
INRMP	Integrated Natural Resources Management Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
U.S.	United States
USFWS	United States Fish and Wildlife Service

1. PURPOSE, NEED, AND SCOPE

1.1 BACKGROUND

Aberdeen Proving Ground (APG) is recognized as one of the world's most important research, development, testing and evaluation facilities for military weapons, equipment and personnel. Since its inception in 1917, countless Army systems of ordnance, weaponry, vehicles, equipment, and communications have been tested for performance and durability at APG. Currently, the installation is home to 11 major commands and supports more than 80 tenants, 20 satellite and 17 private activities. APG's facilities include state-of-the-art laboratories, firing ranges, engineering test courses for wheeled and tracked vehicles, airfields, and a wide variety of research facilities. The United States (U.S.) Army mission at APG is vital to national security. Sustainment of APG's military mission ensures that today's soldiers have the most advanced equipment, systems, and technology possible to succeed at home and abroad.

APG encompasses approximately 72,500 acres (113 square miles) of land and water in the northern Chesapeake Bay. The installation is geographically divided into two areas, separated by the Bush River (Figure 1). The Edgewood Area is to the west of the river, and the Aberdeen Area lies to the east. The Edgewood Area consists of the Edgewood peninsula, Pooles Island, Carroll Island, and Graces Quarters. The Aberdeen Area consists of the Aberdeen peninsula and Spesutie Island. Additionally, there are several smaller APG properties that are not connected to the main installation: Churchville Test Area, Atkisson Dam and Reservoir, Van Bibber Water Treatment Plant (WTP), Hanson Reservoir, and Eastern Shore Towers. The majority of the installation is located within Harford County, while Graces Quarters and Carroll Island are located in Baltimore County, and the Eastern Shore Towers are located in Kent County. The nearest major city is Baltimore which is located about 20 miles southwest of the Edgewood Area.

APG's largely undeveloped forested shorelines and abundant food resources in the nearby rivers and Chesapeake Bay translate to some of the highest conservation value habitat for many wildlife species, including the bald eagle. APG supports one of the largest concentrations of resident and migratory bald eagles in the eastern U.S., with hundreds of eagles utilizing APG land and waters throughout the year. The tremendous recovery of the eagle population at APG has occurred simultaneously with an on-going military mission.

Recognizing the potential for mission activities to impact the bald eagle population, APG has consulted informally and formally with the U.S. Fish and Wildlife Service (USFWS) since the early 1980s. In 2006, the USFWS issued a Biological Opinion, under Section 7 of the Endangered Species Act (ESA), to address bald eagle mortality at APG. The Biological Opinion grants APG a take allowance for eagle mortalities and nest disturbances that result incidentally from mission activities. Specifically, APG is allowed an average of six eagle mortalities per year not to exceed 18 in a three-year period, and

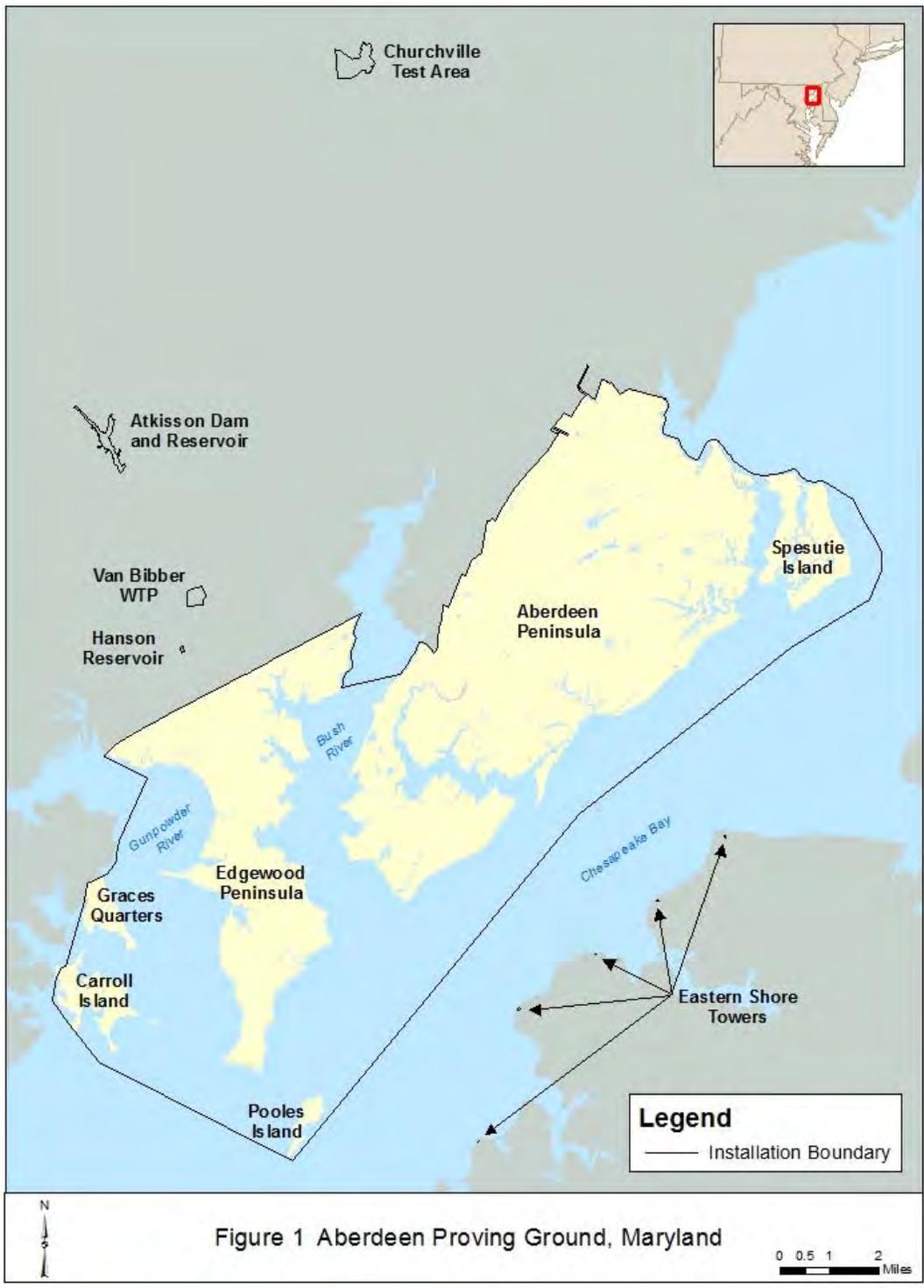


Figure 1 Aberdeen Proving Ground, Maryland

three nest disturbances per year. Under the Biological Opinion, APG is required to comply with specific terms and conditions to reduce eagle mortalities and disturbances. These terms and conditions include installing protective equipment on electrical infrastructure, burying overhead power lines in select areas, evaluating impacts of lasers on eagle behavior, installing remote-operated nest cameras, and conducting long-term biological studies (utilizing nest surveys and satellite telemetry).

After the bald eagle was delisted from the ESA, APG was issued a Title 50 Code of Federal Regulations (CFR) Part 22.28 permit which “grandfathered” the ESA incidental take allowance in under the Bald and Golden Eagle Protection Act (BGEPA). The permit authorized take of bald eagles in compliance with the terms and conditions of the Biological Opinion. The USFWS issued this short-term permit to continue the incidental take authorization until a new eagle take permit (and application process) was available. The Part 22.28 permit was renewed in 2011, and expired in 2013. Until a new permit is issued, APG continues to operate in accordance with the Biological Opinion.

1.2 PURPOSE AND NEED FOR PROPOSED ACTION

APG is applying for a USFWS-issued permit for take of bald eagles as authorized under the BGEPA. APG may apply for either a standard (one-time take) or programmatic permit. The USFWS defines programmatic take as “take that is recurring but not caused solely by indirect effects, and that occurs over the long-term and/or in a location or locations that cannot be specifically identified.” Since issuance of the 2006 Biological Opinion, the population of bald eagles at APG has nearly doubled. In addition, military operations at APG have continued to grow including the completion in 2011 of a Base Re-Alignment and Closure transformation. Due to the on-going military mission and the increasing population of bald eagles at APG, it is unlikely that the incidence of eagle take at APG can be entirely eliminated despite the implementation of protective measures. Therefore, a programmatic permit is most appropriate for APG.

The proposed action is for APG to apply for a programmatic permit for eagle take. In order to address APG’s comprehensive needs for eagle take, the programmatic permit will be a combination permit authorized under Title 50 CFR Part 22.26 and Part 22.27. Part 22.26 covers eagle take that is associated with, but not the purpose of, an activity, while Part 22.27 addresses purposeful removal of eagle nests. The programmatic permit will incorporate a flexible and adaptive eagle management strategy in order to minimize impacts to the eagles, and more fully balance an expanding eagle population with an evolving military mission.

The permit application process for a programmatic eagle take permit requires that the applicant provide specific supporting information, including the presence of eagle use areas in the vicinity of the project, the risk to eagles from the project, current mitigating conditions for reducing take, and proposed avoidance and minimization measures (“advanced conservation practices” or ACPs) to further reduce take to the maximum degree practicable. The USFWS encourages applicants to submit this information as an Eagle Conservation Plan (ECP) following a USFWS template (Sarah Nystrom, USFWS, Region 5, Ecological Services-Northeast, pers. com.). The use of the template

ECP allows for the USFWS's expeditious review of the application materials. APG's ECP is provided in Appendix A.

ACPs are defined by the USFWS as scientifically supported conservation measures that avoid or minimize eagle risks to the maximum extent achievable, so that remaining take is unavoidable (Title 50 CFR Part 22 Eagle Permits). Currently, the USFWS has no approved ACPs. Therefore, any ACPs proposed at this stage will be termed "experimental."

The experimental ACPs, as discussed in the ECP, will be incorporated into the programmatic permit to reduce eagle take (lethal and nest disturbances) to a level where remaining take is unavoidable. The programmatic permit will also include allowances for potential nest removals under very specific circumstances, an allowance not previously addressed by APG's Part 22.28 permit. The programmatic permit will supersede APG's 2006 Biological Opinion, ESA incidental take allowance, and expired Title 50 CFR Part 22.28 permit; and the experimental ACPs will replace the terms and conditions of the Biological Opinion. The programmatic permit will be valid for five years, with an option to renew every five years.

As part of the proposed action, APG will revise its eagle management component of the installation's Integrated Natural Resources Management Plan (INRMP) to address the programmatic permit and the associated experimental ACPs required by the permit.

1.3 SCOPE OF ANALYSIS

Development of this environmental assessment (EA) is in accordance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ, Title 40 CFR Parts 1500-1508) and the U.S. Army (Title 32 CFR Part 651). The purpose of this EA is to inform decision-makers and the public of the potential environmental consequences of the proposed action and alternatives. If the analysis within the EA concludes that the proposed action will not result in significant environmental effects, then APG will issue a Finding of No Significant Impact (FONSI) and proceed with the action. However, if during development of the environmental assessment it is determined that significant effects will be likely, then APG will issue a Notice of Intent to prepare an Environmental Impact Statement.

This EA considers alternatives for APG's permit application for incidental take of bald eagles. It analyzes the effects on the environment of the application for (and issuance of) a five-year programmatic eagle take permit. The environmental effects include direct, indirect, and cumulative impacts that could result from implementation of the alternatives evaluated. Impacts that may persist or occur longer than the five-year period are addressed in the discussion of cumulative impacts.

Earlier environmental analyses applicable to the proposed action are provided in the *Final Environmental Assessment (FEA) for the Implementation of the INRMP at APG* (APG 2009) and the *FEA for Upgrading Electrical Infrastructure Associated with Utility*

Privatization at APG (PHE 2015). The FEAs provide a foundation for the analysis of most other elements of the project related to the environment, and consequently allow the current analysis to focus primarily on bald eagles. The analyses in the FEAs are hereby incorporated by reference into this EA, as described in greater detail in section 3 (Affected Environment and Environmental Consequences).

In evaluating impacts to bald eagles, this EA needs to consider the degree to which each alternative will conform to the permit issuance criteria for programmatic take permits under the BGEPA. The USFWS cannot issue a bald eagle programmatic take permit under the BGEPA unless the following issuance criteria are met as required in Title 50 CFR Part 22.26:

1. The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles;
2. The taking is necessary to protect a legitimate interest in a particular locality;
3. The taking is associated with, but not the purpose of, the activity;
4. The taking is unavoidable;
5. The applicant has avoided and minimized impacts to eagles to the extent practicable, and the taking will occur despite application of advanced conservation practices;
6. Issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority as set forth in paragraph (e)(4) of Title 50 CFR Part 22.26.

1.4 AGENCY AND PUBLIC INVOLVEMENT

The USFWS is an agency with jurisdiction by law and special expertise with eagles and eagle permitting. Therefore, in accordance with Title 40 CFR Part 1501.6, APG requested that the USFWS participate as a cooperating agency in the development of this EA. Documentation of APG's request and the USFWS's acceptance is included in Appendix B. Coordination with other federal and state agencies will be initiated for the proposed action via letters and/or Public Notice. Copies of these letters and agency responses will be included in Appendix B.

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by Title 32 CFR Part 651. If the EA concludes that the proposed action will not result in significant environmental effects, then APG will issue a draft FONSI. The EA and draft FONSI will be made available to the public for 30 days. A notice of availability will be published in local newspapers (Baltimore Sun, Aegis, Cecil Whig, and Kent County News), and will be posted on APG's website under the Public Notices section. Copies of the EA and draft FONSI will be available for review at local libraries (Baltimore County Public Library – Perry Hall Branch; Harford County Public Library – Aberdeen and Edgewood Branches; Cecil County Public Library – Perryville Branch; Kent County Public Library – Chestertown Branch). Comments will

be reviewed and addressed as appropriate in Appendix C. APG will sign a FONSI if there are no significant impacts, and will proceed with implementation of the proposed action. If there are significant impacts, then a Notice of Intent will be prepared with an Environmental Impact Statement.

1.5 TRIBAL TRUST RESPONSIBILITIES

In accordance with Title 36 CFR Part 800.4(a)(4), APG consulted with Native American tribal governments during the development of this EA to assist in identifying properties in the area of potential effect which may be of religious and cultural significance to them. Native Americans have a high regard for bald eagles, and have used eagles and feathers for religious and cultural purposes for hundreds of years. As stated by the USFWS (2009a):

“Eagles are significant species in Native American culture and religion and may be considered contributing elements to a “traditional cultural property” under Section 106 of the National Historic Preservation Act (NHPA). Some locations where eagles would be taken have traditional religious and cultural importance to Native American tribes and thus have the potential of being regarded as traditional cultural properties under NHPA. Permitted take of one or more eagles from these areas, for any purpose, could be considered an adverse effect to the traditional cultural property. These considerations will be incorporated into any NEPA analysis associated with an eagle take permit.”

APG initiated consultation on the proposed action through a consultation letter sent to the following Native American tribes: Cayuga Nation of New York; Delaware Nation, Oklahoma; Oneida Nation of New York; Oneida Tribe of Indians of Wisconsin; Seneca Nation of New York; Seneca-Cayuga Tribe of Oklahoma; Onondaga Nation of New York; Tonawanda Band of Seneca Indians of New York; Tuscarora Nation of New York; and St. Regis Band of Mohawk Indians of New York. The letter informed the tribes of APG’s intent to apply for a BGEPA programmatic permit for incidental take of bald eagles. Consultation with these tribal governments will be on-going throughout this process. Copies of the consultation letters are included as Appendix D.

2. DESCRIPTION OF ALTERNATIVES

Three alternatives are considered in this EA: 1) Alternative #1 – Unchanged Take Allowance with Existing Conservation Measures, 2) Alternative #2 – Increased Take Allowance with Tiered Conservation Measures, and 3) No Action Alternative. These alternatives are described below.

2.1 ALTERNATIVE #1 – UNCHANGED TAKE ALLOWANCE WITH EXISTING CONSERVATION MEASURES

Under Alternative #1, APG would apply for a programmatic permit for eagle take under Title 50 CFR Parts 22.26 and 22.27. Under this alternative, APG would request the same incidental take allowance for eagle mortality and nest disturbance as granted under the 2006 Biological Opinion. Specifically, APG would continue to have an allowance of: 1) six incidental eagle mortalities per year, and 2) three incidental nest disturbances per year. In addition, Alternative #1 would include an allowance under the programmatic permit to remove eagle nests that meet very specific criteria. Any nest removal would be coordinated with the USFWS to ensure that the removal would be in accordance with Title 50 CFR Part 22.27. A nest requested for removal would fall into one of the following categories:

1. An active or inactive nest where removal is necessary to alleviate a safety emergency
2. An inactive nest where removal is necessary to ensure public health and safety
3. An inactive nest that is built on a man-made structure and creates a functional hazard that renders the structure inoperable for its intended use
4. An inactive nest where removal protects a local interest and the activity necessitating the removal, or the mitigation for the removal, with reasonable certainty provides a clear and substantial benefit to eagles

Under Alternative #1, the permit would require continued compliance with conservation measures (originally required under the Biological Opinion) that are already implemented at APG to avoid or reduce eagle take. These measures would be considered the experimental ACPs for the permit and are summarized below.

- Management Plan – APG would continue to operate in accordance with its eagle management component of the INRMP. The eagle management component of the INRMP would undergo a minor revision to address the new programmatic permit.
- Avian Deterrents/Protective Devices – APG would continue to periodically inspect and replace (as needed) the avian deterrents and protective devices on electrical infrastructure. This includes spinning reflective deterrents (FireFly™)

FF) on wires; elevated perches or perch excluders on cross arms; and insulating covers on wires, conductors, cutouts, and bushings.

- Line Burial – APG would complete the underground burial of overhead power lines in the areas designated in the 2006 Biological Opinion. These areas are Spesutie Island, Mulberry Point, and Watson Creek.
- Biological Studies – APG would continue to conduct annual population and seasonal nest surveys to monitor the stability and productivity of the installation's eagle population.

This alternative does not support an adaptive programmatic management of bald eagles at APG. The proposed incidental take allowances and experimental ACPs are similar to those allowances and conservation measures authorized or required by the 2006 Biological Opinion, and do not account for an increasing eagle population. The eagle population at APG has nearly doubled since 2006. The number of active nests has increased from 28 in 2006 to 51 in 2013. This tremendous growth equates to more eagles on APG, and as such, represents a greater potential for eagles to collide with electrical infrastructure, vehicles, and other man-made infrastructure. The number of eagle takes (mortalities) has increased from four in 2006 to a high of eight in 2011 and 2013. Despite the minimization measures, it is expected that APG will continue to have line strikes and potentially with increasing frequency as the eagle population continues to grow. APG already exceeded its incidental take allowance for mortalities in 2012 and 2013 (with 19 total takes over a 3-year period). APG requires a higher incidental take allowance than Alternative #1 proposes. Therefore, Alternative #1 is removed from further analysis.

2.2 ALTERNATIVE #2 – INCREASED TAKE ALLOWANCE WITH TIERED CONSERVATION MEASURES (PREFERRED ALTERNATIVE)

Under Alternative #2, APG would apply for a programmatic permit for eagle take under Title 50 CFR Parts 22.26 and 22.27. Under this alternative, APG would request a higher incidental take allowance for eagle mortality than previously provided under the 2006 Biological Opinion. The proposed increased take allowance for mortalities is justified based on the increased number of takes incurred despite implementation of minimization measures, and on the expanding eagle population at APG. As previously stated, the population of eagles at APG has nearly doubled since 2006.

Specifically, APG would request an allowance of up to 12 incidental eagle takes resulting in mortality (or removal of the eagle from the wild population) per year. This proposed take number is based on extrapolations of the take data from 2006 to 2013 (expressed as a percentage of the population) and the population data (expressed as number of chicks fledged). The proposed take allowance is a mid-point between predicted take (10 eagles) and worst case scenario (14 eagles, using 80 percent upper confidence limits). The increased take allowance is justified by the fluctuation of takes from year to year, competition with other raptors (ospreys), and the uncertainty if the

eagle population will continue to increase. Further discussion of data extrapolations are provided in the ECP (Appendix A).

Under Alternative #2, the programmatic permit would authorize the same allowance for nest disturbances as granted by the 2006 Biological Opinion (three incidental nest disturbances per year). Since 2006 and the implementation of minimization measures, APG has not incurred any nest disturbances.

Alternative #2 would also include an allowance under the programmatic permit to remove eagle nests that meet very specific criteria. Any nest removal would be coordinated with the USFWS to ensure that the removal would be in accordance with Title 50 CFR Part 22.27. A nest requested for removal would fall into one of the following categories (Title 50 CFR Part 22.27):

1. An active or inactive nest where removal is necessary to alleviate a safety emergency
2. An inactive nest where removal is necessary to ensure public health and safety
3. An inactive nest that is built on a man-made structure and creates a functional hazard that renders the structure inoperable for its intended use
4. An inactive nest where removal protects a local interest and the activity necessitating the removal, or the mitigation for the removal, with reasonable certainty provides a clear and substantial benefit to eagles

Under Alternative #2, the programmatic permit would include a tiered application of experimental ACPs. The experimental ACPs would avoid or reduce eagle take to the maximum extent possible where remaining take is unavoidable, include adaptive management strategies, and promote conservation benefits. Tier 1 experimental ACPs would be considered required measures to be implemented immediately. Tier 2 experimental ACPs would be optionally implemented for proactive conservation benefits. The experimental ACPs are summarized below.

TIER 1: APG would implement the following five experimental ACPs immediately.

- Management Plan – APG would continue to operate in accordance with its eagle management component of the INRMP. APG would revise the eagle management component of the INRMP to address the programmatic permit and experimental ACPs.
- Adaptive Management – APG would adaptively manage the eagle population on the installation to address allowable activities in the vicinity of eagle use areas.
- Avian Deterrents/Protective Devices – APG would continue to periodically inspect and replace (as needed) the avian deterrents and protective devices on electrical infrastructure. This includes spinning reflective deterrents (FireFly™ FF) on wires; elevated perches or perch excluders on cross arms; and insulating

covers on wires, conductors, cutouts, and bushings. Inspections and replacements (as needed) would occur at least annually as addressed in the eagle management component of the INRMP. Alternative marking devices for the power lines may be employed as long as the alternatives are as or more effective than the FireFly™ FF units in reducing line strikes.

- Line Burial – APG would bury overhead power lines, where feasible and as funds allow, to reduce the potential of eagle mortalities due to line strikes. Sections of existing overhead lines that can be feasibly buried would be prioritized for burial based on areas of densest eagle activity, occurrence of line strikes, and availability of funding. Additional eagle movement and mortality data have been collected by APG since 2006; therefore, the selected areas for burial may not necessarily correspond to those areas identified in the 2006 Biological Opinion. Priority areas would be identified in the eagle management component of the INRMP. Given the very high costs associated with burying overhead lines, line burial will only be considered after other minimization measures such as avian deterrents/protective devices have proven ineffective.
- Biological Studies – APG would continue to conduct annual population and seasonal nest surveys to monitor the stability and productivity of the installation's eagle population.

TIER 2: At the Army's discretion, APG would optionally implement the following two experimental ACPs for proactive conservation benefits.

- Forest Stand Improvements – APG would conduct forest stand improvements to help ensure the sustainability of habitat for bald eagles, while sustaining the testing and training landscape required by the military mission. In 2012, APG lost over ten percent of the nest trees due to storms and natural degradation, occurrences indicative of declining forest health. It is important to the long-term sustainment of the breeding eagle population that these large canopy trees be replaced (either through natural re-generation or plantings). Unfortunately, deer pressure and invasive Japanese stiltgrass have limited the natural regeneration of oak, hickory, beech, and tulip poplar at APG.

The forest stand improvements would target existing forest stands that show degraded habitat quality, that exhibit high eagle activity, and that do not directly conflict with existing range mission activities. The forestry work would not establish new habitat which could potentially attract even more eagles to APG. Improvements would be made in areas unlikely to create additional risk to eagles from potential line strikes or other mission conflicts. The forest stand improvements would be conducted in eagle use areas, defined as having a documented nesting, roosting, and/or foraging area. The forest stand improvements would enhance native species diversity (oak, hickory, beech, and tulip poplar), decrease invasive species, and provide for long-term forest sustainability.

APG's forest management component of the INRMP outlines silvicultural prescriptions implementing forest improvement for each of its 580 forest stands. This landscape-level planning specifies annual actions designed for improving overall forest health, eagle habitat, and mission landscape by increasing natural regeneration, reducing the impact of invasive species, "jump starting" desired species composition through tree plantings, increasing biodiversity in existing monocultures, and moving towards uneven-aged forest structure. Silvicultural prescriptions include using tree planting in existing or created canopy gaps and/or individual tree planting within existing stands with no natural regeneration, mechanical removal of invasive species and vines in concert with pinpoint herbicide application, tree girdling, overstocked stand thinnings to increase crown size on mature trees, duff and soil disturbance to increase natural regeneration, and tubing natural regeneration of desirable species until above deer browse line.

These proactive efforts to improve forest stands would be credited towards APG's conservation efforts for eagles. Potential conservation credit from a forest stand improvement effort would include: 1) enhancement of nesting habitat as mitigation for a nest removal, and/or 2) enhancement of roosting habitat as mitigation for a roost disturbance. APG would develop a Memorandum of Agreement (MOA) with the USFWS to specify how forest stand improvements would be credited towards eagle conservation. APG and the USFWS would work towards a MOA within the first year of the permit.

- Army Compatible Use Buffer (ACUB) Program – Through its ACUB program, APG would work with its conservation partners to encumber off-site land adjacent to, or ecologically adjacent to, the installation to limit development, protect forested shoreline habitat, and ultimately benefit the bald eagle population. The implementation of the ACUB program would be dependent on available Army/Department of Defense funding, available partner funding, and willing landowners. When funding and parcels become available, APG would contribute funds to the partner's purchase of easements or properties from willing landowners, without acquiring any new land for Army ownership. Further details on this ACUB program, including priority areas, are provided in APG's approved proposal (APG 2012).

An ACUB conservation easement or purchase which is attained and which is associated with eagle habitat (as identified by a satellite telemetry study or confirmed by site investigation) would be credited towards APG's conservation efforts for eagles. Potential conservation credit from an ACUB easement or purchase would include: 1) off-site nest productivity counting towards APG's eagle productivity, 2) conservation of off-site nesting territory as mitigation for an on-site nest removal, and/or 2) conservation of off-site roosting territory as mitigation for an on-site roost disturbance. APG would develop a MOA with the USFWS to specify how ACUB efforts would be credited towards eagle conservation. APG and the USFWS would work towards a MOA within the first

year of the permit. The MOA would serve as the vehicle for ensuring that mitigation credit is approved in encumbering the land parcel. Monitoring requirements of the ACUB parcel for meeting conservation and mitigation commitments would be addressed in the easement.

Alternative #2 supports a comprehensive programmatic approach to management of bald eagles at APG. This alternative addresses the increasing eagle population at APG and the increasing frequency of incidental takes. In addition, Alternative #2 promotes adaptive management strategies by allowing the incorporation of new data in the implementation of the experimental ACPs. For these reasons, Alternative #2 is considered the preferred alternative and is carried forward for further analysis in this EA.

2.3 NO ACTION ALTERNATIVE

The inclusion and evaluation of a No Action Alternative is prescribed by CEQ regulations. Under the No Action Alternative, APG would not apply for a programmatic permit for eagle take. APG would continue to operate under its current eagle management component of the INRMP, and in accordance with the guidance set forth in the 2006 Biological Opinion. However, APG would not have a BGEPA permit to authorize incidental take. Therefore, APG would be liable for an enforcement action at the discretion of the USFWS Office of Law Enforcement for any eagle take or disturbance incurred on the installation. The No Action Alternative is not feasible and would not address the purpose and need for the proposed action. However, inclusion of the No Action Alternative serves as a baseline condition against which potential impacts of the proposed action and alternatives can be evaluated. Therefore, the No Action Alternative is evaluated in this EA.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section provides baseline information for those resource components of the natural and man-made environment that have the potential to be affected by the Preferred Alternative and No Action Alternative. The baseline description provides decision-makers and stakeholders with the background data necessary to evaluate the effects of the proposed action. Following a description of each environmental resource component is a discussion of the potential environmental consequences or impacts of the alternatives evaluated. The discussion focuses on aspects of the environment that could potentially be affected directly or indirectly in a relatively short period of time or long-term by implementation of the proposed action. The discussion concludes with an evaluation of cumulative impacts.

As a requirement of the BGEPA, a permit for bald eagle take may only be issued when the take is compatible with the preservation of the species, as defined by USFWS (2009) as “consistent with the goal of stable or increasing breeding populations”. To ensure that any authorized take does not exceed this preservation standard, the USFWS has set local and regional take thresholds for the species. Take will only be authorized if the summation of all authorized take in the local and regional areas does not exceed the respective take thresholds. Therefore, this EA focuses extensively on the impacts of the alternatives to bald eagles.

As stated in Section 1.3, earlier environmental analyses applicable to the proposed action are provided in APG’s INRMP FEA (APG 2009) and Electrical Privatization FEA (PHE 2015). The INRMP FEA includes an analysis of the environmental impacts of implementation of APG’s INRMP, including the eagle management component in accordance with the Biological Opinion. At the time of writing of the INRMP FEA, APG was operating in compliance with the Biological Opinion and working towards receiving a BGEPA permit to “grandfather” the ESA incidental take allowance under BGEPA. The Electrical Privatization FEA includes an analysis of the environmental impacts associated with privatizing APG’s electrical system, but also addresses environmental impacts of specific conservation measures cited in APG’s Biological Opinion, namely underground burial of power lines and installation of avian deterrents/protective devices.

For this current EA, the proposed action would include implementation of experimental ACPs under a programmatic permit. Under the No Action Alternative, APG would not apply for a programmatic permit and would continue to operate in accordance with its existing eagle management component of the INRMP. Impacts to all environmental resource components are screened in Table 1. As indicated in Table 1, impacts to most resource components are not expected or minor and were previously addressed in earlier environmental analyses, and therefore those resource components are not carried forward for further evaluation in this EA. Other than bald eagles, two environmental resource components (forests and cultural resources) are carried forward in this EA.

Table 1. Screening Analysis of Environmental Resource Components

Resource	2009 INRMP FEA	2015 Electrical Privatization FEA	2015 Programmatic Eagle Take Permit DEA			Further Analysis Needed?
			Proposed Action (Programmatic Permit)	No Action Alternative	Preferred Alternative	
Land Use	Eagle management does not impact designated land uses	Negligible temporary disruptions to adjacent land use during construction (includes limited line burial); avian deterrents/protective devices do not impact land use	Permit will not directly impose changes to designated land uses on APG	Existing eagle management requires line burial in areas specified by Biological Opinion, resulting in negligible temporary disruptions to adjacent land use during burial	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) which may result in negligible temporary disruptions to adjacent land use during burial	No
Aesthetics and Visual Resources	Eagle management does not impact aesthetics or viewsheds	Negligible benefits from limited line burial; negligible detriments from avian deterrents/protective devices	Permit will not directly impose changes to aesthetics or viewsheds	Existing eagle management requires line burial in areas specified by Biological Opinion, resulting in negligible benefits to viewsheds; and maintenance of avian deterrents/protective devices resulting in negligible detriments to aesthetics	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) which may result in negligible benefits to viewsheds, and maintenance of avian deterrents/protective devices which may result in negligible detriments to aesthetics	No
Air Quality	Eagle management does not impact pollutant emissions or air quality	Minor impacts from vehicle emissions and dust during construction (includes limited line burial); avian deterrents/protective devices do not impact air quality	Permit will not directly impose changes to air quality	Existing eagle management requires line burial in areas specified by Biological Opinion, resulting in minor impacts from vehicle emissions and dust during burial	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) which may result in minor impacts from vehicle emissions and dust during burial	No
Noise	Eagle management does not impact noise or noise receptors	Minor impacts from construction (includes limited line burial); avian deterrents/protective devices do not impact noise	Permit will not directly impose changes to noise or noise receptors	Existing eagle management requires line burial in areas specified by Biological Opinion, resulting in minor impacts during burial	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) which may result in minor impacts during burial	No
Geology and Soils	Eagle management does not impact geology or soils	Temporary disturbance to soils during construction (includes limited line burial) to be reduced with erosion/sediment control; avian deterrents/protective devices do not impact soils	Permit will not directly impose changes to geology or soils	Existing eagle management requires line burial in areas specified by Biological Opinion, resulting in temporary disturbance to soils during burial	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) which may result in temporary disturbance to soils during burial	No
Water Resources	Eagle management does not impact geology or soils	Minor impacts to wetlands and waters during construction (includes limited line burial) to be reduced with erosion/sediment control, wetland mitigation, and critical area mitigation; avian deterrents/protective devices do not impact water resources	Permit will not directly impose changes to water resources	Existing eagle management requires line burial in areas specified by Biological Opinion, resulting in minor but mitigatable impacts to wetlands and waters during burial	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) which may result in minor but mitigatable impacts to wetlands and waters during burial	No
Biological Resources	<u>Bald Eagles</u> : Long-term beneficial conservation measures to reduce impacts to eagles	<u>Bald Eagles</u> : Long-term benefits from limited line burial and avian deterrents/protective devices	<u>Bald Eagles</u> : Permit will authorize incidental take of eagles; permit will include experimental ACPs to reduce take to maximum extent possible where remaining take is unavoidable; APG will amend eagle management component of INRMP to address permit and experimental ACPs	<u>Bald Eagles</u> : Existing eagle management results in potential for continued adverse impacts to eagles due to unavoidable line strikes; APG will not apply for a permit under BGEPA and may be subject to enforcement action by USFWS for any eagle take or disturbance incurred on installation	<u>Bald Eagles</u> : Permit will authorize incidental take of eagles; permit will include long-term beneficial experimental ACPs to reduce impacts and sustain eagle population	<u>Bald Eagles</u> : Yes

Table 1. Screening Analysis of Environmental Resource Components (continued)

Resource	2009 INRMP FEA	2015 Electrical Privatization FEA	2015 Programmatic Eagle Take Permit DEA			Further Analysis Needed?
			Proposed Action (Programmatic Permit)	No Action Alternative	Preferred Alternative	
Biological Resources (continued)	Forests: Long-term beneficial conservation of existing forests in support bald eagle habitat	Forests: Limited line burial may require removal of trees to be mitigated with reforestation; avian deterrents/ protective devices do not impact forests	Forests: Permit will include forest improvement initiatives	Forests: Existing eagle management results in long-term beneficial conservation of existing forests but continued loss of mature canopy trees that support bald eagle habitat	Forests: Permit and experimental ACPs will include forest improvement initiatives which may result in long-term benefits to existing forest stands and replacement of canopy trees	Forests: Yes
Cultural Resources	Eagle management does not address cultural significance of bald eagles to Native American tribes or proper handling of eagle carcasses and feathers (though already implemented by APG)	Any impacts to cultural resources are negligible	Permit will require that eagle carcasses and parts be shipped to National Eagle Repository; APG will amend eagle management component of INRMP to address proper handling of eagle carcasses and feathers	Existing eagle management results in continued practice of shipping eagle carcasses and parts to National Eagle Repository for distribution to Native American tribes	Permit will require eagle carcasses and parts to be shipped to National Eagle Repository for distribution to Native American tribes; APG will revise eagle management component of INRMP to address cultural significance of bald eagles to Native American tribes and proper handling of eagle carcasses and feathers	Yes
Socioeconomics	Eagle management does not impact socioeconomics or environmental justice	Negligible short-term benefits from hiring of local crews for construction (includes limited line burial and installation of avian deterrents/ protective devices)	Permit will not directly impose changes to current socioeconomics	Existing eagle management requires line burial in areas specified by Biological Opinion and maintenance of avian deterrents/protective devices, resulting in negligible short-term benefits from hiring of local work crews	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) and maintenance of avian deterrents/ protective devices, resulting in negligible short-term benefits from hiring of local work crews	No
Transportation	Eagle management limits road access within some eagle buffers	Negligible temporary impacts from road closures during construction (includes limited line burial)	Permit will not directly impose any new changes to existing traffic (routes or roadway infrastructure)	Existing eagle management includes limits on road access within some eagle buffers and negligible temporary impacts from road closures during line burial	Permit and experimental ACPs will require adherence to eagle management component of INRMP which includes limits on road access within some eagle buffers and negligible temporary impacts from road closures during line burial	No
Utilities	Eagle management requires burial of some overhead power lines in areas of high eagle activity	Upgrade to existing utility infrastructure (includes limited line burial)	Permit will authorize incidental take of eagles resulting from power line collisions	Existing eagle management requires line burial in areas specified by Biological Opinion	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding)	No
Hazardous and Toxic Substances	Eagle management does not impact hazardous and toxic substances	Minor impacts during construction (includes limited line burial) due to encounters with potentially contaminated soils and UXO	Permit will not directly impose changes to hazardous and toxic substances	Existing eagle management does not impact hazardous and toxic substances	Permit and experimental ACPs will not impact hazardous and toxic substances	No
Solid Waste	Eagle management does not impact solid waste	Minor impacts during construction (includes limited line burial) due to accumulation of construction waste	Permit will not directly impose changes to solid waste	Existing eagle management requires line burial in areas specified by Biological Opinion, resulting in minor impacts during burial due to accumulation of construction waste	Permit and experimental ACPs will require line burial (based on feasibility, eagle mortalities, and available funding) which may result in minor impacts during burial due to accumulation of construction waste	No

3.1 BALD EAGLES

3.1.1 Affected Environment

In evaluating eagle take, the USFWS defines the project area as the project footprint as well as contiguous land that shares relevant characteristics that might contribute to eagle habitat. For APG, all contiguous off-Post land (to the west, northwest, and north) consists of concentrated residential and/or commercial development that is not of comparable habitat as on APG. There is no contiguous land to the northeast, east, southeast, south, or southwest of the installation, as these portions of the installation boundary are over open water (Chesapeake Bay). Therefore at APG, the project area equates to the project footprint or boundary of APG (113 square miles).

Located on the western shore of Maryland in the northern Chesapeake Bay, over half of APG is comprised of water or wetlands. With approximately 135 miles of shoreline, much of it forested, APG has played a significant role in the regional recovery of bald eagles. APG is located within the Upper Bay Bald Eagle Concentration Area, one of several concentration areas for bald eagles in the Chesapeake Bay (Watts and Mojica 2009a). APG attracts a disproportional number of eagles within the concentration area, because the installation has largely undeveloped forested shorelines with abundant food resources in the surrounding rivers and Bay. In addition, many of these shoreline areas have restricted access with little human activity. These shorelines provide optimal habitat for foraging, roosting, and nesting bald eagles. Residential and commercial development of surrounding shorelines in the northern Chesapeake Bay continues to drive an increasing number of eagles to APG.

APG is a convergence area for eagles, supporting not only year-round resident breeding and non-breeding eagles, but also migratory eagles from northern and southern territories of the U.S. and Canada. In late spring and early summer, post-nesting and subadult eagles migrate north from Florida and other southeastern states to spend the summer months in the Chesapeake Bay area, while eagles from northeastern Canada and the U.S. migrate to the area during late fall and early winter. The number of eagles on the installation is estimated to be highest during the winter months (January-March) and the summer months (June-July) due to influx of northern and southern migrants, respectively (Watts and Mojica 2009b). It is estimated that a few hundred eagles are on APG at any one time, and that at least several hundred eagles utilize the installation throughout the year. It is worthy to note that wintering golden eagles are seen in the northern Chesapeake Bay region, including APG, but not in any large numbers.

APG has monitored the bald eagle population on the installation since the mid-1970s utilizing population surveys, roost surveys, and nest surveys. These surveys have been supplemented with an extensive three-year eagle movement study using satellite telemetry. These efforts have resulted in a comprehensive database of eagle movement, population dynamics, and productivity on APG that also provides a broader understanding of eagle dispersal/movement and roost behavior throughout the Chesapeake Bay.

3.1.1.1 Foraging and Loafing Areas

Bald eagles generally use shoreline areas with suitable trees for perching, as areas for daytime foraging and loafing. The size of a local eagle population can be roughly estimated by surveying these shorelines. APG has conducted annual mid-winter population surveys since 1986, and APG's database is one of only two historic collections of mid-winter bald eagle population data in Maryland. APG's data have indicated an increase in the population of eagles on APG and the surrounding areas since the early 1980s, but a general stabilization of mid-winter numbers in recent years (Table 2). The mid-winter surveys continue to confirm high numbers of eagles utilizing nearly all forested shorelines of APG. The densest concentrations of eagles are routinely observed along the shorelines of the Bush River, Spesutie Island, and Pooles Island. These mid-winter counts are only a "snap shot" and are dependent on a number of factors including annual productivity, and local, regional, and broader weather conditions which can trigger earlier or later migrations of northern eagles from Canada and the northeastern U.S. In addition, the survey route is limited to the major shorelines and does not extend inland; therefore, eagles loafing along smaller inland creeks may not be counted.

3.1.1.2 Roosting Areas

Non-breeding eagles are typically gregarious and establish communal roosts (areas where eagles gather and perch overnight). Communal roosts are typically isolated from human disturbance, contain sustainable substrate for roosting, positioned in areas protected from harsh weather, and have a clear movement corridor between the roost and primary foraging areas. A number of communal roost areas have been identified on APG through ground surveys and satellite telemetry data. APG has identified several core (year-round) roosts as shown in Figure 2. These core roosts are located further inland than the shoreline foraging and loafing areas, and include Coopers Creek, Mosquito Creek, Woodrest Creek, and three roosts along Romney Creek. Numerous ancillary (seasonal) roosts also exist along the wooded shorelines of the installation. The satellite telemetry data indicated that eagles at APG move in and out of roost areas throughout the day, and may not utilize the same nighttime roost area from night to night (Watts and Mojica 2009b). This network of core and seasonal communal roost areas is dynamic and can change over time depending on factors such as distribution of prey, loss of perch trees, or other changes to the habitat.

3.1.1.3 Nesting Areas

Bald eagles exhibit high nest fidelity and nesting territories are often used year after year. The majority of the nests on APG are located in large trees with a clear view of shoreline foraging areas, or if located further inland, within one mile of a suitable foraging area. APG has documented a tremendous increase in the number of breeding pairs of eagles on the installation. In 1977, APG had only one known nesting pair of eagles. The number of breeding pairs increased to five in 1991 and close to 50 in 2013 (Figure 3). Since 2006, the APG nesting population (measured as number of active nests) has nearly doubled. The productivity (measured as total number of chicks fledged) has more than doubled in the same time period. Increased productivity is due

Table 2. Cumulative Mid-Winter Bald Eagle Survey Data

Year	Day	Number of Bald Eagles Counted						Total Number of Bald Eagles
		Aberdeen Proving Ground			Susquehanna River			
		Adult	Subadult	Total	Adult	Subadult	Total	
2013	6-Jan	144	59	203	24	1	25	228
2012	8-Jan	104	53	157	27	12	39	196
2011	9-Jan	88	51	139 (+1 GE)	13	10	23	162 (+1 GE)
2010	10-Jan	117	80	197	25	17	42	239
2009	Survey not conducted (helicopter not available)							
2008	12-Jan	93	39	132	20	7	27	159
2007	7-Jan	71	29	100	19	7	26	126
2006	8-Jan	106	58	164	45	19	64	228
2005	9-Jan	145	61	206	23	9	32	238
2004	11-Jan	73	54	127	33	21	54	181
2003	12-Jan	135	91	226	16	7	23	249
2002	13-Jan	60	14	74	27	16	43	117
2001	26-Jan	103	85	188	30	21	51	239
2000	9-Jan	57	25	82	40	31	71	153
1999	10-Jan	67	58	125	13	13	26	151
1998	11-Jan	60	19	79	30	29	59	138
1997	12-Jan	80	43	123	17	12	29	152
1996	21-Jan	92	47	139	19	8	27	166
1995	15-Jan	70	31	101	16	5	21	122
1994	9-Jan	26	36	62	22	9	31	93
1993	17-Jan	40	23	63	14	4	18	81
1992	12-Jan	49	40	89	15	8	23	112
1991	13-Jan	26	20	46 (+1 GE)	12	7	19	65 (+1 GE)
1990	14-Jan	111	67	178	2	2	4	182
1989	15-Jan	61	40	101	not surveyed due to fog			101
1988	10-Jan	27	24	51	18	18	36	87
1987	11-Jan	24	13	37	6	8	14	51
1986	11-Jan	35	29	64	0	0	0	64
1985	13-Jan	19	28	47	not surveyed			47
1984	7-Jan	30	62	92	not surveyed			92
1983	9-Jan	11	28	39	not surveyed			39

GE=Golden Eagle

Figure 2 (APG Bald Eagle Nests and Roosts) is available for review at the office of:

DPW Environmental Division
Natural Resources Branch
Building E5183 Blackhawk Road, Room 213
Aberdeen Proving Ground, Maryland 21010
Phone: 410-436-0465

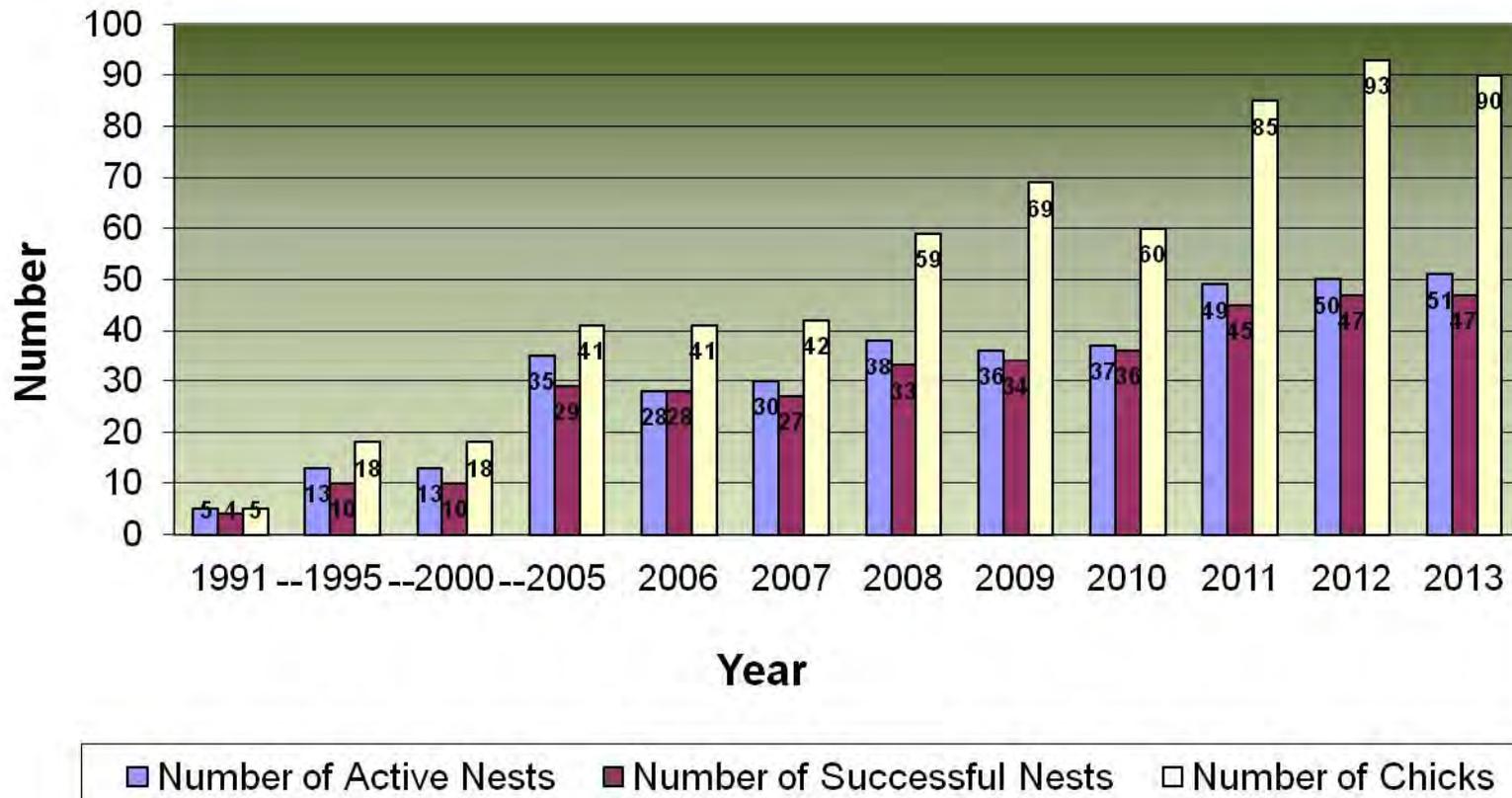


Figure 3 APG Bald Eagle Nest Productivity

in part to an increased frequency of “triplets” (three chicks in nest), from 0 percent in 2005 to an average of 19 percent of active nests in the past three years (2011-2013) (Table 3). Overall, the number of chicks per active nest at APG has increased from 1.17 in 2005 to 1.76 in 2013 (Table 3). This increased fecundity is indicative of a robust breeding population at APG that is benefitting from the abundantly available food resources.

Table 3. Number of Triplet Bald Eagle Nests Per Season at APG

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Active Nests	35	28	30	38	36	37	49	50	51
Sets of Triplets ^(a)	0	2	1	3	7	3	9	11	8
Triplet Rate ^(b)	0%	7%	3%	8%	19%	8%	18%	22%	16%
Chicks Per Active Nest	1.17	1.46	1.40	1.55	1.92	1.62	1.73	1.86	1.76

(a) Documented three chicks, regardless if one or more chicks lost prior to fledging

(b) Triplet Rate = (# Sets of Triplets) / (# Active Nests)

On APG, nesting habitats which for many years contained only a single active nesting pair are now known to contain two or more pairs in very close proximity (USFWS 2006). In 2006, the mean inter-nest distance (that is, the mean nearest-neighbor distance between simultaneously occupied nests) was 1,560 meters (0.97 miles) (APG 2007). As of 2013, the mean distance for APG nests is 1,277 meters (0.79 miles). APG has several overlapping nesting territories each with a pair of nests only 300 to 600 meters apart (less than 0.5 miles). Inter-nest distances are likely much shorter at APG than for other nests in the region. With the establishment of more compressed territories, many eagle pairs at APG have developed a tolerance to routine and on-going mission activities, with some pairs building nests and raising young within 200 meters of active range areas. A map of eagle nests at APG for the 2013 nesting season is included in Figure 2. APG currently tracks approximately 70 nests (active and inactive).

3.1.1.4 Management Plan

APG has worked closely with the USFWS to develop its eagle management component of the INRMP which implements conservation measures to protect bald eagles and their nesting, foraging, and roosting habitat, while sustaining APG’s military mission. This plan incorporates conservation measures to avoid and minimize impacts to bald eagles in accordance with the terms and conditions of the Biological Opinion. The plan outlines management strategies, coordination, reporting requirements, and employee training. APG implements 500-meter protection buffers around nests and core communal roosts. When determining allowable activities within these buffers, APG considers existing routine and customary mission activities. Habitat modification (land clearing, timber harvesting, and vegetation removal) within the buffer is strictly limited.

3.1.1.5 Mortality and Disturbance Associated with Human Activities

In compliance with its 2006 Biological Opinion, APG implemented a number of conservation measures to reduce eagle mortalities and disturbances. However, incidental take of eagles has not been entirely eliminated due to the on-going military mission and the increasing population of bald eagles at APG (Figure 4). Since issuance of the Biological Opinion, APG has had an average of 4.4 bald eagle takes (mortalities) per year (2006-2013). The number of takes has steadily increased since 2008, peaking at eight takes in 2011 and 2013. Nearly all of the incidental takes from 2006 to 2013 (91 percent) are attributed to line strikes where the eagle flew into an overhead power line and was killed outright, or died later, due to electrocution and/or blunt force trauma. The remaining takes consisted of a collision with an aircraft, an impalement on a lightning rod, and a drowning in a containment structure/box.

Historically, the highest numbers of line strikes at APG occurred on Spesutie Island. Spesutie Island is surrounded by the Chesapeake Bay and has dense eagle activity including foraging, nesting, and roosting sites. APG spent \$11.6 million to bury approximately six miles of overhead power lines on the island, as a requirement of the Biological Opinion. Line burial is the most effective measure to eliminate line strikes, but also the most expensive due to various environmental considerations.

To further reduce the potential for line strikes, APG spent \$3.6 million to retrofit electrical infrastructure with avian protective devices following the Avian Power Line Interaction Committee (APLIC) best practices guidelines (APLIC 1994; 2012). The retrofits included installing perch excluders on cross arms; insulating covers on wires, conductors, jumper wires, cutouts, and bushings; and spinning reflective avian deterrents and high-visibility spheres on overhead power lines. Electrical infrastructure poses a risk to eagles that may fly into the lines or be electrocuted from perching on poles or cross arms. Pole electrocutions occur when eagles perch on utility poles or cross arms, and are electrocuted when different body parts touch elements that complete the electrical circuit. Line strikes occur when eagles fly into exposed wires and are either killed by the trauma of striking the wires or are electrocuted when their wings complete a circuit between two wires. The installation of avian protective devices and deterrents has been a cost-effective measure that significantly reduces the number of eagle mortalities on APG.

Despite the expanding bald eagle population, APG has avoided incurring a nest take due to disturbance, by strict adherence to its eagle management component of the INRMP. However, as the eagle population grows and available territories become increasingly limited, it is expected that new eagle pairs will pursue less than optimal habitats (including man-made structures) to establish nest territories. Some of these new nests may directly conflict with mission operations, resulting in eagle takes due to incidental disturbance of the nest. In addition, a new nest may pose a risk to human and/or eagle safety and require removal (for example, a nest that falls within an aircraft flight pattern).

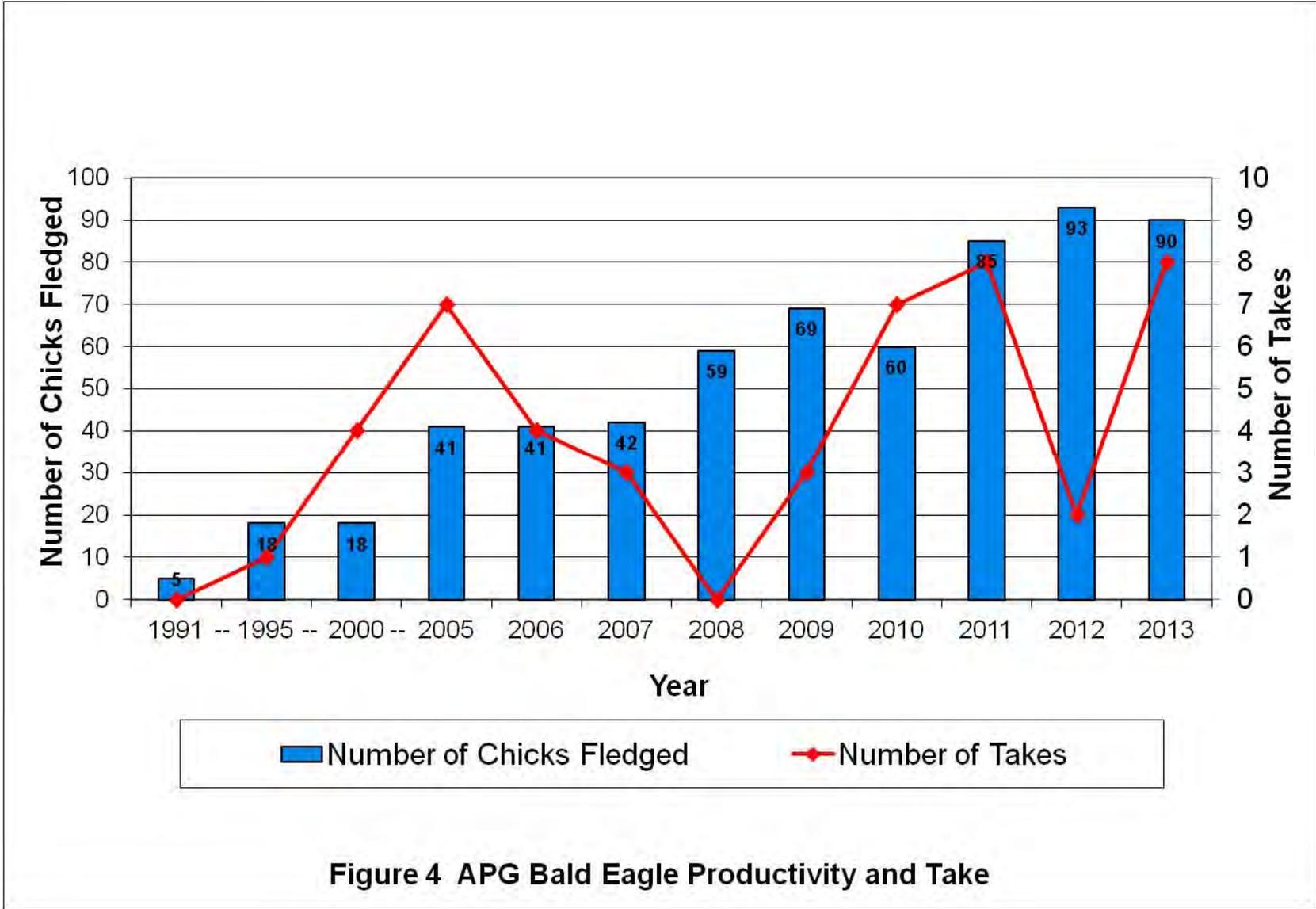


Figure 4 APG Bald Eagle Productivity and Take

3.1.2 Environmental Consequences of Preferred Alternative

The Preferred Alternative would result in a programmatic permit for incidental eagle take (lethal and nest disturbance) and purposeful eagle nest removal. APG proposes an incidental lethal take allowance of up to 12 eagles per year. Lethal take would be considered any collision of an eagle with electrical and other man-made infrastructure, collision with ground and aerial vehicles (both manned and un-manned), and other unforeseen impacts resulting incidentally to mission activities, that result in death of the eagle or its permanent removal from the wild population. The proposed allowance for incidental nest disturbance would remain at three nests per year, unchanged from the allowance granted under the 2006 Biological Opinion. Nest disturbance is defined as incidental harassment of a breeding pair or breeding individual leading to abandonment of nest and loss of productivity for the given year, inclusive of eggs and young. Purposeful nest removals would be strictly limited to those circumstances defined by Title 50 CFR Part 22.27, and all nest removals would be coordinated in advance with the USFWS. The programmatic permit under the Preferred Alternative would include specific experimental ACPs to avoid or reduce take to a level where remaining take is unavoidable.

On a project area population scale, the mission activities at APG and current level of take are clearly not having a significant adverse impact on the project area eagle population. The recovery of the bald eagle at APG has occurred simultaneously with on-going Army activities and incidental takes. APG has one of the densest concentrations of eagles in the Chesapeake Bay area and the mid-Atlantic region. Additionally, APG has implemented minimization efforts to reduce impacts of mission activities to the eagle population. Satellite telemetry data indicate that APG's minimization measures have the potential to benefit not only the resident eagles, but also eagles migrating from as far north as Newfoundland and as far south as Florida. It is uncertain how many of the eagles killed by line strikes at APG are migrating eagles from northern and southern territories. Therefore, there is the potential that line strikes are having a minor adverse impact to eagle populations other than those residing year-round at APG.

As discussed previously, APG's eagle population has steadily increased since the early 1990s. It is unclear how much longer the population will continue to increase. The population will likely soon reach a saturation level, after which the population can be expected to potentially decline a bit before stabilizing. The number of lethal takes has averaged 4.4 eagles per year since 2006, but has gradually increased in recent years as the eagle population has increased. It is expected that as the APG eagle population stabilizes and experimental ACPs are implemented, so too will the number of incidental lethal takes due to line strikes.

An increased number of lethal takes to be authorized under the programmatic permit of the Preferred Alternative is not expected to have any more than a minor adverse impact on the APG eagle population. The degree of impact would depend on the actual number of takes incurred each year and on the number of fledglings added to the

population each year. For the past three years (2011-2013), APG's nesting population has added an average of 89 fledglings per year. This production is expected to off-set the eagles removed from the population due to lethal takes. It is likely that the increased number of lethal takes would have no quantifiable effect on the APG population, because eagles from outside the project area would continue to be driven to APG due to loss of habitat in the surrounding area.

As an experimental ACP of the programmatic permit, APG would continue to conduct annual population and productivity surveys. Data collected from these surveys would be used to evaluate the effects of the increased take allowance on the eagle population. Prior to a renewal of the proposed programmatic permit, the results of the monitoring would be reviewed by APG and the USFWS to determine if adjustments to monitoring, implementation of additional ACPs and/or compensatory mitigation, or reduction in ACPs are warranted.

3.1.3 Environmental Consequences of No Action Alternative

Under the No Action Alternative, current eagle management would not change and APG would continue to operate in accordance with its existing eagle management component of the INRMP. However, there would continue to be the potential for adverse impacts to eagles due to unavoidable line strikes. The adverse impacts to eagles due to line strikes would be balanced, at least partially, by the beneficial impacts resulting from continued implementation of existing conservation measures.

Under the No Action Alternative, APG would not apply for a programmatic permit for eagle take. Therefore, APG would not be authorized for incidental take under the BGEPA and would be potentially subject to enforcement action by the USFWS Office of Law Enforcement for any eagle take or disturbance incurred on the installation.

3.2 FORESTS

3.2.1 Affected Environment

APG manages the forest resources with the primary purpose of supporting the Army's testing and training mission and to enhance ecosystem integrity through sound forest management practices. APG's forest management includes provisions for timber harvest, wildlife benefits, watershed protection, and recreational opportunities. APG's forest management component of the INRMP outlines a 50-year course of action for each of its 580 individual forest stands. Since APG's inception in 1917, forest cover on the installation has increased from 3,000 acres to over 18,000 acres. Currently, approximately 46 percent of APG's land mass is comprised of upland and wetland forests. Many of the forest stands are adjacent to open waters of rivers and the Chesapeake Bay, and are ideal habitat for bald eagles.

Forested land on APG is largely discontinuous and is fragmented by numerous watercourses, wetlands, open fields, and roads. Stands vary in size from less than 1 acre to several hundred acres. Common tree species at APG include oaks (*Quercus* sp.), red maple (*Acer rubrum*), hickory (*Carya* sp.), flowering dogwood (*Cornus florida*), ash

(*Fraxinus* sp.), American holly (*Ilex opaca*), sassafras (*Sassafras albidum*), and Virginia pine (*Pinus virginiana*). Unfortunately, the quantity and quality of interior forest habitat has declined, while disturbance has permitted the proliferation of opportunistic species, like sweet gum (*Liquidambar styraciflua*). In some locations, natural forest regeneration is readily occurring, often with an initial population of pioneers of sweet gum or red maple establishing early, then gradually oak, hickory, and other hardwoods dominating as the forest matures. However, in many locations no regeneration is occurring, because deer quickly consume the newly sprouted seedlings.

3.2.2 Environmental Consequences of Preferred Alternative

As an experimental ACP under the proposed programmatic permit, APG would optionally implement forest stand improvements for conservation benefits. The forest stand improvements would be conducted on the installation in eagle use areas, and would result in long-term beneficial impacts to APG's forest resources by enhancing native species diversity (oak, hickory, beech, and tulip poplar), decreasing invasive species, and providing for long-term forest sustainability.

3.2.3 Environmental Consequences of No Action Alternative

Under the No Action Alternative, current forest management would not change and APG's existing forest management practices would continue in accordance with the forest management component of the INRMP. In addition, APG would continue to adhere to its existing eagle management component of the INRMP which promotes the conservation of existing forests to support bald eagle habitat.

3.3 CULTURAL RESOURCES

3.3.1 Affected Environment

Cultural resources are "historic properties" and "traditional cultural properties" as defined by the NHPA of 1966, "archaeological resources" as defined by the Archaeological Resource Protection Act of 1979, "cultural items" as defined by the Native American Graves Protection and Repatriation Act of 1979, "sacred sites" as defined by Executive Order 13007 to which access is afforded under the American Indian Religious Freedom Act of 1987, and collections and associated records as defined in Title 36 CFR Part 79.

This discussion of cultural resources at APG focuses on the cultural significance of bald eagles to Native American tribes. Eagles are significant species in Native American culture and may be considered contributing elements to a "traditional cultural property" under the NHPA. Traditional cultural properties include locations of historic occupations and events, historic and contemporary sacred and ceremonial areas, prominent topographical areas that have cultural significance, traditional hunting and gathering areas, and other resources that Native Americans or other groups consider essential for the persistence of their traditional culture. Many Native American tribes incorporate bald eagle feathers or parts in their traditional ceremonies.

In recognition of the cultural significance of eagles to Native Americans, the USFWS established the National Eagle Repository in Denver, Colorado. The National Eagle Repository serves as a clearinghouse for eagle feathers and carcasses that are recovered by state and federal wildlife personnel. Upon receipt at the National Eagle Repository, the eagle feathers and carcasses are examined, cataloged, and shipped out to Native American recipients. The recipient must be an enrolled member of a federally recognized tribe and hold a permit from the USFWS authorizing them to receive and possess eagle feathers, parts, or carcasses from the National Eagle Repository. The operations of the National Eagle Repository minimize the need for eagles to be taken from the wild.

The Department of Defense supports these efforts of the USFWS as dictated by a 1994 Presidential Memorandum (59 F.R. 22953). The memorandum directs all Federal land managing agencies to “diligently and expeditiously recover salvageable eagles found on lands under their jurisdiction and ensure that the eagles are promptly shipped to the National Eagle Repository.” APG’s existing eagle management component of the INRMP does not address the cultural significance of bald eagles to Native Americans, nor does it address the proper handling and processing of eagle carcasses and feathers. However, APG does have a standard operating procedure for the recovery of bald eagle carcasses and parts. The standard operating procedure follows guidance provided by the USFWS Office of Law Enforcement for handling and shipping of dead eagles. Carcasses, parts, and feathers are carefully packaged and ID tagged by APG personnel immediately after recovery, placed in a freezer, then shipped in a frozen state overnight to the National Eagle Repository.

3.3.2 Environmental Consequences of Preferred Alternative

The proposed programmatic permit would require APG to ship recovered eagle carcasses and parts to the National Eagle Repository. This is no different from current practice at APG. Handling of eagle carcasses, parts, and feathers would continue to follow APG’s standard operating procedure. The current efforts by APG ultimately result in beneficial impacts to Native Americans by providing eagles to the National Eagle Repository for distribution to the tribes.

Under the Preferred Alternative, APG would amend its management component of the INRMP to address the cultural significance of eagles to Native Americans and APG’s proper handling of dead eagles and feathers.

3.3.3 Environmental Consequences of No Action Alternative

Under the No Action Alternative, APG would continue its current practice of shipping eagle carcasses and parts to the National Eagle Repository. APG’s current practices ultimately result in beneficial impacts to Native Americans by providing eagles (carcasses, parts, and feathers) to the National Eagle Repository for distribution to the tribes.

3.4 CUMULATIVE IMPACTS

A cumulative impact is defined as an effect on the environment that results from the incremental effect of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

3.4.1 Forests

When considered in combination with other known past, present, or future actions at APG, the implementation of the Preferred Alternative would have minor beneficial impacts on forest resources at APG. The proposed programmatic permit would include an experimental ACP for forest stand improvements to be optionally implemented for conservation benefits. These improvements would combine with other beneficial forest mitigation projects to off-set any forest loss due to future development projects on the installation. The bald eagle population would also benefit in the long term from the forest stand improvements, due to the plantings of canopy trees which would over the years replace the current old growth trees. Under the No Action Alternative, APG's existing forest management practices would continue in accordance with the forest management component of the INRMP, but there would be overall fewer beneficial forestry projects. Old growth canopy trees would potentially continue to naturally degrade and fall, resulting in fewer nesting and roosting trees for the eagles.

3.4.2 Cultural Resources

For cultural resources, the long-term cumulative impacts from implementation of the Preferred Alternative would be minor and beneficial. Under the programmatic permit, any salvaged eagles and feathers would be shipped to the National Eagle Repository for distribution to Native American tribes. By providing eagle feathers and carcasses to the National Eagle Repository, APG would off-set the incidental taking of the culturally significant bald eagles. The No Action Alternative would result in similar cumulative impacts, because APG would continue to ship eagle carcasses and feathers to the National Eagle Repository.

3.4.3 Climate Change

Cumulative effects must also address climate change and how eagles and other environmental and societal resources may be impacted. Sea-level rise is anticipated to occur within the century and will have an adverse effect on some nests along the tidal reaches of the coastal plain. It is unknown as to the actual number of breeding pairs to be impacted, but water inundation will result in losses of nest trees and habitat buffer. Eagles will transition toward upland habitats which will likely increase opportunities for eagle disturbances and the need for issuance of a greater number of take permits where people and eagles are in close proximity. Future issuance of permits would be subject to analysis to determine if the number of potential permits would exceed local and regional eagle take thresholds.

3.4.4 Bald Eagles

This cumulative effects analysis evaluates effects on bald eagles in accordance with the NEPA (Title 40 CFR Part 1508.7) and the BGEPA's permitting regulations. The purpose of a cumulative effects evaluation is to identify conditions where take of eagles is assessed at the individual project level in combination with other similar projects in a defined geographic area. As part of the permit application review process under Title 50 CFR Part 22.26 (f)(1) and Final Rule (USFWS 2009b), the USFWS must evaluate and consider effects of take permits on eagle populations at three levels. These levels are: (1) eagle management unit or regional area, (2) local area, and (3) project area. The cumulative effects analysis also incorporates other biological resource information such as annual nest productivity and mortality levels for each of these areas.

3.4.4.1 Geographic-Scope Take Thresholds

Regional Area Population

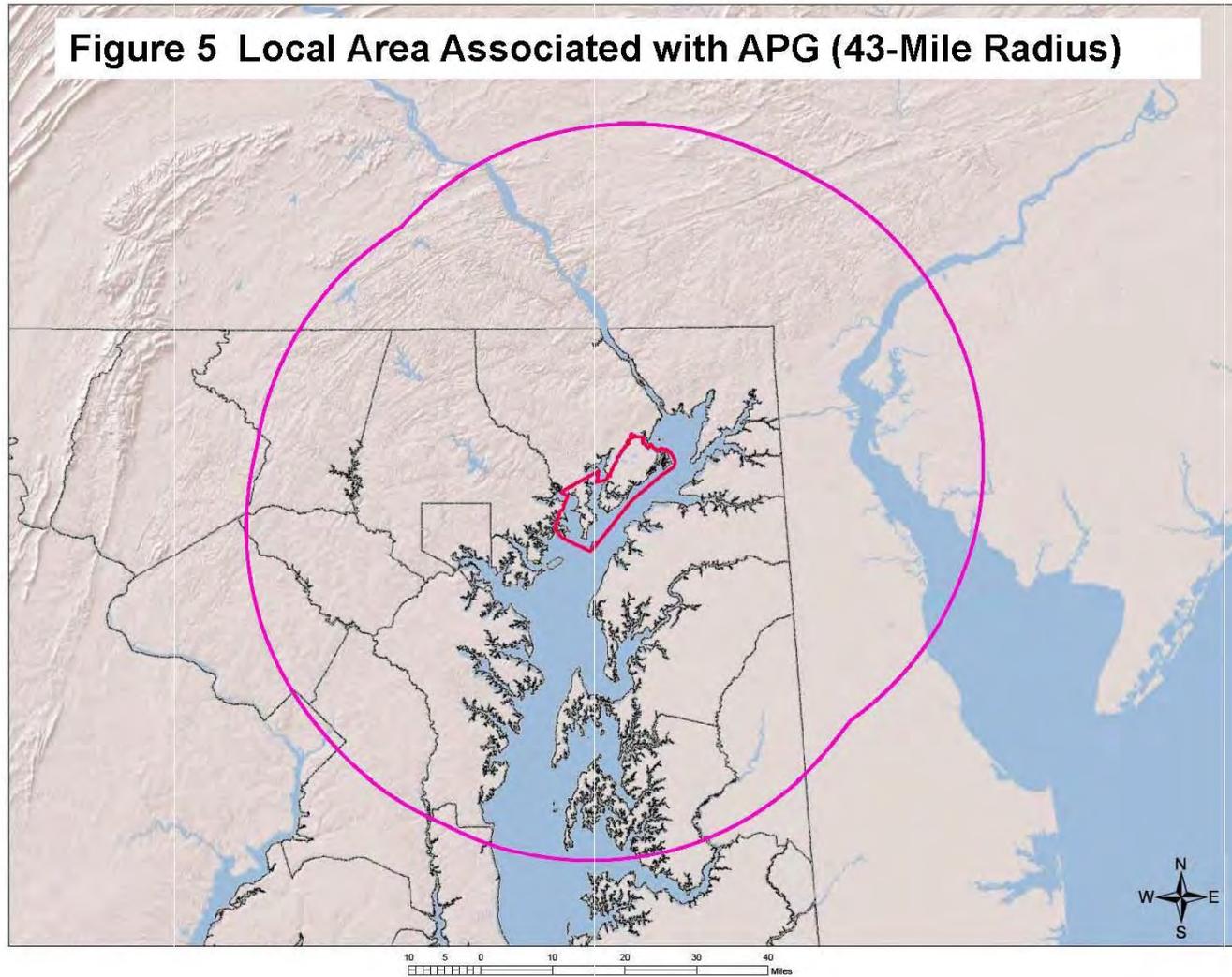
To ensure that any authorized take of eagles does not exceed the BGEPA's preservation standard, the USFWS has set thresholds for take limits of eagles based on regional eagle management units. These thresholds were developed using past State nesting surveys. The USFWS also incorporated measures to ensure that local area eagle populations are not severely impacted or depleted by take that could be otherwise be acceptable at the regional (eagle management unit) scale. An eagle management unit-wide area population index was developed by the USFWS with an assumption that eagle numbers are equally distributed across the landscape. APG falls within the USFWS's Mid-Atlantic bald eagle management unit. The estimated population size for the Mid-Atlantic bald eagle management unit is 14,021 eagles encompassing 237,687 square miles of landscape (USFWS 2009a). As shown below, the unit density is approximately 0.059 eagles per square mile.

$$\begin{aligned} \text{Mid-Atlantic Management Unit Eagle Density} &= (\text{Population}) / (\text{Management Unit Size}) \\ &= (14,021 \text{ eagles}) / (237,687 \text{ square miles}) \\ &= 0.059 \text{ eagles per square mile} \end{aligned}$$

Local Area Population

The local area bald eagle population is calculated based on the regional eagle density and an area extending 43 miles outward of the project boundary. Forty-three miles is the mean natal dispersal range for bald eagles as determined by the USFWS. For APG, this defined local area encompasses the entire northern Chesapeake Bay area, the southern Susquehanna River area, and portions of the Delaware River and Delaware Bay (Figure 5). This local dispersal area is approximately 4,913 square miles of habitat (exclusive of open waters of the Gunpowder River, Bush River, and Chesapeake Bay). Therefore, as shown below, the local area bald eagle population is approximately 290 eagles.

Figure 5 Local Area Associated with APG (43-Mile Radius)



$$\begin{aligned}
 \text{Local Eagle Population} &= (\text{Regional Eagle Density}) * (\text{Local Area Size}) \\
 &= (0.059 \text{ eagles per square mile}) * (4,913 \text{ square miles}) \\
 &= 289.9 \text{ eagles}
 \end{aligned}$$

Based on data for the Mid-Atlantic bald eagle management unit and using the equation below (USFWS 2009a), the five percent benchmark for eagle take in this local area is 15 eagles per year.

$$\begin{aligned}
 \text{Local Area 5\% Threshold} &= (\text{Local Area}) * (\text{Regional Eagle Density}) * 0.05 \\
 &= (4,913 \text{ square miles}) * (0.059 \text{ eagles per square mile}) * 0.05 \\
 &= 14.5 \text{ eagles}
 \end{aligned}$$

The USFWS quantified take rates of between one and five percent of estimated local area eagle population as benchmarks, with five percent being at the upper end and still compatible with maintaining healthy local eagle populations. Under this methodology, permitting take of more than 15 eagles per year should be carefully considered to ensure that it is consistent with the BGEPA's preservation standard and the requirements of the regulations at Title 50 CFR Part 22.26.

3.4.4.2 Environmental Baseline

Nest Surveys and Population Monitoring

A comprehensive bald eagle nest monitoring survey in the Chesapeake Bay region was first conducted in the late 1970s and continued through 2004, by the Maryland Department of Natural Resources, the Delaware Division of Fish and Wildlife, and the Virginia Commission of Game and Inland Fisheries. The total number of occupied territories by the end of the 2004 nesting season was approximately 800 eagle pairs. In 2007, the USFWS delisted the bald eagle under ESA, and the States soon followed thereafter. Currently, only Virginia and Delaware continue to conduct annual nest surveys for their watershed areas.

Following the delisting of the bald eagle, smaller scale nest surveys resulted with only a portion of the population being sampled, making it difficult to quantify actual numbers of eagles for a local area population. Despite this reduced survey effort, nest monitoring continued, albeit as a necessity to meet ESA post-delisting requirements and eagle permit issuance criteria for development projects. Department of Defense installation managers, National Wildlife Refuges, and National Parks also continued to conduct annual nest monitoring. Proposed residential and commercial development projects, including land-based wind energy projects, were also required to assess potential impacts of their projects to nesting and wintering eagles.

APG Population Assessment

Since 1991, eagle nest surveys have been routinely conducted by APG environmental staff. Between 2005 and 2013, APG documented an increase in the breeding population to 51 pairs. Nest productivity also increased, with the highest yield occurring

during the past consecutive three years (2011-2013). Nest production in 2011, 2012, and 2013, resulted in 85, 93, and 90 chicks, respectively.

Local Area Population Assessment

Productivity and population data collected by APG were combined with other data sources to estimate the 2013 local area eagle population (43-mile radius from APG). Other data sources included State agency nest surveys and a limited number of nest surveys conducted by private project consultants. A total of 645 eagles were estimated in 2013 (Table 4). This total includes chicks fledged from APG nests; however, only 50 percent of the chicks produced at APG in 2013 were conservatively included, in order to account for potential naturally-occurring fledgling mortality. In addition, the total does not include chicks that fledged from other nests in Maryland, Pennsylvania, Delaware, and New Jersey. The population calculation also does not include the significant number of subadult eagles in the local area (except those counted by APG during the mid-winter count). Therefore, the total number of eagles (645) is an under-estimation of the actual local area population.

Table 4. Local Area Bald Eagle Population

2013 Surveys	Count
Maryland (northern Bay segment)	58 nests
Pennsylvania (southeastern border)	21 nests
Lower Susquehanna River	12 nests
Delaware (western border)	25 nests
New Jersey (western border)	19 nests
APG	51 nests
Total Nests:	186
Breeders (Total Nests x 2):	372
Mid-Winter Survey (APG plus Lower Susquehanna):	228
APG Nest Production (50% of 90 chicks):	45
Total Population:	645

3.4.4.3 Stressors

Land clearing for commercial and residential construction activities has incrementally reduced natural habitat and land cover along rivers and Chesapeake Bay shorelines. Eagles have responded by either abandoning nest sites, adapting to fragmented territories with associated human activity, or relocating altogether to other forested areas with greater buffers such as those found at APG. APG’s ACUB program (included as an experimental ACP under the proposed programmatic permit) would offset development pressures by conserving potential eagle habitat on adjacent off-post property, thereby contributing to long-term benefits to the APG, local, and regional populations of bald eagles. Additional analyses of environmental impacts of the ACUB

program will be performed in the future as exact locations of ACUB parcels are determined.

Although APG supports extensive habitat for foraging, nesting, and roosting eagles, the military testing and training operations have the potential to be disruptive to eagles either through habitat encroachment or noise. However, eagles at APG have become adjusted to reduced territories, and acclimated to military activities and associated noise from vehicular traffic, detonations, and various weapon firings.

Man-made infrastructure, particularly power lines and other electrical infrastructure, are of primary concern for risk of injury or death to eagles and other large birds. Commercial and residential development can increase the risk of power line collisions and electrocutions if the infrastructure is situated between eagle roosting areas and shoreline foraging areas. APG has an extensive electrical grid that connects power to many buildings through suspended pole-to-pole electrical lines. To minimize impacts to eagles, APG buried segments of overhead lines that posed the greatest risks to eagles from mid-line collisions. For the remaining overhead lines and electrical infrastructure, APG installed protective equipment to reduce the potential for avian electrocutions.

Other stressors to eagles in the local and regional area include poisoning, lead contamination, shooting, silt-pond entrapments, and collision with vehicles, aircraft, trains, towers, and wind turbines. Territorial fighting and competition between eagles and with ospreys have also led to injury or mortality. In 2013, over 39 eagles were recovered in the local area requiring treatment from a variety of injuries (Sallie Welte, Tri-State Bird Rescue and Research, pers. com.).

3.4.4.4 APG Take Assessment

From 2005 to 2013, APG documented 42 eagle mortalities (takes) due to line strike, electrocution, or other collision. It is probable that a greater proportion of mortalities affected non-breeding individuals from wintering and summering populations at APG and not the local resident eagles. This probability is based on the assumption that resident eagles are acclimated to routine mission activities and noise and are therefore, less likely to flush. Regardless, mortalities represented both adult and sub-adult age classes at a ratio of nearly 50:50 throughout all four seasons (Lynda Hartzell, APG, pers. com.).

Since 2005, eagle mortalities resulting in take have averaged 4.7 eagles per year at APG. The number of takes increased most recently to a high of eight eagles in both 2011 and 2013. A projection model was used to estimate potential take by APG into the near future (five years). A Linear Regression Model takes into account previous take and using mathematical variables can output a predictable annual take at the 80 percent confidence level (see Appendix A). Based on the model, approximately ten eagle mortalities are projected annually over the next five years (up to 14 eagles as a worst case scenario using the 80 percent confidence limit). At this level, APG's projected take would meet the USFWS's permit issuance criteria without exceeding the five percent local area population take threshold (5% of 645 eagles = 32 eagles).

3.4.4.5 Other Permitted Take Within Local and Regional Populations

To ensure that local and regional eagle populations remain stable or increasing, the USFWS requires an assessment of the effects of past authorized take, those projects currently under review, and all sources of documented eagle mortalities including those naturally occurring on the landscape. The assessment also considers the level of uncertainty when using models to predict future eagle take associated with mid-line strikes or large-scale commercial wind farms.

A commercial wind energy project consisting of up to 50 turbines is proposed approximately 15 miles southeast of APG, and will overlap APG's local area bald eagle population designation by approximately 70 percent. The proposed wind energy project and APG have an estimated combined projected take between 18 and 26 eagles. According to USFWS methodology (2009a), permitting multiple projects within the same local area population that will potentially take greater than five percent of the local area population should be given careful consideration. The 2013 eagle nest surveys indicate an increase in the number of eagles in the local area population from the 2009 population estimate developed by the USFWS (2009a). The overall increasing population trend suggests that the local area population in the vicinity of APG could withstand take greater than five percent of the local area population without negatively impacting stability of the local or regional (eagle management unit) bald eagle populations.

The take threshold for issuing permits in the Mid-Atlantic eagle management unit allows for take of up to 65 individuals and the loss of 45.5 individuals through nesting pair disturbances yearly. Each nest disturbance equates to the loss of 1.4 chicks per nest. Under the proposed programmatic take permit for APG, yearly take of up to 12 eagles through injury or mortality and 4.2 eagles as a result of three nest disturbances will be subtracted from the current threshold. The additional permitted take will not exceed the maximum threshold of 65 individuals or disturbance loss of 45.5 for the Mid-Atlantic eagle management unit.

Therefore, based on the current local area population trends, the USFWS believes that in the next five and possibly ten years, bald eagle populations will remain stable or with increasing numbers even with the combined stressors associated with APG, climate change, and other limited projects in the local area and regional eagle management unit that may be permitted for incidental take of bald eagles.

4. CONCLUSION

This EA analyzed the environmental impacts of two alternatives (Preferred Alternative and No Action Alternative) in implementing the proposed action. The proposed action is for APG to apply for a programmatic permit for eagle take as authorized under the BGEPA.

Under the No Action Alternative, APG would not apply for a programmatic permit for eagle take. APG would continue to operate under its current eagle management component of the INRMP, and in accordance with the guidance set forth in the 2006 Biological Opinion. However, APG would not have a BGEPA permit to authorize incidental take, and would be potentially subject to an enforcement action at the discretion of the USFWS Office of Law Enforcement for any eagle take or disturbance incurred on the installation. The No Action Alternative is not feasible and would not address the purpose and need for the proposed action.

Under the Preferred Alternative, APG would apply for a programmatic permit for incidental eagle take (lethal and nest disturbance) and purposeful nest removal. The programmatic permit would comply with Title 50 CFR Part 22.26 (incidental take) and Part 22.27 (nest removal). APG would implement the experimental ACPs discussed in its ECP to reduce eagle take to a level where remaining take is unavoidable. In addition, APG would revise its eagle management component of the INRMP to reflect the programmatic permit and experimental ACPs. APG's proposed incidental take would be up to 12 eagles per year and three nest disturbances per year. In addition, APG would be authorized to remove eagle nests under strict adherence to the criteria stated in Title 50 CFR Part 22.27 and with prior coordination with the USFWS. The Preferred Alternative would authorize incidental take under the BGEPA and is consistent with the eagle take permit criteria for preservation of the bald eagle.

Before the USFWS may issue a bald eagle programmatic take permit under Title 50 CFR Part 22.26, it must be determined that: 1) the direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles; 2) the taking is necessary to protect a legitimate interest in a particular locality; 3) the taking is associated with, but not the purpose of, the activity; 4) the taking is unavoidable; 5) the applicant has avoided and minimized impacts to eagles to the extent practicable, and the taking will occur despite application of advanced conservation practices; and 6) issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority as set forth in paragraph (e)(4) of Title 50 CFR Part 22.26. Based on information provided in this EA and in APG's ECP, APG's proposed programmatic take of bald eagles (Preferred Alternative) is consistent with these issuing criteria.

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6. LIST OF AGENCIES AND INDIVIDUALS CONSULTED

The following agencies and individuals were consulted on this EA. Records of contacts and conversations are in the project file.

U.S. Army

- Mark Gallihue, APG, Directorate of Public Works, Environmental Division
- Lynda Hartzell, APG, Directorate of Public Works, Environmental Division
- Arnold O'Sullivan, APG, Directorate of Public Works, Environmental Division
- Richard Wakeling, Communications and Electronics Command, Legal Office

U.S. Fish and Wildlife Service

- Chris Guy, Chesapeake Bay Field Office
- Craig Koppie, Chesapeake Bay Field Office
- Sarah Nystrom, Region 5, Ecological Services-Northeast

Tri-State Bird Rescue and Research

- Sallie Welte, VMD

APPENDIX A

APG Eagle Conservation Plan

EAGLE CONSERVATION PLAN

U.S. Army Garrison Aberdeen Proving Ground, Maryland



Final

August 2015

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LIST OF ACRONYMS AND ABBREVIATIONS

%	percent
ACP	Advanced Conservation Practice
ACUB	Army Compatible Use Buffer
APG	Aberdeen Proving Ground
APLIC	Avian Power Line Interaction Committee
BGEPA	Bald and Golden Eagle Protection Act
BRAC	Base Realignment and Closure Act
CFR	Code of Federal Regulations
ECP	Eagle Conservation Plan
ESA	Endangered Species Act
MDDNR	Maryland Department of Natural Resources
U.S.	United States
USFWS	United States Fish and Wildlife Service

1. STAGE 1 – SITE ASSESSMENT

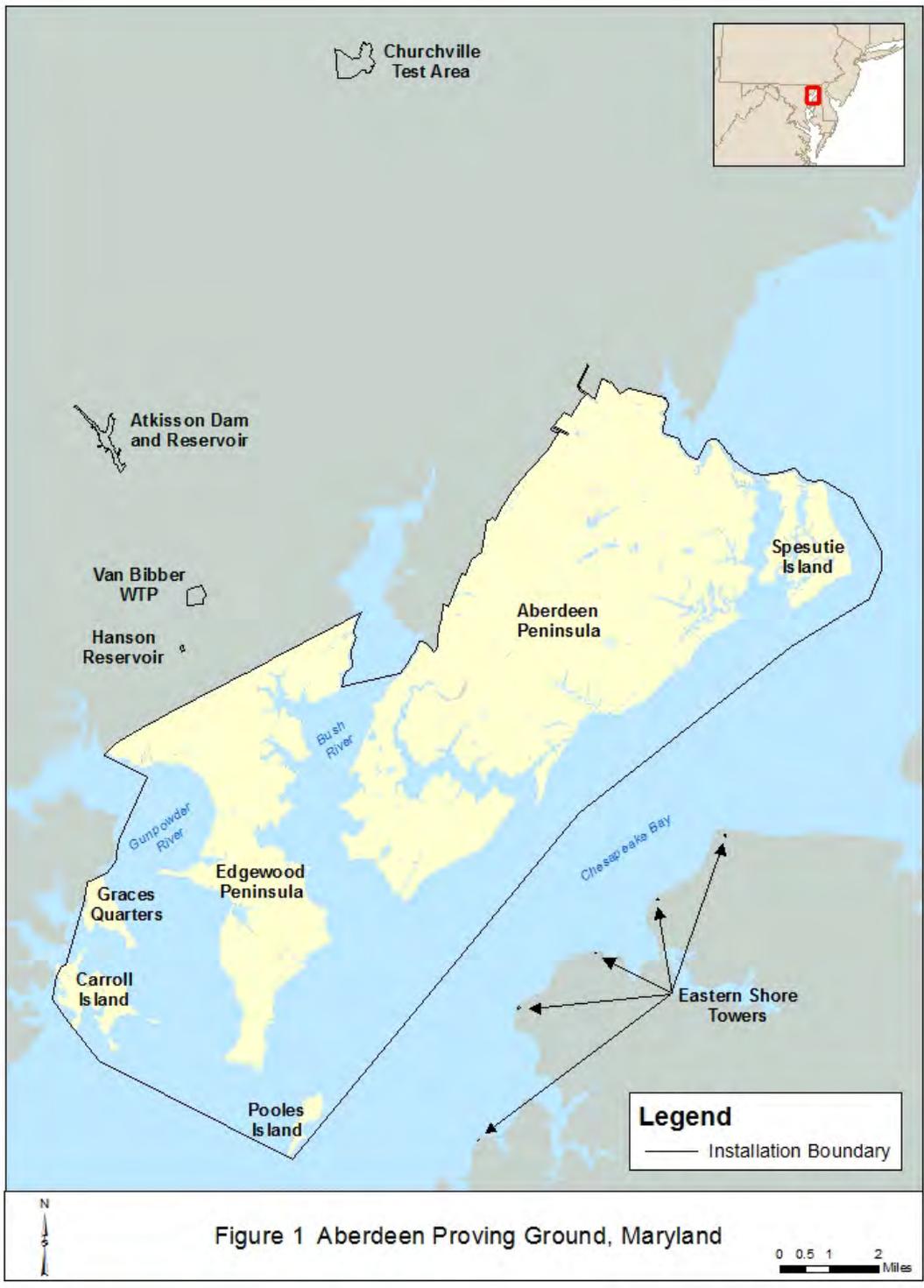
Stage 1 of the Eagle Conservation Plan (ECP) consists of a site evaluation and characterization. This stage is used to evaluate broad geographic areas with regards to important eagle use areas. Potential impacts to resident breeding and non-breeding eagles, and to migrant and wintering eagles are broadly identified. Existing information from literature, databases, and other sources is utilized to judge the appropriateness of potential project sites, taking into account suitability for project development and potential risk to eagles.

1.1 Site Evaluation

The project site is Aberdeen Proving Ground (APG) located in Harford and Baltimore Counties, Maryland. APG is a United States (U.S.) Army installation that encompasses approximately 72,500 acres (113 square miles) of land and water in the northern Chesapeake Bay. The expanse of the installation property allows for research, development, engineering, and testing of all Army materiel including ordnance, weaponry, vehicles, soldier systems, and communication systems. APG is the U.S. Army's oldest active proving ground, and was established in 1917 shortly after the U.S. entered World War I. Since its inception, countless Army systems have been tested for performance and durability at APG including various weaponry systems and all tracked and wheeled vehicles utilized by the U.S. Forces. In addition, APG has served as a center for chemical warfare research and development. From the trenches of France and Belgium in World War I to the desert battlefields of Iraq nearly 80 years later, the research and testing conducted at APG has contributed to the performance, defense, and safety of the U.S. Forces. Because of the Base Realignment and Closure Act (BRAC) of 2005 and other factors, APG has evolved into a major hub of research, development, test and evaluation activity for the joint services. The Army mission at APG is vital to national security. Sustainment of APG's military mission ensures that today's soldiers have the most advanced equipment, systems, and technology possible to succeed at home and abroad.

The installation is geographically divided into two areas, separated by the Bush River (Figure 1). The Edgewood Area is to the west of the river, and the Aberdeen Area lies to the east. The Edgewood Area consists of the Edgewood peninsula, Pooles Island, Carroll Island, and Graces Quarters. The Aberdeen Area consists of the Aberdeen peninsula and Spesutie Island. Additionally, there are several small APG properties that are not connected to the main installation: Churchville Test Area, Atkisson Dam and Reservoir, Van Bibber Water Treatment Plant (WTP), Hanson Reservoir, and Eastern Shore Towers.

This ECP was developed by APG in coordination with the U.S. Fish and Wildlife Service (USFWS), in support of a programmatic permit for take of bald eagles at APG. The proposed activity is not defined as a single action, but rather all the activities that occur at APG that have the potential to disturb or take eagles. Incidental take of bald eagles



at APG is most likely to occur due to collisions with electrical and other man-made infrastructure, and disturbances to nesting eagles from air, land, and water mission activities. In accordance with its 2006 Endangered Species Act (ESA) Section 7 Biological Opinion for bald eagles, APG has implemented a number of conservation measures to reduce eagle mortalities and disturbances. However, due to the on-going military mission and the increasing population of bald eagles, it is unlikely that the incidence of eagle take at APG can be entirely eliminated despite the implementation of minimization measures. Therefore, APG is applying for a programmatic permit for take of eagles under the Bald and Golden Eagle Protection Act (BGEPA). The programmatic permit will authorize incidental eagle take (lethal and nest disturbance), and also potential removal of eagle nests under specific conditions. Therefore, APG's programmatic permit will be a combination permit authorized under Title 50 Code of Federal Regulations (CFR) Part 22.26 (incidental take) and Part 22.27 (nest removal). The programmatic permit will supersede APG's 2006 Biological Opinion, terms and conditions, and ESA incidental take allowance.

1.2 Site Characterization

Located on the western shore of Maryland in the northern Chesapeake Bay, over half of APG is comprised of water or wetlands. With approximately 135 miles of shoreline, much of it forested, APG has played a significant role in the regional recovery of bald eagles. APG is located within the Upper Bay Bald Eagle Concentration Area, one of several concentration areas for bald eagles in the Chesapeake Bay (Watts and Mojica 2009a). This concentration area supports resident breeding and non-breeding eagles, and also migratory eagles from the northeastern and southeastern territories of the U.S. and Canada. At least 1,500 breeding pairs of eagles inhabit the Chesapeake Bay (Craig Koppie, USFWS, pers. comm.). APG attracts a disproportional number of eagles within the concentration area, because the installation has largely undeveloped forested shorelines with abundant food resources in the surrounding rivers and Bay. In addition, many of these shoreline areas have restricted access with little human activity. These shorelines provide optimal habitat for foraging, roosting, and nesting bald eagles. Eagles can be expected to utilize other small pockets of less developed areas in the northern Bay, such as the Sassafras River to the east of APG (3 miles from installation eastern boundary) and the lower Susquehanna River to the north of APG (5 miles from installation northern boundary). However, residential and commercial development of surrounding shorelines in the northern Chesapeake Bay continues to drive an increasing number of eagles to APG.

2 STAGE 2 – SITE SPECIFIC SURVEYS AND ASSESSMENTS

Stage 2 of the ECP consists of the collection of site specific quantitative data through scientifically-based surveys and assessments. The data identify any important eagle use areas or migration concentration sites that fall within or close to the project footprint. In addition, the data allow for an estimation of the eagle exposure rate within the project footprint.

2.1 Important Eagle Use Areas

APG has monitored the bald eagle population on the installation since the mid-1970s utilizing population surveys, roost surveys, and nest surveys. These surveys have been supplemented with an extensive three-year eagle movement study using satellite telemetry. These efforts have resulted in a comprehensive database of eagle movement, population dynamics, and productivity on APG that also provides a broader understanding of eagle dispersal/movement and roost behavior throughout the Chesapeake Bay.

2.1.1 Foraging and Loafing Areas

Bald eagles generally use shoreline areas with suitable trees for perching, as areas for daytime foraging and loafing. The size of a local eagle population can be roughly estimated by surveying the shorelines. To this end, APG conducts an annual Mid-Winter Bald Eagle Survey as a cooperative effort with the Maryland Department of Natural Resources (MDDNR). The mid-winter survey is part of a national survey, and is typically conducted during a two-week window in early January. APG's annual survey route is conducted by helicopter and includes the shoreline and tributaries of APG, and also the off-Post shoreline of the Susquehanna River north to the Exelon Peach Bottom (Pennsylvania) power plant. The data collected from the survey help to identify long-term population trends and distributions of eagles. This information is critical to effectively implementing APG's bald eagle management and compliance program. APG provides the annual data to the MDDNR, who then compiles all the data collected within the state to estimate the region-wide bald eagle population. These mid-winter counts are only a "snap shot" and are dependent on a number of factors including annual productivity, and local, regional, and broader weather conditions which can trigger earlier or later migrations of northern eagles from Canada and the northeastern U.S. In addition, the survey route is limited to the major shorelines and does not extend inland; therefore, eagles loafing along smaller inland creeks may not be counted.

APG developed a standardized protocol for the mid-winter count to allow for year-to-year comparisons of data. APG's database (1986-present) is one of only two historic collections of mid-winter bald eagle population data in Maryland. APG's data have indicated an increase in the population of eagles on APG and the surrounding areas since the early 1980s, but a general stabilization of numbers in recent years (Table 1). The mid-winter surveys continue to confirm large numbers of eagles utilizing

Table 1: Cumulative Mid-Winter Bald Eagle Survey Data

Year	Day	Number of Bald Eagles Counted						Total Number of Bald Eagles
		Aberdeen Proving Ground			Susquehanna River			
		Adult	Subadult	Total	Adult	Subadult	Total	
2013	6-Jan	144	59	203	24	1	25	228
2012	8-Jan	104	53	157	27	12	39	196
2011	9-Jan	88	51	139 (+1 GE)	13	10	23	162 (+1 GE)
2010	10-Jan	117	80	197	25	17	42	239
2009	Survey not conducted (helicopter not available)							
2008	12-Jan	93	39	132	20	7	27	159
2007	7-Jan	71	29	100	19	7	26	126
2006	8-Jan	106	58	164	45	19	64	228
2005	9-Jan	145	61	206	23	9	32	238
2004	11-Jan	73	54	127	33	21	54	181
2003	12-Jan	135	91	226	16	7	23	249
2002	13-Jan	60	14	74	27	16	43	117
2001	26-Jan	103	85	188	30	21	51	239
2000	9-Jan	57	25	82	40	31	71	153
1999	10-Jan	67	58	125	13	13	26	151
1998	11-Jan	60	19	79	30	29	59	138
1997	12-Jan	80	43	123	17	12	29	152
1996	21-Jan	92	47	139	19	8	27	166
1995	15-Jan	70	31	101	16	5	21	122
1994	9-Jan	26	36	62	22	9	31	93
1993	17-Jan	40	23	63	14	4	18	81
1992	12-Jan	49	40	89	15	8	23	112
1991	13-Jan	26	20	46 (+1 GE)	12	7	19	65 (+1 GE)
1990	14-Jan	111	67	178	2	2	4	182
1989	15-Jan	61	40	101	not surveyed due to fog			101
1988	10-Jan	27	24	51	18	18	36	87
1987	11-Jan	24	13	37	6	8	14	51
1986	11-Jan	35	29	64	0	0	0	64
1985	13-Jan	19	28	47	not surveyed			47
1984	7-Jan	30	62	92	not surveyed			92
1983	9-Jan	11	28	39	not surveyed			39

GE=Golden Eagle

nearly all forested shorelines of APG. The densest concentrations of eagles are routinely observed along the shorelines of the Bush River, Spesutie Island, and Pooles Island.

2.1.2 Roosting Areas

Non-breeding eagles are typically gregarious and establish communal roosts (areas where eagles gather and perch overnight). Communal roosts are typically isolated from human disturbance, contain sustainable substrate for roosting, positioned in areas protected from harsh weather, and have a clear movement corridor between the roost and primary foraging areas. A number of communal roost areas have been identified on APG through ground surveys and satellite telemetry data. APG has identified several core (year-round) roosts as shown in Figure 2. These core roosts are located further inland than the shoreline foraging and loafing areas, and include Coopers Creek, Mosquito Creek, Woodrest Creek, and three roosts along Romney Creek. Numerous ancillary (seasonal) roosts also exist along the wooded shorelines of the installation. The satellite telemetry data indicated that eagles at APG move in and out of roost areas throughout the day, and may not utilize the same nighttime roost area from night to night (Watts and Mojica 2009b). This network of core and seasonal communal roost areas is dynamic and can change over time depending on factors such as distribution of prey, loss of perch trees, or other changes to the habitat.

2.1.3 Nesting Areas

Bald eagles exhibit high nest fidelity and nesting territories are often used year after year. The majority of the nests on APG are located in large trees with a clear view of shoreline foraging areas, or if located further inland, within one mile of a suitable foraging area.

APG conducts a series of nest surveys by helicopter each breeding season. These surveys identify new nests, fallen nests, numbers of eggs and chicks, and confirm fledging. The aerial surveys are supplemented by ground observations. APG conducts the nest surveys in accordance with a standardized protocol developed by APG and following recommendations from the USFWS's Chesapeake Bay Field Office. The surveys have documented a tremendous increase in the number of breeding pairs of eagles on APG. In 1977, APG had only one known nesting pair of eagles. The number of breeding pairs increased to five by 1991. In 2013, APG had close to 50 active nests that fledged a total of 90 chicks (Figure 3). Since 2006, the APG nesting population (measured as number of active nests) has nearly doubled. The productivity (measured as total number of chicks fledged) has more than doubled in the same time period. Increased productivity is due in part to an increased frequency of "triplets" (three chicks in nest), from 0 percent in 2005 to an average of 19 percent of active nests in the past three years (2011-2013) (see Table 2 below). Overall, the number of chicks per active nest at APG has increased from 1.17 in 2005 to 1.76 in 2013. This increased fecundity is indicative of a robust breeding population at APG that is benefitting from the abundantly available food resources.

Figure 2 (APG Bald Eagle Nests and Roosts) is available for review at the office of:

DPW Environmental Division
Natural Resources Branch
Building E5183 Blackhawk Road, Room 213
Aberdeen Proving Ground, Maryland 21010
Phone: 410-436-0465

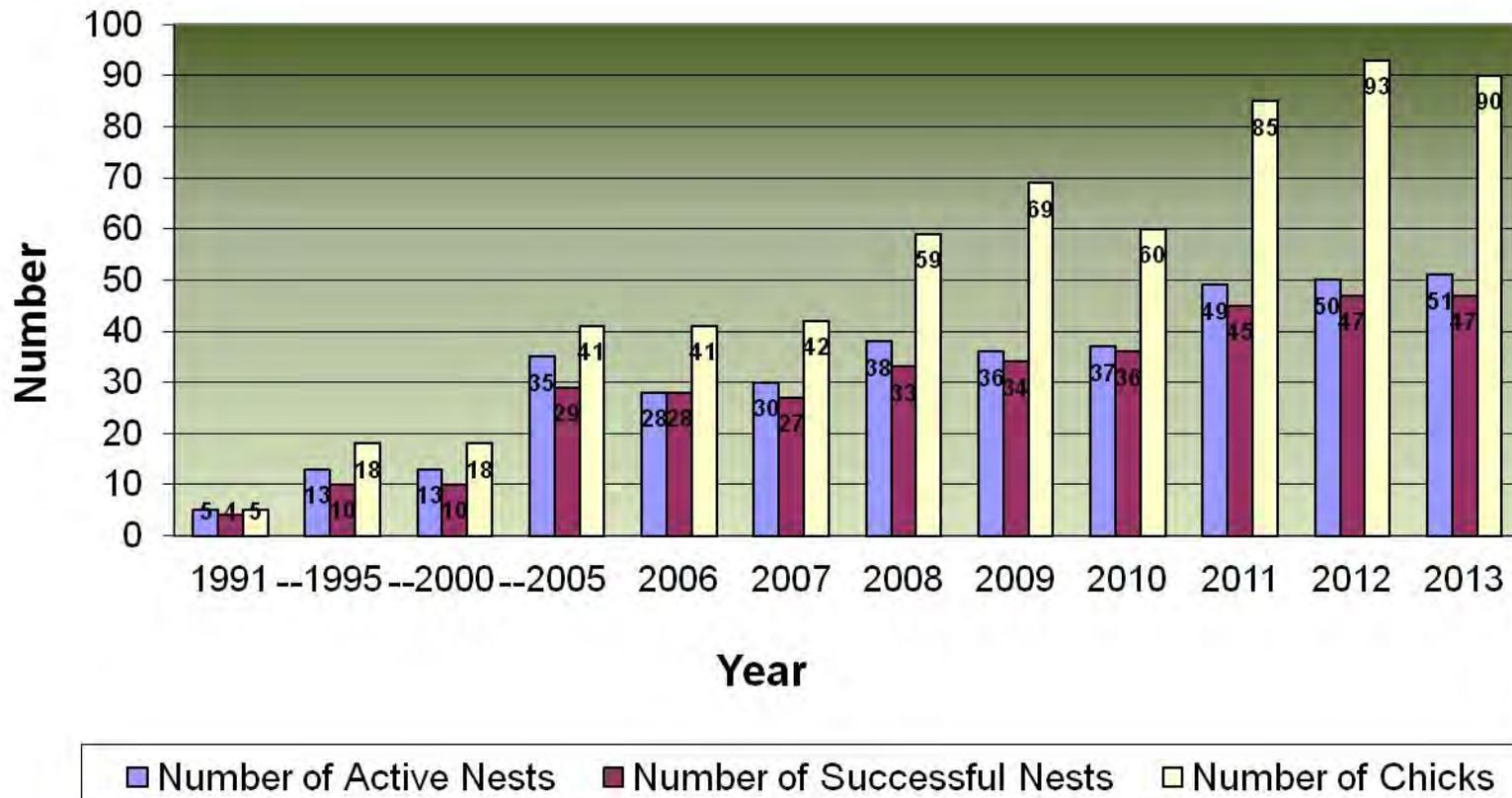


Figure 3 APG Bald Eagle Nest Productivity

Table 2: Number of Triplet Bald Eagle Nests Per Season at APG

Year:	2005	2006	2007	2008	2009	2010	2011	2012	2013
Active Nests:	35	28	30	38	36	37	49	50	51
Sets of Triplets ^(a) :	0	2	1	3	7	3	9	11	8
Triplet Frequency ^(b) :	0%	7%	3%	8%	19%	8%	18%	22%	16%
Chicks/Active Nest:	1.17	1.46	1.40	1.55	1.92	1.62	1.73	1.86	1.76

(a) Documented triplets, regardless if one or more chicks lost

(b) Triplet Rate = (# Sets of Triplets) / (# Active Nests)

On APG, nesting habitats which for many years contained only a single active nesting pair are now known to contain two or more pairs in very close proximity (USFWS 2006). In 2006, the mean inter-nest distance (that is, the mean nearest-neighbor distance between simultaneously occupied nests) was 1,560 meters (0.97 miles) (APG 2007). As of 2013, the mean distance for APG nests is 1,277 meters (0.79 miles). APG has several overlapping nesting territories each with a pair of nests only 300 to 600 meters apart (less than 0.5 miles). Inter-nest distances are likely much shorter at APG than for other nests in the region. With the establishment of more compressed territories, many eagle pairs at APG have developed a tolerance to routine and on-going mission activities and noise, with some pairs building nests and raising young within 200 meters of active range areas. Locations of eagle nests at APG for the 2013 nesting season are shown in Figure 2. APG currently tracks approximately 70 nests (active and inactive).

2.2 Eagle Exposure Rate

The available data indicate that APG supports a convergence of three populations of bald eagles: year-round residents, northern migrants, and southern migrants. It is estimated that a few hundred eagles are on APG at any one time, and that at least several hundred eagles utilize the installation throughout the year. The number of eagles on the installation is estimated to be highest during the winter months (January-March) and the summer months (June-July) due to influx of northern and southern migrants, respectively (Watts and Mojica 2009b). The downrange areas of the installation generally have the highest eagle activity. The downrange areas are less developed than the cantonment areas and support the majority of the nests and roosts. However, with the expanding population of eagles, there is potential for interactions between eagles and military mission throughout the installation. It is worthy to note that wintering golden eagles are seen in the northern Chesapeake Bay region, including APG, but not in any large numbers.

An eagle exposure rate is not readily calculable (or applicable) given the size of the installation, the varied land uses by the Army, and the dynamics of an expanding eagle population. It is expected that incidental take of eagles will continue at APG in the form of lethal take and nest disturbance, despite the implementation of conservation measures. The number of historic takes at APG will be used in Stage 3 of this ECP to predict an annual take level for the next five years.

Due to the expanding eagle population and limiting habitat, it is expected that new eagle pairs will continue to pursue less than optimal habitats (including man-made structures) to establish nest territories. Some of these new nests may directly conflict with mission operations and/or pose a risk to human or eagle safety. For this reason, it is likely that APG may require removal of a nest or nests within the next five years in accordance with Title 50 CFR Part 22.27.

Based on the information gathered in Stages 1 and 2, the mortality/disturbance risk to eagles at APG is considered to fall within Category 2. As defined by the USFWS, Category 2 is high or moderate risk to eagles with opportunity to minimize/mitigate impacts.

3 STAGE 3 – PREDICTED EAGLE FATALITIES AND DISTURBANCES

Stage 3 of the ECP uses the data from Stage 2 to predict eagle risk, as average number of fatalities per year, extrapolated for the duration of the permit. Risk of disturbances to eagles is also determined in Stage 3.

3.1 Predicted Eagle Fatalities

In compliance with APG's 2006 Biological Opinion, APG implemented a number of conservation measures to reduce eagle mortalities and disturbances (see discussion of existing conservation measures in Section 4). However, incidental take of eagles has not been entirely eliminated due to the on-going military mission and the increasing population of bald eagles at APG (Figure 4). Since issuance of the Biological Opinion, APG has had an average of 4.4 bald eagle takes (mortalities) per year (2006-2013). Nearly all of these takes (91 percent) were line strikes where the eagle flew into an overhead power line and was killed outright, or died later, due to electrocution and/or blunt force trauma. The remaining takes consisted of a collision with an aircraft, an impalement on a lightning rod, and a drowning in a containment structure/box.

Since 2009, the annual number of takes at APG has increased. There were three takes in 2009, seven takes in 2010, and eight takes in 2011. While the number of takes decreased to two in 2012, the number of takes increased again to eight in 2013.

The number of eagles removed from the population (takes) can be compared to the number of eagles added to the population (chicks fledged), by expressing takes as a percentage of the fledgling population. From 2006 to 2013, percentage of takes ranged from 0 percent in 2008 to 11.7 percent in 2010 (Figure 5). An extrapolation of this take data (2006-2013) estimates a gradual increase in takes, with an annual take of 7.2 percent by 2019 (80 percent confidence interval of 5.0-9.5 percent, see Appendix). Take data prior to 2006 was excluded from the prediction model, because APG had not fully implemented protective measures for eagles until 2006.

In order to predict the number of eagles equating to 7.2 percent of the population, a regression is performed on the population data. An extrapolation of the population data (expressed as number of chicks fledged) from 2006 to 2013 predicts 142 fledglings (80 percent confidence interval of 139-146, see Appendix) added to the population in 2019. A predicted take of 7.2 percent of 142 fledglings equates to 10.2 birds, or 13.9 birds as a worst case scenario using the 80 percent upper confidence limits (9.5 percent of 146 fledglings).

These extrapolations assume a linear increase in takes and productivity over the next five years. This may prove to be an over-estimation of predicted take/productivity, especially if the population of eagles at APG reaches a stable carrying capacity within the next five years. Currently, there is no evidence to support that APG has reached its carrying capacity for breeding bald eagles. While the population has appeared to

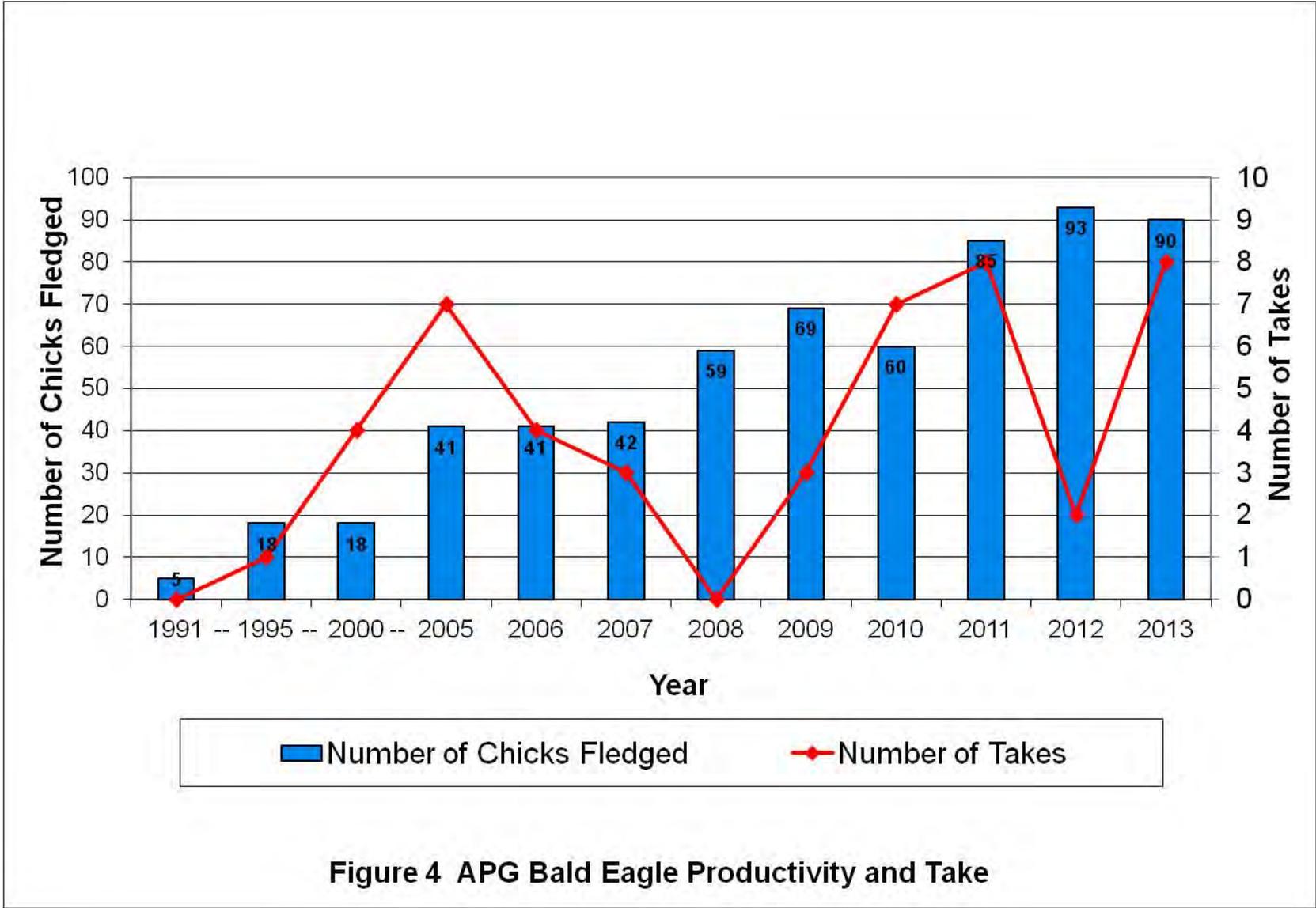
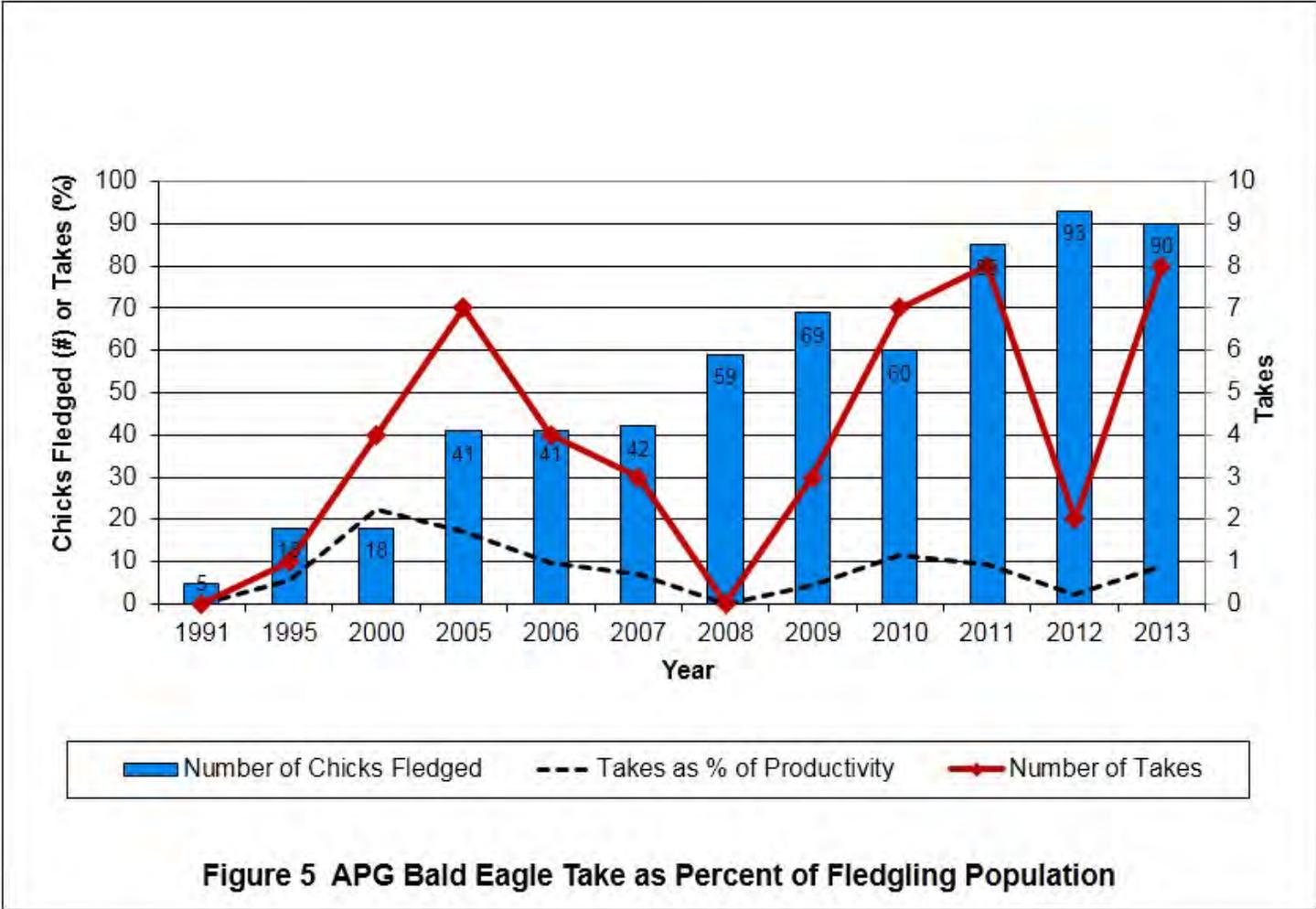


Figure 4 APG Bald Eagle Productivity and Take



plateau for the last 3 years (2011-2013), a similar plateau was observed in 2005-2007 and in 2008-2010, with each 3-year time period followed by a significant increase in the nesting population. Even if the number of nests does not substantially increase over the next five years, it is still possible that the number of chicks per nest will continue to increase.

An increasing number of line strikes is believed to have resulted from intraspecies interactions (fights between eagles over prey items or territory). For example in 2011, a dead immature eagle was found under an overhead power line. The eagle had puncture wounds on the toes and feet, and feathers clinging to one of the talons. Similarly in August 2013, two dead immature eagles were found under overhead power lines with the remains of a fish in the talons of one of the eagles. APG has also documented increased aggression between eagles and ospreys, which can result in one or both birds striking an overhead line. APG has an expanding population of ospreys. Ospreys are seasonal inhabitants of APG and the Chesapeake Bay area, returning to the region in early March and remaining into October when they begin their migration south for the winter. Though the breeding seasons of the two species are slightly off-set, APG has seen increasing frequencies of interspecies aggression related to nesting and foraging territories. APG has noted instances of ospreys harassing eagle pairs that have a nest in close proximity to an osprey nest. Additionally, ospreys often harass foraging eagles, swooping down to try to dislodge a prey item from the eagle's talons. In 2010, APG captured an injured eagle on the ground that was being harassed and chased by a nearby pair of nesting ospreys. The frequency of both intra and interspecies aggressive incidents will likely continue to increase as the two populations compete for eventually limiting food resources and territory.

3.2 Predicted Nest Disturbances

Under the 2006 Biological Opinion, APG was granted a nest disturbance allowance of up to three nests per year, each nest containing up to three eggs or chicks, due to incidental disturbance. Since 2006, APG has had no nest disturbances. However, new eagle pairs continue to construct new nests in close proximity to installation activities. In addition, APG's military mission continues to evolve due to immediate in-theatre needs, BRAC, and other factors.

3.3 Summary of Proposed Incidental Take

Based on the predicted levels of take discussed above, APG proposes the following incidental take allowance for the programmatic permit:

1. Incidental Lethal Take – Up to 12 bald eagles per calendar year due to collisions with electrical and other man-made infrastructure, collisions with ground and aerial vehicles (both manned and un-manned), and other unforeseen impacts resulting incidentally to mission activities, that result in death of the eagle or its permanent removal from the wild population
 - Proposed take is mid-point between predicted take (10 eagles) and worst case scenario (14 eagles) and is justified by the fluctuation of takes from year to year, continued competition with other raptors (ospreys), and the

uncertainty if the eagle population will continue to increase. Proposed take is higher than previous allowance under 2006 Biological Opinion, and is justified because APG's eagle population has nearly doubled since 2006.

2. Incidental Nest Disturbance – Up to 3 bald eagle nests per calendar year with minimization measures, due to incidental harassment of adults leading to abandonment of nest and loss of productivity for the given year, inclusive of eggs and young
 - Proposed take is unchanged from previous allowance under 2006 Biological Opinion.

Mortalities, injuries, and nest disturbances that are attributable to natural causes will not count against the permitted incidental take allowance. APG will report all eagle mortalities, injuries, and nest disturbances (incidental take and natural causes) to the USFWS, as discussed in Section 5.

3.4 Nest Removals

No eagle nest has ever been removed at APG. However, due to the expanding eagle population and the on-going military mission, APG may have a need in the next five years to remove an eagle nest or nests. As eagle density continues to increase, eagle pairs are moving towards less optimal habitat to establish new nesting territories. In 2007, an eagle pair constructed a nest on the top of a man-made tower that was located in a near direct line of fire. In 2011, an eagle pair constructed a nest in the direct flight path utilized by an airfield. Both of these nests negatively impacted mission activities, and reduced mission capabilities. Both nests have since fallen from the trees naturally, and the eagle pairs have not returned to the sites. Should either of these sites become occupied again by an eagle pair, APG will coordinate with the USFWS for the removal of the nest. Other nests may arise in unforeseen locations which may also require removal in the next five years.

All nest removals will be coordinated in advance with the USFWS, and all removals will be in accordance with Title 50 CFR Part 22.27. A nest requested for removal will fall into one of the following categories (Title 50 CFR Part 22.27):

1. An active or inactive nest where removal is necessary to alleviate a safety emergency
 - For example, a nest located in a flight path that increases the risk of collision between aircraft and eagles, and jeopardizes the safety of aircraft, pilot, and crew
 - Chicks and viable eggs from an active nest must be immediately transported to a qualified rehabilitation facility permitted to care for eagles
2. An inactive nest where removal is necessary to ensure public health and safety

3. An inactive nest that is built on a man-made structure and creates a functional hazard that renders the structure inoperable for its intended use
4. An inactive nest where removal protects a local interest and the activity necessitating the removal, or the mitigation for the removal, with reasonable certainty provides a clear and substantial benefit to eagles
 - For example, removing a nest in order to bury overhead power lines, or removing a nest located in the only feasible site for a new testing or training range (with mitigation)
 - Mitigation measures could include securing an off-Post conservation easement in documented eagle nesting habitat

Each proposed nest removal will be evaluated by APG, in coordination with the USFWS, to ensure that all reasonable avoidance measures have been implemented and that the nest removal will not adversely impact the installation's breeding population. For the purpose of this discussion on nest removals, an "inactive" nest is defined as a nest not currently being used by eagles as determined by the continuing absence of any adult, egg, or dependent young at the nest for at least ten consecutive days immediately prior to, and including, at present. A nest removal action must include trimming of suitable nest supporting limbs in the nest tree, or altering of the man-made structure, to prevent attempts by eagles to re-build the nest. APG will report all eagle nest removals to the USFWS, as discussed in Section 5.

4 STAGE 4 – AVOIDANCE AND MINIMIZATION OF RISK AND COMPENSATORY MITIGATION

Stage 4 of the ECP is development of proposed advanced conservation practices (ACPs) to avoid or minimize predicted eagle risks at the project site. A cumulative effects analysis is conducted by the USFWS in Stage 4 to determine if local and regional thresholds for eagle take are exceeded. The cumulative effects analysis is based on impacts from all permitted take within the locality/region. Compensatory mitigation may be warranted at the end of Stage 4, if projected take exceeds the local and/or regional thresholds.

4.1 Existing Conservation Measures

As a requirement of APG's 2006 Biological Opinion, APG implemented a number of conservation measures to avoid and minimize eagle mortalities and disturbances. These measures included:

- Line Burial – APG spent \$11.6 million to bury nearly six miles of overhead power lines on Spesutie Island from 2006 to 2014. This portion of the installation had the highest frequency of eagle mortalities as a result of line strikes. Spesutie Island (located in the northeastern portion of APG, see Figure 1) is surrounded by the Chesapeake Bay and has dense eagle activity including foraging, nesting, and sheltering sites. Line burial has also been incorporated into new projects that are located close to shoreline foraging areas. Line burial has been the most effective measure to eliminate line strikes at APG, but also the most expensive. Due to the very high costs of implementation, it is not feasible to bury all overhead lines at APG.
- Avian Deterrents/Protective Devices – APG spent \$3.6 million to retrofit electrical infrastructure with avian deterrents and protective devices following the Avian Power Line Interaction Committee (APLIC) best practices guidelines (APLIC 1994; 2012). The retrofits included installing perch excluders on cross arms; insulating covers on wires, conductors, jumper wires, cutouts, and bushings; and spinning reflective flight diverters and high-visibility spheres on overhead power lines. Eagles are killed by exposed electrical lines in two functionally different ways. The first (pole electrocution) occurs when an eagle perches on a utility pole cross arm and is electrocuted when different body parts touch elements that complete the electrical circuit. The second (line strike) occurs when eagles fly into exposed wires and are either killed by the trauma of striking the wires or are electrocuted when their wings complete a circuit between two wires. The installation of avian deterrents and protective devices on electrical infrastructure has been a cost effective measure that significantly reduces the number of eagle mortalities on APG. The deterrents and devices are nearly maintenance-free, except for the spinning flight diverters which need periodic replacement as the swivel assemblies fail. Several versions of the diverters have been field tested at

APG, and the latest version (FireFly™ FF) with a large stainless steel ball bearing swivel has proven to be the most durable.

- Movement Study – APG spent \$2.2 million to conduct a three-year eagle movement study using satellite telemetry. Satellite transmitters were deployed on 63 bald eagles trapped on APG between 2007 and 2009. The transmitted data (collected between 2007 and 2011) were used to further understand movement patterns of eagles (including resident and migrating eagles) that utilize APG. Foraging areas and core and seasonal roost areas were delineated, along with movement corridors. This information is critical to a successful management program for bald eagles on APG. Telemetry data combined with traditional ground monitoring allows APG to evaluate effects of mission activities on eagle movement and behavioral patterns.
- Nest Cameras – APG spent \$200,000 on the installation of remote cameras on six bald eagle nests on APG. Video footage combined with ground observations is used to monitor the eagles during nesting season. The live-feed video footage is used to evaluate, in real-time, the effects of mission activities on the nesting eagles.
- Nest Study – APG conducts comprehensive annual bald eagle nest studies. A standardized protocol was developed by APG and is used to conduct nest surveys. The use of a standardized protocol ensures consistent collection of data that allows for year to year comparisons of nest productivity. The nest studies incorporate both aerial (overflight) and ground observations. The results of the nest studies confirmed a continued increase in the annual productivity of eagles at APG.
- Monitoring During Mission Activities – In addition to population and nest surveys, APG conducts ground observations to monitor eagles during mission activities. Biologists are able to observe eagle behavior, communicate directly with activity coordinators, and if needed, immediately halt potentially disturbing mission activities. Monitoring is an effective protective measure at APG that also ensures the success of various mission activities including range firing, shoreline training, and environmental remediation.
- Restrictive Buffers – APG implemented 500-meter protective buffers around bald eagle nests. Within these buffers, human activity is restricted during nesting season, and habitat altering activities (land clearing, construction, and/or development) are limited year-round. Similar buffers are also implemented around core communal roosts. Maintaining protective buffers minimizes direct impacts of mission activities on eagles.
- Revised Management Plan – APG revised the eagle management component of its Integrated Natural Resources Management Plan (INRMP) to incorporate the avoidance and minimization measures required by the 2006 Biological Opinion.

The plan outlines management strategies, coordination, reporting requirements, and employee training.

All of the above mentioned conservation measures have proven to be successful at reducing mortalities and minimizing disturbances to bald eagles at APG. These measures represent the best available management practices. The value of these conservation measures is evident in the thriving eagle population at APG.

Additionally, APG has an Army Compatible Use Buffer (ACUB) program. This program establishes buffer areas around Army installations to limit effects of encroachment and maximize land inside the installation that can be used to support the installation's mission. By working in partnership with conservation organizations, ACUBs can greatly enhance habitat conservation planning at the ecosystem level to ensure that greater benefits are realized towards species and habitat protection. APG's ACUB targets land conservation along shorelines of the northern Chesapeake Bay. These shorelines (particularly the eastern shorelines of Cecil and Kent Counties) are areas of high bald eagle activity, as supported by the data generated from the eagle movement study. APG is working with its conservation partners to encumber off-site land adjacent to, or ecologically adjacent to, the installation to limit development pressures, protect forested shoreline habitat, and ultimately benefit the bald eagle population.

4.2 Proposed Conservation Measures (ACPs)

ACPs are defined as scientifically supported conservation measures that avoid or minimize eagle risks to the maximum extent achievable, so that remaining take is unavoidable. Currently, the USFWS has no approved advanced conservation practices. Therefore, any advanced conservation practices proposed at this stage will be termed "experimental."

APG proposes a tiered application of experimental ACPs under the programmatic permit. The experimental ACPs would avoid or reduce eagle take to the maximum extent possible where remaining take is unavoidable, include adaptive management strategies, and promote conservation benefits. Tier 1 experimental ACPs are considered required measures to be implemented immediately. Tier 2 experimental ACPs are optionally implemented for proactive conservation benefits. The proposed experimental ACPs are listed below.

TIER 1: APG will implement the following five experimental ACPs immediately. Implementation of these measures is expected to reduce take to a level where remaining take is unavoidable.

1. **Management Plan – APG will continue to operate in accordance with its eagle management component of the INRMP.**
 - APG will revise the eagle management component of its INRMP to reflect the programmatic permit and experimental ACPs.

2. **Adaptive Management** – APG will adaptively manage the eagle population on the installation to address allowable activities in the vicinity of eagle use areas.
 - Adaptive management promotes flexible decision making that can be evaluated and adjusted based on outcomes of management actions and other events. APG will utilize its standard operating procedures for environmental reviews of all installation projects and adaptively manage project details to address allowable activities based on information obtained from existing eagle monitoring measures.

3. **Avian Deterrents/Protective Devices** – APG will continue to periodically inspect and replace (if needed) the avian deterrents and protective devices on the electrical infrastructure.
 - Avian deterrents and protective devices include spinning reflective deterrents (FireFly™ FF) on wires; elevated perches or perch excluders on cross arms; and insulating covers on wires, conductors, cutouts, and bushings. Inspections and replacements (as needed) would occur at least annually as addressed in the eagle management component of the INRMP. Alternative marking devices for the power lines may be employed as long as the alternatives are as or more effective than the FireFly™ FF units in reducing line strikes.

4. **Line Burial** – APG will bury overhead power lines, where feasible and as funds allow, to reduce the potential of eagle mortalities due to line strikes.
 - Sections of existing overhead lines that can be feasibly buried will be prioritized for burial based on areas of densest eagle activity, occurrence of line strikes, and availability of funding. Additional eagle movement and mortality data have been collected by APG since 2006; therefore, the selected areas may not necessarily correspond to those areas identified in the 2006 Biological Opinion. Priority areas will be identified in the eagle management component of the INRMP. Given the very high costs associated with burying overhead lines, line burial will only be considered after other minimization measures such as avian deterrents/protective devices have proven ineffective.

5. **Biological Studies** – APG will continue to conduct annual population and seasonal nest surveys to monitor the stability and productivity of the installation's eagle population. Surveys will include a population overflight in early January (to coincide with the national Mid-Winter Eagle Count) and nest overflights in late January, early March, early April, and early May. If necessary, an additional nest overflight may be conducted in mid-May.

- Surveys will follow standardized protocols developed by APG to allow for year-to-year comparisons of data. These surveys will incorporate both ground and aerial observations. The data collected will contribute to the long-term research at APG to help identify regional and long-term population trends, distributions, and nesting success.

TIER 2: At the Army’s discretion, APG would optionally implement the following two experimental ACPs for proactive conservation benefits.

6. Forest Stand Improvements – APG will conduct forest stand improvements to help ensure the sustainability of habitat for bald eagles, while sustaining the testing and training landscape required by the military mission.

- In 2012, APG lost over ten percent of the nest trees due to storms and natural degradation, occurrences indicative of declining forest health. It is important to the long-term sustainment of the breeding eagle population that these large canopy trees be replaced (either through natural re-generation or plantings). Unfortunately, deer pressure and invasive Japanese stiltgrass have limited the natural regeneration of oak, hickory, beech, and tulip poplar at APG.
- The forest stand improvements would target existing forest stands that show degraded habitat quality, that exhibit high eagle activity, and that do not directly conflict with existing range mission activities. The forestry work would not establish new habitat which could potentially attract even more eagles to APG. Improvements would be made in areas unlikely to create additional risk to eagles from potential line strikes or other mission conflicts. The forest stand improvements would be conducted in eagle use areas, defined as having a documented nesting, roosting, and/or foraging area. The forest stand improvements would enhance native species diversity (oak, hickory, beech, and tulip poplar), decrease invasive species, and provide for long-term forest sustainability.
- APG’s forest management component of the INRMP outlines silvicultural prescriptions implementing forest improvement for each of its 580 forest stands. This landscape-level planning specifies annual actions designed for improving overall forest health, eagle habitat, and mission landscape by increasing natural regeneration, reducing the impact of invasive species, “jump starting” desired species composition through tree plantings, increasing biodiversity in existing monocultures, and moving towards uneven-aged forest structure. Silvicultural prescriptions include using tree planting in existing or created canopy gaps and/or individual tree planting within existing stands with no natural regeneration, mechanical removal of invasive species and vines in concert with pinpoint herbicide application, tree girdling, overstocked stand thinnings to increase crown size on mature trees, duff and soil disturbance to increase natural regeneration, and tubing natural regeneration of desirable species until above deer browse line.

- These proactive efforts to improve forest stands would be credited towards APG's conservation efforts for eagles. Potential conservation credit from a forest stand improvement effort will include: 1) enhancement of nesting habitat as mitigation for a nest removal, and 2) enhancement of roosting habitat as mitigation for a roost disturbance. APG would develop a Memorandum of Agreement (MOA) with the USFWS to specify how forest stand improvements would be credited towards eagle conservation. APG and the USFWS would work towards a MOA within the first year of the permit.

7. **ACUB Program** – Through its ACUB program, APG will work with its conservation partners to encumber off-site land adjacent to, or ecologically adjacent to, the installation to limit development, protect forested shoreline habitat, and ultimately benefit the bald eagle population.

- The implementation of the ACUB program is dependent on available Army/Department of Defense funding, available partner funding, and willing landowners. When funding and parcels become available, APG will contribute funds to the partner's purchase of easements or properties from willing landowners, without acquiring any new land for Army ownership. Further details on this ACUB program, including priority areas, are provided in APG's approved proposal (APG 2012).
- An ACUB conservation easement or purchase which is attained and which is associated with eagle habitat (as identified by a satellite telemetry study or confirmed by site investigation) will be credited towards APG's conservation efforts for eagles. Potential conservation credit from an ACUB easement or purchase will include: 1) off-site nest productivity counting towards APG's eagle productivity, 2) conservation of off-site nesting territory as mitigation for an on-site nest removal, and/or 3) conservation of off-site roosting territory as mitigation for an on-site roost disturbance. APG will develop a MOA with the USFWS to specify how ACUB efforts will be credited towards eagle conservation. APG and the USFWS will work towards a MOA within the first year of the permit. The MOA will serve as the vehicle for ensuring that mitigation credit is approved in encumbering the land parcel. Monitoring requirements of the ACUB parcel for meeting conservation and mitigation commitments will be addressed in the easement.

4.3 Cumulative Effects Analysis

The purpose of a cumulative effects evaluation is to identify conditions where take of eagles is assessed at the individual project level in combination with other similar projects in a defined geographic area. As part of the permit application review process under Title 50 CFR Part 22.26 (f)(1) and Final Rule (USFWS 2009b), the USFWS must evaluate and consider effects of take permits on eagle populations at three levels. These levels are: (1) eagle management unit or regional area, (2) local area, and (3) project area. The cumulative effects analysis also incorporates other biological

resource information such as annual nest productivity and mortality levels for each of these areas.

4.3.1 Geographic-Scope Take Thresholds

Regional Area Population

To ensure that any authorized take of eagles does not exceed the BGEPA's preservation standard, the USFWS has set thresholds for take limits of eagles based on regional eagle management units. These thresholds were developed using past State nesting surveys. The USFWS also incorporated measures to ensure that local area eagle populations are not severely impacted or depleted by take that could be otherwise be acceptable at the regional (eagle management unit) scale. An eagle management unit-wide area population index was developed by the USFWS with an assumption that eagle numbers are equally distributed across the landscape. APG falls within the USFWS's Mid-Atlantic bald eagle management unit. The estimated population size for the Mid-Atlantic bald eagle management unit is 14,021 eagles encompassing 237,687 square miles of landscape (USFWS 2009a). As shown below, the unit density is approximately 0.059 eagles per square mile.

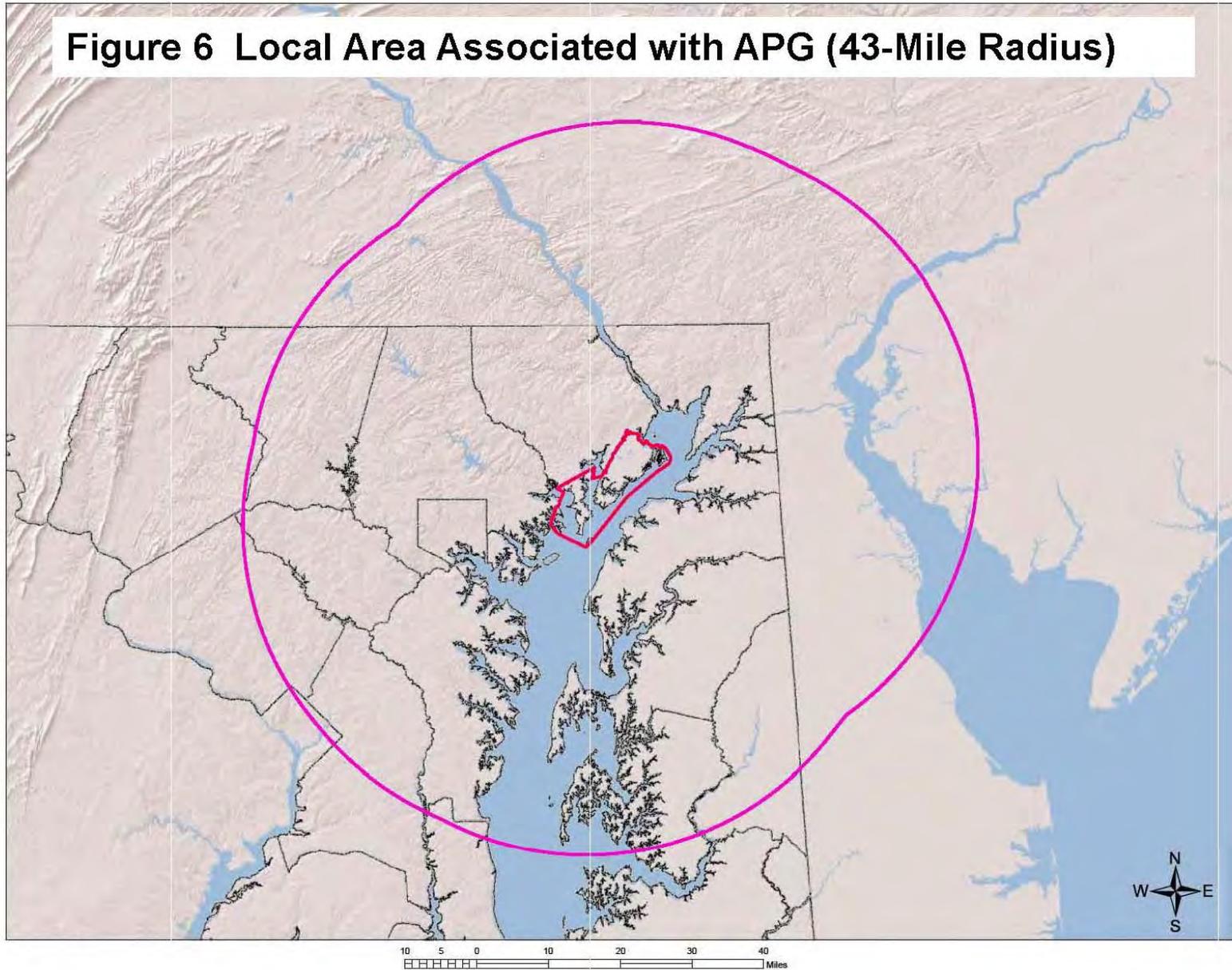
$$\begin{aligned}\text{Mid-Atlantic Management Unit Eagle Density} &= (\text{Population}) / (\text{Management Unit Size}) \\ &= (14,021 \text{ eagles}) / (237,687 \text{ square miles}) \\ &= 0.059 \text{ eagles per square mile}\end{aligned}$$

Local Area Population

The local area bald eagle population is calculated based on the regional eagle density and an area extending 43 miles outward of the project boundary. Forty-three miles is the mean natal dispersal range for bald eagles as determined by the USFWS. For APG, this defined local area encompasses the entire northern Chesapeake Bay area, the southern Susquehanna River area, and portions of the Delaware River and Delaware Bay (Figure 6). This local dispersal area is approximately 4,913 square miles of habitat (exclusive of open waters of the Gunpowder River, Bush River, and Chesapeake Bay). Therefore, as shown below, the local area bald eagle population is approximately 290 eagles.

$$\begin{aligned}\text{Local Eagle Population} &= (\text{Regional Eagle Density}) * (\text{Local Area Size}) \\ &= (0.059 \text{ eagles per square mile}) * (4,913 \text{ square miles}) \\ &= 289.9 \text{ eagles}\end{aligned}$$

Figure 6 Local Area Associated with APG (43-Mile Radius)



Based on data for the Mid-Atlantic bald eagle management unit and using the equation below (USFWS 2009a), the five percent benchmark for eagle take in this local area is 15 eagles per year.

$$\begin{aligned}\text{Local Area 5\% Threshold} &= (\text{Local Area}) * (\text{Regional Eagle Density}) * 0.05 \\ &= (4,913 \text{ square miles}) * (0.059 \text{ eagles per square mile}) * 0.05 \\ &= 14.5 \text{ eagles}\end{aligned}$$

The USFWS quantified take rates of between one and five percent of estimated local area eagle population as benchmarks, with five percent being at the upper end and still compatible with maintaining healthy local eagle populations. Under this methodology, permitting take of more than 15 eagles per year should be carefully considered to ensure that it is consistent with the BGEPA's preservation standard and the requirements of the regulations at Title 50 CFR Part 22.26.

4.3.2 Environmental Baseline

Nest Surveys and Population Monitoring

A comprehensive bald eagle nest monitoring survey in the Chesapeake Bay region was first conducted in the late 1970s and continued through 2004, by the Maryland Department of Natural Resources, the Delaware Division of Fish and Wildlife, and the Virginia Commission of Game and Inland Fisheries. The total number of occupied territories by the end of the 2004 nesting season was approximately 800 eagle pairs. In 2007, the USFWS delisted the bald eagle under ESA, and the States soon followed thereafter. Currently, only Virginia and Delaware continue to conduct annual nest surveys for their watershed areas.

Following the delisting of the bald eagle, smaller scale nest surveys resulted with only a portion of the population being sampled, making it difficult to quantify actual numbers of eagles for a local area population. Despite this reduced survey effort, nest monitoring continued, albeit as a necessity to meet ESA post-delisting requirements and eagle permit issuance criteria for development projects. Department of Defense installation managers, National Wildlife Refuges, and National Parks also continued to conduct annual nest monitoring. Proposed residential and commercial development projects, including land-based wind energy projects, were also required to assess potential impacts of their projects to nesting and wintering eagles.

APG Population Assessment

Since 1991, eagle nest surveys have been routinely conducted by APG environmental staff. Between 2005 and 2013, APG documented an increase in the breeding population to 51 pairs. Nest productivity also increased, with the highest yield occurring during the past consecutive three years (2011-2013). Nest production in 2011, 2012, and 2013, resulted in 85, 93, and 90 chicks, respectively.

Local Area Population Assessment

Productivity and population data collected by APG were combined with other data sources to estimate the 2013 local area eagle population (43-mile radius from APG). Other data sources included State agency nest surveys and a limited number of nest surveys conducted by private project consultants. A total of 645 eagles were estimated in 2013 (Table 4). This total includes chicks fledged from APG nests; however, only 50 percent of the chicks produced at APG in 2013 were conservatively included, in order to account for potential naturally-occurring fledgling mortality. In addition, the total does not include chicks that fledged from other nests in Maryland, Pennsylvania, Delaware, and New Jersey. The population calculation also does not include the significant number of subadult eagles in the local area (except those counted by APG during the mid-winter count). Therefore, the total number of eagles (645) is an under-estimation of the actual local area population.

Table 3. Local Area Bald Eagle Population

2013 Surveys	Count
Maryland (northern Bay segment)	58 nests
Pennsylvania (southeastern border)	21 nests
Lower Susquehanna River	12 nests
Delaware (western border)	25 nests
New Jersey (western border)	19 nests
APG	51 nests
Total Nests:	186
Breeders (Total Nests x 2):	372
Mid-Winter Survey (APG plus Lower Susquehanna):	228
APG Nest Production (50% of 90 chicks):	45
Total Population:	645

4.3.3 Stressors

Land clearing for commercial and residential construction activities has incrementally reduced natural habitat and land cover along rivers and Chesapeake Bay shorelines. Eagles have responded by either abandoning nest sites, adapting to fragmented territories with associated human activity, or relocating altogether to other forested areas with greater buffers such as those found at APG. APG's ACUB program (included as an experimental ACP under the proposed programmatic permit) would offset development pressures by conserving potential eagle habitat on adjacent off-post property, thereby contributing to long-term benefits to the APG, local, and regional populations of bald eagles. Additional analyses of environmental impacts of the ACUB

program will be performed in the future as exact locations of ACUB parcels are determined.

Although APG supports extensive habitat for foraging, nesting, and roosting eagles, the military testing and training operations have the potential to be disruptive to eagles either through habitat encroachment or noise. However, eagles at APG have become adjusted to reduced territories, and acclimated to military activities and associated noise from vehicular traffic, detonations, and various weapon firings.

Man-made infrastructure, particularly power lines and other electrical infrastructure, are of primary concern for risk of injury or death to eagles and other large birds. Commercial and residential development can increase the risk of power line collisions and electrocutions if the infrastructure is situated between eagle roosting areas and shoreline foraging areas. APG has an extensive electrical grid that connects power to many buildings through suspended pole-to-pole electrical lines. To minimize impacts to eagles, APG buried segments of overhead lines that posed the greatest risks to eagles from mid-line collisions. For the remaining overhead lines and electrical infrastructure, APG installed protective equipment to reduce the potential for avian electrocutions.

Other stressors to eagles in the local and regional area include poisoning, lead contamination, shooting, silt-pond entrapments, and collision with vehicles, aircraft, trains, towers, and wind turbines. Territorial fighting and competition between eagles and with ospreys have also led to injury or mortality. In 2013, over 39 eagles were recovered in the local area requiring treatment from a variety of injuries (Sallie Welte, Tri-State Bird Rescue and Research, pers. com.).

4.3.4 APG Take Assessment

From 2005 to 2013, APG documented 42 eagle mortalities (takes) due to line strike, electrocution, or other collision. It is probable that a greater proportion of mortalities affected non-breeding individuals from wintering and summering populations at APG and not the local resident eagles. This probability is based on the assumption that resident eagles are acclimated to routine mission activities and noise and are therefore, less likely to flush. Regardless, mortalities represented both adult and sub-adult age classes at a ratio of nearly 50:50 throughout all four seasons (Lynda Hartzell, APG, pers. com.).

Since 2005, eagle mortalities resulting in take have averaged 4.7 eagles per year at APG. The number of takes increased most recently to a high of eight eagles in both 2011 and 2013. A projection model was used to estimate potential take by APG into the near future (five years). A Linear Regression Model takes into account previous take and using mathematical variables can output a predictable annual take at the 80 percent confidence level (see Appendix A). Based on the model, approximately ten eagle mortalities are projected annually over the next five years (up to 14 eagles as a worst case scenario using the 80 percent confidence limit). At this level, APG's projected take would meet the USFWS's permit issuance criteria without exceeding the five percent local area population take threshold (5% of 645 eagles = 32 eagles).

4.3.5 Other Permitted Take Within Local and Regional Populations

To ensure that local and regional eagle populations remain stable or increasing, the USFWS requires an assessment of the effects of past authorized take, those projects currently under review, and all sources of documented eagle mortalities including those naturally occurring on the landscape. The assessment also considers the level of uncertainty when using models to predict future eagle take associated with mid-line strikes or large-scale commercial wind farms.

A commercial wind energy project consisting of up to 50 turbines is proposed approximately 15 miles southeast of APG, and will overlap APG's local area bald eagle population designation by approximately 70 percent. The proposed wind energy project and APG have an estimated combined projected take between 18 and 26 eagles. According to USFWS methodology (2009a), permitting multiple projects within the same local area population that will potentially take greater than five percent of the local area population should be given careful consideration. The 2013 eagle nest surveys indicate an increase in the number of eagles in the local area population from the 2009 population estimate developed by the USFWS (2009a). The overall increasing population trend suggests that the local area population in the vicinity of APG could withstand take greater than five percent of the local area population without negatively impacting stability of the local or regional (eagle management unit) bald eagle populations.

The take threshold for issuing permits in the Mid-Atlantic eagle management unit allows for take of up to 65 individuals and the loss of 45.5 individuals through nesting pair disturbances yearly. Each nest disturbance equates to the loss of 1.4 chicks per nest. Under the proposed programmatic take permit for APG, yearly take of up to 12 eagles through injury or mortality and 4.2 eagles as a result of three nest disturbances will be subtracted from the current threshold. The additional permitted take will not exceed the maximum threshold of 65 individuals or disturbance loss of 45.5 for the Mid-Atlantic eagle management unit.

Therefore, based on the current local area population trends, the USFWS believes that in the next five and possibly ten years, eagle populations will remain stable or with increasing numbers even with the combined stressors associated with APG, climate change, and other limited projects in the local area and regional eagle management unit that may be permitted for incidental take of bald eagles.

4.3.6 Conclusion

Before the USFWS may issue a bald eagle programmatic take permit under Title 50 CFR Part 22.26, it must be determined that: 1) the direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles; 2) the taking is necessary to protect a legitimate interest in a particular locality; 3) the taking is associated with, but not the purpose of, the activity; 4) the taking is unavoidable; 5) the applicant has avoided and minimized impacts to eagles to the extent practicable, and the taking will occur despite application of advanced

conservation practices; and 6) issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority as set forth in paragraph (e)(4) of Title 50 CFR Part 22.26. Based on information provided in this ECP, APG's proposed programmatic take of bald eagles is consistent with these issuing criteria.

4.4 Compensatory Mitigation

Additional compensatory mitigation is not required, because APG's experimental ACPs sufficiently reduce the potential for take to the maximum extent possible, and the projected take does not exceed calculated thresholds for the regional and local populations.

5 STAGE 5 – MONITORING

In Stage 5 of the ECP, a monitoring plan is developed to assess eagle mortalities and disturbances within the project area. The monitoring data are used to determine if conservation measures and/or compensatory mitigation are adequate, excessive, or deficient at reducing or off-setting observed take. The results of the monitoring may indicate if operational changes in the project are needed to reduce observed eagle mortality and/or disturbance.

5.1 Population Surveys

APG will continue to conduct an annual Mid-Winter Bald Eagle Survey as a cooperative effort with the MDDNR. The survey will include two routes: APG shoreline and Susquehanna River shoreline (north to approximately the Pennsylvania state line). The Susquehanna River shoreline will continue to be included in the survey, because past satellite telemetry data have indicated that resident eagles of APG regularly utilize the southern portion of the Susquehanna River, especially in the area of the Conowingo Dam just south of the Pennsylvania state line. The mid-winter count is merely a snapshot of the installation's bald eagle population. However, by following APG's standardized protocol, data from the survey can be compared from year to year to identify long-term trends in the population size and high eagle use areas. The survey is an aerial survey conducted from a helicopter or small fixed-wing aircraft in early January. Data collected from the survey will include the number of adult and immature bald eagles observed on each survey route, general weather conditions, and prevalence/absence of ice on open water.

5.2 Productivity Surveys

APG will continue to conduct seasonal nest surveys to monitor the productivity of the installation's resident bald eagles. These surveys will follow APG's standardized protocol, and will include aerial surveys supplemented by ground observations. Given the number of nests and the expanse of land to survey on APG, aerial surveys are a labor and cost efficient method to collect productivity data. Additionally, aerial surveys are necessary, because many nests are inaccessible on foot due to risks from unexploded ordnance. The aerial surveys will be conducted by helicopter or small fixed-wing aircraft in late January, early March, early April, and early May (an additional mid- to late-May survey may be added). Four to five flights per season promote efficiency in the surveys, because the results of each flight are used to guide the next flight. Specifically, the early January flight identifies new or fallen nests; the early March flight identifies early eggs and chicks; the early April flight determines "active" nest status; the early May flight generates initial productivity numbers and chick ages, and the last May flight confirms fledge dates for nests that are inaccessible to ground observations. Data collected from the surveys will include the condition of each nest, presence of adults in the nest or area, and number of eggs and/or chicks in each nest.

5.3 Mortality Monitoring

APG will continue to investigate each eagle injury and mortality in order to determine if injury/mortality is attributable to incidental take or natural causes. The investigations will be conducted in accordance with APG's standardized protocol for field responses and post-mortem examinations. Information collected during the field response will include photographs, global positioning system coordinates, surrounding habitat characteristics, proximity of electrical and other infrastructure, physical description of eagle, and evidence of trauma. Post-mortem examinations, if needed, will be conducted by the U.S. Army Public Health Command at APG. Information collected during the necropsy will include basic external measurements, external body condition, internal body cavity inspection, estimated time of death, and likely cause of death. Eagle carcasses and remains will be frozen and shipped to the National Eagle Repository (Denver, Colorado) in accordance with APG's standardized protocol.

Injured eagles that can be safely captured will be transported by APG personnel to Tri-State Bird Rescue (Newark, Delaware) or to an appropriate wildlife veterinarian.

5.4 Disturbance Monitoring

APG will continue to monitor, as necessary, mission activities that have the potential to disturb eagles, particularly nesting eagles. Monitoring of activities and observations from productivity surveys will be used together to determine if a nest disturbance has occurred. A summary of the monitoring will include type of activity monitored, number of eagles observed, type of eagle activity observed, minimization measures employed by activity to reduce eagle impacts, and any evidence of disturbance. Areas where a nest disturbance occurred will be monitored to document any new nest construction.

5.5 Habitat Conservation

APG will summarize habitat conservation efforts that benefit bald eagles conducted through forest stand improvements and/or the ACUB program. Summarized information will include location of project site with map, total acreage, description of site, description of eagle habitat and usage, type of conservation activities, and dates of project work.

5.6 Nest Removal Monitoring

For one year following the permitted removal of a nest, APG will monitor the area surrounding the affected nest tree for signs of nest re-building by eagles.

5.7 Reporting

The results of the monitoring and habitat conservation efforts will be summarized and provided by APG to the USFWS's Chesapeake Bay Field Office (Annapolis, Maryland) and Migratory Bird Management Office (Hadley, Massachusetts) according to the following schedules:

- Annual population survey results will be reported by January 31
- Annual productivity survey results will be reported by August 31

- Eagle injury/mortality will be reported within one business day of incident
- Annual summary of eagle injuries/mortalities (USFWS Form 3-202-15) will be reported by February 28
- Annual summary of eagle nest disturbances (USFWS Form 3-202-15) will be reported by February 28
- Annual summary of habitat conservation efforts will be reported by March 31
- Permitted removal of an eagle nest will be summarized within ten days after the removal; annual summary of eagle nest removals (USFWS Form 3-202-16) will be reported by January 31

Prior to renewal of the programmatic permit, the results of the monitoring will be reviewed by APG and the USFWS to determine if adjustments to monitoring, implementation of additional ACPs and/or compensatory mitigation, or reduction in ACPs are warranted.

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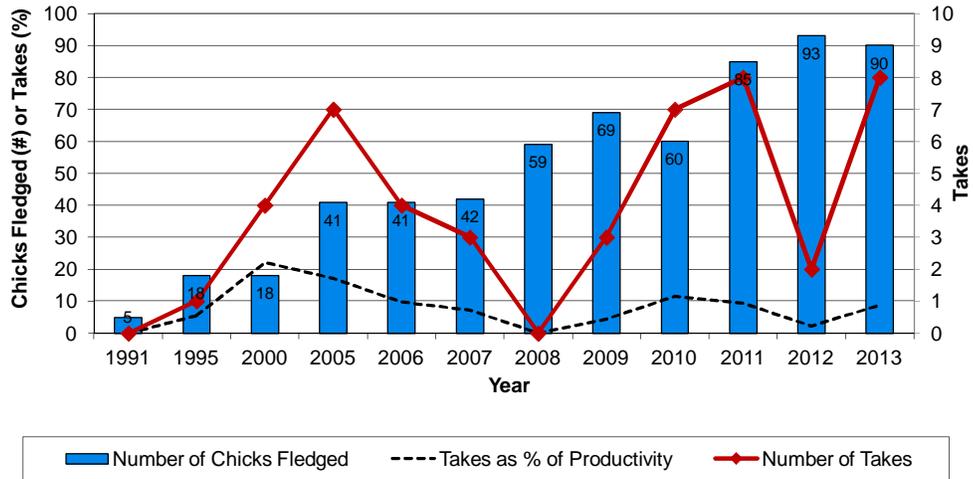
APPENDIX

APG Bald Eagle Cumulative Data

- Cumulative Raw Data
- Take Expressed as Percent of Population
- Regression (Take)
- Regression (Productivity)

Year	Number_Active_Nests	Number_Successful_Nests	Number_Chicks_Fledged	Number_Lethal_Takes	Number_Mortalities_Naturally_Caused
1991	5	4	5	0	0
1992	5	4	8	1	0
1993	8	7	11	1	0
1994	9	7	10	0	0
1995	13	10	18	1	0
1996	16	14	23	2	0
1997	13	5	9	0	1
1998	8	5	6	0	1
1999	19	11	20	2	1
2000	13	10	18	4	0
2001	20	19	32	0	1
2002	18	12	20	6	4
2003	23	23	35	15	2
2004	25	22	32	9	6
2005	35	29	41	7	0
2006	28	28	41	4	2
2007	30	27	42	3	3
2008	38	33	59	0	2
2009	36	34	69	3	2
2010	37	36	60	7	4
2011	49	45	85	8	4
2012	50	47	93	2	1
2013	51	47	90	8	0

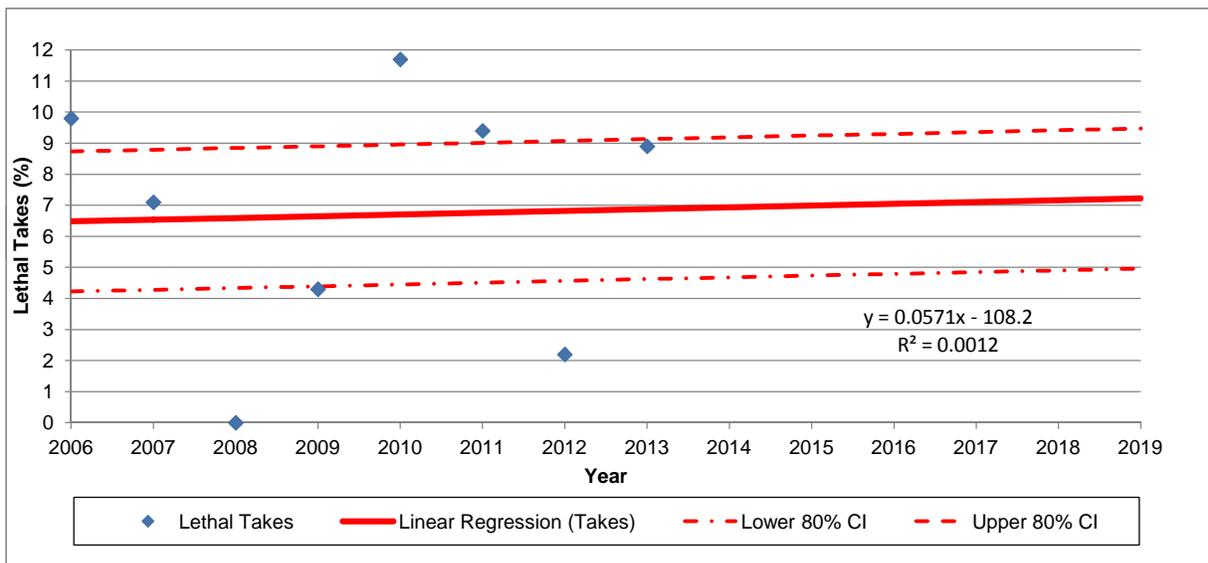
Year	1991	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of Chicks Fledged	5	18	18	41	41	42	59	69	60	85	93	90
Number of Takes	0	1	4	7	4	3	0	3	7	8	2	8
Takes as % of Productivity	0.0	5.6	22.2	17.1	9.8	7.1	0.0	4.3	11.7	9.4	2.2	8.9



Year	Predicted			
	Lethal Takes*	Lethal Takes*	Lower 80% CI	Upper 80%CI
2006	9.8	6.48	4.22	8.73
2007	7.1	6.53	4.28	8.79
2008	0	6.59	4.34	8.84
2009	4.3	6.65	4.39	8.90
2010	11.7	6.70	4.45	8.96
2011	9.4	6.76	4.51	9.01
2012	2.2	6.82	4.56	9.07
2013	8.9	6.88	4.62	9.13
2014		6.93	4.68	9.19
2015		6.99	4.74	9.24
2016		7.05	4.79	9.30
2017		7.10	4.85	9.36
2018		7.16	4.91	9.41
2019		7.22	4.96	9.47

REGRESSION:

slope	0.057142857	-108.1535714	b	t value	1.439756
SE (m)	0.683298074	1373.088373	SE (b)	delta m	0.983782
R2	0.00116425	4.42827764	SE (y predicted)	delta b	1976.912
	0.006993644		6 DF	delta y	2.254128
	0.137142857	117.6578571			
	#N/A	#N/A			
	#N/A	#N/A			
	#N/A	#N/A			
	#N/A	#N/A			
	#N/A	#N/A			

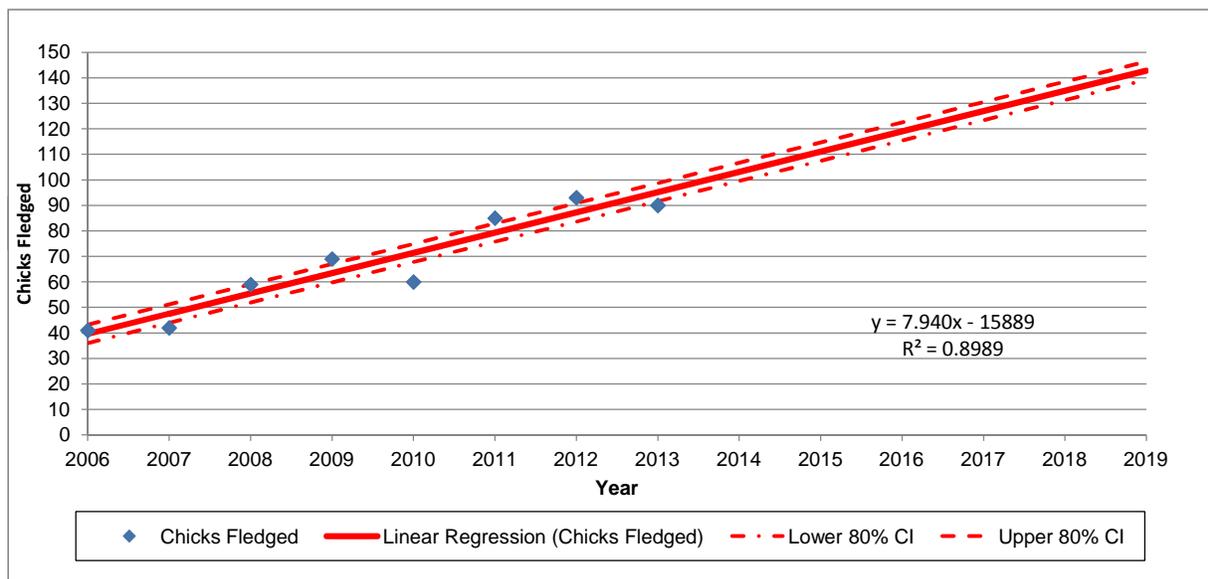


* Lethal takes expressed as percentage of same year's productivity (number of chicks fledged)

Year	Chicks Fledged	Predicted Chicks Fledged	Lower 80% CI	Upper 80% CI
2006	41	39.58	36.00	43.17
2007	42	47.52	43.94	51.11
2008	59	55.46	51.88	59.05
2009	69	63.40	59.82	66.99
2010	60	71.35	67.76	74.93
2011	85	79.29	75.70	82.87
2012	93	87.23	83.64	90.81
2013	90	95.17	91.58	98.75
2014		103.11	99.52	106.69
2015		111.05	107.46	114.63
2016		118.99	115.40	122.57
2017		126.93	123.34	130.51
2018		134.87	131.28	138.45
2019		142.81	139.22	146.40

REGRESSION:

slope	7.94047619	-15889.0119	b	t value	1.439756
SE (m)	1.086946704	2184.220821	SE (b)	delta m	1.564938
R2	0.898934547	7.04421974	SE (y predicted)	delta b	3144.744
	53.36746771	6	DF	delta y	3.585723
	2648.14881	297.7261905			
	#N/A	#N/A			
	#N/A	#N/A			
	#N/A	#N/A			
	#N/A	#N/A			
	#N/A	#N/A			



APPENDIX B

Cooperating Agency Request and Acceptance



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

January 9, 2014

Directorate of Public Works

Ms. Genevieve LaRouche
US Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401

Dear Ms. LaRouche:

The US Army Garrison Aberdeen Proving Ground (APG) is seeking a programmatic permit for incidental take of bald eagles under the Bald and Golden Eagle Protection Act. This programmatic permit will include conservation measures to minimize impacts to bald eagles at APG, to the extent where remaining take is unavoidable. To support the permit, and in accordance with the National Environmental Policy Act, APG is preparing an Environmental Assessment (EA) to study the potential environmental effects of a programmatic bald eagle take permit.

The US Fish and Wildlife Service (USFWS) is an agency with jurisdiction by law and special expertise with eagles and eagle permitting. Therefore, in accordance with 40 Code of Federal Regulations Part 1501.6, APG is requesting that the USFWS participate as a cooperating agency in the development of the EA. APG requests the USFWS's involvement in the NEPA process in the following ways:

1. Assistance in establishing scope and schedule of EA
2. Technical guidance and input on local and regional eagle populations and the likely cumulative effects of the proposed permit on these eagle populations
3. Review of EA and providing of comments
4. Participation, as appropriate, in public review process (response to public comments, tribal consultations)

Discussions of the programmatic permit process and requirements were held on August 15 and November 7, 2013 between APG and the USFWS (Chesapeake Bay Field Office and Region 5 Migratory Bird Division). APG is currently developing an Eagle Conservation Plan in support of the programmatic permit. Further meetings or conference calls between APG and the USFWS will be conducted as needed throughout the NEPA and permit process.

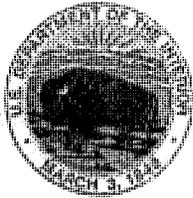
APG requests the USFWS's written acceptance or declination of this cooperating agency request on or before February 10, 2014. We look forward to working with the

USFWS in support of this effort. My point of contact for this action is Ms. Lynda Hartzell (phone 410-436-0465; or e-mail lynda.a.hartzell.civ@mail.mil).

Sincerely,

A handwritten signature in black ink, appearing to read "V. G. Hobbs". The signature is fluid and cursive, with the first name "V." and last name "Hobbs" clearly distinguishable.

Vance G. Hobbs
Chief, Environmental Division



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

February 21, 2014

Vance Hobbs
U.S. Army Installation Management Command
U.S. Army Garrison Aberdeen Proving Ground
4510 Boothby Hill Avenue
Aberdeen Proving Ground, Maryland 21005-5001

RE: Response to the January 09, 2014 request to have the U.S. Fish and Wildlife Service participate as a cooperating agency in the development of an Environmental Assessment in support of the programmatic permit for take under the Bald and Golden Eagle Protection Act.

Dear Mr. Hobbs:

The U. S. Fish and Wildlife Service (Service) has reviewed your request to support and be a cooperating agency in the development of an Environmental Assessment (EA) for a programmatic permit for take under the Bald and Golden Eagle Act. The Service appreciates the opportunity to be a part of your continuing mission of providing environmental stewardship in and around Aberdeen Proving Grounds. We look forward to assisting you with the development of this EA and thank you for your continued efforts to support eagle conservation in the Chesapeake Bay watershed. If you have any questions, please feel free to contact Chris Guy at 410-573-4529.

Sincerely,

Genevieve LaRouche
Supervisor

APPENDIX C

Responses to Comments

APPENDIX D

Tribal Coordination



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

0 9 JUN 2014

Directorate of Public Works

Mr. Clint Haftown
Federal Representative
Cayuga Nation of New York
P.O. Box 803
Seneca Falls, NY 13148

Dear Mr. Haftown:

In accordance with Section 106 of the National Historic Preservation Act, Aberdeen Proving Ground (APG) is contacting the federally recognized Native American Tribes associated with the Upper Chesapeake Region regarding the proposed revision of the bald eagle take permit at APG. In coordination with the US Fish and Wildlife Service, APG proposes to replace its standard permit with a programmatic permit for eagle take.

The APG supports one of the largest concentrations of bald eagles in the eastern United States, with hundreds of eagles utilizing APG land and waters throughout the year. The bald eagle population on the installation and the surrounding Chesapeake Bay region has rebounded significantly, nearly doubling over the past four decades due to its protection under the Endangered Species Act (ESA). The tremendous recovery of the eagle population at APG has occurred simultaneously with an on-going active military mission.

The APG has implemented a number of measures and committed significant resources to protect and monitor the eagle population. These efforts include burying overhead power lines, installing protective equipment on electrical infrastructure, restricting activities around nests and roosts, and conducting long-term biological studies. The APG operates in accordance with its ESA, Section 7, Biological Opinion for bald eagles that was issued by the US Fish and Wildlife Service (USFWS) in 2006. The Biological Opinion grants APG a take allowance for eagle mortalities and nest disturbances that result incidentally from mission activities. After the bald eagle was federally delisted from the ESA in 2007, APG was issued a 50 Code of Federal Regulations (CFR), Part 22.28, standard permit under the Bald and Golden Eagle Protection Act (BGEPA), which authorized the incidental take allowance granted under the ESA Biological Opinion.

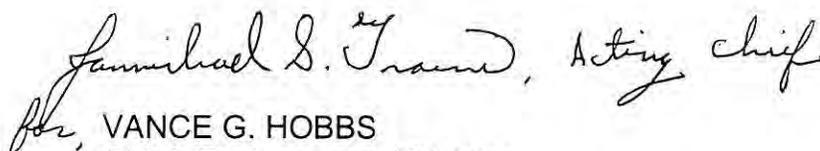
Due to the on-going military mission and the increasing population of bald eagles at APG, it is unlikely that the incidence of eagle take at APG can be entirely eliminated despite the implementation of protective measures. Therefore, a programmatic permit for eagle take is appropriate for APG. The programmatic permit will provide a comprehensive approach to address eagle take at APG and will incorporate adaptive management strategies to protect the bald eagles and sustain the Army's mission. Specific conservation measures will be incorporated into the programmatic permit to reduce eagle disturbances and mortalities to a level where remaining take is unavoidable. The programmatic permit will replace the 50 CFR Part 22.28 permit, and supersede the incidental take allowance, terms, and conditions of the 2006 Biological Opinion. The programmatic permit will be valid for five years, with an option to renew every five years.

This revision to the bald eagle take permit is necessary to account for the growth of APG's eagle population. It reflects the reality that the eagles are thriving at APG, and that with a higher population come more frequent mortalities. The APG remains committed to stewardship of the land it represents and to the protection of the natural resources that enrich that land.

Recognizing that the bald eagle is sacred to many Native peoples, we respectfully invite comments and suggestions from all federally recognized tribes with ties to our region. The APG is also drafting an Environmental Assessment (EA), which will be made available for a 30 day public comment period in the near future. If you have any questions, comments, or concerns associated with this project, or are interested in seeing the EA when it becomes available, please contact our Cultural Resources Manager, Mr. Mark Gallihue, by phone at (410) 306-2282, by e-mail at mark.t.gallihue.civ@mail.mil, or by mail at the following address: U.S. Army Garrison, Aberdeen Proving Ground, Directorate of Public Works, Environmental Division, IMAP-PWE (Mr. Mark Gallihue), Building 4304, 3rd Floor, 4510 Boothby Hill Avenue, Aberdeen Proving Ground, MD 21005-5001

We thank you for your attention to this matter and look forward to your continuing partnership with us.

Sincerely,


for, VANCE G. HOBBS
Chief, Environmental Division



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

0 9 JUN 2014

Directorate of Public Works

Ms. Tamara Francis
Cultural Preservation Director
Delaware Nation
P.O. Box 825
Anandarko, OK 73005

Dear Ms. Francis:

In accordance with Section 106 of the National Historic Preservation Act, Aberdeen Proving Ground (APG) is contacting the federally recognized Native American Tribes associated with the Upper Chesapeake Region regarding the proposed revision of the bald eagle take permit at APG. In coordination with the US Fish and Wildlife Service, APG proposes to replace its standard permit with a programmatic permit for eagle take.

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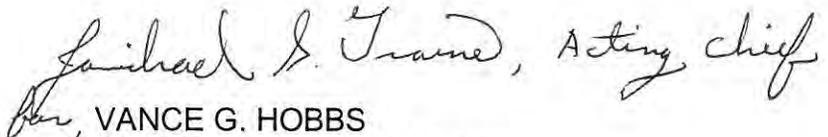
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We thank you for your attention to this matter and look forward to your continuing partnership with us.

Sincerely,


VANCE G. HOBBS
Chief, Environmental Division



REPLY TO
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US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

0 9 JUN 2014

Directorate of Public Works

Mr. Raymond Halbritter
Nation Representative
The Oneida Indian Nation
2037 Dream Catcher Plaza
Oneida, NY 13421

Dear Mr. Halbritter:

In accordance with Section 106 of the National Historic Preservation Act, Aberdeen Proving Ground (APG) is contacting the federally recognized Native American Tribes associated with the Upper Chesapeake Region regarding the proposed revision of the bald eagle take permit at APG. In coordination with the US Fish and Wildlife Service, APG proposes to replace its standard permit with a programmatic permit for eagle take.

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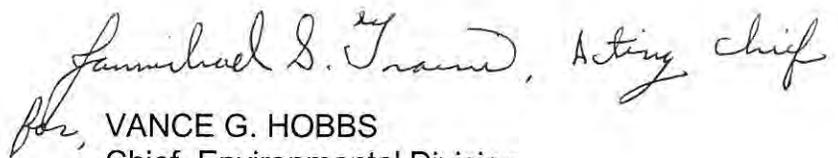
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Recognizing that the bald eagle is sacred to many Native peoples, we respectfully invite comments and suggestions from all federally recognized tribes with ties to our region. The APG is also drafting an Environmental Assessment (EA), which will be made available for a 30 day public comment period in the near future. If you have any questions, comments, or concerns associated with this project, or are interested in seeing the EA when it becomes available, please contact our Cultural Resources Manager, Mr. Mark Gallihue, by phone at (410) 306-2282, by e-mail at mark.t.gallihue.civ@mail.mil, or by mail at the following address: U.S. Army Garrison, Aberdeen Proving Ground, Directorate of Public Works, Environmental Division, IMAP-PWE (Mr. Mark Gallihue), Building 4304, 3rd Floor, 4510 Boothby Hill Avenue, Aberdeen Proving Ground, MD 21005-5001

We thank you for your attention to this matter and look forward to your continuing partnership with us.

Sincerely,


for, VANCE G. HOBBS
Chief, Environmental Division



REPLY TO
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US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

0 9 JUN 2014

Directorate of Public Works

Mr. Ed Delgado
Tribal Chairman
Oneida Tribe of Indians of Wisconsin
P.O. Box 365
Oneida, WI 13421

Dear Mr. Delgado:

In accordance with Section 106 of the National Historic Preservation Act, Aberdeen Proving Ground (APG) is contacting the federally recognized Native American Tribes associated with the Upper Chesapeake Region regarding the proposed revision of the bald eagle take permit at APG. In coordination with the US Fish and Wildlife Service, APG proposes to replace its standard permit with a programmatic permit for eagle take.

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Sincerely,


for, VANCE G. HOBBS
Chief, Environmental Division



REPLY TO
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US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

0 9 JUN 2014

Directorate of Public Works

Onondaga Nation
Onondaga Nation Communications
3951 Route 11
Nedrow, NY 13120

Dear Sir/Ms.:

In accordance with Section 106 of the National Historic Preservation Act, Aberdeen Proving Ground (APG) is contacting the federally recognized Native American Tribes associated with the Upper Chesapeake Region regarding the proposed revision of the bald eagle take permit at APG. In coordination with the US Fish and Wildlife Service, APG proposes to replace its standard permit with a programmatic permit for eagle take.

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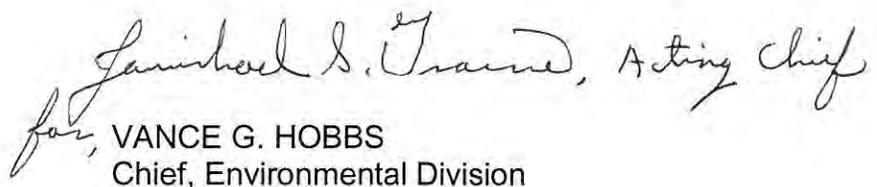
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We thank you for your attention to this matter and look forward to your continuing partnership with us.

Sincerely,


for, VANCE G. HOBBS
Chief, Environmental Division



REPLY TO
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US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

0 9 JUN 2014

Directorate of Public Works

Mr. Arnold Printup
Saint Regis Mohawk Tribe
412 State Route 37
Akwesasne, NY 13655

Dear Mr. Henry:

In accordance with Section 106 of the National Historic Preservation Act, Aberdeen Proving Ground (APG) is contacting the federally recognized Native American Tribes associated with the Upper Chesapeake Region regarding the proposed revision of the bald eagle take permit at APG. In coordination with the US Fish and Wildlife Service, APG proposes to replace its standard permit with a programmatic permit for eagle take.

The APG supports one of the largest concentrations of bald eagles in the eastern United States, with hundreds of eagles utilizing APG land and waters throughout the year. The bald eagle population on the installation and the surrounding Chesapeake Bay region has rebounded significantly, nearly doubling over the past four decades due to its protection under the Endangered Species Act (ESA). The tremendous recovery of the eagle population at APG has occurred simultaneously with an on-going active military mission.

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Recognizing that the bald eagle is sacred to many Native peoples, we respectfully invite comments and suggestions from all federally recognized tribes with ties to our region. The APG is also drafting an Environmental Assessment (EA), which will be made available for a 30 day public comment period in the near future. If you have any questions, comments, or concerns associated with this project, or are interested in seeing the EA when it becomes available, please contact our Cultural Resources Manager, Mr. Mark Gallihue, by phone at (410) 306-2282, by e-mail at mark.t.gallihue.civ@mail.mil, or by mail at the following address: U.S. Army Garrison, Aberdeen Proving Ground, Directorate of Public Works, Environmental Division, IMAP-PWE (Mr. Mark Gallihue), Building 4304, 3rd Floor, 4510 Boothby Hill Avenue, Aberdeen Proving Ground, MD 21005-5001

We thank you for your attention to this matter and look forward to your continuing partnership with us.

Sincerely,

for, Jonathan S. Trause, Acting Chief
VANCE G. HOBBS
Chief, Environmental Division



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY GARRISON ABERDEEN PROVING GROUND
4510 BOOTHBY HILL AVENUE
ABERDEEN PROVING GROUND MARYLAND 21005-5001

09 JUN 2014

Directorate of Public Works

Seneca Nation of Indians
Attn: Clerks Office
12837 Rte. 438
Irving, NY 14081

Dear Sir/Ms.:

In accordance with Section 106 of the National Historic Preservation Act, Aberdeen Proving Ground (APG) is contacting the federally recognized Native American Tribes associated with the Upper Chesapeake Region regarding the proposed revision of the bald eagle take permit at APG. In coordination with the US Fish and Wildlife Service, APG proposes to replace its standard permit with a programmatic permit for eagle take.

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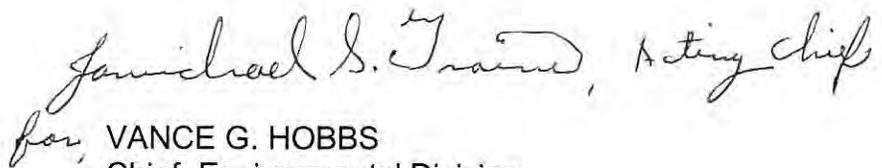
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for, VANCE G. HOBBS
Chief, Environmental Division



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0 9 JUN 2014

Directorate of Public Works

Mr. Leroy Howard
Chief,
Seneca-Cayuga Tribe of Oklahoma
23701 S. 655 Road
Grove, OK 74344

Dear Mr. Howard:

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for, VANCE G. HOBBS
Chief, Environmental Division



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0 9 JUN 2014

Directorate of Public Works

Mr. Roger Hill
Chief
Tonawanda Seneca Nation
7027 Meadville Rd.
Basom, NY 14013

Dear Mr. Hill:

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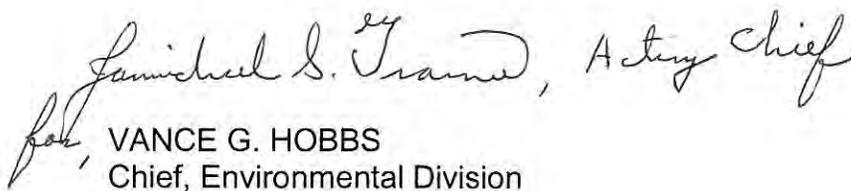
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0 9 JUN 2014

Directorate of Public Works

Mr. Leo R. Henry
Chief
Tuscarora Nation of New York
2006 Mt. Hope Rd.
Lewiston, NY 14092

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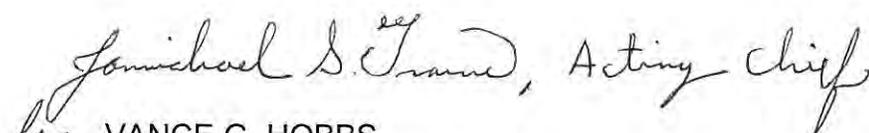
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